OUT PATIENT DEPARTMENT INFORMATION SYSTEM

by

Ms. Piyada Sattayaprasert

A Final Report of the Three - Credit Course
CS 6998 System Development Project

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Computer Information Systems
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Project Title	Out Patient Department Information System
Name	Ms. Piyada Sattayaprasert
Project Advisor	Dr. Sudhiporn Patumtaewapibal
Academic Year	July 2000

The Graduate School of Assumption University has approved this final report of the three-credit course, CS 6998 System Development Project, submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer Information Systems.

Approval Committee:

(Dr. Sudhiporn Patumtaewapibal)
Advisor

(Prof.Dr. Srisakdi Charmonman)
Chairman

(Air Marshal.Dr. Chulit Meesajjee)
Dean and Co-advisor

(Asst.Prof.Dr.Vichit Avatchanakorn)
Member

(Assoc.Prof. Somchai Thayarnyong)
MUA Representative

July 2000

ABSTRACT

The system development project covers analysis, design and partial implementation of OPD (out patient department) information system of JTP Hospital.

The main objective is to improve the existing function of OPD system, which is manually recorded to be a computerized system. It helps the hospital in achieving greater operational efficiency and control of information oriented tasks in administrative and patient care areas.

The proposed system, data are kept in a computerized filling system which can reduce some workload, processing time and is also designed to provide accurate information in time for the operational staff as well as the top management. The study of this project begins with the problem definitions and analysis of the existing system. Using the tools of structured analysis such as context diagram, data flow diagram to describe the information flow, the new system can be designed to solve the problems and meet users' requirements. It also helps to control the consolidated OPD information system and produces the required reports assisting the top level management to engage in strategic planning, analyzing, inquiring and, manipulating the information.

ACKNOWLEDGEMENTS

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Finally, special appreciation is due to my family for their fervent and continuous encouragement. Above of all, She is forever grateful to my parents whose willingness to invest in her future has enabled her to achieve her educational goal.

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I. INTRODUCTION

1.1 Background of the Project

System development is designed for JTP Hospital. It has been established in1988 which is located in Nakhonsawan province .The main purpose of business is to give the healthcare services to the patients in the province and its vicinity. As the hospital business has been growing-rapidly, it has seen the opportunity to increase the market share, and better serve the patient demand in this region by developing information system. Therefore, the new computerized system is required so that it can serve better operation performance. So the new computerized system is needed instead of manually recorded by staff.

Because of on time reliable information, cost reduction and a simple document handled manually is not adequate to manage the system. Actually, fast and convenience services are important factors in the private hospital business. Out patient department (OPD) is an image and the first part of main service in the hospital. If the visitors have no first impression with the hospital service, such as, waiting for a long time, it means that the hospital may lose share market in the near future. So, the system development plan is considered to develop the system into the computerized system .It is expected to be able to aid the hospital in achieving operational efficiency and control of information oriented tasks in administrative and patient areas. Another target for the new system is to provide required reports in daily, weekly and monthly basis. Finally, the system is designed to serve both operational and managerial decision to improve the hospital business's competitive edge.

1.2 Objectives

The objective of this project on the out patient department system can be defined as follows:

(1) To study the existing system.

(2) To analyze the user's requirements and problems.

(3) To design and implement the OPD information system in order to operate efficiently.

1.3 Scope

The project will cover with the OPD registration and OPD medical service as the following details:

When the patients come to take medical service at the hospital, they give their name in order to verify their record. If the record is not found, the medical care staff; nurse, makes a new OPD record that contains patient name & identify hospital number(H.N) before seeing the doctor. Then the nurse diagnoses the patient's symptom and assign the appropriate doctor who is an expert in these disease. Nurse provides the patient OPD card and proscription to the doctors. Doctor will record the patients' treatment. If the doctor would like to make an appointment with the patient to follow up, the nurse will record in file and give the doctor's appointment to the patient and print out the summary appointment to each doctor everyday. Moreover, daily, monthly, and annual report will be presented to the medical management so that the steering committee can make an expandable hospital business plan in the future. Also, generating costs analysis and design screen layout f new system are presented to steering committee.

II. EXISTING SYSTEM

2.1 Background of the Organization

JTP Hospital, has been opened as the first private hospital of Nakhonsawan province in early 1988 by a group of shareholders and businessman with mission to serve medical treatment to customer in both rural villages and district area. It has served as a General Hospital, 24 hours a day, both for out patient and inpatient departments.

The hospital consisted of 4-storey building, and initially operated total of 50 inpatient beds. After a few years of operation, the business has seen substantial growth, so the size of hospital became too small and can't support the volume of patient in each day.

Due to the high demand of patients in Nakhonsawan province and nearby provinces, the hospital was expanded to fulfill the needs of visitors in the beginning of 1995. By that time the hospital has been extended the service with the new 6-storey building and can carry 150 inpatient beds, available with the average of the outpatients approximately 5,000 patients per month.

2.2 Existing Business Function

For the existing operation, all processes are performed manually and can be summarized as the following procedures:

(1) Out Patient Visit

(a) New patient

When the new patient visits the hospital, the staff will record the patient's information in patient record or OPD card. The information consists of patient name, address, telephone etc. Then the staff will run

run the patient hospital number (H.N).The number uniquely identifies that particular patient. Later the patient identification card will be provide to the patient.

(b) Existing patient

Patients who have visited the hospital have their identification card with the hospital number (H.N). The staff will search the old patient's OPD record by using H.N. and the assign to the appropriate doctor. If the patient does not bring along the identified card, the staff will request patient name and surname to find the H.N.

(2) Make diagnosis

The doctor examines the patient and writes down all treatments in patient's prescription that is attached with OPD chart form. The prescription is sent to OPD nurse for giving treatments to the patient.

(3) Make an appointment

When the doctor finished treating patients, he needs to appoint the patient for following up his or her progress. The doctor will mark the appointment date for next visiting date. Nurse must record the appointment date of each doctor schedule for checking and postpone in case of the doctor may be not available at that time. Nurse gives an appointment slip to the patient.

(4) Handle patient record

OPD nurse has to bring the prescription order from doctor to the pharmacy in order to arrange medicine for patient .For another copy of

prescription is sent to finance for producing patient receipt. OPD nurse has to list the total appointed patients and then send to each doctor everyday.

(5) Prepare medicine

After OPD nurse submits the prescription order to pharmacy division, a pharmacist is responsible for arranging medicine. If the prescription order is not clear or some drug is out of stock , he must ask the doctor for changing to another drug. On the other hand, if the prescription is accepted, pharmacist will calculate the amount for the medicine and fill out the prescription order form.

(6) Make patient bill

Finance got a prescription order copy form. He will add the necessary fee such as doctor fee. Then, finance will sum up the entire transaction and print out the receipt to patient.

