



## Men's Goldjewelry Online

by

Ms. Narisara Muadtia

A Final Report of the Three-Credit Course  
IC 6997 E-Commerce Practicum

Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Master of Science  
in Internet and E-Commerce Technology  
Assumption University

July 2003

164599  
St. Gabriel's Library, Au

**Men's Goldjewelry Online**

by  
Ms. Narisara Muadtia

A Final Report of the Three-Credit Course  
IC 6997 E-Commerce Practicum

Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Master of Science  
in Internet and E-Commerce Technology  
Assumption University


July 2003


Project Title	Men's Goldjewelry Online
Name	Ms. Narisara Muadtia
Project Advisor	Rear Admiral Prasart Sribhadung
Academic Year	July 2003

---


The Graduate School of Assumption University has approved this final report of the three-credit course, IC 6997 E-Commerce Practicum, submitted in partial fulfillment of the requirements for the degree of Master of Science in Internet and E-Commerce Technology.

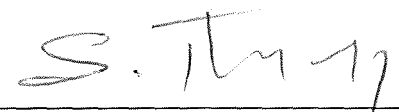
Approval Committee:



  
(Rear Admiral Prasart Sribhadung)  
Dean and Advisor

  
(Prof. Dr. Srisakdi Charmonman)  
Chairman

  
(Dr. Ketchayong Skowratananont)  
Member

  
(Assoc. Prof. Somchai Thayarnyong)  
MUA Representative

July 2003



## ABSTRACT

This project presents the way to use electronic commerce technology as tool to conduct business with gold and jewelry for man web site. It was generated to deal this task by providing one stop woven label purchasing service to customer. The project identified the necessary instruments for building web site and covered an analysis of marketing plan and the system before and after electronic commerce had been used.

The marketing management part includes SWOT analysis, marketing mix strategies, situation and cost analysis that it compares the difference and improvement of online business with the physical business in order to know the benefit, cost and the way to promote web site.

The web site implementation defines the process of web site development that describes software, hardware, security and programs requirement for building the web site named “[www23.brinkster.com/goldjewelry](http://www23.brinkster.com/goldjewelry)” which came out with style of gold and jewelry that enable customer to get information of my website’s profile, product and service. Moreover the label designing, quotation, product sample request and payment can be instantly done in one visit in order to improve customer service, reduce transportation cost and save procurement time.

## ACKNOWLEDGEMENTS

This project has been contributing from many favorable people. I would like to acknowledge their efforts and thank them for their contributions.

I would like to thank Rear Admiral Prasart Sribhadung, my project advisor, for his valuable suggestions and advice given in to preparation of this project.

I extend my sincere thanks to my classmate and my family, for their timely assistance and information provided to me while carrying out the data collection required for this project.



## TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
ABSTRACT	i
ACKNOWLEDGEMENTS	ii
LIST OF FIGURES	vi
LIST OF TABLES	viii
I. INTRODUCTION	1
1.1 Background of the Project	1
1.2 Objectives of the Project	2
1.3 Scope of the Project	3
1.4 Deliverable	3
II. LITERATURE REVIEW	4
2.1 Web Site and the Internet	4
2.2 E-commerce Transaction on the Web	5
2.3 Online Services and E-commerce	5
2.4 Why Use Electronic Commerce?	6
2.5 Benefit of the Internet	7
2.6 Jewelry Buying Guide	7
2.7 Metal Used In Marking Jewelry	17
2.8 Types of Jewelry and Their Functions	27
2.9 Jewelry of Month (Meaning)	38
III THE EXISTING SYSTEM	39
3.1 Defining of Men's Gold Jewelry	39
3.2 Reasons of Opening an Online Store	40

<u>Chapter</u>	<u>Page</u>
3.3 How Can Web Site Increase Business from Existing Clients?	41
3.4 Security and Trust	43
IV. PROJECT IMPLEMENTATION	45
4.1 Analysis Consumer Behavior in Cyber Market	45
4.2 SWOT Analysis	52
4.3 Strategic Planning	56
4.4 Overview of Project Implementation	57
4.5 Competitor Analysis	58
4.6 Risk Associate	59
4.7 System Security	59
V. FINANCIAL ANALYSIS	61
5.1 Break-even Analysis	61
5.2 Return on Investment	64
5.3 Net Present Value	66
VI. WEB DEVELOPMENT AND DESIGN	69
6.1 Hardware and Software Requirement	69
6.2 Setting Up Database Driven Websites	70
6.3 Building a Product Catalog	72
6.4 Managing Users with Sessions	73
6.5 Catalogs and Shopping Carts	75
VII. MEN'S GOLDJEWELRY WEBSITE	80
7.1 Site Structure	80
7.2 Homepage	81

<u>Chapter</u>	<u>Page</u>
7.3 About Us	82
7.4 Shop Online	83
7.5 Shopping Cart	87
7.6 Check Out	88
7.7 Confirm Order	89
7.8 Continue Shopping	90
7.9 Contact Us	91
VIII. CONCLUSIONS AND RECOMMENDATIONS	92
8.1 Conclusions	92
8.2 Recommendations	92
APPENDIX A SITE MAP	94
APPENDIX B DATABASE DESIGN	97
BIBLIOGRAPHY	102





## LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
2.1 Clarity Values	16
2.2 Color Values	16
4.1 Demographics of Online Buyers	52
5.1 Return on Investment	65
6.1 Web Server and Database Server Working	71
6.2 Catalog Working	72
6.3 Session Working	74
6.4 Shopping Carts Working	75
6.5 Product Catalogs	77
6.6 Source: IDC “A Diamond in the Rough”	79
7.1 Site Structure	80
7.2 Homepage	81
7.3 About Us	82
7.4 Online Catalog	83
7.5 Bracelet Catalog	84
7.6 Cross Catalog	85
7.7 Chain Catalog	86
7.8 Shopping Cart	87
7.9 Check Out	88
7.10 Confirm Order	89
7.11 Continue Shopping	90
7.12 Contact Us	91

<u>Figure</u>	<u>Page</u>
A.1 Site Map	95
A.2 Site of Middle	96
B.1 Table Product	98
B.2 Table Cart	99
B.3 Table Order	100
B.4 Table User	101



## LIST OF TABLES

<u>Table</u>	<u>Page</u>
2.1 Birthstone Information	38
5.1 Break-Even Unit	63
5.2 Break-Even Sales	63
5.3 Break-Even Analysis	64
5.4 Expense and Revenue Summary	65
6.1 Hardware Requirements	69
6.2 Software Requirements	70



## I. INTRODUCTION

### 1.1 Background of the Project

We have all heard about the Internet and how it is going to change our lives, and much of this is true. The good news is getting involved in it and making use of it for business purposes (e-commerce) is a lot easier than it might seem. Now electronic commerce is in attention of every type of business. A basic attraction of it is that on-line shopping allows customers to make purchases while they view images of products and read descriptions of features and benefits. If they like what they see, they can produce their purchase from wherever they are by ordering from transaction, telephone, and other contact information which further encourage sales customers worldwide.

Once I have a basic understanding of what the Internet is all about, and I have spent a bit of time getting familiar with browsing and e-mail (no better way to learn!), I will be far more aware of how the Internet and e-commerce can help my business. To provide the high quality products, services, and solutions for factory automation market with the highest level of customer satisfaction and success. The researcher considers that e-commerce can be a new and useful channel to the jewelry to present to customer who is satisfied with men's gold jewelry, since E-Commerce can be reached globally. The result from this research study shall provide the strategic in doing online jewelry business. It enables the marketer to know and understand the need, wants and the behaviors from this group of consumers.

Therefore I proudly present Men's gold jewelry for showing many kinds of products for Man.

Men' Gold Jewelry Online is website for man's attention to details in what gets him noticed. A man will look sharp, smart and in control while wearing his collection

of men's gold jewelry. Men's gold and men's jewelry has a superb line of high-quality products at great values with incredible appeal. And last impression with the finest men's gold jewelry at my online shop.

## **1.2 Objectives of the Project**

- (1) To make a new marketplace for second hand of jewelry.
- (2) To create new channels of communication and interaction for marketing, sales, and customer service to expand the marketplace nationally.
- (3) To be able to provide customer with online real time help regarding products information.
- (4) To provide reasonable price on high quality and unique products.
- (5) To create a new marketing & sales channel for conducting business and reaching more target customers worldwide.
- (6) To generate additional income from selling product online.
- (7) To enable consumers to visit web site 24 hours a day.
- (8) To apply the knowledge learned from the Internet and E-commerce courses into the real practices of doing business on the Internet.
- (9) To make a new marketplace for man and those interested about gold and jewelry for use with man.
- (10) To create new channels of communication and interaction for marketing, sales and Customer service to expand the marketplace nationally.
- (11) To be able to provide customer with online real time help regarding products information.
- (12) To provide reasonable price on high quality and unique products.
- (13) To create a new marketing & sales channel for conducting business.
- (14) To generate additional income from selling product online



### 1.3 Scope of the Project

- (1) To apply the knowledge learnt in the Master of Science in Internet and E-Commerce Technology into this project.
- (2) To conduct a complete advantage, and SWOT analysis. Then design strategies to meet competition and show how implementation will be done.
- (3) To use web site as a tool to support the company's traditional business.
- (4) To implement strategic planning for electronic commerce by studying consumer behavior model and consumer purchasing decision making process, delivering customer service in cyberspace, advertisement strategies and so on.
- (5) To provide the marketing plan by setting target market, market position and promotional mix.
- (6) To update web site products frequently.
- (7) To manage the web site effectively allowing users to find information easily.

### 1.4 Deliverable

- (1) The report covers the scope, analysis, and project assessment as aforementioned.
- (2) The proposed e-commerce Web site consisting of the company background, products information, pricing, ordering system, relevant useful information database management and soon.
- (3) To create the strategies in doing online jewelry business on the Internet.
- (4) To set up a prototype web application model for an online jewelry business.

## **II. LITERATURE REVIEW**

### **2.1 Web Sites and the Internet**

A web site is a number of web pages which promote your business on the Internet. A web site can be business related or personal and hold any amount and any kind of information from text through to audio and advanced video clips, or architectural plans and the like. You only need one web site and this is hosted on an ISP (Internet Service Provider). People from all over the world access your web site off the "server" which hosts your web site at the ISP's premises. Lots of people can access it at the same time. It is important before deciding to get a web site for your business that you understand why you are getting it; what it is going to do for the company, and how. As well as giving you access to a global market for your product (because once the web site is "live" - that is, on the Internet, it can be accessed by everyone in the world who has an Internet connection). If you don't have a web site it is important to start small. It's advisable to "put a foot in the water" first before really launching into the online environment. When designing a business web site there are two sets of clients to consider: The customers who are using the site as a decision making tool to help them make a purchase (the public face of the company). The people who supply the business, and the people to whom the business supplies goods and services (the supply chain which is not visible to the outside world). For the customer a web site could include any one, or all of these things:

### **2.2 E-commerce Transactions on the Web**

As well as the customer services outlined above, a website can be e-commerce enabled to do ordering and payment online, with facilities that can range from simple through to very complex:

Just phone and fax contact numbers:

- (1) A simple order form with an email contact where a client emails you their order or a request to contact them and the transaction is done. An order form which requests clients to give their credit or debit card details which are processed via email (note that this is not as preferable without having security to guarantee the transaction).
- (2) Secure transaction sites where "real time" credit or debit card transactions can be undertaken in safety. (There are a range of services available to enable secure transactions through the Internet - there are websites which make this easy for you). For consumers buying over the phone or the Internet, there are additional safeguards. If a consumer can prove that they didn't order the goods which they have been charged for, they can "repudiate" the transaction immediately and without question through their bank.

### **2.3 Online Services and E-commerce**

The online world opens a huge range of new ways of doing business - entrepreneurial people are looking at the Internet and the online environment and asking themselves: No longer do we have to worry about shop fronts and people being able to find us in a physical sense...

The Internet offers business the opportunity to streamline and cut costs, and new ways of dealing with clients and suppliers.

Smart Card and call centers are other online technologies which offer advantages to business. The financial benefits of e-commerce include:

- (1) Lower transaction costs
- (2) Easier, low cost communications

- (3) Low cost, high impact marketing
- (3) Savings in physical resources and costs
- (4) Real time payment
- (5) Global markets
- (6) Online collaboration
- (7) Competitive intelligence
- (8) Increased productivity

Both in business and at home, the way we source information and pay for goods is changing.

#### **2.4 Why Use Electronic Commerce?**

The essential relationships for a business are usually within the supply chain, involving suppliers, manufacturers/vendors and customers in a complex partnership. Electronic Commerce can assist all partnerships to be more efficient and more profitable. Small to medium businesses also depend on a range of services, products and professionals to enable them to go about their business: banks, accountants, lawyers, insurers, telecommunications suppliers and utilities.

The fundamental benefit of Electronic Commerce is enhanced communication, which allows for simplicity, flexibility and new ways of doing business.

**Small Investment** - A relatively small investment in a computer, modem and Internet access can enable a small business to begin improving the way it does business. Suddenly, traditional geographic and time limitations are no longer present. In addition to sending and receiving e-mail and gathering information from the World Wide Web, the computer can also be used to track customer details and purchases, automate invoicing, and complete many otherwise time-consuming tasks. If your business

already operates a computer, you can connect it to the Internet for as little as a 300 outlay and 20 per month.

#### Better Customer Service

With the most basic use of e-mail a small business has a rapid and reliable way to communicate with suppliers or to receive and respond to customer queries. Product information can be e-mailed, as can quotes. Manufacturers can quickly and easily put potential customers in touch with their retail outlets, or accept orders via e-mail.

#### Open for Business

Businesses are no longer tied to business hours or to one location with Electronic Commerce. Operating 24 hours and seven days is possible without the traditional overheads.

### **2.5 Benefit and Internet**

The online world opens a huge range of new ways of doing business - entrepreneurial people are looking at the Internet and the online environment and asking themselves: "how can I add value to my current business," or even more "how can I create a brand new business opportunity." And they're doing it. No longer do we have to worry about shop fronts and people being able to find us in a physical sense...

The Internet offers business the opportunity to streamline and cut costs, and new ways of dealing with clients and suppliers.

Smart Card and call centers are other online technologies which offer advantages to business.

### **2.6 Jewelry Buying Guide**

What are the educational or training requirements to sell jewelry?

Surprise. There are no special educational or training requirements to sell jewelry. Several jewelers might be vendors who happen to be in this business. Therefore, it is



important that the consumers should educate themselves before shopping for jewelry.

The jewelry feels light or heavy?

If the item is light, it is probably hollow and therefore more susceptible to damage.

Why is there a difference in price in similar pieces of jewelry?

Higher carat gold contains more gold and therefore is expensive than low carat gold. Gemstones with superior cut, clarity, color and carat weight are more expensive. Natural gemstones are rarer than laboratory created stones and therefore are more expensive. High quality finish and unique design make the jewelry more valuable and expensive. Price may vary from store to store depending on the business model, middlemen, competition, markup etc.

Are jewelers trained as gemologists?

Several jewelers are not trained as gemologists. They may be simply merchants who are selling jewelry.

Is the retail purchase of expensive jewelry a good investment.

This is not true in most consumer jewelry cases.

What should I consider when buying jewelry?

Some of the following considerations may be applied to buying jewelry:- Buy what you can comfortably afford without any future problems. Do not buy to impress others with salesperson. Search for information on the Usenet groups such as jewelry, alt. wedding etc. Compare variations in the quality of gold and gemstones, price and service. Make sure the jeweler writes on the sales receipt any information you relied on when making your purchase. Ask for a copy of the store's refund and return policy before you buy.

Look for a name, address to write or a telephone number to call if you have a problem. Check the business's record with the Better Business Bureau.

## Gold Buyer's Guide

### What Is Gold?

The word gold, used by itself, means all gold or 24 karat (24K) gold. Gold has been a monetary standard throughout the history of mankind. It is a soft but heavy metal.

### What Is Solid Gold?

Solid gold refers to an item made of any karat gold, if the inside of the item is not hollow.

### What Are the Gold Alloys?

Pure (24K) gold is soft and unworkable. To increase its durability and hardness, it is mixed with other metals which are referred to as the gold alloys.

### What Is Yellow Gold?

Yellow gold refers to gold that has been alloyed with a mix of 50% copper and 50% silver.

### What Is White Gold?

Pale, almost silver-colored gold caused by nickel, zinc alloys.

What is pink or rose gold? Gold with a slightly reddish hue, caused by copper.

### What Is Green Gold?

Gold with slight greenish hue that has been alloyed with a higher percentage of silver than copper. What is gold plate?

Gold plate refers to items that have a layer of gold placed to a base metal. Gold plating wears away with time exposing the metal underneath. What is vermeil?

A gold plated product consisting of a sterling silver base coated or plated with gold.

### What Is a Karat?

Karat tells you what proportion of gold is mixed with the other metals. For example,

18 karat (18K) gold contains 18 parts of gold and 6 parts of metals. Therefore 14 karat (14K) gold is less valuable than 18 karat gold since it contains 14 parts of gold and 10 parts of other metals. The abbreviation of karat is K. or Kt. It is easy to confuse this term with carat described below in the gemstone guide.

### What Is the Best Gold for Jewelry?

The design parameters of a jewelry piece, personal choice, cultural preference and the economics are some of the factors that may have an influence on deciding the karat of gold. Each has its pros and cons.

In Asian countries, much jewelry is made of 24K or 22K. The 22K maintains most of the bright rich color of 24K, with enough added hardness to make it durable.

18K is used around the world, and generally is considered to be sufficiently hard for use in making most jewelry.

The commercial mass produced 14K is harder but the gold color is significantly less satisfyingly rich.

How do I determine the karat of a gold item? It is difficult to determine the karat of a gold item by looking at it. An effective test is the streak method.

### Gemstone Buyer's Guide

#### What Is a Gemstone?

Any naturally occurring substance in a raw, uncut state that is capable of being a gem. They are also known as precious stones. What are natural gemstones?

Gemstones mined in nature are known as natural gemstones. They may take several millennia to grow. What are synthetic or laboratory grown stones?

Synthetic stones are made in the laboratory using molten chemicals to solidify and form the stone. They are also referred to as laboratory grown. They do not have the rarity and the history of natural gemstones. These stones generally lack imperfections.

What Are Imitation Stones?

Imitation stones look like natural gemstones in appearance only. They may be glass, plastic or less costly stones. What is a carat?

Gemstone weight is measured in carat. One carat equals one-fifth (1/5th) of a gram. Carats are divided into 100 units, called points. The abbreviation for carat is Ct. and for these are imitation stones. What are inclusions?

Materials that are locked inside a mineral as it is forming. They make each gemstone unique. They are fingerprints of the gemstone's natural origin. What is a cut? Cut refers to the shape of the gemstone. It also refers to the size, angle, uniformity and polish of the facets. The cut has an important influence on the brilliance and fire of a gemstone.

What Is the Importance of Cut?

The combination of all the reflections from the surface and the inside of the gemstone - it gives a polished gemstone its brilliance and brightness. The cut has a significant influence on the value of a gemstone. What is a fancy cut?

Fancy cut gemstone is cut in unusual ways. Tell me about treatments?

Gemstone treatments or enhancements refer to the way some gems are altered or treated to improve their appearance or durability. Name a few gem treatments? Heating, irradiation, dyeing, bleaching, fracture filling and laser-drilling. How do I find out if a gemstone is treated or untreated?

The jeweler should inform you if the gemstone is treated. Ask the jeweler to write this information on the sales receipt. Why I should I know about gemstone treatments?

Some treatments are permanent; some many not be permanent. Some treated gemstones require special care. Some treatments significantly affect the cost of the gemstone. Treated gemstones are generally less expensive than untreated.

### Diamond Buying Guide

#### 4C's of Diamond Quality

Diamonds are graded by four characteristics: cut, carat (weight), clarity, and color. All four of these properties determine how much a diamond is worth.

Cut - What is the proportion of the diamond? Round brilliant diamonds are commonly cut with 58 facets. The better proportioned these facets are on the diamond, the more light will be reflected back to the viewer's eye. This is extremely important. When cut properly, the diamond will sparkle more. Diamond cuts are measured by the table percentage, so always ask for it.

A good table percentage is between 55-60%. Cut also refers to the shape such as:

Round, pear, and oval. If you are having a diamond mounted, write down the measurements of your stone. Measurements never change. Measure the stone after it is mounted and verify that it matches the appraisal and/or certificate.

Carat - How big is the diamond? Larger diamonds often cost more per carat due to their size. There are 100 points to a carat. Hence a 50 point diamond is 1/2 a carat. (There are 5 carats to a gram.) Always get the actual point size of a diamond rather than a fractional weight. Sometimes jewelers will try to sell a .90 diamond as a 1 carat diamond. A .90 diamond should be substantially less expensive.

#### Clarity - How Clear Is the Stone?

Clarity ranges from flawless (perfect) to I (included). Here is a chart: Flawless: perfect inside and out Internally Flawless: may have minor blemishes on the outside VVS1, VVS2: have very small inclusions. VVS1 inclusions can only be seen through



the pavilion. VVS2 inclusions are more visible. VS1, VS2: have very small inclusions. VS1 inclusions are harder to see than VS2. SI1, SI2, SI3: have small inclusions I1, I2, I3: have inclusions visible to the naked eye.

Color: Diamond colors generally range from D - X for white and yellow diamonds. D is the whitest. Around S they become "Fancy" yellow Diamonds. One can also find green, pink, red, blue and brown diamonds - though these are usually irradiated. Be certain to ask: Do you guarantee the color and clarity of your stones? Many states allow dealers to be off by one color and/or one clarity.

Filled for clarity: Diamonds with inclusions are sometimes filled with glass to make them appear clearer. Yehuda Diamonds have undergone this treatment. Filler can be damaged by heat, ultrasonic cleaning, and by re-tipping. The filling does not repair the inclusion, it just makes it less visible. If you look at a filled diamond closely, rotate it under light, you should be able to notice a bluish flash. Yehuda will usually refill your diamond for free if it is ever damaged. Check for guarantees before buying such a diamond. Irradiated for color: Can be affected by heat.

Painted for color: Can be painted to offset a yellow tinge. The paint wears off rather quickly. Ask if the diamond you are considering buying is treated. Getting a notarized statement from your jeweler saying that your diamond is not treated is recommended.

This is like having the jeweler swear under oath that to his/her knowledge that the diamond is not treated. Several states have disclosure acts requiring dealers to tell you about these treatments.

Quality - 4 C's Examination Treatments Care of Diamonds Helpful Books  
Diamond Lore Anniversary Gifts Wedding Links How to Care for your Diamonds

Diamonds are often thought to be unshatterable. Unfortunately, this is not the case. Here are some useful handling and care tips.

Diamonds are brittle: If you hit a diamond hard, they will crack or chip if mishandled. Don't wear your diamond when doing rough work.

Storage: Store diamonds separately. When stored with other jewelry, diamonds may scratch other jewelry (or each other).

Cleaning:

The best method for cleaning is a jeweler's polishing cloth. Most jewelers will clean your diamond ring for free if you are making another purchase in the store.

Cut refers to shape of the diamond. It also refers to the size, angle, uniformity and polish of the facets.

This factor has perhaps the most significant effect on the brilliance and fire of a diamond. Diamonds may be cut shallow to make a larger surface. Diamonds may be cut deep. Deviations from an ideal cut are likely to reduce the efficiency of the light reflecting surfaces; which reduces the brilliance and the fire.

Clarity refers to the presence of the number, type, size of the inclusions in the diamond. Inclusions not visible to the naked eye may significantly increase the price of a diamond.

Color refers to how much off clear the diamond is. The more valuable.

Diamonds may be perfectly clear.

Carat refers to the diamond weight.

Some diamonds may be treated to improve their appearance. The treatments may be referred to as clarity enhancements. Fracture filling and laser bleaching are used for some diamonds.

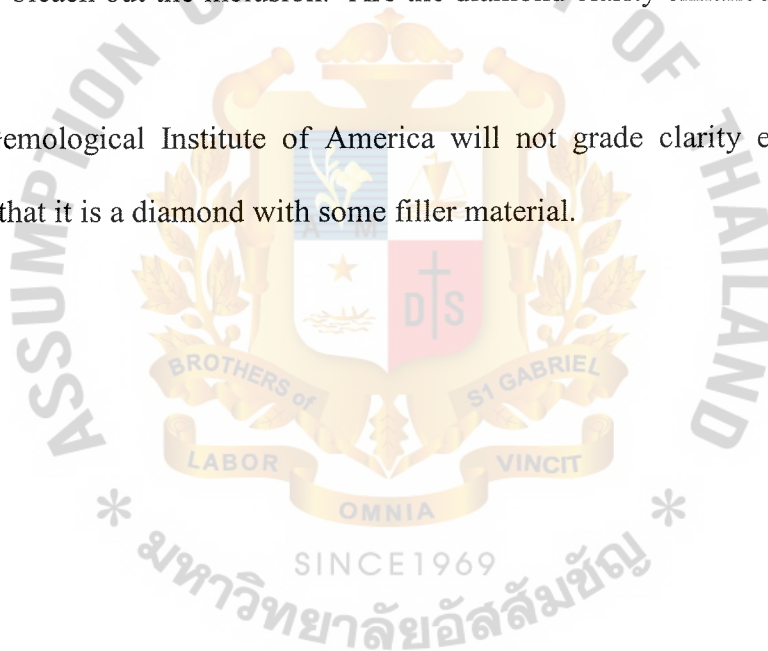
### What Does Fracture Filling Involve?

This treatment is used for concealing cracks by filling them with a glass like substance. This filling may not be permanent. It is not easy to detect fracture filling by looking at the diamond. The jeweler should tell you if the diamond you are considering has been fracture-filled. Ask the jeweler to write on the sales receipt if the diamond is treated or not.

### What does laser drilling involve?

A laser is used to drill very small holes from a facet to an inclusion and chemicals are added to bleach out the inclusion. Are the diamond clarity enhancement techniques recognized.

The Gemological Institute of America will not grade clarity enhanced stones. They verify that it is a diamond with some filler material.



The diamond clarity enhancement techniques recognized.

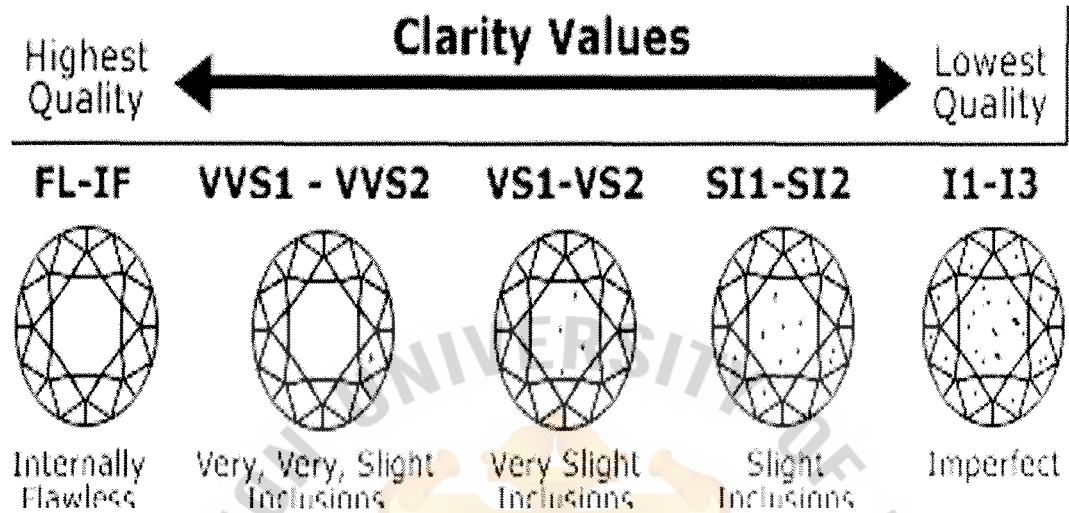


Figure 2.1. Clarity Values.

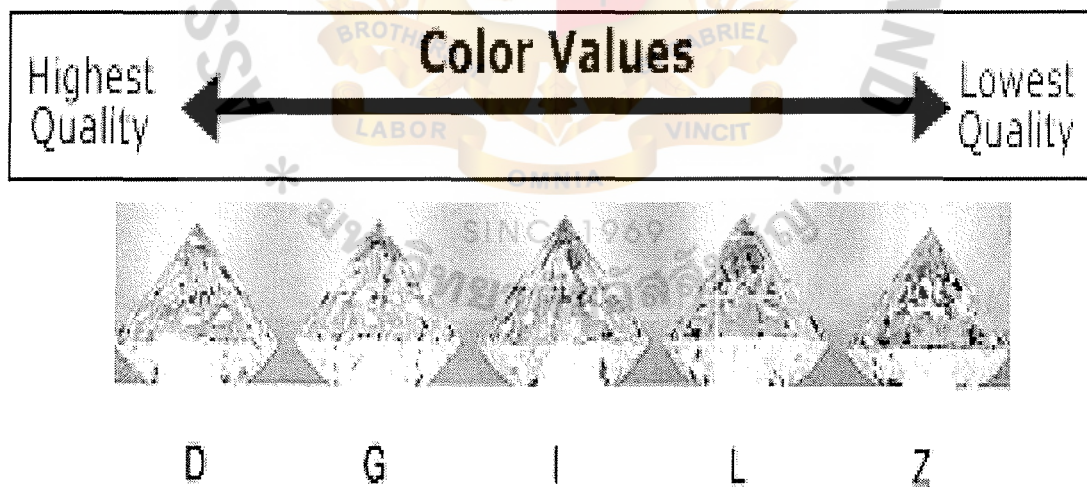


Figure 2.2. Color Values.

## What Is Cubic Zirconium?

Imitation diamonds, such as cubic zirconium, resemble diamonds in appearance but are much less costly. These stones were developed during the 1970's.

## What Is Moissanite?

Laboratory created stones such as moissanite resemble diamonds. Current testing equipment is required to detect moissanite.

How should I look at a diamond? Look at the diamond against a white or light colored background.

## Pearls Buying Guide

### What Are Natural Pearls?

What are natural pearls? Natural pearls are made by oysters and other mollusks without human intervention. These are rare.

Some pearls get their color naturally. A lot of pearls are bleached, dyed or irradiated.

## **2.7 Metals Used in Making Jewelry**

Most people when they think of Jewelry metals they automatically think of the big three.

Gold, Silver and Platinum. As people become more Jewelry educated they start to ask questions about the different types of metals used. They are generally very pleased and curious when they find metals you must first learn the history of metals, what they comprise of and how they are best utilized. All a part of being an informed and educated consumer.

According to the dictionary, metal is any class of elementary substance characterized by opacity, ductility, conductivity, and malleability such as is found in gold, silver, platinum, copper, zinc, tin, nickel, etc. All of these metals, referred to as



elements, are peculiar in that they are basically pure. When an elemental metal is combined with any other metal, the combination is defined as an "alloy". The platinum family includes five other elements, namely, rhodium, palladium, osmium, iridium and ruthenium. These elements are constituents of a natural alloy found only in platinum.

### Metal Categories

Element metals in their pure state except silver, are seldom used for jewelry and other decorative metalcrafts. Blended in various combinations, they form important alloys. Such metals and alloys are classified as ferrous and nonferrous. Ferrous metal refers mainly to iron, the primary alloy being steel, and the nonferrous metals indicate a complete absence of iron and are classified as "Precious Metals": gold, silver, platinum; Base metals---copper, zinc, nickel, aluminum, lead; alloy metals---karat gold, sterling silver, gold solder, silver solder, brass, bronze, pewter, nickel silver, and duraluminum. Each pure metal and alloy has individual characteristics of color, hardness, ductility, malleability, and melting point and requires different heat treatment methods. Alloys are generally more desirable than their individual constituents. They are often either harder, heavier, more dense, or all of these when combined.

Pure gold and fine silver are too soft for some kinds of jewelry and must be alloyed to produce a harder metal so that they will be longer wearing, hold their shape better, and take a higher polish.

The addition of alloying metals to pure gold produces a different weight for each karat (k) alloy. Gold alloyed with copper will result in a lighter alloy and when alloyed with platinum, a heavier alloy. Karat gold alloys vary because of the different percentages of combining metals.

Manufacturers order alloys from refiners to meet particular requirements such as a hard alloy to produce a smooth, hard surface when cast; an extremely ductile alloy that

can be drawn extensively without breaking, or an alloy that will need to be age-hardened after shaping. All of these characteristics are possible with various alloys of the same karat content. Generally, the metal offered by suppliers is the best all-around alloy for use by the craftsman.

#### Alloys:

Alloys consist of two metals in combination, such as sterling silver (silver and copper), are called binary alloys. A combination of three metals---gold, silver and copper--that forms 14-karat gold, is a ternary alloy. A four metal combination is called a quarternary alloy, and a five metal combination is a quinary alloy.

It is not practical for the craftsman to attempt to alloy metals, as one cannot be assured of a completely homogeneous mass, and the price of rolling mills is financially unfeasible for home workshops.

#### Metal Characteristics and Quality.

The metalsmith must be familiar with the basic properties, characteristics, and inherent qualities of the various metals he uses, which consist of malleability, ductility, tensile strength, fusibility, brittleness, and elasticity.

Malleability is the quality that allows the metal to be worked easily by hammering or pressure without crumbling. Gold is the most malleable metal, silver is second, and copper third. Ductility is the quality of a metal such as is inherent in gold, wherein one ounce of pure gold can be drawn into a fine wire fifty miles long. Ductility and malleability are similar qualities, but some malleable metals, such as lead, cannot be drawn into wire by any means. Tensile strength is the degree of tenacity that enables a metal when worked to withstand longitudinal stress without cracking. The tensile strength is measured by the minimum amount of longitudinal stress required to rupture the metal.

Fusibility refers to the capability of a metal to be combined with other metals to produce alloys. All elements and alloys become liquid when heated at different degrees of temperature, and return to a solid stage as they cool, or "freeze". Mercury, the one exception to this, remains a liquid at room temperature, becoming an absolute solid only when it reaches a temperature of minus 40 degrees F. Brittleness, the opposite of ductility, indicates sudden breaking without warning. With some exceptions, very hard metals are usually brittle.

Elasticity is the ability of a metal to return to its original form when the force applied to change it has been removed.

#### How Does a Jeweler Choose a Metal?

The first step after creating a design suitable for a certain metal is to determine the thickness of the metal. Heavier metals, although malleable and ductile, are more difficult to work. In addition, heavy metals used for jewelry will tend to sag, and bracelets, rings, and pendants will be uncomfortable to wear. The thinnest metal that will hold its shape without bending when handled or worn is always preferable. Most jewelry is constructed of 14-24 gauge metals. Only precious metals should be used in objects that will be worn next to the skin, though other metals can be used if a protective precious metal backing is used.

#### Gold

Gold is the King of Metals. Its bright yellow glitter has made it, since the dawn of history, the metal par excellence. The earliest craftsmen used gold to fashion decorative pieces of all kinds. In the Middle Ages most craftsmen were trained as goldsmiths to create jewelry and ornaments of the highest order, some surpassing that done by craftsmen today.

Gold found in its native state is rarely pure 24 k, but it is usually associated with silver and often with mercury. When the silver content is a high percentage of the native gold mass, the metal is called "electrum", a natural alloy. Gold is also found in tellurides and ore containing quartz wherein it is either visible or enclosed in particles of sulfide minerals such as chalcopyrite, pyrrhotite, pyrite, and arsenopyrite.

In some high-production gold mines, the gold is not visible and can be seen only when viewed through a high powered microscope.

Gold has no oxides and is not affected by oxygen in the atmosphere as are other metals. Chloride of gold is formed when the metal is attacked by aqua regia (4 parts hydrochloric acid to 1 part nitric acid).

Gold is malleable to the point that it can be hammered into a leaf or sheet of foil 3/1,000,000 inch thick with an area approximately 6 square feet. The thin sheet is translucent and transmits a greenish light through the leaf. When gold is alloyed, its ductility is diminished, but its malleability remains constant, except when large percentages of copper are added to the alloy.

Nickel used in a white gold alloy has the same characteristics as silver. Zinc is added to the white gold alloy and lightens the color, but amounts in greater percentage than 14 percent of the entire alloyed mass will change the color to red and make the alloy brittle. The reason for using zinc in gold alloys is to absorb the oxygen to prevent silver and copper oxides in the mix. Cheap "gold" jewelry is an alloy of copper and zinc with no trace of gold in the alloy. Any karat gold is called solid gold to distinguish it from gold-filled metals.

#### Skin Discolorization by Gold

Gold darkens the skin because of either skin secretions or perspiration which contains chlorides and often, sulfides that, coming into contact with the copper and



silver molecules in a gold alloy, form a dark-colored salts, either copper sulfate or silver chloride.

The seacoast and semitropical areas produce chlorides. These salts combine with the salts produced through perspiration to form a corrosive element that discolors the skin. The corrosive salts, when rubbed, turn into a smudge. Smog fumes filled with particles of silver dioxide and phosphate gradually attack jewelry and are evident as tarnish that rubs off on the skin. Eighteen-karat gold does not produce a smudge, as easily as 14 kt, and changing to white gold or palladiums will usually eliminate the problem entirely

#### Karat Content of Gold

The karat content and the color desired should be determined before alloying gold with other metals. Red or pink gold contains large percentages of copper and a small amount of silver; green gold is usually 14 kt or 18 kt gold alloyed with additional silver, or with silver that has a small percentage of copper; white gold is primarily 75 percent gold and the balance nickel, or both nickel and zinc. Gold alloyed with silver alone will be less hard and a lighter yellow color.

Copper alone added to gold makes the pure gold harder and more difficult to work; therefore, some percentages of copper and silver are usually combined in the alloy. White gold- formerly made of an alloy consisting of gold, silver, and/or palladium (from the platinum family)- is now also alloyed with nickel, copper, and zinc to produce more ideal melting characteristics. A superior white gold and 10 percent palladium. Palau, containing 80 percent pure gold and 20 percent palladium, is a platinum substitute (not of lesser quality) for chemical laboratory utensils.

Gold quality is determined by karat content or fineness and each karat is 1/24th part. Pure gold is 24 karats, and as it is alloyed with other metals the karat content



decreases so that 18 kt is 18 parts pure gold and 6 parts of alloy metals; 14 kt gold is 14 parts pure gold and 10 parts metals. The calculation for changing the alloy to different karat designation, either increasing or decreasing the pure gold content, is important.

### Gold-Filled Metal

The term "gold-filled" indicates the process wherein two thin gold sheets with a supporting piece of core metal such as nickel (approximately 1 inch thick) is placed between to form a sandwich, and then laminated with a brazing alloy into one inseparable sheet. After the fused ingot is made, it is placed in a rolling mill and rolled out to the required thickness. Gold-filled identification requires that the filling process must have been accomplished mechanically.

Gold filled articles stamped-"10k fine" indicate that the gold content of the sandwich is at least 1/20th of the total metal content by weight. Lesser amounts of thinner sheets of gold may be clad with the core metal but only if so marked.

Thinner gold sheets equal to 1/40th of the total metal weight would be stamped "1/40-14k" depending upon the karat of gold used in the outer sheets.

### Stamping Metals with Karat Content

Gold articles must be stamped according to karat content. Severe federal penalties are imposed for misrepresentation. In addition to the karat content stamp, a hallmark (the craftsman's own insignia) should also be affixed in an obscure place on the inside or underside of the article.

Articles so stamped with karat content indicate that all the metal used is equal to that karat marking. The alloy cannot deviate more than 1/2 karat in the entire piece, which includes findings and solder. Articles of various metal combinations are not stamped according to karat quality.

## Silver

Silver, also called fine (pure) silver, is the queen of metals and like gold and copper, is versatile metal with thousands of different uses. In addition to its use in jewelry and decorative objects, it is an important electroplating metal. The manufacture of photographic film is dependant upon silver, and its use in dentistry is equally important. Other uses of silver include ecclesiastical and domestic plate, buttons buckles, boxes, weapons, horse trappings, etc.

Silver has been held in high esteem through the centuries. Silver hallmarks came into use in 1300 A.D. and Sheffield plate, an innovation of the eighteenth century, gave birth to an important plating industry which still flourishes in the US and in England. Formerly used for coinage, its value has increased as much as its demand for other uses.

Silver is still worked as a native craft in Mexico, Thailand, the Southwestern US and Peru. Silver occurs in the ore as a metal associated with other metals, especially gold. When it occurs as a constituent of large percentage on a natural gold/silver alloy, the metal is called electrum. It is usually a by-product of large mines producing gold, argentiferous lead, zinc, and copper ores, but it is also found in cobalt and nickel, and in lead and copper ores. It is also a prominent constituent in gold telluride.

In malleability and ductility, fine silver is second only to gold. When melted its color is milky white and a milky pink. Harder than gold but not as hard as copper, it is used in its pure state-fine silver; however, it is more often used as an alloy-sterling silver. Fine silver is used in articles where a higher melting point is desirable, and it is especially useful for enameling projects because of the absence of oxides formed by copper in alloys. Silver foil, used like gold foil, can be rolled or hammered to a translucent sheet measuring 0.000012 inches, which is so thin that a blue light can be transmitted through the metal.

### Sterling Silver

The standard alloy of sterling silver is composed of .925 parts pure silver and .075 parts pure copper. Mexican silver is alloyed with .950 parts silver and the remainder copper. Prior to 1965, US coin silver was .900 parts silver and the balance copper. Both types of silver are subject to oxidation when heated, however in normal atmospheric conditions, the silver alloy reacts much sooner than the pure metal. The normal oxide occurring on the metal when heated is a sulfide film produced by the torch. Silver alloys also produce oxides, cupric and cuprous, formed by the presence of copper in the alloy. Tarnish on silver is produced by sulfuric oxides in the atmosphere and by certain foods and body salts.

### Platinum

Platinum, rhodium, palladium---three of the six separate elements in the platinum family---are used for jewelry and decorative purposes.

Platinum was in use for several centuries B.C. but a process to make it more malleable was not discovered until 1804.

The color of the metal is grayish white and resembles highly polished silver or white gold when finished. It is reasonably malleable and extremely ductile. The metal is softened with small percentages of silver or copper and is hardened when alloyed with iridium. Like other metals, platinum work hardens and must be annealed to soften it to a malleable state.

The metal does not oxidize when exposed to the atmosphere. A long wearing heavy metal, it has a melting point of 3223 degrees F. It is attacked by aqua regia, but no other acids.

### Rhodium

Rhodium is resistant to oxidation and impervious to any acid or other solution. It is used almost exclusively for electroplating process to ensure a permanent brilliance and long wearing durability. Its melting point is 3560 degrees F.

### Osmium and Iridium

These are separate elements but they are also found in a natural alloy called osmiridium. Iridium is a silvery-white metal that is quite hard, brittle, and the second heaviest metal known. Osmium is a bluish white metal and is one of the heaviest substances known. It is associated with iridium in alloys as already mentioned.

### Ruthenium

This is the sixth member of the platinum family, and it is very hard. It resembles osmium but has no commercial importance.