2.3 Current Problems and Area of Improvement

2.3.1 Current problems

The major clue problems caused from too much manual operation and also high number of out patients. It makes the overall system inefficient, sometimes the drug distribution is too late. OPD nurse still handles report manually. Data is not accurate and kept in redundancy. Since the patient sometimes does not bring the ID card that consists of his name, hospital number and age, the staff must spend a lot of time for searching patient record. The staff can not provide fast information to serve the patient. In fact, patient information are kept by running the hospital number. No patient can

No patient can remember his /her hospital number. So the staff must ask for patient's information for making a new record.

Therefore, many problem of the existing system can be summarized as follows:

(1) Slow service and dissatisfaction of the out patients for waiting for a long time.

(2) Data operation management is poor.

(3) Use more time to change incorrect data.

(4) Data are kept in redundancy.

(5) Data are not easy to flow from a service point to the other because most of the data are written in form of document.

2.3.2 Area of Improvement

(1) Improve operation management from manual performance to be computerize system.

(2) Minimize time for generating patients' record.

(3) Provide accurate data information.

Current Organization Structure

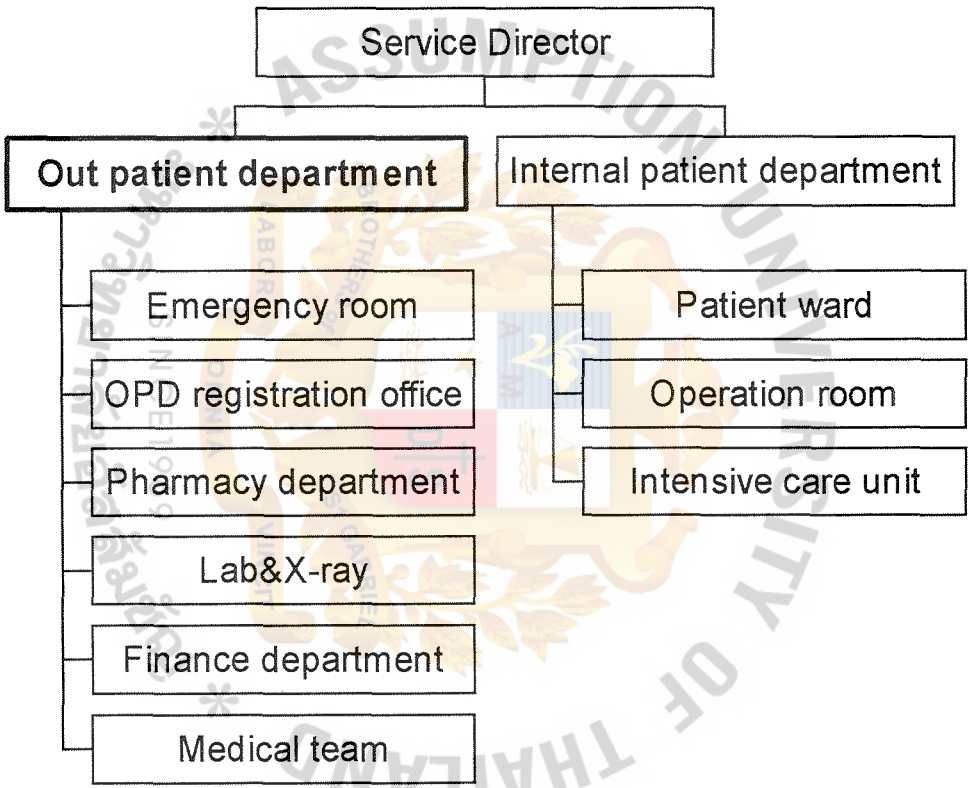

Figure 2.1. Organization Chart.

III. PROPOSED SYSTEM

The proposed computerized system will provide the information and report to management, operate the out patient department process with the computerized information system instead of manual system is easy to use for the users. The proposed system can maximize the present resource productivity.

3.1 User Requirement

(1) The new system should provide on screen query capability to enable users to interact with the system in a user friendly.

(2) The system must be menu driven so that the less familiar computer can use easily.

(3) Data retrieving should be performed faster and system also must be easy to maintain and implement.

(4) The system must provide security and control procedures to make sure that it can't be accessed by the unauthorized persons.

(5) The new system must make sure that the information is stored accurately and should be performed with greatest efficiency.

However, we can summarize the user requirement for each department as follows:

Medical management team

(1) OPD nurse would like to have the easy screens for filling in necessary patient information such as patient name ,address, sex, allergy, blood group etc.

(2) The hospital number (H.N.) should be automatically generated by the system and the date also should be popped up from today system data.

(3) The menu should be able to query the existing data by using either H.N.or patient name/surname.

(4) After the new record has been registered, it should print the patient identification card.

(5) OPD nurse will print out the OPD summary report in monthly in order to know the amount of patient and patient's statistics with different disease in each month.

(6) OPD nurse will print out the appointment report in each day to remind the doctor.

Physician

(1) He would like to have new OPD chart form menu which includes patient's name, H.N. and also some space for adding more information.

(2) After making diagnosis and treatment , doctor will key his diagnosis in OPD Chart and prescription order menu for the next references.

Pharmacy

(1) Pharmacist got the prescription order, she inserts the patient's H.N. and then doctor order will show on menu.

(2) Pharmacist prints drug label including instruction.

Finance

(1) After the cashier gets the prescription order copy, she only enters the patient's H.N. and then transaction will be automatically summed.

(2) At the end of the day, finance will present income report and calculate all the doctor fee and then print out in order to pay doctor fee expense.

3.2 System Design

3.2.1 Data Flow Diagram / Process Specification

There are seven processes in the proposed system which are described below:

Process1: Make registration

(1) request user id no.

(2) verify patient record

(3) create OPD card

(4) search location file

Process2: Screen patient

(1) identify patient symptom

(2) allocate doctor

(3) issue prescription

Process3: Do medical service

(1) control medical service

(2) make treatment record

Process4: Make appointment

(1) update appointment record

(2) issue appointment slip

(3) arrange appointment report

Process5: Prepare receipt

(1) query patient information

(2) calculate transaction

(3) print receipt

Process6: Prepare drug

(1) query patient information

(2) do drug label

(3) provide drug

Process7: Write report

(1) collect patient information

(2) print report

3.3 Hardware and Software Requirements

The purposed information system is installed in personal computer that can be hooked together as network within the hospital. Client- server technology is implemented in this proposed system because it can be easy to maintain and data will be stored in only one place. The server is served at database server where all data are kept The database management system will manage all transaction automatically and provide necessary features and utilities such as system monitoring, user management, backup and restore.