### Copper

Copper is the oldest known metal. It is presumed to have been discovered as early as 8,000 BC. Three thousand years later it was alloyed with other metals, which initiated the Bronze Age. Copper occurs in a native state also as a sulfide, carbonate, and oxide to produce in combination over 360 different minerals. It is a yellowish red metal turning to a lemon color when heated. The melting point of copper is 1979 degrees F.

The metal is affected by nitric acid and slightly affected by sulfuric acid, is easily worked, and when work-hardened is restored to softness by annealing.

### Nickel

Nickel was first discovered in 1751. One of its major uses was alloying with copper for coinage in many countries.

Nickel is associated with copper nickel and iron sulfide ores, and is not found in a native state. It is the hardest of common metals. When it is refined, it is highly malleable and ductile metal that can be forged, cast, machined or worked by almost any method. It is used for electroplating and to produce an anticorrosive surface. Its melting point is 2651 degrees F. When cool, it is slightly yellowish and when hot is a salmon color. It work-hardens and must be annealed and cooled slowly to prevent stress.

### Pewter

Pewter used in early New England was shipped to the US from England the chief Pewter center, either already fabricated, or as stock metal to be worked by colony craftsmen. It encompasses two metal alloys, both called Pewter.

The alloy known simply as pewter consists of 65-80 percent tin and 20-35 percent lead. The one most used by contemporary metalsmiths is called Britannia metal and is alloyed of tin (92 %) antimony (5%) and copper (3 %), with no lead. It is excellent for all types of forging and wrought work, for spinning, casting, etching, applique metal overlay, chasing and hand engraving.

Pewter is extremely malleable, does not work-harden, and is not ductile due to the lead content. Because of the low melting point of pewter (490 degrees F), it must be soldered with a soft solder having a much lower melting point ranging from 360 to 420 degrees F. Food vessels formed of pewter require a high tin content, otherwise the alloy will produce lead crystals as the molten metal cools.

These crystals mixed with food acids will corrode the metal, contaminate food, and cause lead poisoning. (a very common ailment for colonial America)

## **2.8 Types of Jewelry and Their Functions**

An Illustrated Dictionary of Jewelry by Harold Newman defines jewelry as any decorative article that is made of metal, gemstones and/or hard organic material of high



quality, contrived with artistry or superior craftsmanship, and intended to be worn on a person. Besides such decorative items as necklaces, bracelets, ear-rings, or brooches, here belong also such articles that are functional as well as decorative (for example, cuff links, buckles) and, by extension, also movable jewelry and articles that are sewn on a garment, for example, a hat ornament (*enseigne*), decorative buttons, and jewelled dress ornaments. In the Middle Ages and in Renaissance jewels, being a part of personal adornment, played an immense role in self-expression and self-representation.

Utilitarian use of pieces of jewelry as a part of dress is one of the natural and most ancient functions of jewelry. Throughout the Middle Ages “functional” jewelry such as belts, buttons, clasps stood in close connection with the development of dress fashion. In the early Middle Ages, most jewelry was functional. Dress fashions did not allow for a great display of jewelry. The long, high-necked, sleeved under-dress, and shorter-sleeved over-tunic that were worn by both sexes, though they might themselves be richly adorned with embroidery, left little scope for jewels. The belt that was worn by men and married women, and the brooch that fastened the tunic at the neck, were the only jewels that naturally formed a part of dress, though a coronet or other head ornament might also be worn. However, these few pieces of jewelry that were used were monumental and possessed an imperial and hieratic beauty that made them as stately and as noble as any ornaments designed for church use.

Round fibulae or brooches that closed the neck slit of the undergarment, for example, were continuously used from the Carolingian period onwards. Brooches were usually circular or of some other type of centrally symmetrical shape. A special type, called the ring brooch, was circular and richly decorated with stones and pearls or worked in *repoussé*. Ring brooches were universal in the thirteenth century. In the fourteenth century, also cluster brooches and wheel brooches came into fashion.

The upper garment was fastened at the breast with a larger and usually round brooch or clasp. From the thirteenth century, double robe clasps came to be used as well, attached to each end of a ribbon holding the front parts of a cloak together. Ecclesiastical morses-clasps to hold the priest's cope together-also evolved from the type of the traditional cloak-clasp. These were often based on a cruciform or multi-lobed (often quatrefoil) shape.

From the later Middle Ages we have numerous brooches executed in form of personal coats of arms. Fourteenth-century French inventories, for example, include many references to brooches with fleur-de-lis motifs. Such a large lozenge-shaped brooch from the early fourteenth century, once part of French royal regalia, is in the collection of the Louver. The large golden lily in its centre is decorated both by traditional gems en cabochon and a large table-cut stone-a very early occurrence of the latter technique.

Figural brooches often had religious imagery as well. A beautiful silver-gilt brooch from the late fourteenth century was, for instance, prepared in the form of a letter M (letter-brooch), standing for the initial letter of Mary, and represents the Annunciation (New College, Oxford). The two figures, the Archangel Gabriel and the Virgin, stand in the double arch of the letter. At the top of the letter M there is a small crown symbolizing the status of the Virgin as Queen of Heaven. The central shaft of the letter is decorated with a large vase with the lily, standing for the purity of the Virgin, whose three buds signify the moment when the Trinity comes into being.

Many brooches were set with antique cameos representing profile portraits. Brooches were also used for affixing the rim of hats, and men's headpieces were also embellished with badges or pendants (ensigns) that had a decorative function only. Such hat decorations were enormously popular in the late Middle Ages and the Renaissance,

and often conveyed some message about their wearer: they were decorated with initials, short mottoes, coats of arms, mythological, allegorical or secular themes, etc. Some hat badges were worn as pilgrims' badges, others imparted moral messages. A Franco-Flemish hat medallion from c. 1520-30 (Metropolitan Museum, New York), for instance, portrays a buxom young woman with two men. On her right there is a luxuriously dressed old man with a large money-bag into which she reaches. Her other hand, with a hardly concealed erotic gesture, holds the handle of the dagger of a young man on her left. The French inscription leaves no doubt as to the meaning of the scene: "Love does much but money does everything." Belts were often richly decorated with applied metal fittings and mounts, often of considerable fineness. The buckles and ends of a fifteenth-century Venetian velvet belt (British Museum, London) are, for example, decorated with niello, and filigree enamel was used on the belt mounts. Among earlier, thirteenth-century belt clasps there are also some decorated with figural scenes. On an early thirteenth-century Lotharingian gilt bronze belt clasp two figures (the Queen of Sheba and King Solomon?) are seated among garlands (Metropolitan Museum, New York). Another Lotharingian silver belt buckle from c. 1230 shows a lady receiving a knight followed by an attendant (Statens Historiska Museum, Stockholm).

At the turn of the 14th century luxury began to creep into the French court, and then spread all over Europe. More delicate and richer cloths were used for clothes; dress fashions changed so as to allow more room for decoration: ornamental embroidery or jewelry. Other applied decorations for clothing included motifs beaten on metal dies and sewn onto the textile of the costume.

Even finely executed dress jewels, decorated with gems and enamel, were sometimes sewn onto clothes for decoration. Medieval paintings of the Virgin and of God the Father often represent sumptuous jewel-studded vestments. The growing

demand for jewelry multiplied not only the amount of jewels produced but also the types and functions of jewels. Older types of functional jewelry remained, of course, but they also had a tendency to grow into decorative pieces, sometimes forfeiting their immediate practical purpose for the sake of additional embellishment. This happened, for instance, with belts. Until the mid-fourteenth-century, belts were rather narrow, made up of a chain, cord or strap and worn on the actual waistline. In the later period belts became broader, more decorative, and worn either lower or higher than the waistline. In some extreme cases two belts were used in male costume: a narrow belt with few decoration, worn for its functional purpose, and a broad, highly decorative belt suspended on the straps stretching from the actual belt. Renaissance women occasionally wore decorative belts of pearls or of a gold chain. Buttons were introduced into fashion when the traditional medieval robe worn by both sexes in the earlier medieval period was replaced by new, fashionable jacquettes for men and tight bodices with short skirts (the jupes) for women. Known already in ancient Greece, buttons did not come into use in Western Europe until thirteenth century. From the mid-fourteenth century on, large, decorative buttons embellished with filigree, enamel, or cameos became a very characteristic feature of male costume, functional in their original purpose but purely decorative in their final form.

Jewels more independent of clothing such as pendants, roundels, necklaces, and rings have been used since Antiquity, but it was the age of the Renaissance which, along with the discovery of the beauty of the human body, first used jewelry in the modern sense: embellishing the body itself, independently of dress. It was in the second half of the fifteenth and in the sixteenth century that changes in fashion allowed the use of necklaces, bracelets, and so on to their full advantage. Ornaments for the head became increasingly sophisticated. Fantastic coiffures were prepared and decorated with



intricate headpieces, strings of pearls or beads, and delicate pendants. Other types of headpieces, however, had been worn in earlier periods also.

Diadems, often richly decorated with precious stones, had been worn by men and women since Antiquity. A Carolingian source describes Charlemagne as follows: "On festive occasions he walked in robes woven with gold thread, with shoes covered in precious stones, his mantle held together by a golden clasp, on his head a diadem of gold and jewels." Unmarried girls in the 14th - 16th centuries often wore a wreath or chaplet of pearls or precious stones round their heads. These were the precursors of the bridal crown. Chaplets were made up of links, sometimes silver worked in repoussé and surmounted with decorative motifs such as fleur-de-lis. A Hanseatic piece of this type from the first half of the fourteenth century is in Stockholm (Statens Historiska Museum). Medieval necklaces and neck bands were often quite simple. Strings made up of pearls or beads of rock crystal or glass were very popular and universally worn by the upper classes during the Renaissance. Though uncommon, such necklaces were used earlier as well: strings consisting of 1339 beads (1274 carved from rock crystal, the rest made from glass) dating from the early thirteenth century were found in a clay vessel in the Michailowski monastery in Kiev during archaeological excavations. More sophisticated necklaces, such as the one from the treasure of Empress Gisela (11th century) found in Mainz, were made up of pearls, beads, and jewels arranged in an intricate design, or consisted of large metal beads decorated with gold filigree and enamel. Bracelets were similarly made of pearls, beads or metal decorated in various ways. The habit of wearing earrings originates in Byzantium and did not become widespread in the West until the sixteenth century. Until the thirteenth century, earrings were worn also in the West, but most of these had a characteristically flat, sickle-shape influenced by Byzantine typology. A beautiful example of the type of earrings worn in



the West but based on Eastern (formerly Schlossmuseum, Berlin). These flat, lunette-shaped jewels once belonged to the Empress Gisela, wife of Conrad II. Pendants, occurring with greater frequency from the fourteenth century, were usually made of silver and greatly varied in shape. Pendants containing relics or bearing inscriptions were worn for the reasons of devotion, sentiment, protection, superstition. An enamelled, ivy leaf-shaped pendant from 1293, decorated with double-headed eagles, fleur-de-lis and a naturalistic tree, is one of the most beautiful examples of thirteenth-century jewelry and was perhaps intended as a reliquary of a particle of the Holy Cross. Other reliquary pendants, such as a northern French pendant from c. 1330-40, had natural, bean-like shapes. The famous Middleham Jewel, set with a large sapphire, has the popular lozenge shape (Yorkshire Museum, York). Pendants known as pectoral crosses could be either small crucifixes, or openable reliquaries in form of a cross.

A unique mid-fourteenth-century French pendant has a medieval agate cameo of Christ's face in the center. The cruciform halo of the Redeemer is formed of cornelians and rock crystal pieces. Many other pendants, frequently of oval shape, enclosed - mostly antique but also medieval - cameos and intaglios in sophisticated settings, richly decorated with gems. Most pendants had a geometric shape (medallions, rosettes, crosses) and had both sides decorated. Many pieces dating from the fourteenth to the sixteenth century were decorated with translucent enamel over an engraved silver design, which often presented religious, moral or allegoric imagery. Pendants were usually worn hanging in their owner's neck on a chain or a ribbon. Devotional jewelry included also rosaries, or paternosters: strings of beads used in continuing prayers: each bead corresponded to a certain prayer and was named after it. The rosary was first used by the Eastern Christian Church and was brought to Western Christendom by the Crusaders. Originally the rosary consisted of three chaplets (garlands of 55 to 59 beads)

each composed of 15 decades (groups of ten small beads known as Ave) and 15 bigger beads called Paternosters. Attached to a rosary was usually a crucifix, a cross or an ornamental trinket, and sometimes a finger ring. The larger beads were often made of gold and silver (sometimes engraved or enamelled) or of carved ivory or boxwood, while the smaller beads were made of many materials including coral, jet, jade, amber, glass, wood, etc. A rosary was sometimes worn by a woman as a necklace or bracelet, and by a man tucked into his belt. There existed also devotional rings, like a gold brooch with clasped or praying hands from the British Museum. The inscription, AVE I MARIA G (a contracted form of AVE MARIA GRATIA PLENA), echoes the devotional motif of the praying hands. Finger rings were among the most frequently worn pieces of jewelry. They were made from various metals (gold, silver, bronze) and-especially the cheaper types- were also worn by the lower classes. Rings were placed on both the upper and middle joints of fingers, but until the Renaissance it was unusual to wear more than one or two finger rings. Rings had many types. The simplest were set with a stone either en cabochon or cut. Signet rings with engraved bezels served not only as decoration and symbols of status, but also as the identification mark of their wearers for verification purposes (documents, letters). Engraving could consist of an inscription, such as "S[IGILLUM] RICHARD RE[G] P[RIVATUM]" ("A personal seal of King Richard") or a heraldic figure, as is the case with a late fourteenth-century signet ring engraved with the coats of arms of the Grailly family. Merchants actively used signet rings for making proprietary marks on their merchandise. Also, signet rings could be engraved with various emblems, symbols of crafts, initials.

That the mark made by a signet ring or a ring in itself was a sufficient means of identification, that in some way a ring represented or "substituted" the person of its owner or endowed someone else with the power and identity of the owner of the ring,

becomes clear if one remembers a popular folk motif: a husband sends home a messenger with his personal ring, and the wife is supposed to obey this messenger as though it were her husband. One more important function of inscriptions and images on rings and other pieces of jewelry has already been mentioned in connection with incised gems. The magic of the Divine name (or names), invocations of saints, cabbalistic formulas were usually placed on rings, cuffs, brooches fastening undergarment or a cloak, and had the same protective function as, according to the forgers, was that of embroiled ornaments: to protect from physical and spiritual harm those places of the human body where it is not protected by dress.

Inscriptions on rings and other pieces of jewelry could also indicate a certain type of relationship between the bearer of the jewel and the person or organization who had commissioned or presented it. This could be a relationship of sentiment, feud, or political commitment. Beside inscriptions on "ordinary" rings, rank, affiliation, loyalty, or affection could be signified by specific forms of rings and other jewels. Some of these rings can be considered as insignia. One such special type of ring was the lovers' ring. Its bezel depicted an engraved blessing hand and the ring ended, opposite the bezel, in two joined hands called "lovers' knot". Lovers' rings were given, as now, as a sign of engagement. Among rings used at the ceremony of marriage Jewish ritual rings are of a particular interest. They usually had an inscription MAZEL TOV (Good luck) and an image of the Temple of Jerusalem, that is the house the wedding couple will eventually have built: A Talmudic formula reads that "his house is his wife." A number of such rings were found in the 14th-century hoard in Colmar. Noteworthy is the function of the wedding ring within the rite of marriage: by placing his ring on the finger of the bride, the groom symbolically "buys" her and she hands herself over to him. There were also special types of rings for mourners. These were of fine gold, and

represented Christ as the Man of Sorrows, his five wounds, and inscribed with related texts, early 16th c. Such rings were made for mourners, as it turns out from the last will of Sir Edmund Shaa who ordered 16 such rings to be made for his mourners.

There were also several types of hollow rings with an opening bezel. These could either serve as reliquaries or as containers for poison. Both types enjoyed extreme popularity in the Renaissance. A very special class of jewelry is that of insignia: special distinguishing signs to mark their owner's rank or status.

For example, lawyers with a title of "Sergeants of the Law" and thus eligible for the post of a judge, had special rings engraved with Latin devices. Sir John Fortescue first mentioned such rings in his book, *De Laudibus Legum Angliae*, in 1463. This tradition was perpetuated in Europe till 1875. Vassals and servants wore signs of their overlords to express their fidelity and loyalty: rings, brooches, collars, badges. Members of guilds or knightly orders had their own insignia. Thick gold or silver collars made up of intricate buckles and links marked membership in the various prestigious orders of the late Middle Ages. The pendant on these collars often referred to the name of the order: the collar of the famous Order of the Golden Fleece, for example, had a sheep for a pendant. The insignia of secular rulers - kings and dukes - had particular importance since the possession of these highly symbolic regalia testified rulers' legitimate and indicated the sacred nature of their kingship. The ceremony of consecration of the king necessarily included the ritual of conferring the insignia.

According to the French Coronation Order of 1250 (Bibl. Nat. ms. 1246), the coronation programmer for the age of Saint Louis prescribed, among others, the following procedure: The archbishop puts the ring on the king's finger, symbol of royal dignity, the Catholic faith, and perhaps the marriage that God contracts with his people. Into his right hand the king receives the scepter and into his left the rod, which



represents - this document offers the oldest evidence for this interpretation - "a hand of justice"; and justice, of course, is the most sacred of all royal duties. At the end follow two principal insignia of power: the crown, which the peers are called upon to place on the king's head, and the throne, on which he is seated, thereby establishing the fullness of his dignity and power. The set of royal insignia varied depending on the country and the period. In Scandinavian countries, for instance, crown did not come into use until the twelfth century. Scholars suggest that the reason for this was that in Scandinavia, unlike France, a king was not God's elect but rather a person chosen by the people's assent. Both in Norway and in France kings had two staffs, or a scepter and a staff, as indicators of their judicial power and power over the realm. In Britain an orb was an indispensable element to symbolise kingly power and justice, as well as the dominion of the Christian religion over the world. It was placed in the left hand of the Sovereign during the coronation ceremony (in place of a rod in France). Also ecclesiastical leaders had their symbolic jewels. Pontifical, or papal rings, are first mentioned in a letter by Clement IV in 1265, where they are referred to as signet rings, the "Fisherman's seals", used in private papal correspondence.

According to some researchers, the "Fisherman's ring" represented Saint Peter sitting in a boat and pulling a fishing net out of the water. We have no examples of such rings preserved. We have, however, another type of pontifical ring, such as the one that belonged to Paul II (1464 - 71). An intaglio on sardonyx depicts two bearded heads, of St. Paul and St. Peter, facing each other, with a processional cross between them.

On the reverse of the ring, an inscription PAULUS II PONTIFEX MAXIMUS is engraved in cameo technique. The ceremony of papal consecration, also sometimes called coronation, included the procedure of conferral of papal insignia. The mitra preciosa was placed on the pope's head, while the bishop's ring and the Ring of the



Fisherman were put on the pope's finger. Episcopal rings conferred on bishops during their ordination were first mentioned in 590, when Pope Gregory the Great decreed that the dignity and authority of bishops should be symbolised by a special ring worn on a middle finger of the right hand and by a pectoral cross. These rings were handed to the newly nominated bishop by the king. Popes received a bishop's ring during their coronation due to their position as bishop of Rome. These rings were usually very rich and elaborate so that they could be seen during festive services from afar. A beautiful example of a pontifical ring, once worn by Walter de Gray, Archbishop of York (d. 1255), is in the treasury of the York Minster.

## 2.9 Jewelry of Month (Meaning)

Table 2.1. Birthstone Information.

Birthstone Information			
Month	Stone	Color	Hardness
January	Mosambique Garnet Rhodolite Garnet Tsavorite Garnet	Reddish - Brown Deep Pink Green	7 - 7.5
February	Amethyst	Medium - Dark Purple	7
March	Aquamarine	Pale Blue	7.5 - 8
April	Diamond	Clear White	10
May	Emerald	Green	7.5 - 8
June	Pearl Alexandrite	White, Yellow or Pink Color changes from purple to green	3 8.5
July	Ruby	Medium - Dark Red	9
August	Peridot	Olive Green	6.5 - 7
September	Sapphire	Medium - Dark Blue	9
October	Pink Tourmaline Opal	Medium - Dark Pink White with color streaks	7 5 - 6.5
November	Imperial Topaz Citrine	Yellow to Peach Yellow	8 7
December	Blue Zircon	Medium Blue	6 - 6.5

### III. THE EXISTING SYSTEM

#### 3.1 Defining of Men's Gold Jewelry

The opportunity for our company seeking to make advantage of the capabilities of electronic commerce is greater than merely adopting out present view of commerce to performing those buying and selling transactions over electronic networks.

With development of the Internet, companies and organizations now have access to immediate and easier means of advertising. This could help them to reach their full potential.

A home page or web site can be a relatively inexpensive way to gain exposure to millions of people, keep customers informed of new offering, make business transactions easier and more importantly, attract potential clients.

Men's gold jewelry online is website to help man have satisfaction with gold and jewelry. We purchase our jewelry from some of the best manufacturers in the world and with the low overhead made possible by selling direct over the Internet we are able to pass unprecedented savings onto you. Our low prices and guarantee can assure you of our quality and excellence. We have a 30-day trial period. If you are not fully satisfied with your jewelry, simply return it for a refund. Men's gold jewelry friendly customer service staff is available at our toll-free number from 9am-6pm PST, Monday through Friday to answer any of your questions regarding sizes, styles or general inquiries. We pride ourselves on the superlative customer service that we provide and your satisfaction with your shopping experience with us is guaranteed. Visit our website today to browse through our huge selection. Ordering is safe and easy online. All of your shopping transaction are 100% secure. Shop our men's gold jewelry section to find the perfect gift. The men's section carries many styles for chains, bracelets, rings, and



cross. Our chain selection is extensive and includes many styles, widths and lengths. From our thinnest chain for pendants to our thickest Miami Cuban link, we have almost everything you are looking for. We can custom size most chains, just call one of our friendly customer service representatives for a quote. The bracelet section has many pieces to choose from our large ID bracelet section to nugget bracelets. Even the hard to please man can find what he wants in our bracelet section. We also have an extensive ring section that features our wedding rings and many different styles for men. He can find a cubic zirconia with accents or one with his zodiac sign. He may even find what he needs in our beautiful watch collection. Or he can check out our pendant section to find his favorite pendant for each occasion. Men's gold jewelry collection has almost everything that he could want. If you are having any trouble figuring with your size, call our toll-free number and one of our customer service representatives can help pick out which piece of men's gold jewelry will be right for you.