Computer server

CPU	Intel Pentium III Processor 600 EB Slot1
ChipSet on Mainboard	Intel i840
L2 Cache Memory	256KB On-die cache (built in)
Form Factor	ATX
System Memory	256 MB SDRAM PC 100
Hard Disk Drive	18.2 GB Ultra SCSI (7,200 RPM or Higher)
CDROM Drive	48x E-IDE

Graphic Card Chipset	SiS6326
Graphic Memory	4MB EDO
Monitor	14 inch
Floppy Disk Drive	3.5inch,1.44MB
Network Card	10/100Mbps But-in on Mainboard
Keyboard	Microsoft keyboard
Mouse	Microsoft Mouse
SCSI controller	Ultra2Ultra 2 or Ultra 3 Bult-in on Mianboard
Price/Unit	73,000 Baht

Computer Client

CPU	AMD K6-2 500 MHZ
Mainboard	VIA Apollo MVP3 or Ali Aladdin V
L2Cache Memory	512KB,1MB or2MB Pipeline Brust SRAM
System Memory	64 MB SDRAM PC 100
Hard Disk Drive	15 GB E-IDE Ultra DMA/66,7200RPM
CDROM Drive	48 X E-IDE or Higher speed
Display Card	3D PRO AGP with memory 8 MB
Monitor	15 inch Flat Screen ATEC Monitor
Floppy Disk Drive	1.44 MB Floppy drive
Keyboard	Microsoft Keyboard
Mouse	Microsoft Mouse
Power Supply	ATX Casing 235 Watts Power Supply
Price/Unit	30,000 Baht

Keyboard	Microsoft Keyboard
Mouse	Microsoft Mouse
Power Supply	ATX Casing 235 Watts Power Supply
Price/Unit	30,000 Baht
Printer	
Printer server	12,000 Baht
HP Laser Jet	7,000 Baht
EPSON 1170 I	7,000 Baht
Network	
Hub 3 Com 24 port	32,000 Baht
Network wiring	10,400 Baht
Software	
Microsoft Window NT 4.0 Thai Edition	25,000 Baht
Microsoft Window Office 98	50,000 Baht
Database	
Oracle Server Database	100,000 Baht

3.4 Security and Control

3.4.1 User Identification

User authentication is verified when user stars the request, the password identification is performed. If the password is not correct, the screen will alter users to re-enter the new password. Every user has his or her own password and enter this user ID and password before accessing to the system. The password key in the system should be user encryption technique so that it is difficult to see the real password.

3.4.2 Authentication Level

The authorized users, accessing into the system, can make any changes such as day to day operation and limit to edit only authorized person. User will be given low access level as possible to perform his task.

3.4.3 Back up Recovery

Back up copies should be created every time the database is updated or modified. copy of system program must be kept in secondary storage to ensure system operation incase the program run fails.

3.4.4 Physical Security

Computer is vulnerable to water, heat, scratch and etc. The simple rules are:

(1) do not smoke near the computer.

(2) do not have meal near the computer.

(3) do not leave computer open every time.

3.4.5 Virus Protection

A computer virus is software that attaches itself to another program in computer memory or on a disk, and spreads from one program to another. Viruses can damage data by displaying the offending or bother some messages. The anti-virus software should be installed at all times. There are several types of anti-virus. Scan will check the system and disks, if scan finds a known virus, it will eliminate and repair infected programs or system area to their original condition.

Other Control

Ensure that the operators receive adequate training on the user of the computer. The computer hardware must be locked every closing time and key must be kept by an authorized person.

3.5 Cost / Benefit Analysis

3.5.1 Cost Analysis

Table 3.1. Cost Analysis.

Descriptions	Quantity	Unit Price (Baht)	Amount (Baht)
Hardware			
Computer Server (PentiumIII 600)	2	73,000	146,000
Computer Client (AMD K6-2)	10	30,000	300,000
Printer Server	1	12,000	12,000
HP Laser Jet	1	7,000	7,000
Epson 1170I Printer	4	7,000	28,000
Hub 3 Com24 Port	1	32,000	32,000
Network wiring	13	800	10,400
Software			
MS Window NT 4.0 Thai Edition	2	25,000	50,000
Ms Window 98	1	50,000	50,000
Application software	1	30,000	30,000
Database			
Oracle Server database	1	100,000	100,000

System Cost

Table 3.2. System Cost, Baht.

Description	Amount	Total Amount
Development Cost		
-Personnel	10,000	
1 Database specialist(10hrs/1000Baht)	80,000	
1 System Analysts(100hrs/800Baht)	32,000	
1 System Design (40 hrs/800Baht)	40,000	
-Expense		
Users Training	535,400	
New Hardware &Software		
Hardware	130,000	
Software & Application Program Oracle DBMS	100,000	927,400
Project Annual Operation Cost		
Maintenance Agreement Cost for		
Hardware /year	40,000	
Software/year	30,000	70,000
Total Development Cost and Operation Cost		997,400

3.5.2 System Benefit

(1) Saving paper and stationary cost = 35,000 Baht

(2) Increasing income = 600,000 Baht

Total annual benefit = 635,000 Baht

Benefit Analysis

The pro posed system provide both tangible and intangible benefits as follows:

Tangible benefit

(1) Cost reduction to elimination of manual operation and time.

(2) Reduce cost of document file.

(3) Faster processing of operation.

(4) Decrease overtime charge.

Intangible benefit

(1) provide accurate information for management decision.

(2) Reduce redundancy function in operation.

(3) To get customer satisfaction.

(4) To get better service.

3.5.3 Comparing Costs and Benefits

Payback period

A criterion that is frequently used to judge the profitability of a system is the payback period. It is defined as the number of the years required accumulating earning sufficient to cover its cost.

The payback period for the proposed system is 2.66 years after first year of investment.

Return on Investment

To measure the relationship between the amount the business gets back from an investment and amount invested. The ROI for a potential solution is calculated as follows:

ROI = (Estimated lifetime benefit – Estimated lifetime cost) / Estimated lifetime cost

ROI = (2,886,138.04 - 1,460,406.20) / 1,460,406.20 = 0.9762

The ROI for 5 years lifetime for the proposed system is 97.62%

Break Even

After studying the automated system, the implementation of new system is more efficient than the manual system in long term. The investigation cost that is used in the new system will be higher in the first stage. But in long term, the new system will cost less than the existing system.

Table 3.3. Payback Analysis: Oracle Server Database, Baht.

Cost Items	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Development Cost	-997,400					
Operation –Maintenance Cost		100,000	108,000	125,972	125,972	136,049
Discount factor for 8%	1.000	0.926	0.857	0.735	0.735	0.681
Time Adjusted Costs (adjusted to present value)	-997,400	92,600	92,556	92,589	92,589	92,650
Cumulative time-adjusted costs over lifetime	-997,400	1,090,000	1,182,556	1,275,169	1,367,757	1,460,407
Benefit derive from the operation of new system	0	635,000	679,450	727,012	777,903	832,356
Discount factor for 8%	1.000	0.926	0.857	0.794	0.735	0.681
Time Adjusted Benefit (adjusted to present value)	0	588,010	582,289	577,248	571,759	566,835
Cumulative time-adjusted benefit over lifetime	0	588,010	1,170,299	1,747,546	2,319,304	2,886,139
Cumulative time-adjusted cost + benefits	-976,400	-501,990	-12,258	472,378	951,547	1,425,732