Shopping for men is easy on Men's gold jewelry online. For his graduation, birthday or holidays. Gold jewelry is a great gift. Show him that you care by giving him something that will last forever.

### **3.2 Reason of Opening an Online Store**

A home page or web site can be a relatively inexpensive way to gain exposure to millions of people, keep customers informed of new offering, make business transactions easier and more importantly, attract potential clients.

The Internet offers benefits to businesses of all sizes. The following are only a few of the ways the Internet can empower business.

The lure of expanding a customer base with easy access and communication via the Internet is too great an opportunity for any serious company to ignore. Global expansion on the Internet promise expanded customer reach and greater revenues and

profits for retailers. But achieving success requires more than mere Internet presence and brand recognition by consumer.

I am a firm believe and advocate of a genuine global economy, believe that we must allow companies the freedom to produce in lower wage, less developed countries. The perceived exploitation of people in less advanced countries may seem coarse. But this utilization of inexpensive labor clearly boosts the respective economies currency. Thus, it is desirable for every party involved. As for overseas productions being undesirable for the advanced country due to the loss of jobs for their people, these people are forced to educate themselves in order to be part of a knowledge based work forced.

I would like to offer many choice of products for who interesting man jewelry style by Meagimlee Gem shop design. All about Catalogs or other idea that you want to take order, we can do for you.

### **3.3 How Can Web Site Increase Business from Existing Clients?**

If the prospect of courting new business through a Web site continues to seem a little daunting, consider how a Web site can be used to increase business from existing clients. Everybody advocates cross-selling, and when we go to marketing seminars we will hear that our current clients can be the best source of new work if we will take the time to educate them about our practice and remind them of how valuable we can be in areas of their business in which we are not currently active.

Certainly, our clients already have a good idea about our work product. So, we might be skeptical about how a computer monitor can improve our relationship. First, an e-mail system and a Web site, just like a fax machine in the early '80s, are great ways to show our clients that we're dedicated to keeping up with the technology needed to better serve their needs by communication quickly, efficiently, and conveniently.

Second, a Web site is an extremely flexible way for clients and colleagues to find us. Think of it as a display ad that can change on the fly, or as combination business card, resume, and marketing brochure, which is rapidly becoming standard practice in the accounting industry and elsewhere. We are not saying that Web site can, or should, replace face-to-face contact or personal referrals as strategies for finding new clients or that a Web site will overcome service that is less than high quality.

We do think that professionals are quickly finding that a Web site is a great supplement to many of their existing marketing efforts. First of all, it is another way of getting our name out in front of clients and prospects. Second, it's a wonderful way to introduce prospects to our firm without lugging round a box of marketing brochures and copies of articles. When we put our Web address, or Uniform Resource Locator (URL), on our business cards and pass the cards on to potential clients, they can immediately access our site and browse the information that we want them to see. Sure, we'll have to follow up. Having information ready for viewing on our Web site allows us to get past the general formalities and focus on demonstrating what we can bring to the prospect's business.

Finally, a Web site is a cost-effective way to communicate new announcements about changes or additions to our firm, a new location, or new areas of practice.

#### Potential Business Benefits:

When defining the aims of Internet marketing, a company should conduct a comprehensive review of all the business benefits that could accrue; this can be of value in arguing the case for investment in a web site. Men's Gold jewelry identifies the following as the main benefits of setting up an Internet site:

- (1) Corporate image improved;
- (2) Improved customer service;



- (3) Increased visibility;
- (4) Market expansion;
- (5) Online transactions;
- (6) Lower communication costs

### **3.4 Security and Trust**

Many people feel the Internet is not secure because it is a public network. It is true that connecting an internal network to the Internet can expose the internal systems of a company to very considerable risks. The transmission of a document between two parties over the Internet may result in the document passing through half a dozen networks, each managed by different organizations. The security of systems used for e-commerce is a business problem, not merely a technology problem. Organizations need information security not only to protect their assets, but also to enable them to take advantage of new market opportunities. They need to develop the same levels of confidence and trust in the electronic world, as they have in the traditional paper based business world.

In order to address security properly, it is necessary to build it into the integration solution from the beginning. Security issues must be considered seriously whenever information is sent or received from enterprise systems and when interfaces to the systems are built. Security concerns can be divided into concerns about access control, and concerns about information and transaction security. Access control mechanisms, such as password protection, encrypted smart cards, biometrics, and firewalls, ensure that only valid users and applications get access to information resources such as user accounts, files and databases. Information and transaction security schemes such as secret key encryption and public key encryption are used to ensure the privacy, integrity and confidentiality of business transactions and messages. These schemes are the basis

of several electronic payment and procurement systems, as presented in the following sections.

## Architecture

It is very important to have an enterprise view and architecture of the overall system. This must clearly capture the interfaces and interactions between systems and must describe how various components fit together. Without a good architecture, an integrated system may end up in chaos. Developers will not have a clear view of the dependencies between the components. It will not be clear which components should be built first and where the potential problems might be. Testing and maintenance of the components will become unwieldy. It is important to recognize that architectures and standards apply at many levels, as illustrated in Figure 4.1. In general, people think that integration is base just around a technology layer. In practice, aligning business architectures and their implementation in applications is more complex.

## Architecture Layers

### Legal Frameworks

New business models and technologies must be subject to the same regulatory controls as existing processes. Appropriate regulations and laws must cover Internet-based payment methods and new communication technologies. If an organization conducts business within a regulated environment, such as law, medicine, or international trade, there may be requirements to keep transaction records for future audit. In the era of e-commerce, organizations and consumers will want to be protected against unlawful activities in the same manner as they are protected in conventional commerce. Professional organizations will also need to update their codes of practice to accommodate e-business practices.

## **IV. PROJECT IMPLEMENTATION**

### **4.1 Analysis Consumer Behavior in Cyber Market**

#### **4.1.1 The Online Shopping Experience**

The process of electronic payments is important in a shopping experience. In the first step, the consumer browses for items. Using a Web browser, consumers view an online catalog on the merchant's World Wide page. The consumer selects items to be purchased. He does this by comparing prices and gauging the best value based on brand name, price, quality, and other variables.

The merchant presents the consumer with an order form containing the list of items, their prices, and total prices, which include shipping, handling and taxes. This order form may be delivered from the merchant's server to the consumer's PC. Some online merchants may provide the consumer with the ability to negotiate pricing.

The consumer selects the means of payment. The different means of payment include digital cash, electronic checks or credit cards. The consumers send the merchant a completed order and a means of payment. The merchant ships the goods or performs the requested services according to the order. The merchant requests payment from the consumer's financial institution.

#### **Analysis of Customer's Needs**

The first mission is to gain the best possible understanding of online customers. People shop and buy online for different reasons. Some reasons for online shopping are that they can turn into competitive advantages for the business. You will find that what customers want or need and what is affecting them for repurchasing at online shopping web site.

The customers do not feel safe to go shopping, because at shopping malls there are critical cases every day and shopping online makes them feel safer. So you should provide security and a trust worthy system in the web site, by including your telephone number in your e-mail signature, ad, or storefront information. Most customers feel better talking to someone and their required order. In addition, the web site provides references to satisfy customers, or includes a few testimonial phrases in the marketing information. Mail – order catalogs use testimonials to reassure their customers.

Convenience is the best reason that attracts shopping through online web site. It is a lot easier to pull a chair up to old PC and shop from the den than it is to get in the car, fight traffic, burn up some gas, find a parking space, and plunge into a crowd. Your attack should emphasize this convenience. Remind your customers about the difference. You might even offer a “Fuel Efficiency Special” to emphasize the convenience and economy of shopping at home.

About the services, the customers left shopping mall stores without buying because they couldn't find sales assistants. It is hard to get required service during holidays. Therefore, it is convenient for customers to do online shopping so that they can avoid long queues at the cashiers, big crowds and shopworn merchandise at the shopping malls. In addition, they can use online serviced 24 hours a day, seven days a week.

#### 4.1.2 Analysis Marketing Mix

To be successful in doing business, every company has to plan and generate the effective and efficient marketing plan and strategy. For men's jewelry online, also have to do a marketing plan. It is very important to plan the suitable strategy for the market. The marketing strategies of Men's Gold Jewelry are the following marketing mix:

- (1) Product
- (2) Price
- (3) Place
- (4) Promotion

#### Product

The products of our company are produced with high quality raw material. Men's gold jewelry online guarantees every product and our products sold from the web site Men's gold jewelry online. The customers do not have to worry whether the product they buy will be in good condition or not.

Before the product is sent to the customer, it will be wrapped with high quality package. This packaging service will make customers feel assured in the delivery of the product.

Men's gold jewelry has a variety of products. In each category you will see a new design in trend of fashion and beautiful. Men's gold jewelry has all varieties in different shapes and unique in styles such as Thai Decoration style.

#### Price

Pricing is one of the marketing strategies that is very important in competing with competitors. Firstly, we use the competitive price strategy to setup price at market price and give percentage of discount when customer meets the target sales volume. Besides, Men's gold jewelry online offers a convenient way of payment by letting the customer pay by installment. Men's gold jewelry online assures that customer will be pleased in this payment system.

#### Place

Men's gold jewelry online is a cyber marketing business using reaction indirect marketing. Therefore, the shop, to extend the market share, can receive the order



through online system and then distribute the product to customers by charging the delivery fee depending on the distance. If the customers live outside Bangkok, the delivery service of UPS, DHL and FedEx will be used.

#### Promotion

Advertisement: To do business online, URL name recognition is an important factor for Suffer and e-shoppers. To promote Men's goldjewelry online, as [www23.brinkster.com](http://www23.brinkster.com) [www23.brinkster.com/mensgoldjewelry](http://www23.brinkster.com/mensgoldjewelry) will have the following tactics.

Print URL in every type of document and product.

Register in search engine such as Siamguru.com, Google.com, Sanook.com, etc.

Banner exchange in the group concerning with autos.

Provide our URL in the leaflet and distributed exporting events.

Use the e-mail and e-catalog to promote our Web Site.

In summary, Men's goldjewelry will use both direct-action and indirect-action advertising techniques that are: Direct-action advertising is an advertising technique trying to push a customer to buy a product immediately. Indirect-action advertising is a long-term advertising, which tries to build a brand image and market familiarity to the customers.

#### Future Plan of Men's Gold Jewelry Online

##### (1) Expand market coverage

Besides maintaining our existing group of customers, [thaidecor.net](http://thaidecor.net) will try to penetrate new region. And our next target market is Japanese which showed in the statistics as second top import country.

##### (2) Extend Product Line

Apart from men's gold jewelry, we will add other categories of gold and jewelry products. Men's gold jewelry aims to cover various types of men products as much as possible.

- (3) Build Strong Brand Image Men's goldjewelry is planning to stronger our brand image in order to obtaining brand loyalty from our existing customers and also building brand awareness to new market that we intend to approach as well.
- (4) Find business partner as our exclusive distributor in that particular region In order to save distribution cost, strong supply chain management is one of key for success. However, select the right person is very critical as they will represent our company's image towards end customers. In order to do so, Men's goldjewelry would conduct market research particularly for each region since they have different norms, culture, lifestyle, law and regulation, etc. which probably cause them to perform differently.

#### 4.1.3 Competition Analysis

Every business has competitors and prospective business owners ignore the competition at their peril. The competition faced by the firm and the extent to which an entrepreneur can combat competitive forces are important determinants of commercial success.

A competitor analysis is an important requirement in our business plan because it reveals the firm's competitive position in the market space, assists our to develop strategies to be competitive and satisfies the needs of funding agencies to determine commercial feasibility based on current and prospective competition, and how the firm intends to face that competition.

Direct competitors are e-commerce businesses which are already on the Web offering products and services that largely duplicate Men's Gold jewelry. These firms are the most worrisome because they have first mover advantage and, presumably, a reputation in the market space that we will have to confront.

Indirect competitors are also on the Web offering substitute products and services. These can be a threat too, especially if their offerings are significantly cheaper, better or more convenient than our web site.

Thai Consumer Behavior Concerning with the Web Site.

Business concept is developed following the environment. Firstly, Men's gold jewelry started with a barter system that created a production concept. And then business cycle was developed. Now we must concentrate on customer – oriented concept because environment and consumer behavior have changed. Therefore we must know about consumer needs to their satisfaction.

Accurate and effective decision making often depends on the quality of information provided. Marketing research plays an essential role in providing accurate and useful information. In today's aggressive competitive marketplace, the marketing concept has become greatly important. The marketing concept states that the principle task of the marketing function is to serve the interests of the customer rather than the interests of the business.

Marketing research is a function, which links consumers with the organization through information. The information is used to identify and define marketing problems and generate, refine and evaluate marketing actions, monitor marketing performance and improve understanding of marketing as a process. Much research is done to measure consumer wants and needs. Other research assesses the impact of previous adjustments in the marketing mix or gauges the potential impact of new changes. Some research deals directly with the environment such as studies of social values and business trends. When the viable opportunities are uncovered, marketing research provides estimates of their size and scope, so that marketing management can better assess the resources needed to develop them.

Demographic profile shifts toward the middle Historically, the “typical” on line shopper has been male, well-educated, more affluent than most, and technology survey. According to our survey, all this is beginning to change. Demographically, the online shopper is becoming more like the typical middle-class retail consumer. The average annual household income of online spenders in the U.S. has dropped to \$52,300 this year from \$59,000 in 1999. Outside the U.S., the average is even lower at \$45,000. Overall, middle-class consumers are in the majority, with 58% of buyers in the U.S. and 69% of buyers outside the U.S. reporting annual income under \$50,000. Education level is also trending toward levels generally found in the population at large. More than half of respondents globally do not have a college degree. Women shoppers making strides Worldwide, men are still the dominant purchasers online, representing about two thirds of the online shopping population outside the U.S. Men dominate the shopping scene to an even greater extent in Spain, where 85% of online shoppers are men. Germany and France are close behind with 84% and 81%, respectively. However, women now constitute almost 60% of the online shopping population in the U.S., up from 50% last year, and they represent almost half the online shopping population in Canada and Australia. We believe that what has happened in the U.S. Worldwide, men are still the dominant purchasers online. However, women now constitute almost 60% of the online shopping population in the U.S.



## Demographics of online buyers

	United States	Non-U.S.	Australia	Brazil	Canada	France	Germany	Israel	Netherlands	South Africa	Spain	Switzerland	U.K.
Age (Average)	42	37	41	34	42	36	32	33	37	34	34	37	35
Average annual household income (U.S. \$)	\$52,300	\$45,000	\$43,700	\$40,000	\$43,600	\$42,700	\$46,800	\$51,300	\$36,600	\$41,300	\$61,000	\$49,200	\$49,200
Gender - % Male	40%	67%	53%	75%	51%	81%	84%	74%	78%	69%	85%	80%	62%
% Female	60%	33%	47%	25%	49%	19%	16%	26%	22%	31%	15%	20%	38%
Marital Status % Married	59%	46%	60%	40%	56%	36%	28%	47%	44%	55%	36%	41%	45%
4 Year College +	35%	47%	40%	67%	39%	54%	27%	70%	56%	61%	47%	30%	45%

Figure 4.1. Demographics of Online Buyers.

## 4.2 SWOT Analysis

The key to successful accomplishment of Men's gold jewelry online depends on our ability to coordinate between strengths, weakness, opportunities, and threats to maximize the benefits to Men's gold jewelry online. The SWOT analysis allows us to translate the key strengths in to unique capabilities that provide better value to customers than is the case for competitors. It also allows the company to turn weaknesses into strengths and capabilities. Finally, the potential threats in the environment can be avoided or ionized.

Strengths and weakness exist inside Men's gold jewelry online, in the key relationships between the company, suppliers and customers. Relative to market needs and competition's characteristics, ThaiDecor.net has to think in terms of what we can do well and where we have deficiencies. The following SWOT analysis captures the key



strengths and weaknesses relating to the market analysis summary and describes the opportunities and threats facing Men's gold jewelry online.

### **Strength**

- (1) I have many product items for selection.
- (2) Good in product knowledge.
- (3) Good in business know-how.
- (4) Guarantee good quality products and best service.
- (5) Offer reasonable price on high quality and unique products.
- (6) Highly experienced in product knowledge.
- (7) A complete range of products.
- (8) Good supply chain management.
- (9) Strong sale promotion program.
- (10) Good in marketing management.
- (11) Catalog readily available on the Internet.
- (12) Price is competitive.
- (13) Flexibility of product, we will keep on adding new product lines and related services.
- (14) More comfortable and convenient than going to the shopping mall to select decorative item.
- (15) Relationship selling. We get to know our customers, one by one by keeping record of the customer's details and behavior from what they buy. That information is such as birthday. For example: when the customer's birthday comes, we will send something to greet them and this will maintain a relationship with our customers.
- (16) Excellent and stable staff, offering personalized customer service.

### **Weaknesses**

The Web site <http://www23.brinkster.com/mensgoldjewelry> is still unknown to the customers. As men's gold jewelry is a new online store, our product and web site names may be unknown to some customers.

- (1) Customers cannot touch and see the real product; customers can only look from the web site. (But our web site will provide the 4D picture of product in the future).
- (2) There is no immediate interaction with customer. For example, if the customer.
- (3) Has questions about men's gold jewelry, they have to write e- mail to our website for asking that question. Then we reply by mail to the question and the customer has to wait for a while or may be the next day they will receive the answer.
- (4) High delivery cost.
- (5) Family business, lack of international skill.
- (6) Low company profile in the market.
- (7) Hard to get information about customer satisfaction Online.
- (8) Department is less for presenting all products.
- (9) Unable to sense the real products.
- (10) High delivery cost.

### **Opportunity**

The Internet tends to be the most important media for doing business in the future. Customer can see that electronic communication become widely used among business partners around the world.

- (1) Nowadays, people get more knowledge about how to use computer and Internet becomes a part of our every day life.
- (2) Most companies do many transactions online including selling and buying product online.
- (3) Customers are buying and taking order more over internet.
- (4) Able to have access to broader markets.
- (5) Can use technology to reduce cost.
- (6) Be able to expand to the global market.
- (7) E-market place expansion.
- (8) Building international brand image.
- (9) Customer can visit the shop from anywhere.
- (10) Customer behavior has changed, increasing of the numbers of people who click on Web site and buy products on Internet.

#### **Threats**

- (1) Just begin law and regulation for E-commerce in Thailand.
- (2) Financial transaction over internet are still untrustworthy.
- (3) Easily duplicated by competitors.
- (4) Financial transactions over Internet are untrustworthy.
- (5) Insecure electronic payment system.
- (6) Current Internet users in Thailand still low compared with other developing countries.
- (7) Have competitors both direct and indirect. All these companies also see products online too.
- (8) Customers may feel insecure with online transaction especially an online payment.

- (9) Some people still like the traditional way of shopping because the way of traditional shopping, customers can see, touch, and ask the question they want to know at the time.
- (10) Have competitors both direct and indirect. All these companies also see products online too.
- (11) Customers may feel insecure with online transaction especially an online payment.
- (12) Some people still like the traditional way of shopping because the way of traditional shopping, customers can see, touch, and ask the question they want to know at the time.
- (13) Major exporters like producers and manufactures dominate a large market share. So it is very hard for Men's goldjewelry to gain a market shares.

After reviewing the SWOT analysis above, we could say that Men's goldjewelry products have more strengths and opportunities than weaknesses and threats. It is a good sign for doing this business online and to be more successful.

#### **4.3 Strategic Planning**

Many small business owners operate their businesses without a business plan. They operate on a day-to-day basis without any planning for the long term. They only see the need to prepare one when they have to approach the bank for a loan or to tender for a big business contract. Is a business plan really necessary? Or is it just a show-piece to impress the bankers and business associates? Well, a well-prepared business plan, usually drawn up by a management consultant, does help to impress the banker. But it is useless if the management do not understand the concepts behind the preparation of a business plan.

A business plan is just a static snapshot of what the business is like if all the assumptions about the environments and competitions remain static. But this is not the case in the real world. Consumers' expectations, market's supply and demand, competitions and other environmental factors change all the time. We have to modify and adapt our business strategies and operations continuously to meet the changing market conditions.

The true value of business planning lies not in the plan, but in the concept and planning process. The same thinking process can be used again and again to develop appropriate strategies to take advantage of the changes in the market place. Preparing a typical business plan would involve the following thinking process.

In addition, the planning process will help to develop my conceptual and analytical skills as well as sharpen my mind. Try it. I may find myself a few steps closer to your dream of becoming my own boss. One of the best manual on writing business plans. Although it is meant for small business owners who have not undergone formal business training, the concept and planning process is applicable to any business, large or small. Written in a clear and concise format supported by useful financial projections, the book guides readers step-by-step through the process of conceptual planning and writing a business plan.

#### **4.4 Overview of Project Implementation**

The purpose of Project Preparation is to provide initial planning and preparation of gold and jewelry for men project. The steps this phase help identify and plan the primary focus areas to be considered. In preparing for the Web site implementation, there are important issues that must be addressed at the beginning of the project, including:



- (1) Defining the project goals and objectives
- (2) Clarifying the scope of the implementation
- (3) Defining the implementation strategy
- (4) Defining the overall project schedule and implementation sequence
- (5) Establishing the project organization and committees
- (6) Assigning resources

By addressing these issues early in the implementation, it helps ensure the project proceeds efficiently and that a solid foundation for a successful Men's gold jewelry online Web Site implementation is established. Some of these issues were addressed prior to the selection of Web site as the software provider. In deciding what the new system should be able to do, a list of product requirements was compiled. These capabilities became part of the contract that Web Site must satisfy. Several work packages make up the Project Preparation phase.

#### **4.5 Competitor Analysis**

Every business has competitors and prospective business owners ignore the competition at their peril. The competition faced by the firm and the extent to which an entrepreneur can combat competitive forces are important determinants of commercial success.

A competitor analysis is an important requirement in our business plan because it reveals the firm's competitive position in the market space, assists our to develop strategies to be competitive and satisfies the needs of funding agencies to determine commercial feasibility based on current and prospective competition, and how the firm intends to face that completion.

Direct competitors are e-commerce businesses which are already on the Web offering products and services that largely duplicate Men's gold jewelry. These firms

are the most worrisome because they have first mover advantage and, presumably, a reputation in the market space that we will have to confront.

Indirect competitors are also on the Web offering substitute products and services. These can be a threat too, especially if their offerings are significantly cheaper, better or more convenient than our web site.

#### **4.6 Risk Associate**

##### Refused Order Risk

The risk of refused order by the buyers is possible, in case that they ordered the product, but not confirmed the order. The way of protection is to verify the order before making the ordering by getting confirmed purchased order document before proceeding via phone call or e-mail.

##### Hardware Breakdown Risk

Hardware breakdown is notorious and creates uncertainty in customer's minds. Men's gold jewelry online needs to prevent this by using reliable hardware with back up solution such as redundant servers including web servers and database servers.

The location of these servers should be placed in remote places from each other to ensure loss free from natural destruction.

Network protection such as firewall, intruder detection and virus protection are important to prevent systems from computer attacks even unintentionally or intentionally from unauthorized party.

#### **4.7 System Security**

At Men's gold jewelry online, customers data is strictly protected against any unauthorized access. Protecting your order information is a priority. Thaidecor.net makes every effort to protect your online order information by using Secure Sockets Layer (SSL) technology.

SSL encrypts your order information to avoid the decoding of that information by anyone other than Men's gold jewelry online. To check the security of your connection, look at the bottom of your browser window after accessing the server.

If you see an unbroken key or a closed lock (depending upon your browser), then SSL is active. You can also double-check by looking at the URL line of your browser. When accessing a secure server, the first characters of the site address will change from "http" to "https."

Some versions of browsers and some firewalls do not permit communication through secure servers. In these cases, you will be unable to connect to the server, so do not have to worry about mistakenly placing an order through an unsecured connection.

At Men's gold jewelry online, are concerned with protecting customer privacy. Thaidecor.net uses the information thaidecor.net collect about customers to process orders and to provide a personalized shopping experience. Men's gold jewelry online may also use it to tell customers about special offers we think customers will appreciate. The customers will never have to worry about receiving a barrage of unexpected e-mail from us. Men's gold jewelry online will not sell, rent or trade your information.

When registering with Men's gold jewelry, will ask for some contact information, such as customer's name and e-mail address. Men's gold jewelry online will use the customer contact information from the registration form to send customer information about our company and promotional material from some of our partners. If customers do not wish to receive future mailing, they have a choice for denying this service.

## V. FINANCIAL ANALYSIS

### 5.1 Breakeven Analysis

Breakeven analysis involves estimating the level of sales necessary to operate a business on a breakeven basis. Generally, the sales price for a product or service will more than cover the variable costs of producing that product or service, but the margin from sales must be enough to cover fixed costs as well. By performing a breakeven analysis and then varying the assumptions regarding sales levels and variable and fixed costs, the real factors behind the profit potential (or lack thereof) of a business become more clear. This process will highlight the most significant factors and assumptions (particularly assumptions about the ability to set prices) in the buyer's business plan.

#### Key Breakeven Factors

Fixed Costs. These costs remain constant (or nearly so) within the projected range of sales levels. These can include facilities costs, certain general and administrative costs, and interest and depreciation expense.

Variable Costs. These costs vary in proportion to sales levels. They can include direct material and labor costs, the variable part of manufacturing overhead, and transportation and sales commission expenses.

Contribution Margin. This is equal to sales revenues less variable costs. This amount is available to offset fixed expenses and (hopefully) produce an operating profit for the business.

#### Calculating the Breakeven Point

The following steps are involved in calculating the breakeven point for a business:

- (1) Identify the total fixed and variable costs of the business based on actual results during a relevant time period.



- (2) Calculate the contribution margin, as a percent of sales as follows:

$$\text{Contribution margin} = (\text{Total sales} - \text{Variable costs}) / \text{Total sales}$$

- (3) Calculate the breakeven point in dollars of sales revenue as follows:

$$\text{Breakeven sales revenue} = \text{Total fixed costs} / \text{Contribution margin}$$

- (4) If contribution margin is expressed in dollars per unit, calculate the breakeven sales volume in units as follows:

One of the most common tools used in evaluating the economic feasibility of a new enterprise or product is the break-even analysis. The break-even analysis is the point at which revenue is exactly equal to costs. At this point, no profit is made and no losses are incurred. The break-even point can be expressed in terms of sales or baht sales. That is, the break-even units indicate the level of sales that are required to cover costs. Sales above that number result in profit and sales below that number result in a loss. The break-even sales indicate the baht of gross sales required to break-even.

Break-even analysis is based on two types of costs: fixed costs and variable costs. Fixed costs are overhead-type expenses that are constant and do not change as the level of output changes. Variable expenses are not constant and do change with level of output. Because of this, variable expenses are often stated on a per unit basis.

Once the break-even point is met, assuming no change in selling price, fixed and variable cost, a profit in the amount of the difference in the selling price and the variable cost will be recognized. One important aspect of break-even analysis is that it is normally not this simple. In many instances, the selling price, fixed costs or variable costs will not remain constant resulting in a change in the break-even. And theses changes will change the break-even. So, a break-even cannot be calculated only once.

It should be calculated on a regular basis to reflect changes in costs and prices and in order to maintain profitability or make adjustments in the product line.

**Formula**

**The Basis Equation for Determining the Break-even Unit:**

Table 5.1. Break-Even Unit.

<div> Average Annual Fixed Cost <div>÷</div> (Average Per Unit Sales Price – Average Per Unit Variable Cost) </div>
---

**The Basis Equation for Determining the Break-even Sales:**

Table 5.2. Break-Even Sales.

<div> Annual Fixed Cost <div>÷</div> 1 – (Average Per Unit Variable Cost ÷ Average Per Unit Sales Price) </div>
---

Men’s goldjewelry would like to know how many units that will get the break-even point in each month. Assume:

Average per Unit Sales Price:	\$ 125
Average per Unit Variable Cost	\$200
Average Annual Fixed Costs:	\$2,000 /Month

So, Men’s goldjewelry should sale average 25 units, Sales Price per unit is \$200. Men’s goldjewelry will get the break-even point in each month. On the other hand, we should sell \$5,000 in each month.

Table 5.3. Break Even Analysis.

Monthly Units Break-even	25
Monthly Sales Break-even	5,000
Assumption:	
Average Per-Unit Revenue	80
Average Per-Unit Variable Cost	200
Estimated Monthly Fixed Cost	2,000

### 5.2 Return on Investment

A measure of the net income a firm is able to earn with it is total assets. Return on investment is calculated by dividing net profits after taxes by total assets. Or in the new meaning is what do I get back (“return”) for the money I am being asked to spend (“investment”)?

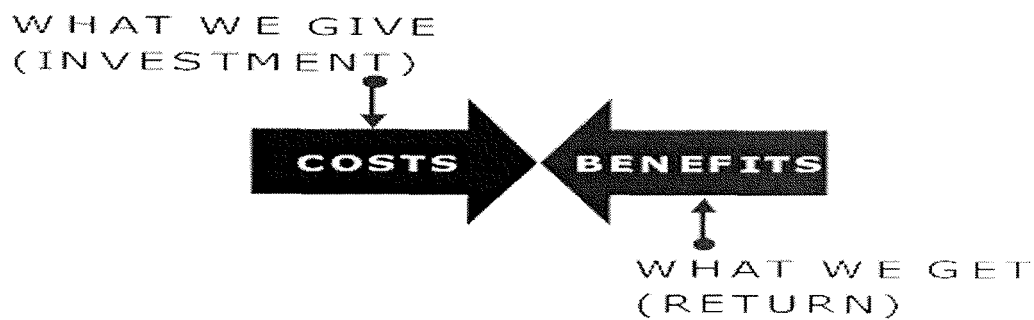


Figure 5.1. Return on Investment.

Return on investment will be calculated by subtracting revenue with integrating capital investment cost as well as pre-operation cost. The annual fixed cost and variable cost every year is included. The expense and revenue summary in the first five years is shown below.

Table 5.4. Expense and Revenue Summary.

Expense	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year
Fixed cost					
Web Implementation	9,000	-		-	-
Facilities *Includes telephone	5,000	5,000	4,000	4,000	4,000
Internet/Hosting	10,000	10,000	10,000	9,000	9,000
Warehousing	2,000	2,000	1,500	1,500	1,500
Advertisement	3,000	3,000	2,000	2,000	1,000
Variable cost					
Transportation	18,000	17,000	15,000	14,000	13,000
Outsourced labor	3,000	3,000	3,000	2,000	1,000
Total expense	50,000	40,000	35,500	32,500	29,500
Revenue					
Sales	300,000	308,000	400,000	405,000	500,000
Direct Cost of Sales *Includes Cost of Goods Sold	125,000	128,000	140,000	150,000	155,000
Other Costs of Sales	0	0	0	0	0
Total Cost of Sales	125,000	128,000	140,000	150,000	155,000
Total Revenue	175,000	180,000	260,000	300,000	345,000
Total return	50,000	52,000	102,000	150,000	190,000



According to the financial data, Return on investment is calculated as follows:  
Total profit for the first year is 50,000 baht. Therefore, the ROI period is one year.

### 5.3 Net Present Value

Net Present Value criterion is an important assessment which calculates the current value of a future cash flow. NPV is a very useful tool for corporations and governments alike in that it allows for a comparison of current costs to undertake a project versus the potentials benefits, in this case revenues, that the project will yield sometime in the future.

Net Present Value (NPV) is the method of comparing present's value of money with the future's value of money.

Men's goldjewelry need to use these calculation for preventing the loss that will possibly be occurred by the unknown business's crisis especially for the changing rate of interest.

According to today's economic situation, the interest rate for loaning is about 1.25%. This is interest rate is the good sign for all businessmen to do investment. Actually, this 1.25% of interest rate will be flat for approximately 3 years.

Therefore, this interest will be used for calculation for net present value for the next five years.

$$\text{Net Present Value} = \text{Present Value Of Cash Inflow} - \text{Present value Of Cash Outflow}$$

### **Present Values of Cash Out Flow**

**Assumption: The payment is paid at the beginning of the year.**

Present value of cash out flow for the first year = 53,000

Present value of cash out flow for the second year =  $41,000/1.0125 = 40,493.83$

Present value of cash out flow for the third year =  $35,500/1.0125^2 = 34,141.14$

Present value of cash out flow for the fourth year =  $30,500/1.0125^3 = 31,311.10$

Present value of cash out flow for the fifth year =  $29,500/1.0125^4 = 28,069.97$

**Therefore, present value of cash out flow = 187,016.04**

### **Present Value of Cash in Flow.**

**Assumption: The money is got at the beginning of the year.**

Present value of cash in flow for the first year = 175,000

Present value of cash in flow for the second year =  $180,000/1.0125 = 177,777.8$

Present value of cash in flow for the third year =  $260,000/1.0125^2 = 253,619.90$

Present value of cash in flow for the fourth year =  $300,000/1.0125^3 = 250,488.84$

Present value of cash in flow for the fifth year =  $345,000/1.0125^4 = 328,275.90$

**Therefore, present value of cash in flow = 1,185,162.40**

Net Present Value = Present Value of Cash Inflow - Present value of Cash Outflow

Net Present Value =  $1,185,162.40 - 187,016.04 = 998,146.36$

As seen from the calculation, the net present value is positive for five years estimation.

From the analysis, return on investment is one year which is reasonable in today's economic situation.

Net present value is positive for 998,146.36 Baht.

The result shows a positive sign to invest since after the first year the profit will return. Moreover, the opportunity to grow in the business is possible. Therefore, this project should be invested in.

Therefore on a cost/value basis it should not be initiated as the negative Internal rate of return during the period when the project is losing money is greater, cumulatively, then the corresponding positive IRR when the project begins to generate positive cash flow.



## VI. WEB DEVELOPMENT AND DESIGN

### 6.1 Hardware and Software Requirements

Men's goldjewelry online shop use client-server structure client locates on any personal computer which meet the basic requirements while server side locates any web-site on the internet around world. In my project, I use free web hosting server for the purpose of test.

#### Hardware Requirements

Table 6.1. Hardware Requirements.

HARDWARE	DESCRIPTION
Cpu	Intel Pentium IV 1.8 Ghz
Mainboar	Chipset i845E
Memory	Double Data Rate Sdram 256 Mb
Harddisk	Maxtor 30G /ATA133
Graphic Card	ATI Mobility M6 16 Mb
Sound	Sigma Tel Codec
Floppy Disk Drive 1.44	Default
CD-Writer	Matshita UJDA340
Monitor	ATI Mobility M6
Modem	Lucent Internal Modem
Printer	HP Deskjet 710C



## Software Requirements

I use the free web hosting service, I don't need to consider the installment of the web server. It is maintained by the provide of the service. For the free service. Because it is easy to use with high compatible. Men's gold jewelry is using Access and also using ASP because It provide high compatible.

Table 6.2. Software Specification.

<b>SOFTWARE</b>	<b>DESCRIPTION</b>
Operating System	Microsoft Window XP Professional Edition
Web Server	IIS Microsoft Internet Information Server
Database Server	Microsoft Access
Server-side Scripting Tool	ASP(Active Server Page)
Web Development Tool	ADOBE Golive 6.0 Edit Plus 2.11
Flash Animation Development Tool	Macrmedia Flash MX Swish
Screen Capture Tool	ANFY 2.0
Graphic Tool	Adobe Photoshop version 7.0.1

## **6.2 Setting Up Database Driven Websites**

A server-side scripting tool that ties everything together. Some of the more popular tools for doing this are Apache, MySQL, and PHP4.

It is helpful to have a feeling for what goes on behind the scenes, so here is an over simplification of how things would work, this diagram is not really correct but it should be enough for now:

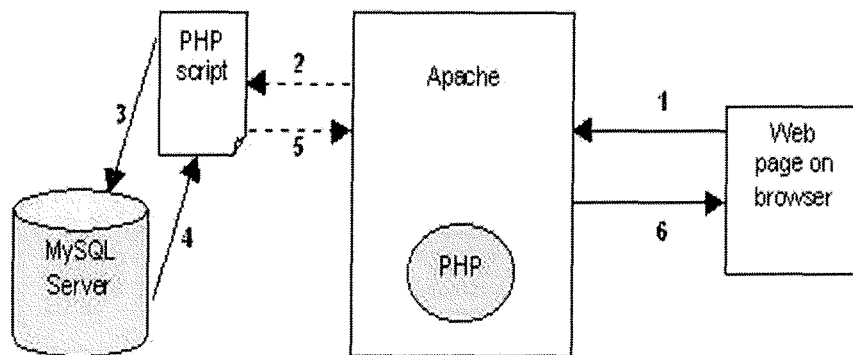


Figure 6.1. Web Server and Database Server Working.

So let's set the scenario. We have a web page that pulls some data out of a database. The user requests this page from his browser and the request is sent to the web server which in turn calls a PHP script. The PHP script is executed by the PHP preprocessor which pulls data from the database. The results are then messaged by the rest of the PHP script and turned into HTML. The final HTML gets sent back to the user's browser.

Let's look at this step by step:

- (1) The users clicks on a link from his web browser; the web browser sends a request.
- (2) The file which has the extension name like “.php” is a PHP script that contains commands. One of these commands is to open a connection to a database and grab some data. PHP knows how to talk to the database, so it does its work.
- (3) The data comes back from the database, and the file which has extension name “.php” does something to format the data. Typically, this would be to make it look pretty before formatting it into HTML.

- (4) The HTML goes back to Apache.
- (5) Apache sends this back to the user's browser, as the response to his request.

The user now sees a pretty web page containing some information from a database.

Again, that is not 100% correct but it is enough to understand what goes on. Now we have a basic understanding of what we are trying to accomplish.

### 6.3 Building a Product Catalog

E-Commerce systems, no matter how fancy or how simple, involve three basic functions: Displaying a product catalog. Allowing customers to browse through the product catalog and Allowing customers to buy items from the product catalog.

What do you do when you visit an online merchant? You look through their product catalog to see what they have for sale. Let's say you find something that you like and would like to buy, you would add the item into your shopping cart and then eventually complete the order by supplying payment information.

Here is a simple diagram to illustrate the process:

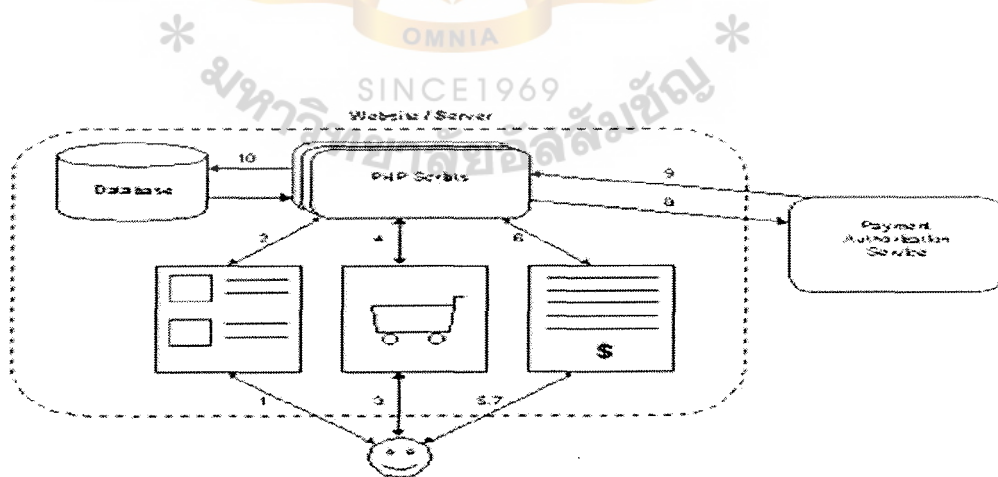


Figure 6.2. Catalog Working.

User visits the website and accesses the product catalog.

The server generates the product catalog by reading the items from the database.

User browses through the catalog and adds items into his shopping cart.

The server updates the user's shopping cart with the items he has selected.

User goes to the checkout to complete his order.

The server generates his order summary by calculating the price of the order.

User verifies the order, then supplies his credit card number for validation.

The server talks to a payment authorization service to validate the credit card.

The payment is authorized and the result is sent back to the server.

If all goes well, the transaction is saved into the database and the user waits for the stocks.

That is the big picture of the entire process. For now it may be a little confusing, but as we go through each of the steps everything will make more sense. We will begin by creating the product catalog, and the maintenance scripts that will help us to manage it.

#### **6.4 Managing Users with Sessions**

Before we begin, let's quickly go over the concept of a session and the reason we need it. It is hard to define what a session is exactly, so let's use an example that should be very familiar to you, such as logging in to your computer and using it every day. After you log in, your computer knows who you are. Every action that you perform is done so with your name. So what is so special about that is that we take it for granted every time we have to login to any system. What is the big deal with doing this on the web? Well, the web (or specifically, the HTTP protocol) is connectionless. That means each request made to a web server is independent of all the other requests. Whereas your computer keeps information about you in memory and knows when you log in and

out; a web server doesn't. A web server simply waits for requests and sends responses.

Let us illustrate this a little bit:

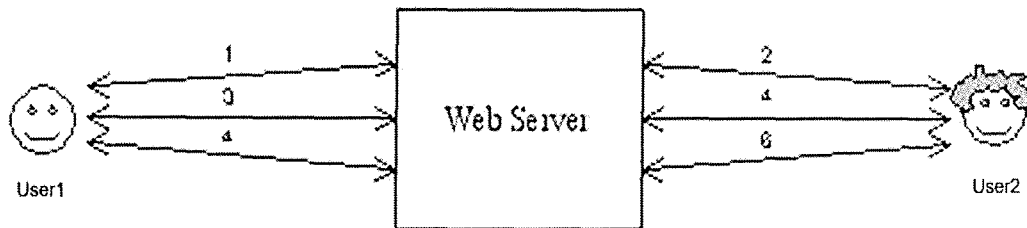


Figure 6.3. Session Working.

Let's say we only have two people, User1 and User2, accessing Web Server, and their actions are like this:

User1 looks at the product catalog.

User2 looks at the product catalog.

User1 adds an item to his basket.

User2 adds an item to her basket.

User1 goes to the checkout.

User2 goes to the checkout.

Since HTTP is connectionless, each request is completely isolated from the other requests. So how does the server know who's doing what? How does the server know that actions 1, 3, 4 are from User1, and actions 2, 4, 6 are from User2? Well, to make a long story short, the web server does not have to know. It can continue on happily responding to requests and the session management has to be done with the backend scripting language.