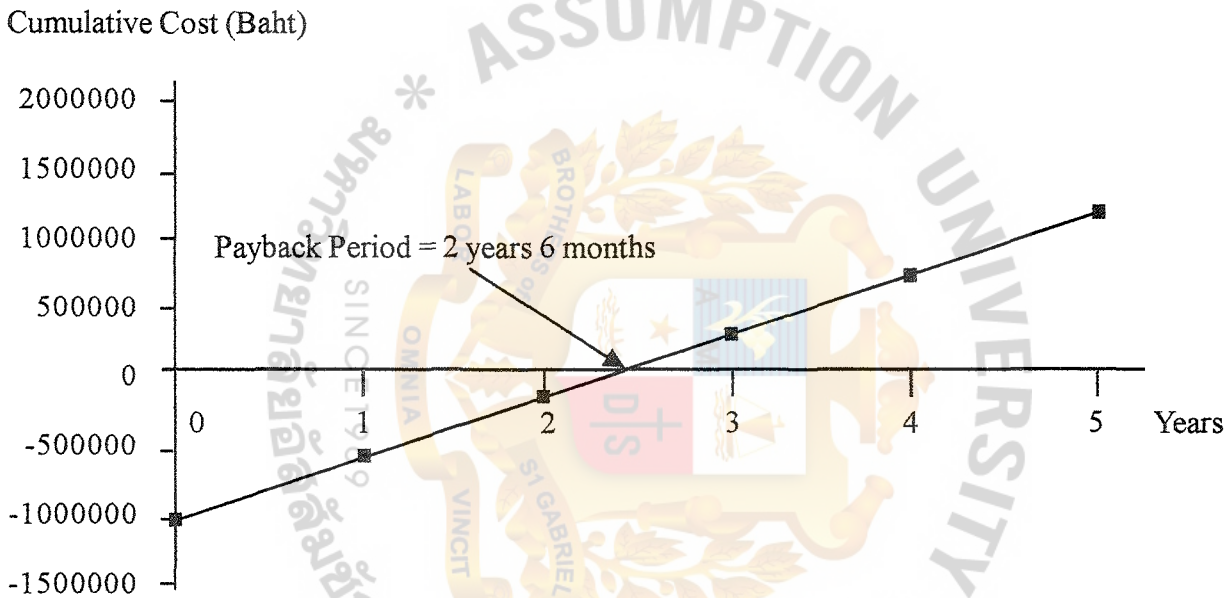

Figure 3.1. Payback Period of the Proposed System.

Table 3.4. System Cost Comparison in Baht.

Cost Items	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Requirements of Existing System.						
Programmer and Staff		240,000	252,000	264,600	277,830	291,722
Office Equipment						
Paper		32,000	35,200	38,720	42,592	46,852
Stationary		26,400	29,040	31,944	35,139	38,653
Office Automation		76,500	81,855	87,585	93,716	100,276
Other Expenses		30,000	32,100	34,347	36,752	39,324
Total Cost of Existing System		404,900	430,195	457,196	486,028	516,825
Discount Factor for 8 %		0.926	0.857	0.794	0.735	0.681
Time-adjusted cost adjust to present value		374,938	368.678	363,014	357,231	351,958
Cumulative time-adjusted cost of Existing System	0	374,938	734,615	1,106,629	1,463,859	1,815,816

Table 3.4. System Cost Comparison in Baht (Continued).

Cost Items	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Programmer & Staff		120,000	126,000	132,300	138,915	145,861
Paper		8,500	9,095	9,732	10,413	11,142
Stationary		5,000	5,350	5,725	6,125	6,554
Other Expenses		10,000	10,500	10,500	10,500	10,500
Computer Server (Pentium III EB slot 1)	146,000					
Computer Client (AMD K6-2 500 MHZ)	300,000					
Printer Server	12,000					
Laser Jet Printer and Epson1170I Printer	35,000					
Hub 3 Com 24 Port	32,000					
Network Wiring	10,400					
MS Window NT 4.0 Thai Edition	50,000					
MS Window 98 and Application Software	80,000					
Oracle Server Database	100,000					
System Maintenance	70,000					
Total Cost of Proposed System	835,400	143,500	150,945	158,256	165,953	174,056
Discount Factor For 8 %		0.926	0.857	0.794	0.735	0.681
Time Adjusted Cost Adjust to Present Value		132,881	129,360	125,655	121,976	118,532
Cumulative Time Adjusted Cost of Proposed System	835,400	968,281	1,097,641	1,223,296	1,345,272	1,463,804

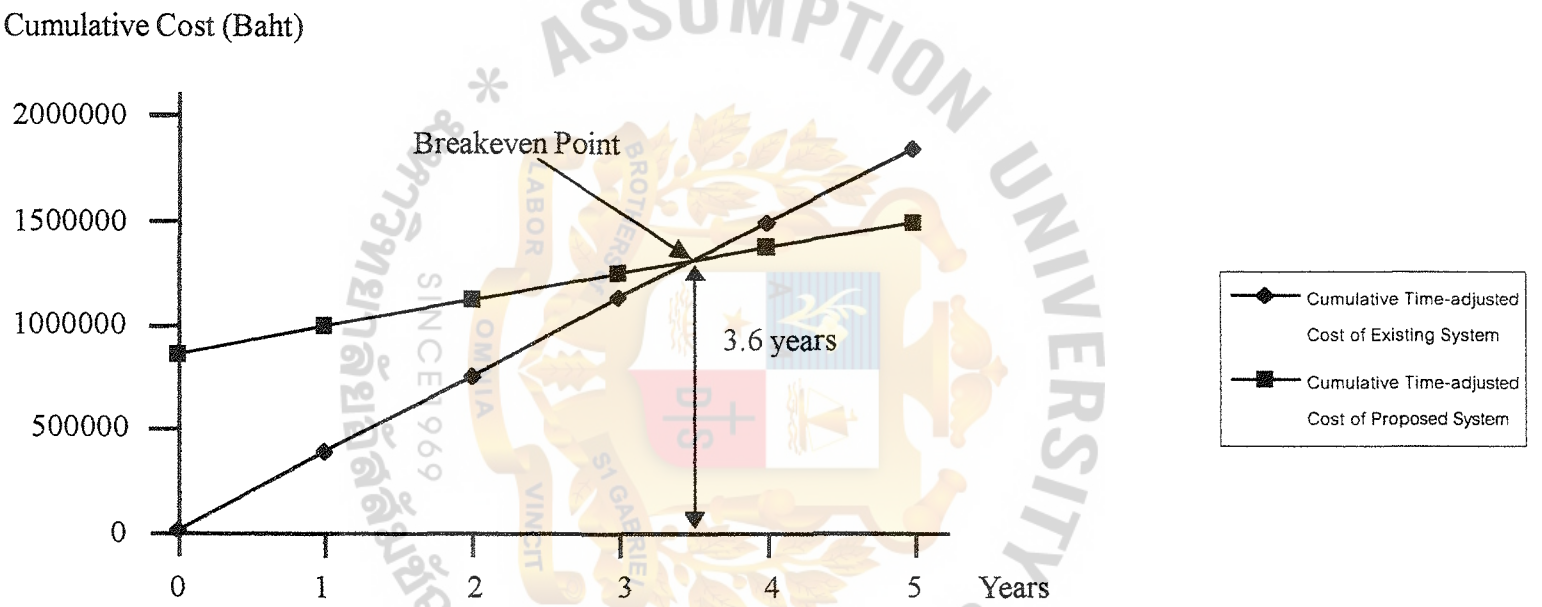

Figure 3.2. Cost Comparison between the Existing System and the Proposed System.