## 6.5 Catalogs and Shopping Carts

We had an example diagram of how this whole online shopping process worked.

We will now extend it a little bit to show the relevant interactions:

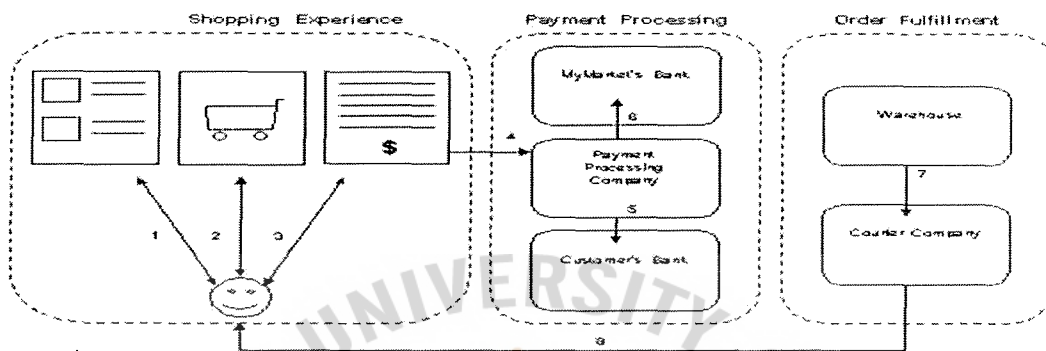


Figure 6.4. Shopping Carts Working.

This is the set of interactions the customer makes with My Market:

- (1) Customer browses the product catalog.
- (2) Customer adds items to shopping cart.
- (3) Customer confirms the purchase Payment Processing. Once the customer has confirmed the purchase, we have to process their payment.
- (4) Transaction goes to payment processing/transaction clearing company.
- (5) Company verifies the amount and takes it from the customer's account.
- (6) Company pays My Market (after taking off their processing fee) Order Fulfillment.
- (7) Warehouse gathers the products in the order for shipping.
- (8) Courier company ships the goods off to the customer, and the purchase is complete.

That is overly simplified, but it should help to get a feel for the whole process.

Our product catalog will be a means for the customer to see the products that we carry. Our products are (hopefully) sorted into meaningful categories, so what we have to do is provide the user with an easy way to navigate the categories and see the products under each one.

Our category tree is built recursively, so our product navigation scripts are very easy to write. The general process will be like the following: (starting from the Top category)

- (1) PHP page to list all sub-categories under the current category.
- (2) When a user clicks on a sub-category, repeat step 1 with the selected sub-category.

We can navigate and traverse the tree using just one script, clean and simple. When we are displaying the contents of a category, we will show:

- (1) The sub-categories under the current category.
- (2) All the parent categories leading back to the top category.
- (3) The products under the current category.
- (4) A summary of the shopping cart.

Here is a simple layout that will do the trick:

<b>Section 1: Header</b>		
<b>Section 2:</b> Site Navigation	<b>Section 4: Category navigation</b>	
	<b>Section 5:</b> Cart Summary	<b>Section 6:</b> Product Listings
<b>Section 3:</b> Sub-category Links		
<b>Section 7: Footer</b>		

Figure 6.5. Product Catalogs.

**Section 1:** The site header is the standard header we have been using all along. It shows the name of the current page (DOC\_TITLE) and login links.

**Section 2:** Our standard site navigation links go here.

**Section 3:** Here we will display a summary of the customer's shopping cart. We will show the number of items in their shopping cart as well as the total price.

**Section 4:** Here we will show the navigation path from the current category back up to the top category. For example, if you were currently in the **Earthenware** category, it might look like this: **Top > Earthenware > Product**

Showing all the categories that lead from the Top category to the Earthenware category.

**Section 5:** This is the area in which we print out a list of all the subcategories under the current category. For example, if we were under the **Earthenware** category, we would expect a list of sub-categories to show up here. If there are no sub-categories, we should print out "None".

**Section 6:** This is where we print out the products that are available for sale under the current category. When a user clicks on a product, they should be taken to the product details page where we display detailed information about the product. We also provide a link here for the user to add the items into the shopping cart.

**Section 7:** Our standard footer that contains the cheesy slogan.

To recap, sections 4 and 5 work together in letting the customer navigate the product catalog (or more correctly the product category tree). Section 4 provides backwards navigation (to move up the category tree) while section 5 provides forward navigation (down the tree). Along the way, we display products in the current category in section 6, and we always show the shopping cart summary in section 3.

This is just an example of how you can arrange the screen. Since everything is in template files, you are free to rearrange things to make the site more customer-friendly. Make it easy to find your products, and make it even easier to buy something.

Now that we understand how we should build our product catalog, let's shift our attention to the shopping cart. What exactly is a shopping cart, and how should it be built? A shopping cart is simply a list of products that the customer wants to buy, so it turns out to be really easy to build. In fact, our shopping cart will just be an associative array of product ID's and quantities, and it will be stored as a session variable.

The basic operations that we would like to be able to do with our shopping cart are:

- Add products to the cart

- Remove products from the cart

- Count up the number of products in the cart

- Calculate the total price of the products in the cart

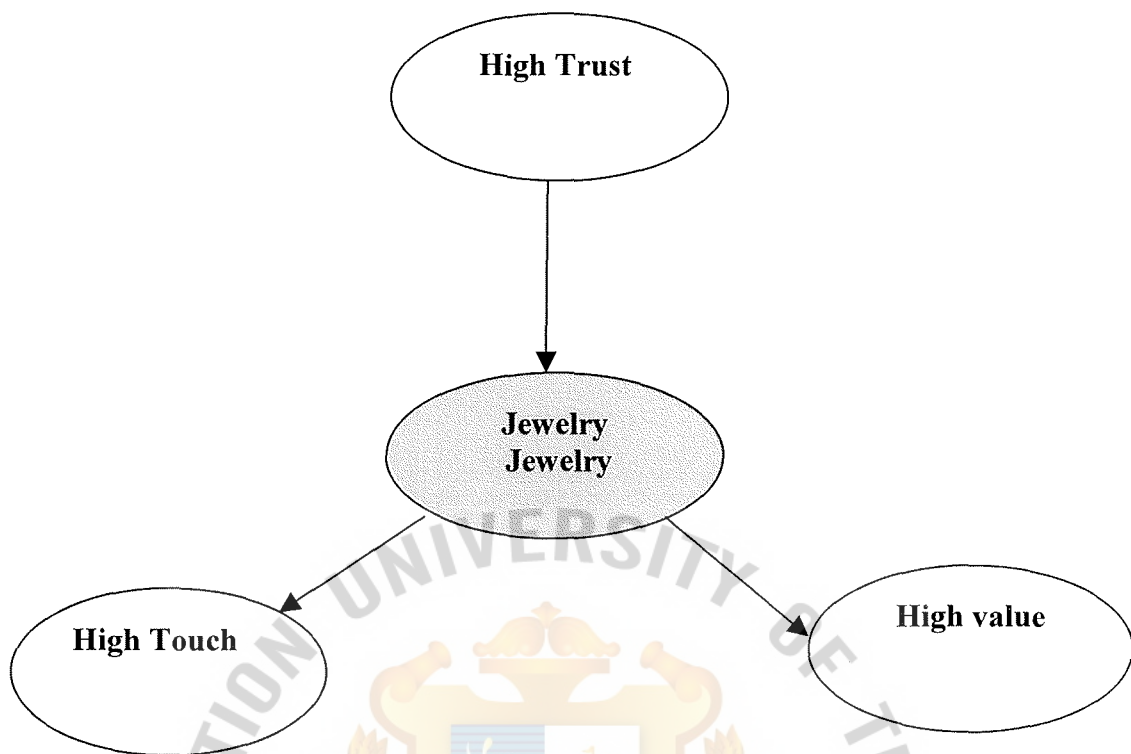


Figure 6.6. Source: IDC “A Diamond in the Rough”.



## VII. MEN'S GOLDJEWELRY ONLINE WEB SITE

### 7.1 Site Structure

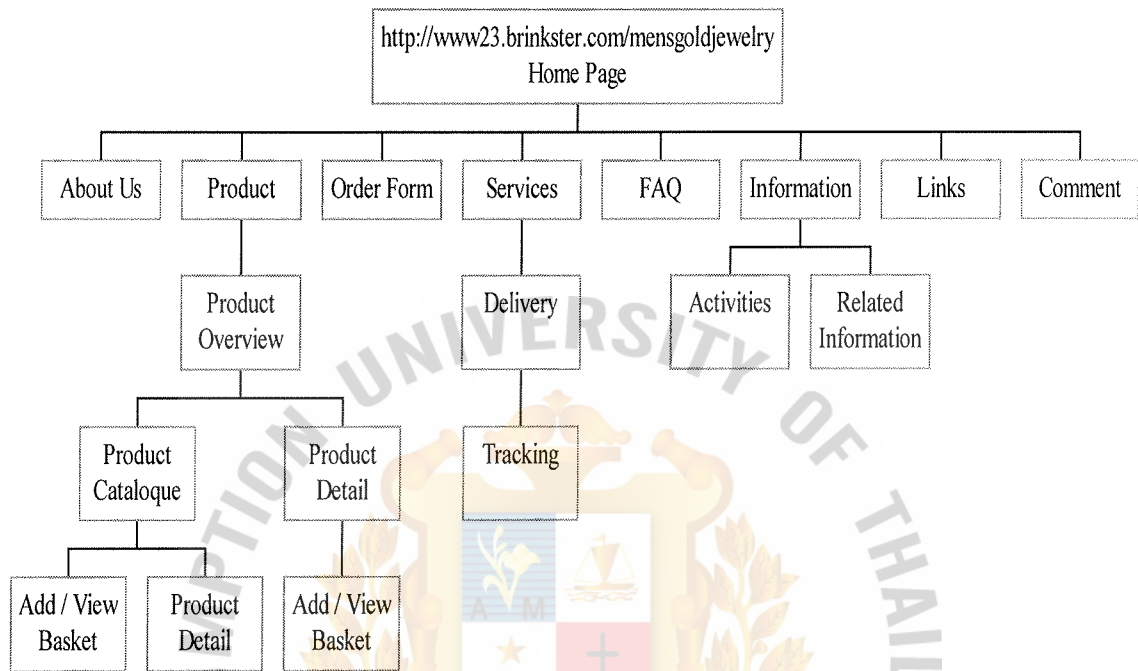


Figure 7.1. Site Structure.

## 7.2 Homepage

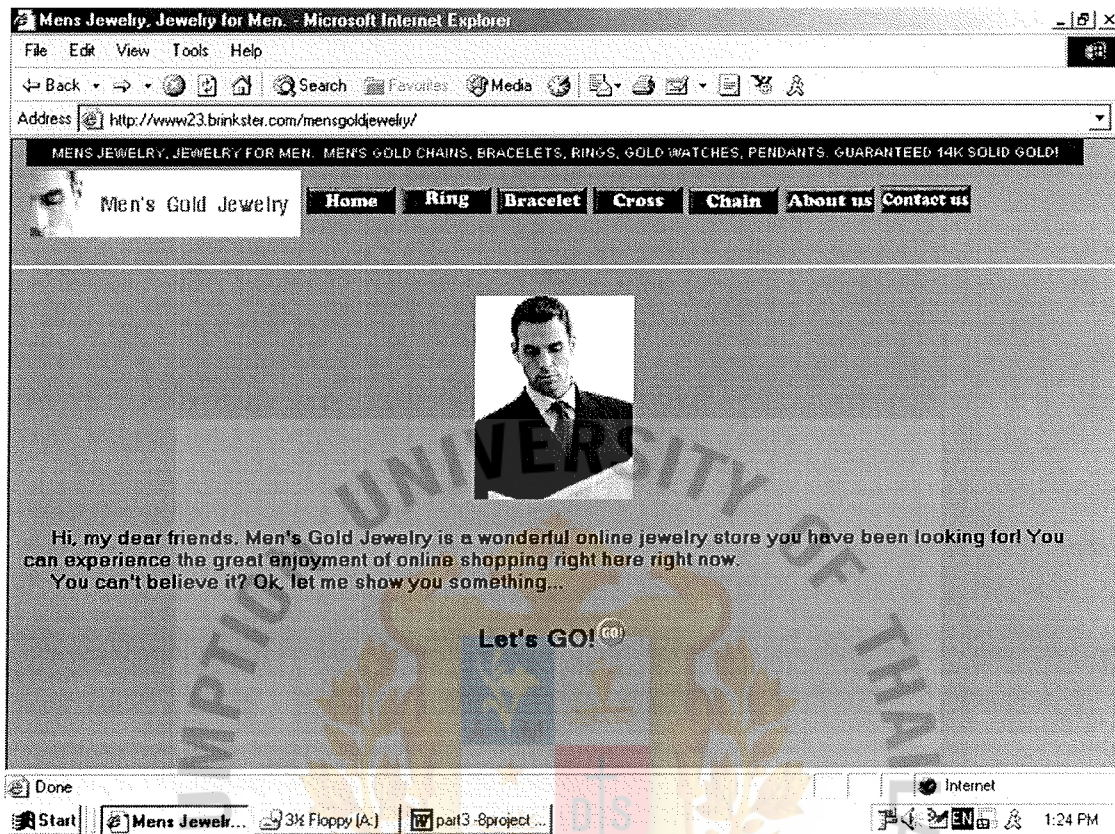


Figure 7.2. Homepage.



### 7.3 About Us

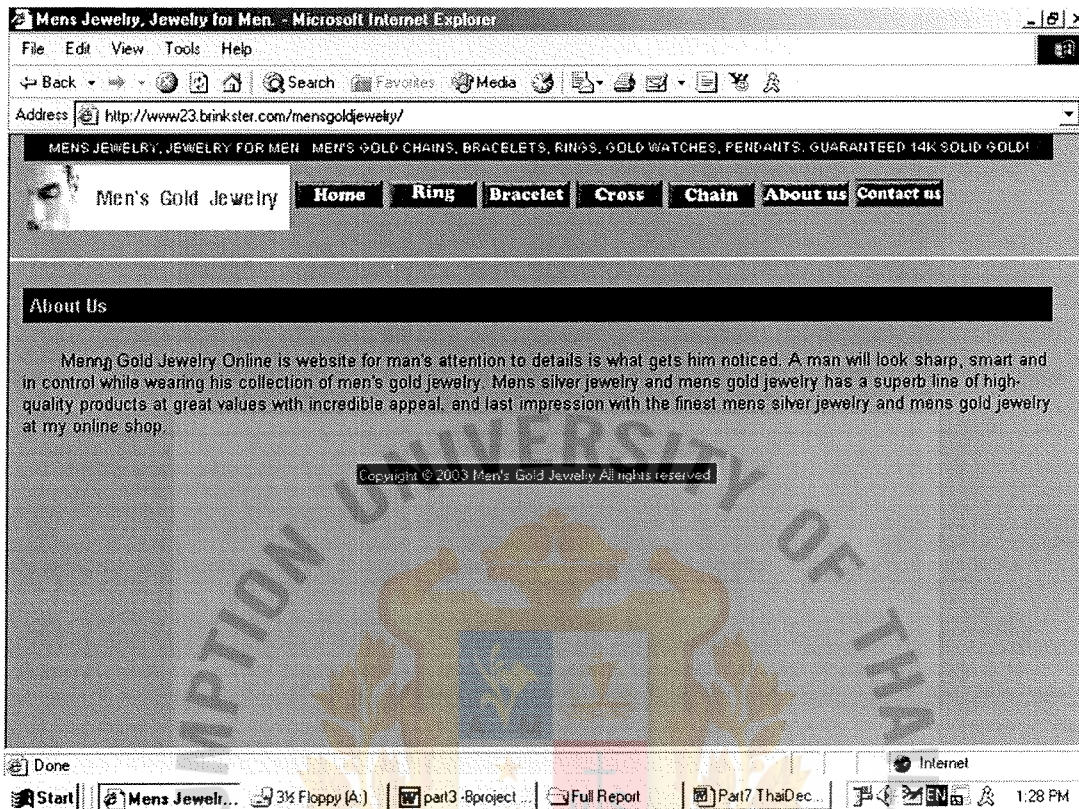


Figure 7.3. About Us.



## 7.4 Shop Online

Shop online is the most important menu for us, because this page includes online catalog and pricing & product policy. We describe them in details as follows; Online Catalog.

We have four product categories as following:

### (1) Ring

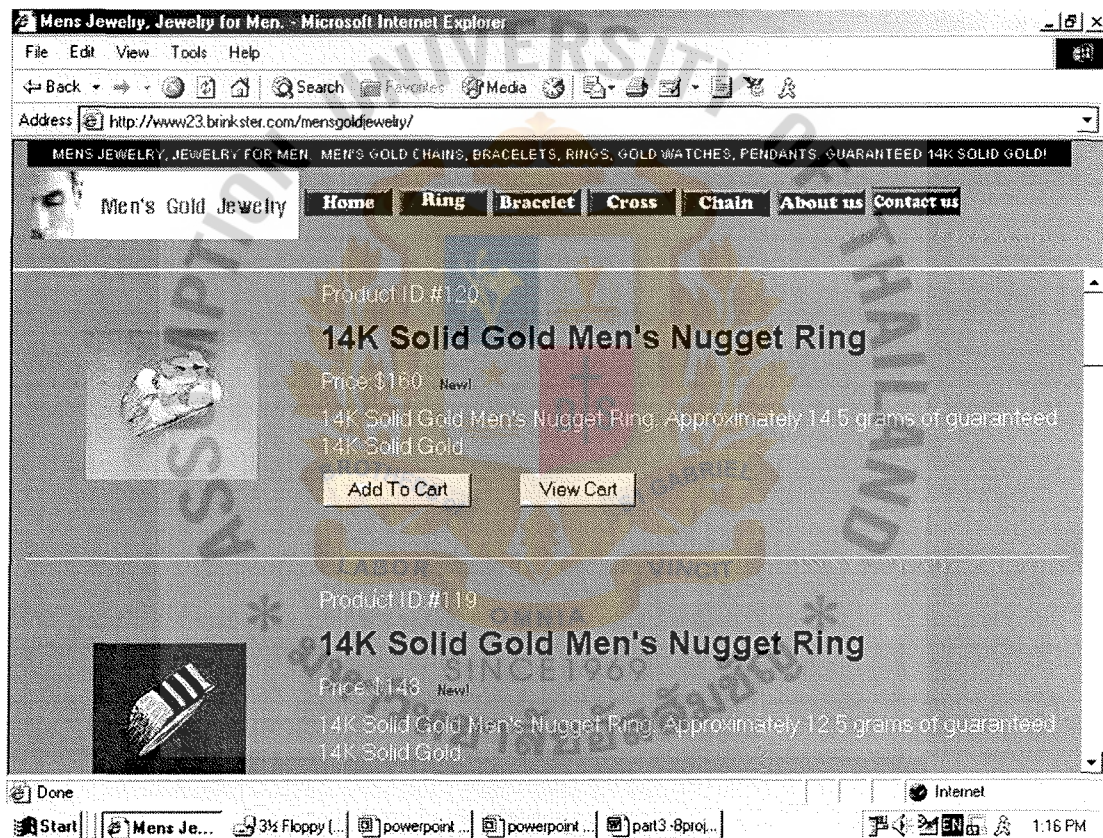


Figure 7.4. Online Catalog.



(2) Bracelet

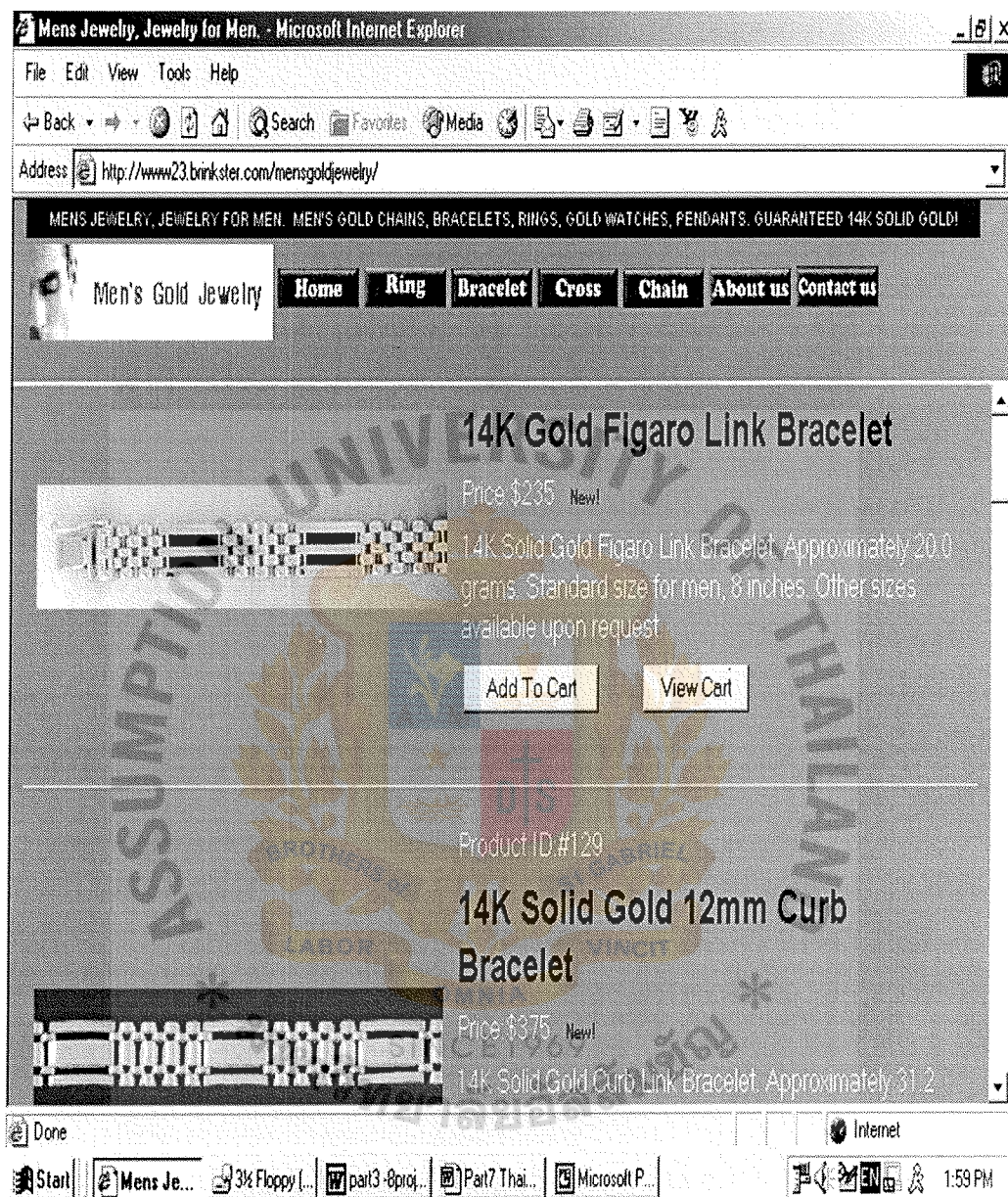


Figure 7.5. Bracelet Catalog.