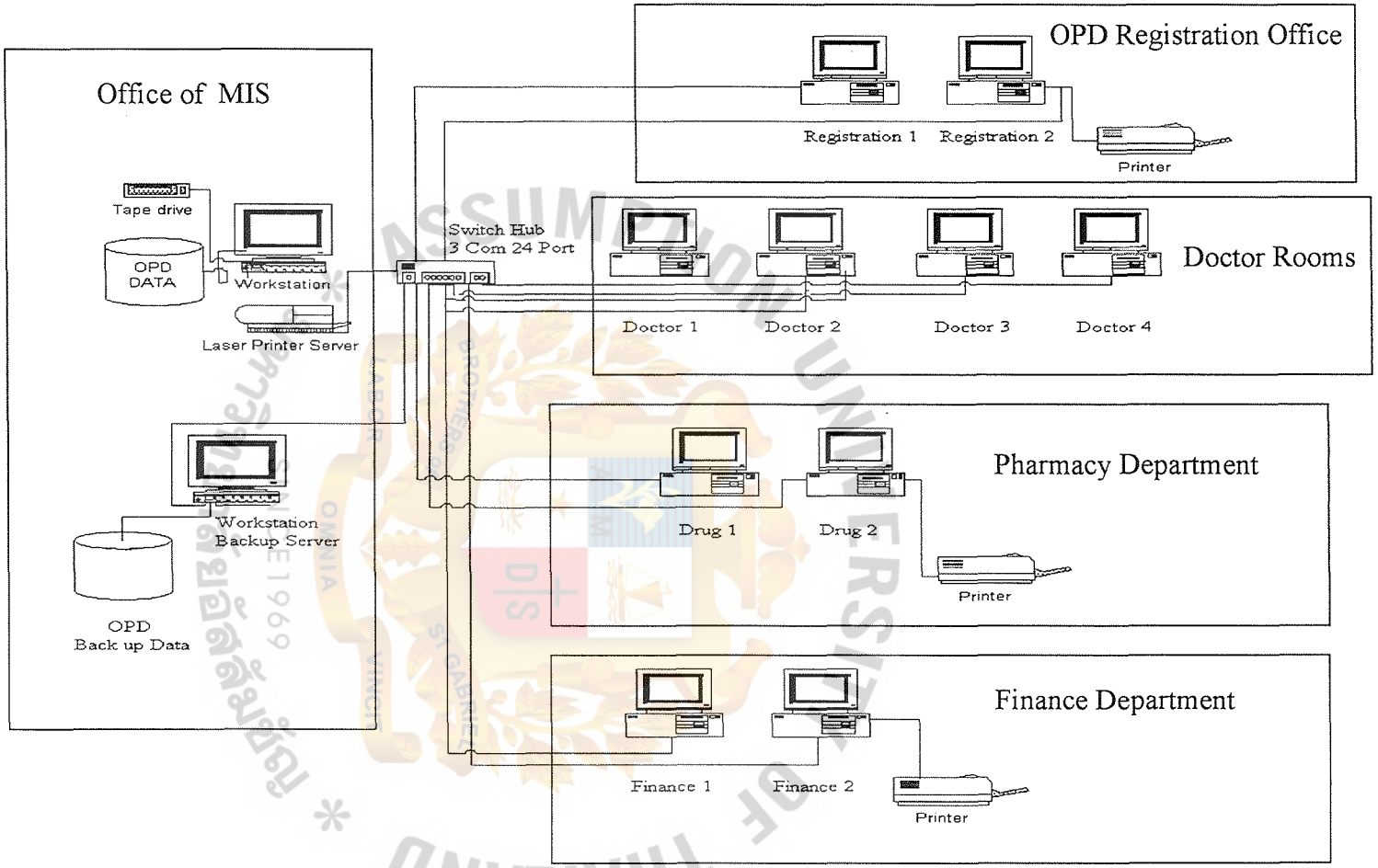

Figure 3.3. Out Patient Department Network.

IV. PROJECT IMPLEMENTATION

4.1 Project Implementation Schedule

The Project plan started on Feb. 1, 2000, can be classified into three main steps as:

(1) System Analysis

(2) Detail Analysis and Design

(3) Implementation

The project has been done according to the project time schedule which is represented in term of Gantt Chart show in the following page.

4.2 Test Plan and Results

4.2.1 Feasibility Study

Study the current system including hardware and overall operation of the related system and user. The investigation of existing problem and user requirement should be done.

4.2.2 System Analysis and Design

The system analysis and design involved study in detail about the current system and doing problem definition by interviewing the related functions and discussing with management. Then, make summary of the existing system, problem and draft proposed system which need to be presented to the user for acceptance.

4.2.3 System Implementation

The prototyping technique is used to develop the system because it would give better communication between users and developers. The developers make the

The prototype begins with the first module, which is the patient registration and ends up with the last module which is the preparing of the reports. At the beginning of developing, the users may be involved with refining their requirement, but it should be a reasonable change.

Test the system as being operational which should be developed in conjunction with the design of the system. Testing process will cover not only program testing but also system testing which ensures the project completeness, correctness and reliability the objectives of the system testing are:

(1) To perform final testing program

(2) To aim at finding any discordant between the proposed system and existing system.

(3) To ensure that end users can successfully interact with the system.

(4) The verify that system components are correctly integrated

4.2.4 System Conversion

Data conversion: the converting files will depend upon at least for installation of the new system.

The existing files are prepared for conversion of the existing file to match the new system. Both existing and new system must be operated concurrently for a certain period of time. Often this parallel operation period coincides with business processing cycles during the interim period. All input transactions are used to update the database that supports both old and new system.

4.2.5 System Maintenance

The computer staff requires to backup all the data on the database server. This is to present the loss or damage of data or any unexpected events. When the system runs

slow the computer staff also has to be in charge for tuning the performance. And if necessary, the computer staff should keep in touch with software and hardware vendors for support.

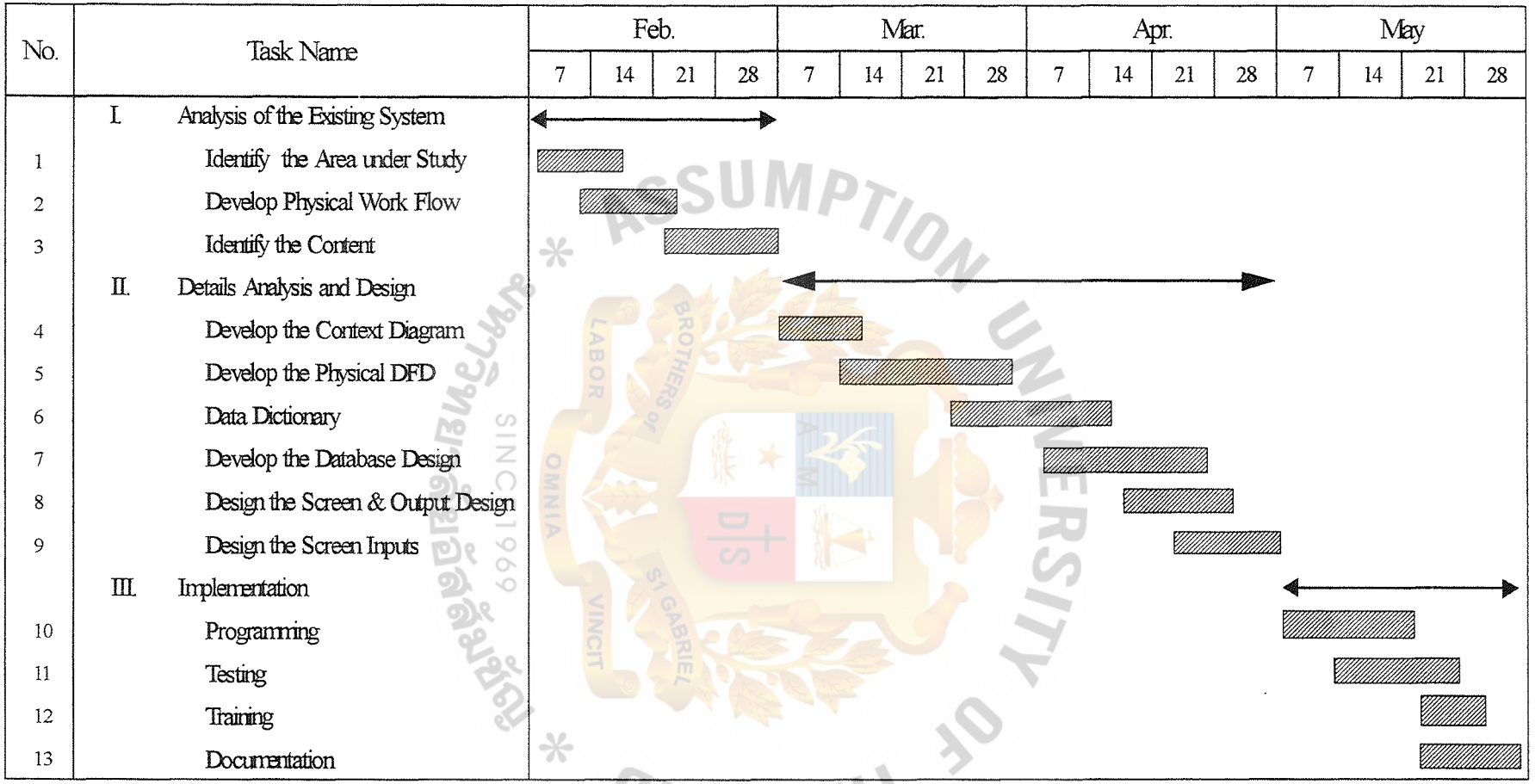

Figure 4.1. Project Plan.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The new system can greatly improve all the parts of the out patient department. The computerized operations can decrease the processing time and present accurate outputs. The data are kept in a computerized filling system, which would be more easily accessed and retrieved. Changing the manual operation into the computerized operation may induce staff to be confused in the first period of installation. After a period of time the staffs can know how to use the new system to work more efficiently and effectively.

The new out patient information system will give more advantages to doctors and nurses to receive the patient information faster than before, so they can take care and start proper treatments earlier. It also maintains filing cards with computer in order to ensure that the data of the patient is systematically maintained. The system can provide the report for top level management's decision.

Table 5.1 shows the operation time on each process of the proposed system compared with the exiting system. It shows that each process of the proposed system performs less time than each process of the existing system which has to operate many work-steps in manual system. Therefore, it can be concluded that the proposed system is more efficient and effective than the existing system.

Table 5.1. The Degree of Achievement of the Proposed System.

Process	The Existing System	The Proposed System
Keeping patient information and issuing patient Id card	20 minutes	10 minutes
Searching patient record	15 minutes	7 minutes
Searching OPD card	15 minutes	7 minutes
Sending the doctor prescription order to pharmacy department	15 minutes	7 minutes
Sending a copy of prescription to finance department	15 minutes	7 minutes
Total	1 hour 20 minutes	38 minutes

The operation time for manual system spends more time than computerized system. All patient records are kept in form of document. It is difficult to find and also take more time to search them. Most processes of sending all documents from doctor to pharmacy and financial departments are flowed by nurse-aid. So, it makes

the patients wait for a long time. After innovating to computerized system, it will give more advantages to physicians and nurses to receive the patient information faster than before. They can search and get all information on the computer screen, so they can take care and start proper treatment earlier

5.2 Recommendations

In the future, the computerized system can be operated and developed for all departments in the hospital to improve and increase healthcare service level of hospital into sophisticated system. The efficiency of the future system can be utilized in the optimum if the system can be linked to all others and the data actually can be transferred by on-line completely.

The pharmacy inventory system and financial application are all recommended for further implementation.

For more advanced technology can be applied to this system. The barcode reader should be implemented as soon as possible to gain positive advantage. Bar codes are a fast, easy and accurate data entry method. The correct use of bar codes can decrease staff time required and increase an organization's efficiency. The data in a barcode is just a reference number or ID data, which the computer uses to look up, associated computer disk record which contains descriptive data and other pertinent information. Patient ID card will attach the barcode. It would be easy for checking their information. The doctor would also have the identity card, which attaches the barcode system. It would be convenient for knowing that doctors are available or not.