(3) Cross

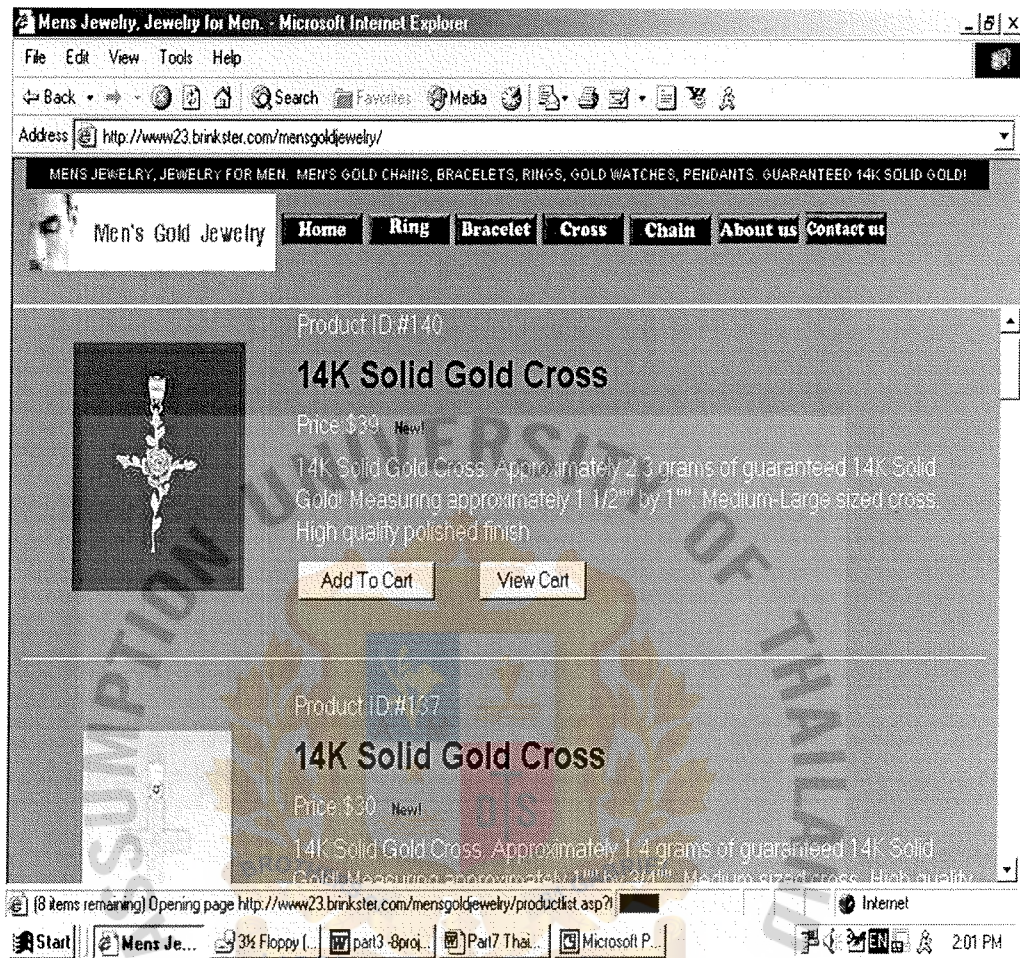


Figure 7.6. Cross Catalog.



(4) Chain

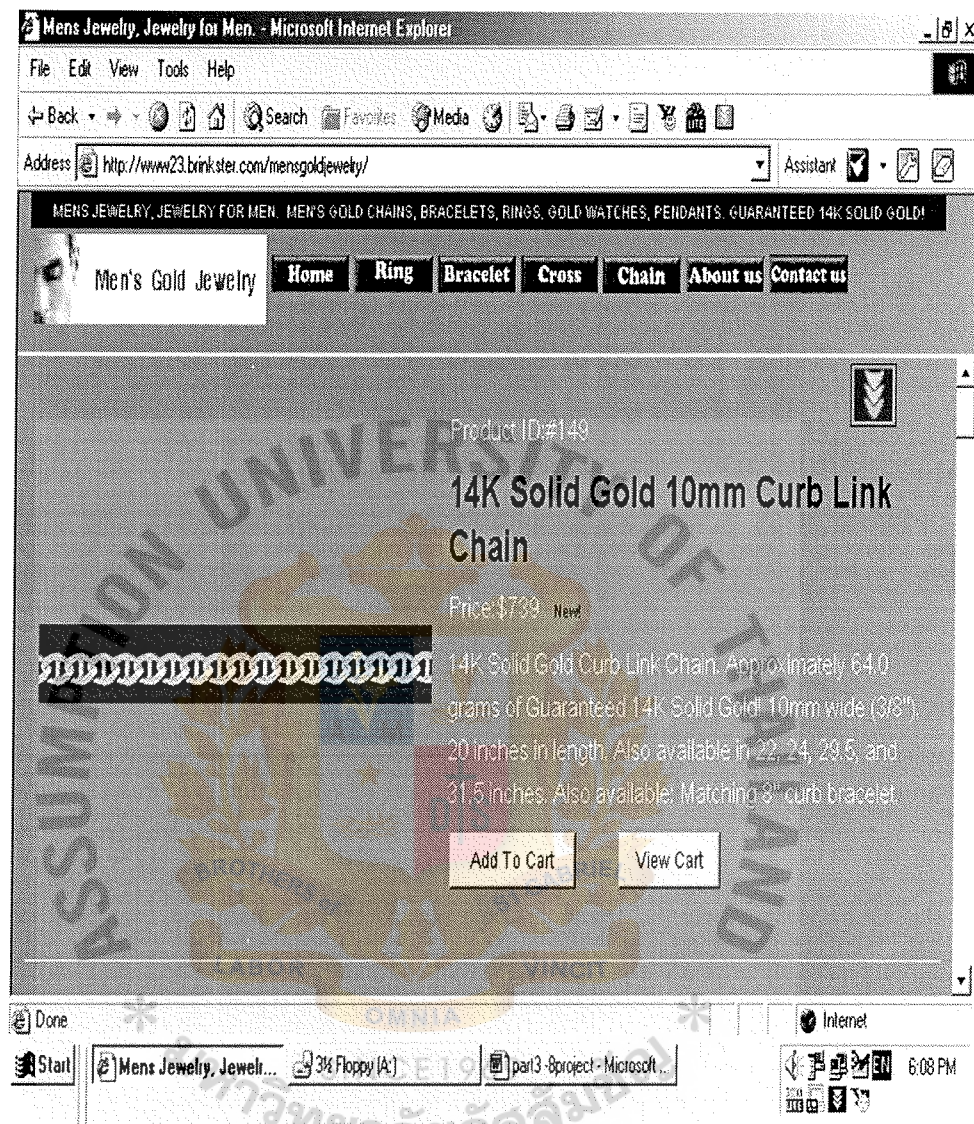


Figure 7.7. Chain Catalog.

## 7.5 Shopping Cart

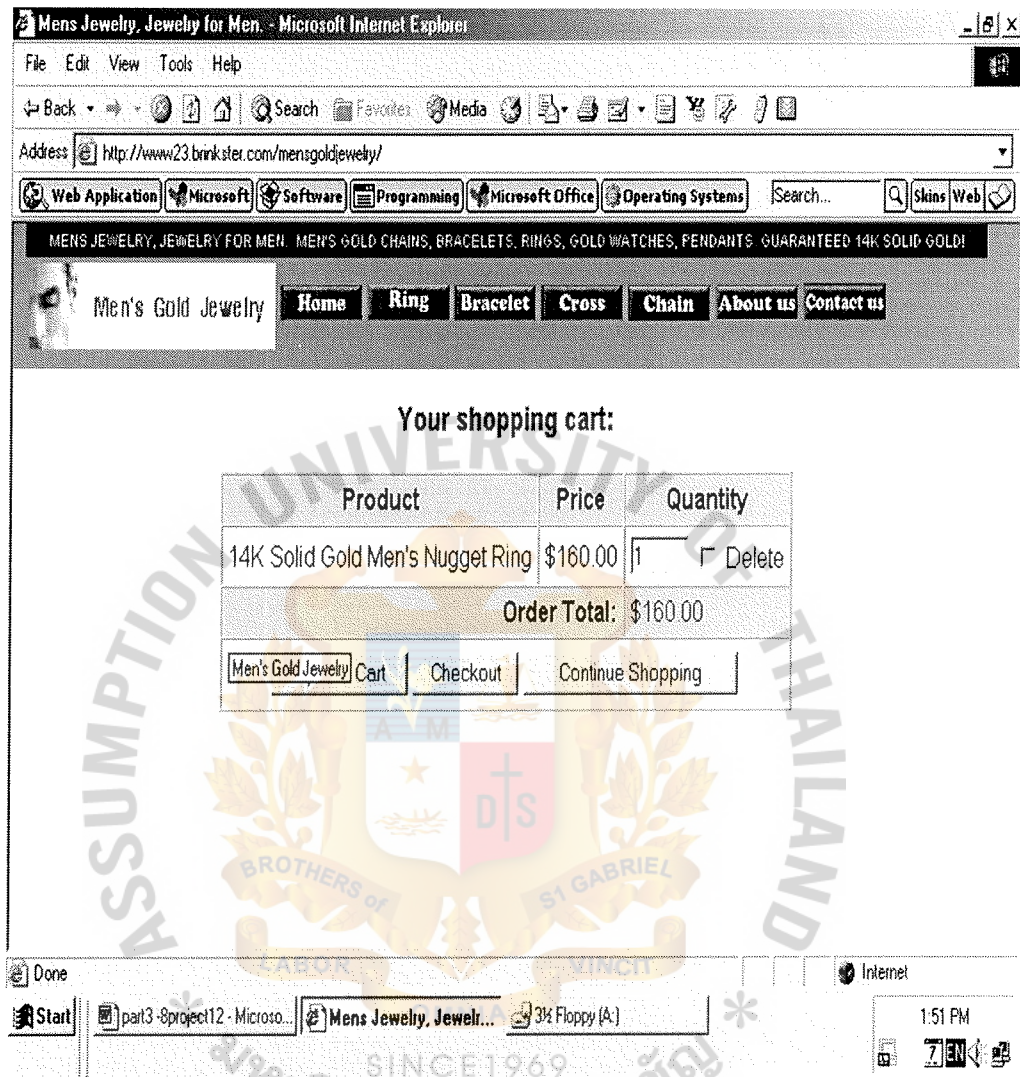


Figure 7.8. Shopping Cart.



## 7.6 Check Out

Mens Jewelry, Jewelry for Men. - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search

Address <http://www23.brinkster.com/mensgoldjewelry/>

MENS JEWELRY, JEWELRY FOR MEN. MEN'S GOLD CHAINS, BRACELETS, RINGS, GOLD WATCHES, PENDANTS. GUARANTEED 14K SOLID GOLD!

Men's Gold Jewelry

Home Ring Bracelet Cross Chain About us Contact us

username:

password:

email address:

Address Information:

street:

city:

state:

zip:

Payment Information:

type of credit card:

credit card number:

credit card expires:

name on credit card:

Done Internet

Start project1 - Microsoft Word 3 1/2 Floppy (A:) Mens Jewelry, Jewel... 11:13 AM

Figure 7.9. Check Out.



## 7.7 Confirm Order

The screenshot shows a Microsoft Internet Explorer window with the address bar displaying `http://www23.brinkster.com/mensgoldjewelry/`. The website header includes the text "MENS JEWELRY, JEWELRY FOR MEN. MEN'S GOLD CHAINS, BRACELETS, RINGS, GOLD WATCHES, PENDANTS. GUARANTEED 14K SOLID GOLD!" and a navigation menu with links: Home, Ring, Bracelet, Cross, Chain, About us, and Contact us.

The main content area displays the following text:

Your order will be sent to the following address and charged to the following credit card. Please review your address and payment information and click Confirm Order to finish placing your order.

**Address Information:**

street: Pahonyotin  
city: Bangkok  
state: th  
zip: 10900

**Payment Information:**

type of credit card: VISA  
credit card number: 55...99  
credit card expires: 8/1/2006  
name on credit card: siam commercial bank

A "Confirm Order" button is located at the bottom of the form.

The taskbar at the bottom shows the Start button, several open applications (project1 - Microsoft Word, 3 1/2 Floppy (A:), Mens Jewelry, Jewel...), and the system clock showing 11:18 AM.

Figure 7.10. Confirm Order.

## 7.8 Continue Shopping

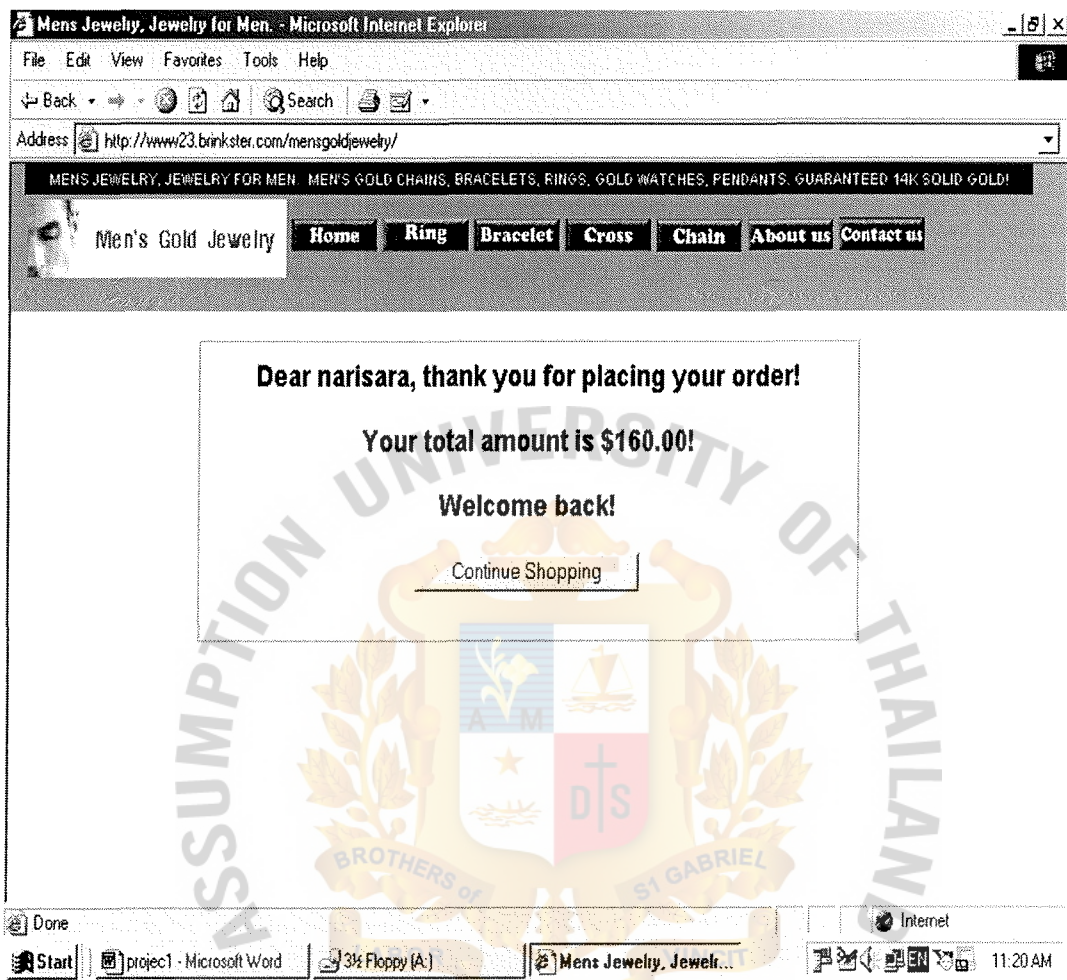


Figure 7.11. Continue Shopping.

## 7.9 Contact Us

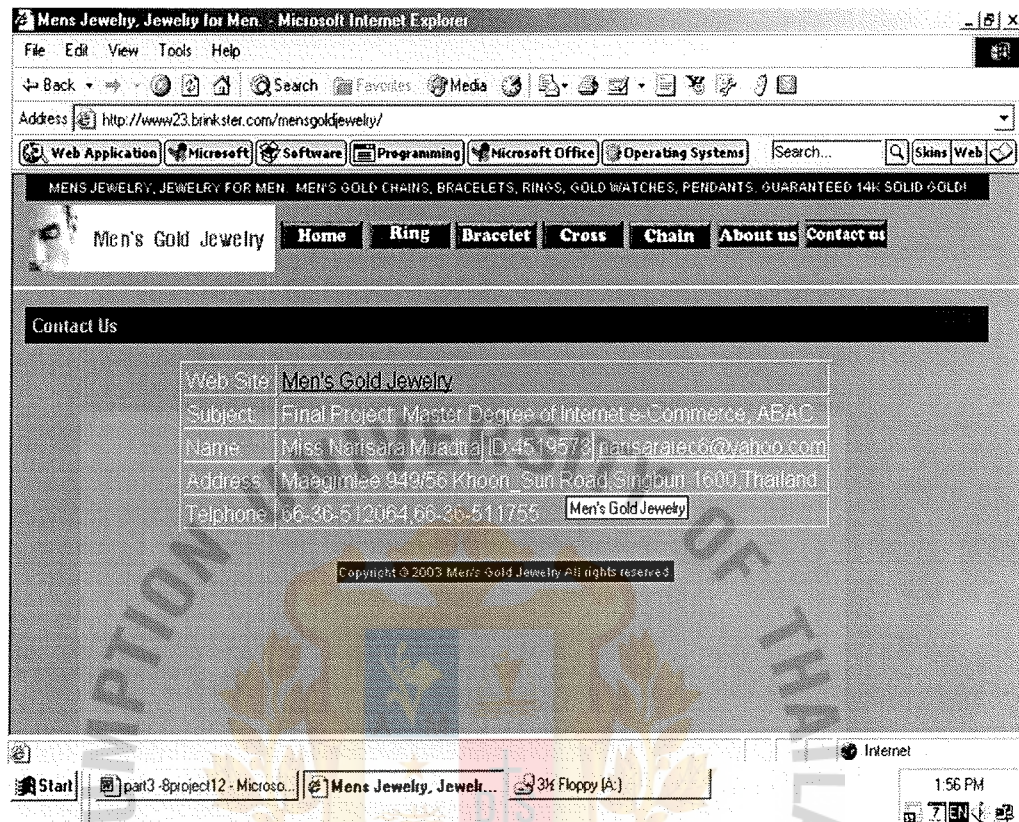


Figure 7.12. Contact Us.

The customer can contact us as my E-mail ([narisaraiec6@yahoo.com](mailto:narisaraiec6@yahoo.com)) and at my shop is Maegimlee Gem shop 949/56 Khoon Sun Road, Singburi Province Thailand 10600. Tel 036-512064, 036-511755.



## **VIII. CONCLUSIONS AND RECOMMENDATIONS**

### **8.1 Conclusions**

Men's gold jewelry online has four items of products, which are produced in Thailand and abroad. Main products are Ring, Bracelets, Cross, and Chains. Men's gold jewelry have several items to cover the market's need. Target market for Men product only B2C (Business to Customer) the customer who in our interested including both Thai and international people, especially foreigners who are interested in gold and jewelry gift. Most of them must have purchasing power. After the concept of marketing and website has been applied, then the web site has been developed. The program and software that Men's gold jewelry online used in creating the web pages are editplus2, Photoshop.

Men's gold jewelry online web site are designed to attract people and not only man by making the style of the web site looks cool, easy to looking, user friendly, by using cool color like gray, black, white, etc. So the visitors can navigate web site for a long time. And also, they can navigate our web site easily as we do not make the web site complicated to explore or navigate. This project has successfully fulfilled the objective of developing the prototype for selling gold and jewelry for men.

### **8.2 Recommendations**

In the first year, Men's goldjewelry offers channels for only one payment method: Transferring money through bank account and sending transfer evidence.

Men's goldjewelry. If Men's goldjewelry receive confirmed documents from customers, then call or email to customers for confirmation and prepare fitting and sending to customers in time.



In the future, Men's goldjewelry will contact to the Bank and implement to customer then can payment via VISA, MASTER card.

Men's goldjewelry plans to increase the number of product categories such as many style of man in the world. Besides selling and assembling Maegimlee Gem Shop, Men's goldjewelry plans to increase the part of "How to help man for good looking and easy for find jewelry in his style."

Finally, Men's goldjewelry has set the objective to make more interesting to man and who wants to buy and looking for gold and jewelry for someone as first complete and more choice in the future.





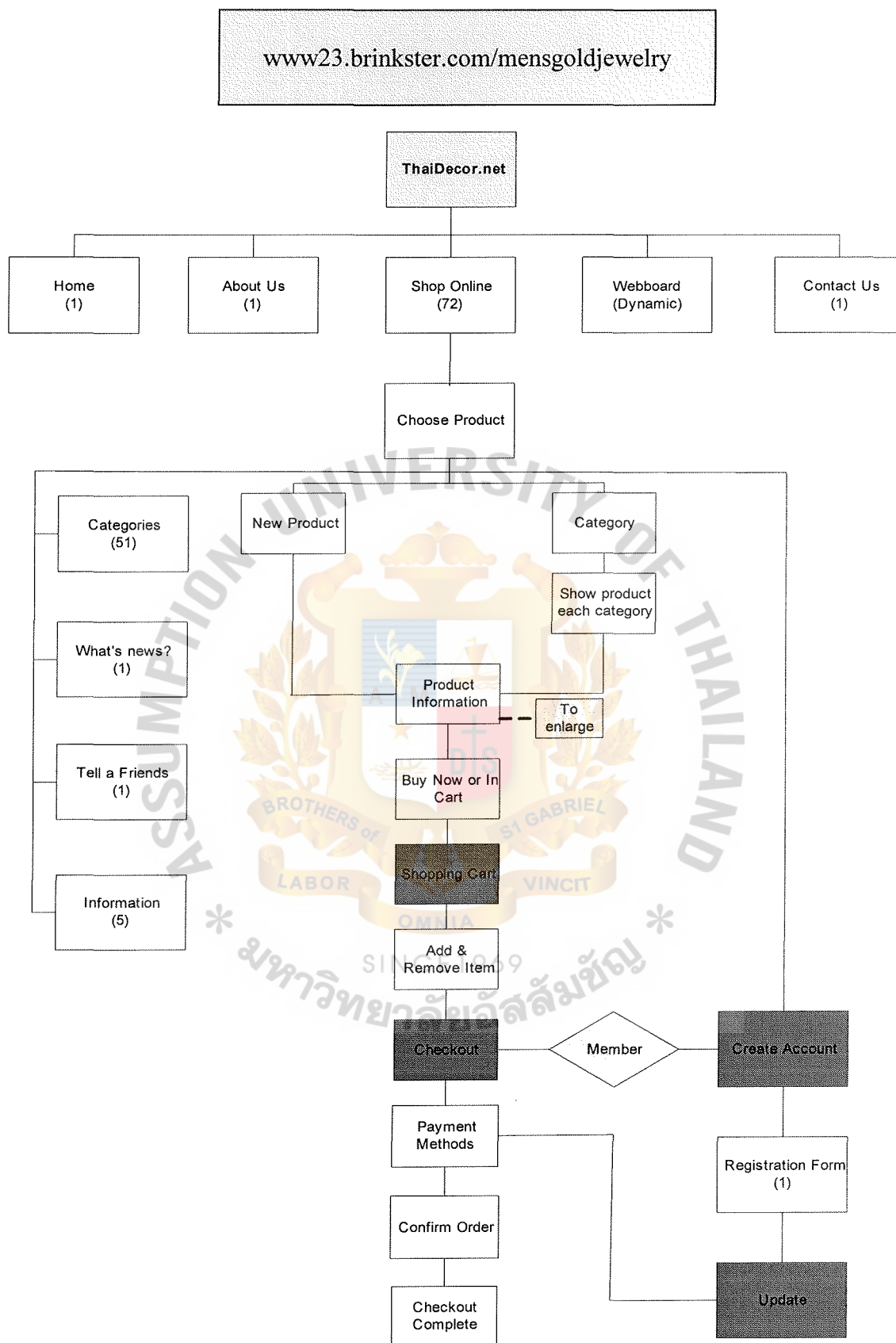


Figure A.1. Site Map.

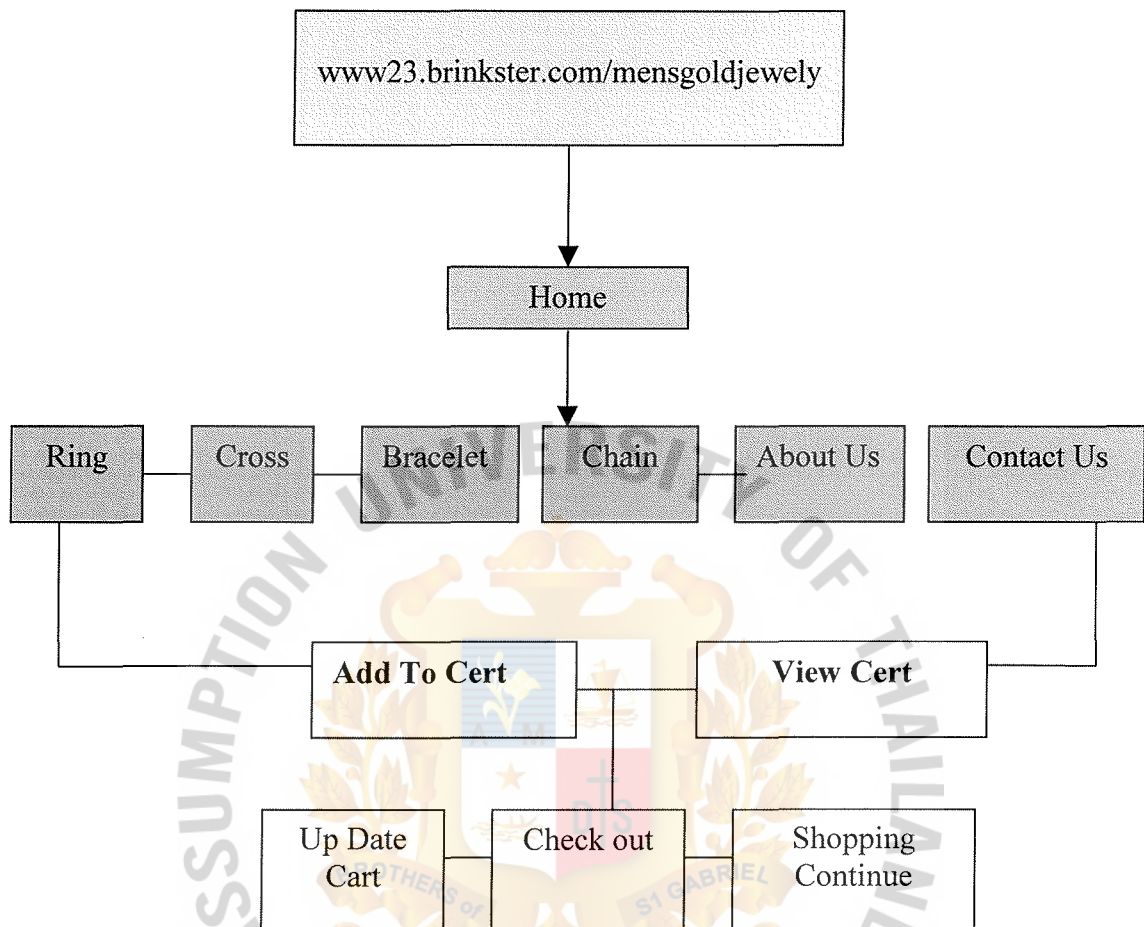


Figure A.2. Site of Middle.





## APPENDIX B

### DATABASE DESIGN

## 1. Table Products

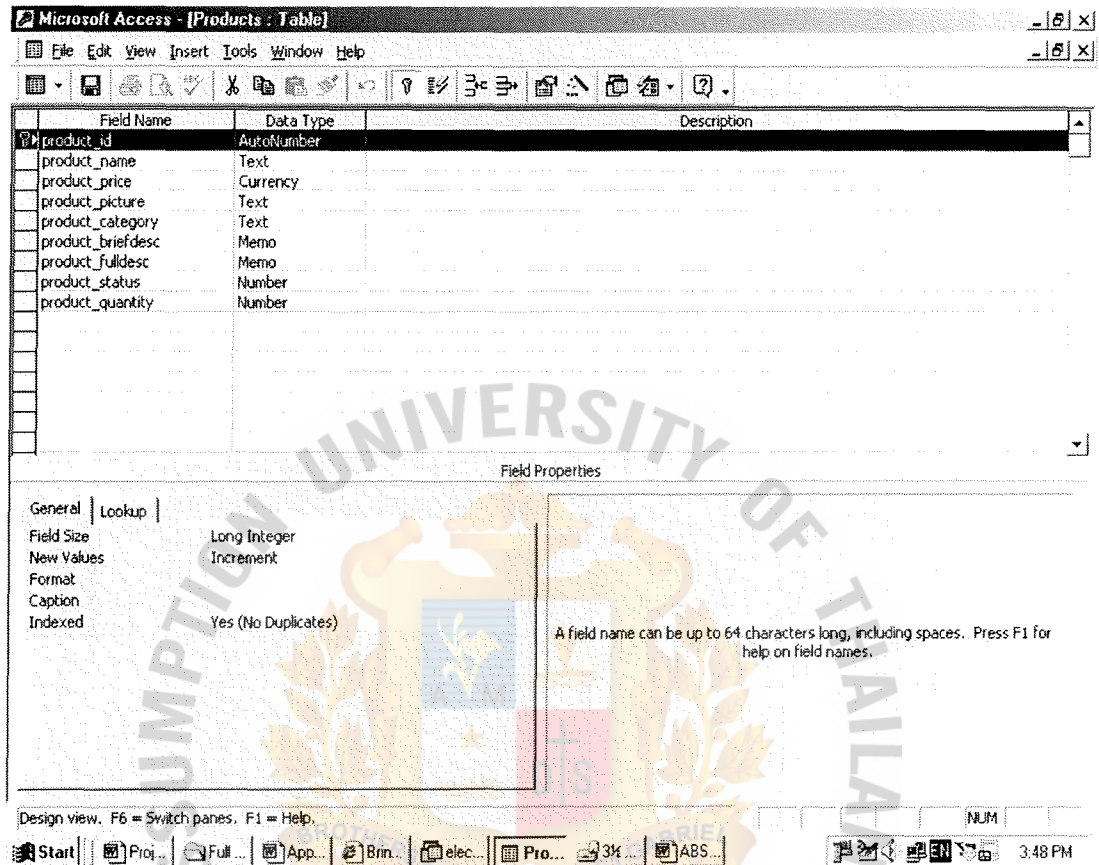


Figure B.1. Table Product.

2. Table Cart

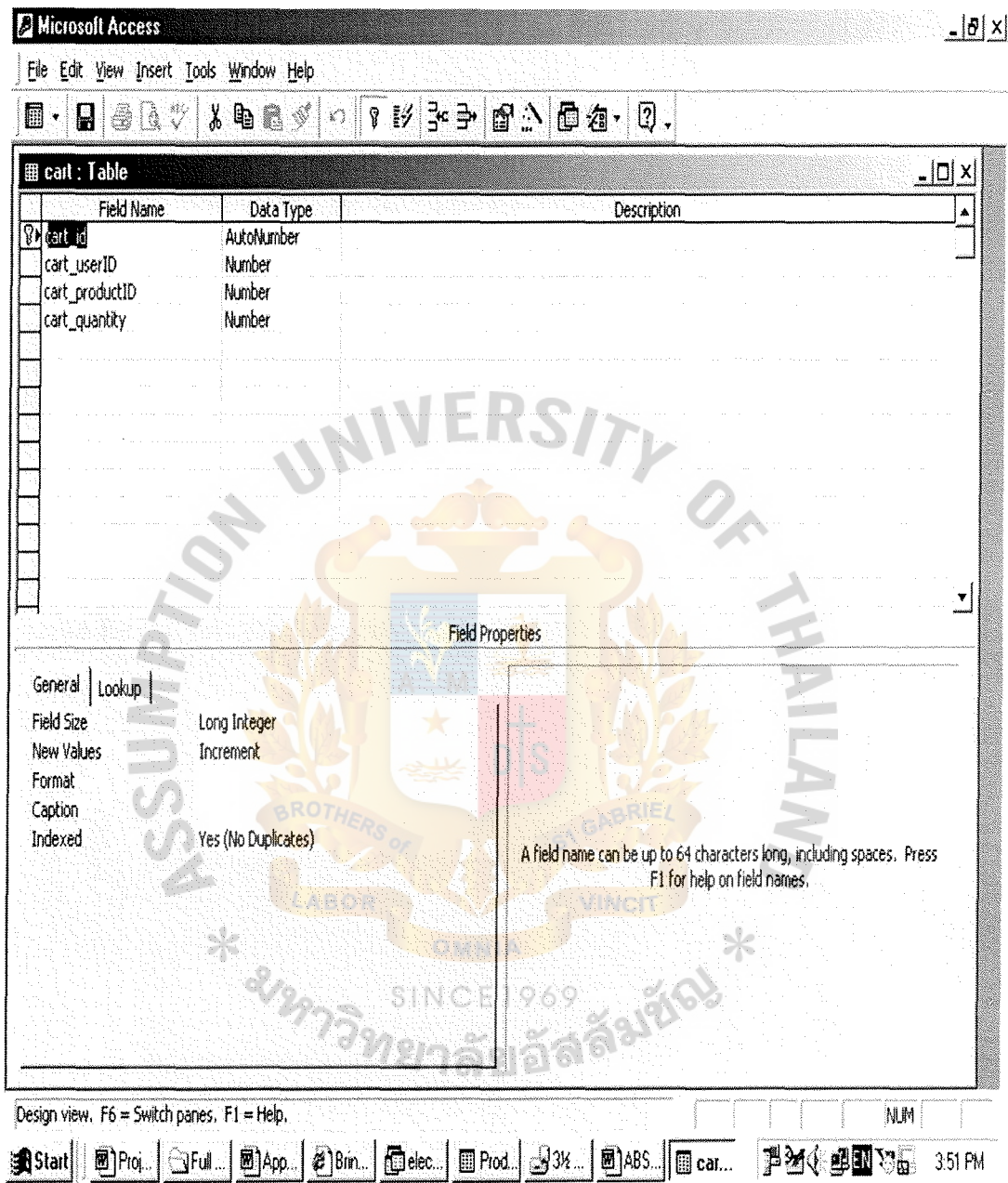


Figure B.2. Table Cart.

3. Table Order

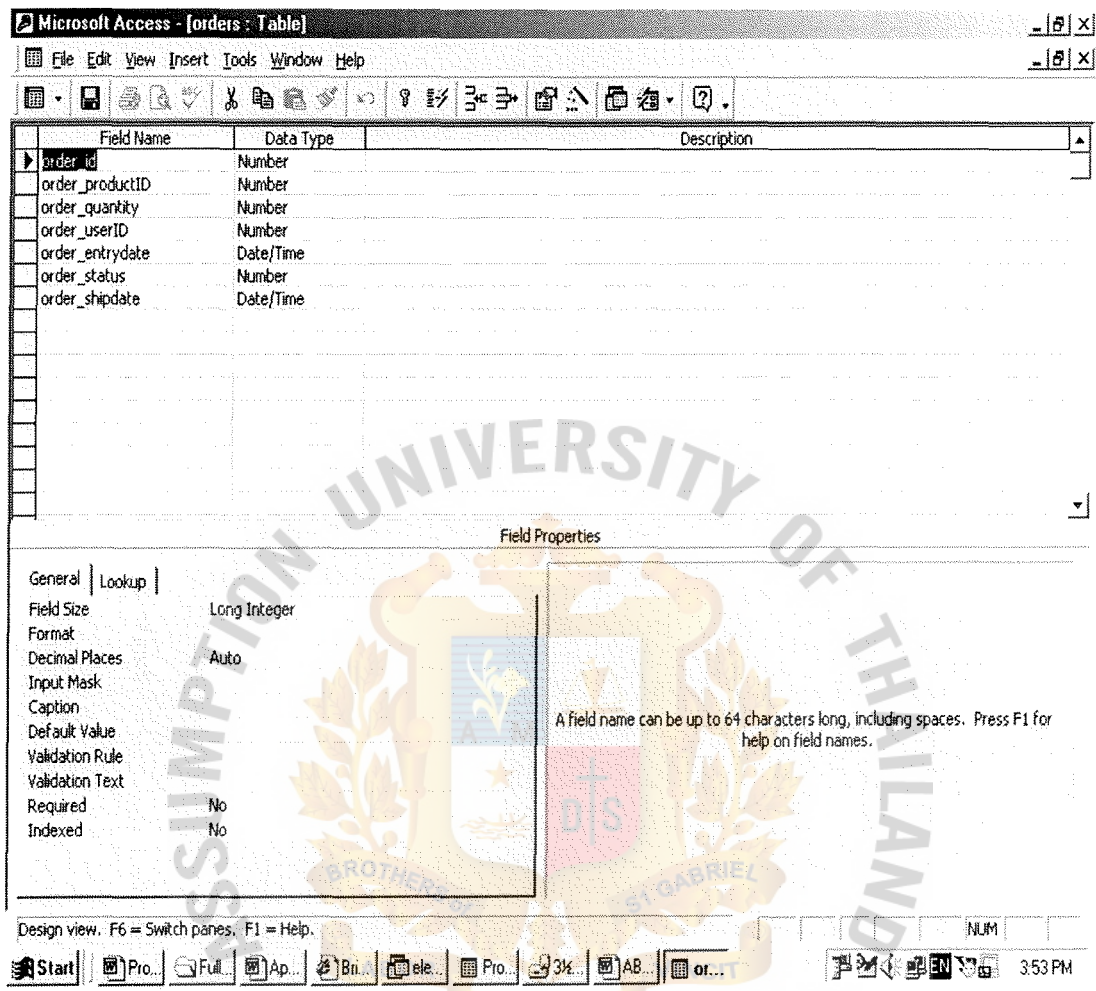


Figure B.3. Table Order.



4. Table User

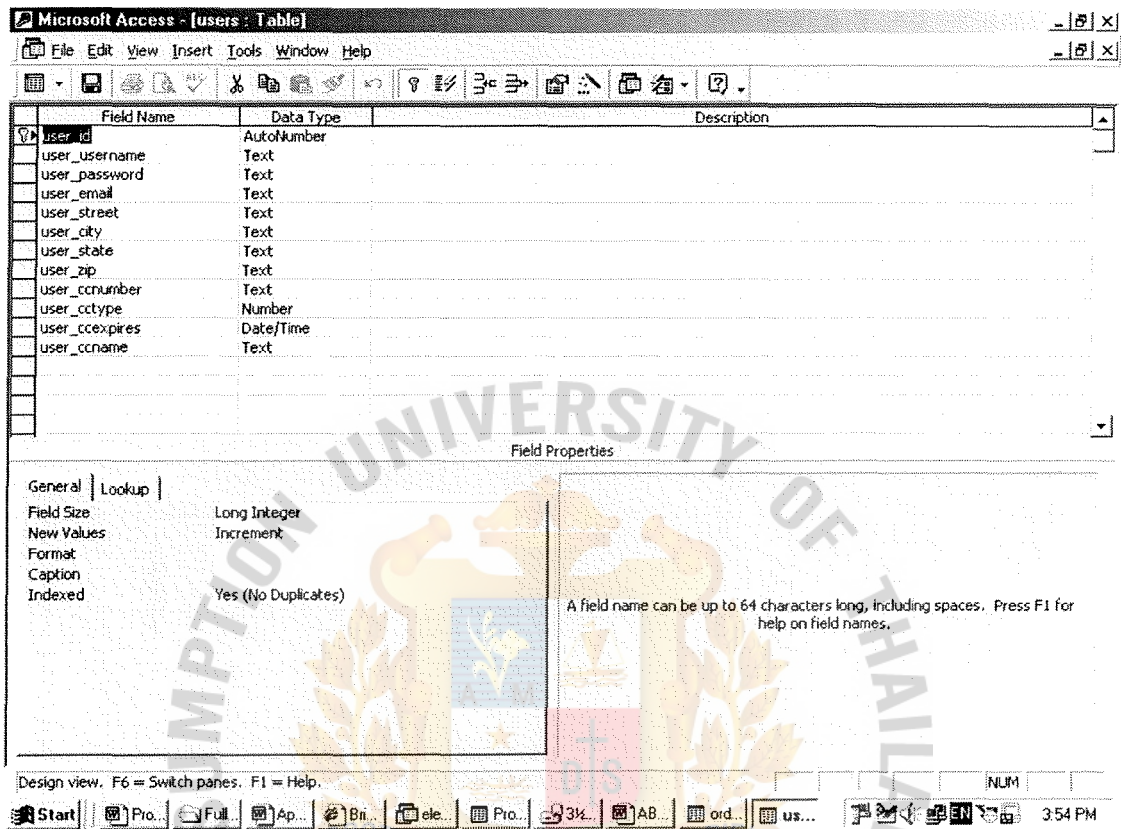


Figure B.4. Table User.

## BIBLIOGRAPHY

1. Drucker, Peter. Managing Challenges for the 21<sup>st</sup> Century. New York: Harper Business, 1999.
2. Kotler, Philip. Marketing Management, 10<sup>th</sup> Edition. New Jersey: Prentice-Hall, 2000.
3. Laudon, Kenneth C. and Jane P. Laudon. Management Information System, 6<sup>th</sup> Edition (International). New Jersey: Prentice Hall, 2000.
4. Porter, Michael. Techniques for Analyzing Industries and Competitors. Competitive Strategy. New York: The Free Press, 1980.