APPENDIX A

CONTEXT DIAGRAM

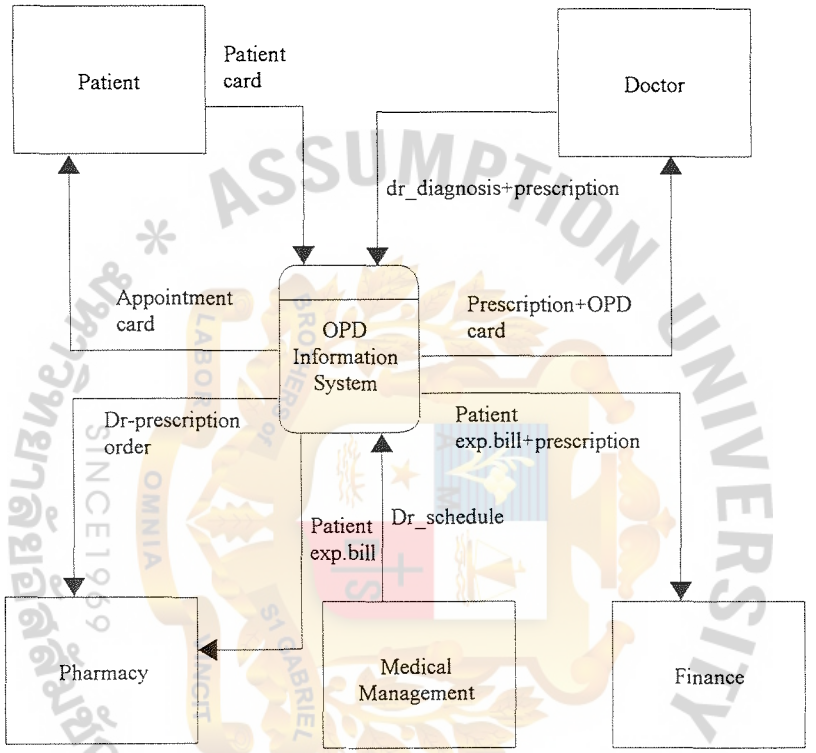

Figure A.1. Context Diagram of the Existing System.

APPENDIX B

DATA FLOW DIAGRAM

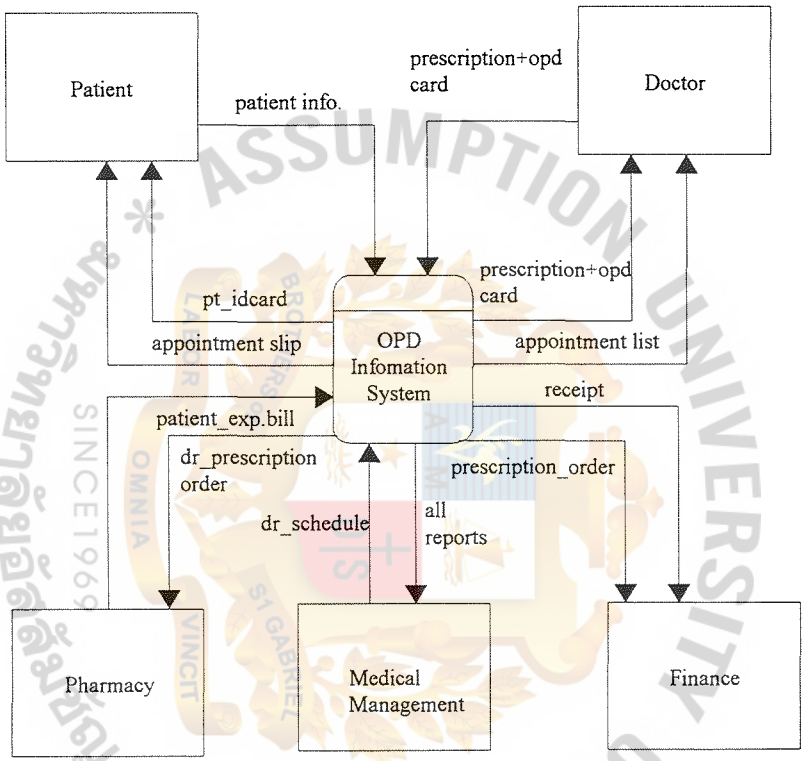

Figure B.1. Context Diagram of Proposed System

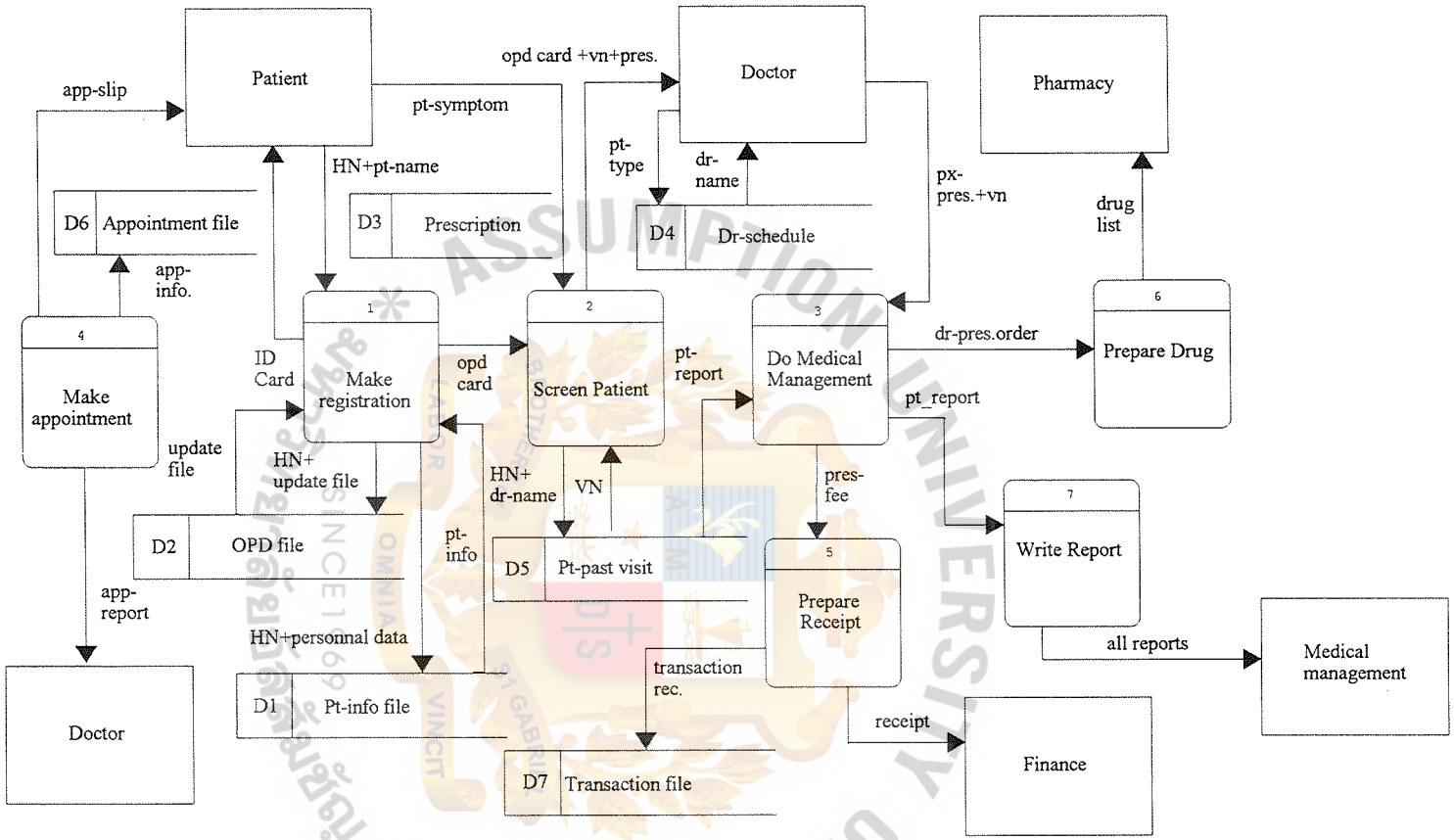

Figure B.2. Data Flow Diagram Level 0.

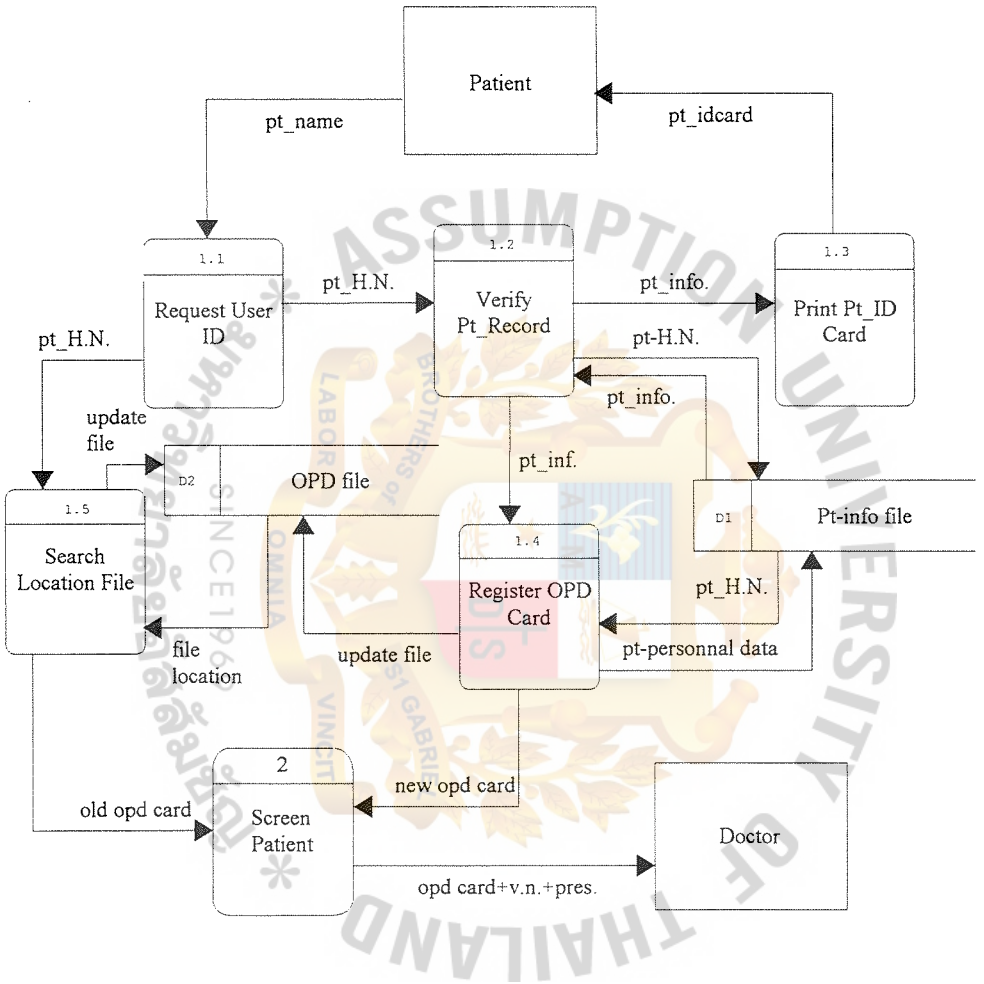

Figure B.3. DFD of Process 1 : Registration.

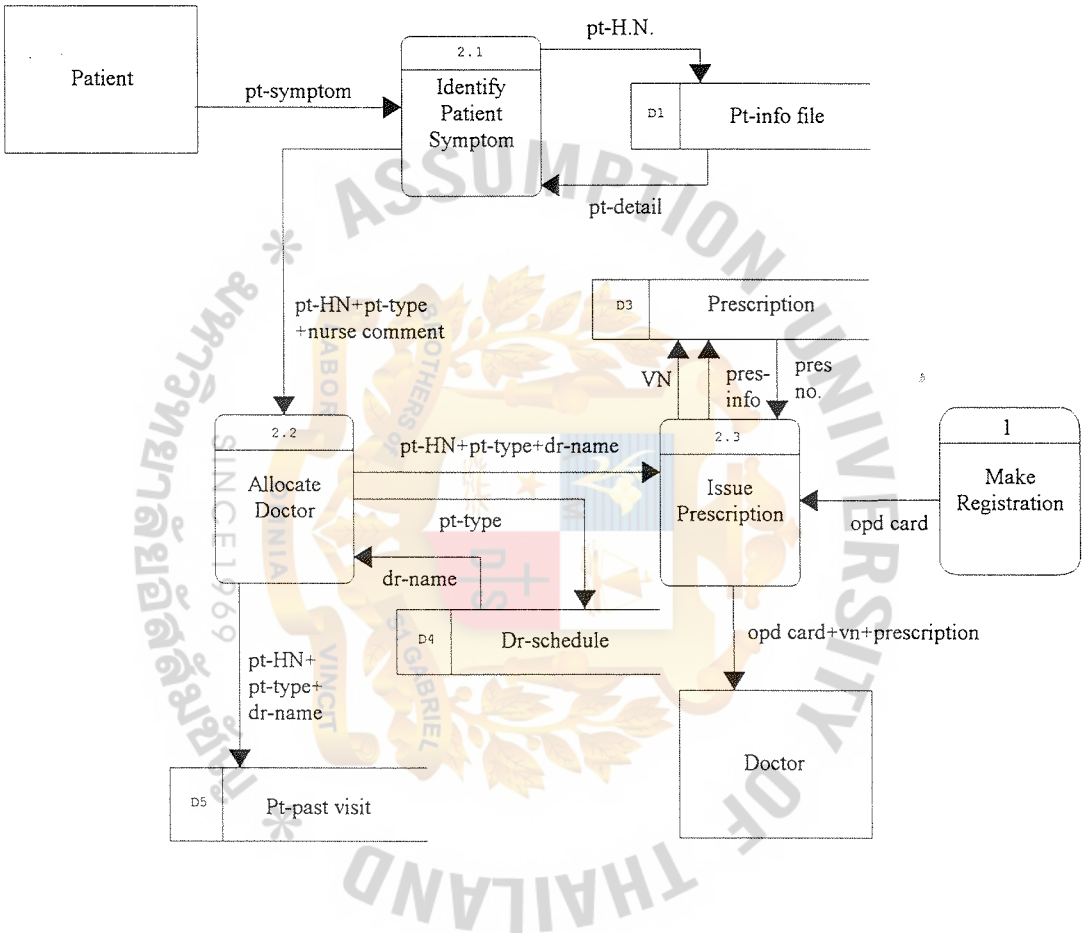

Figure B.4. DFD of Process 2 : Screen Patient.

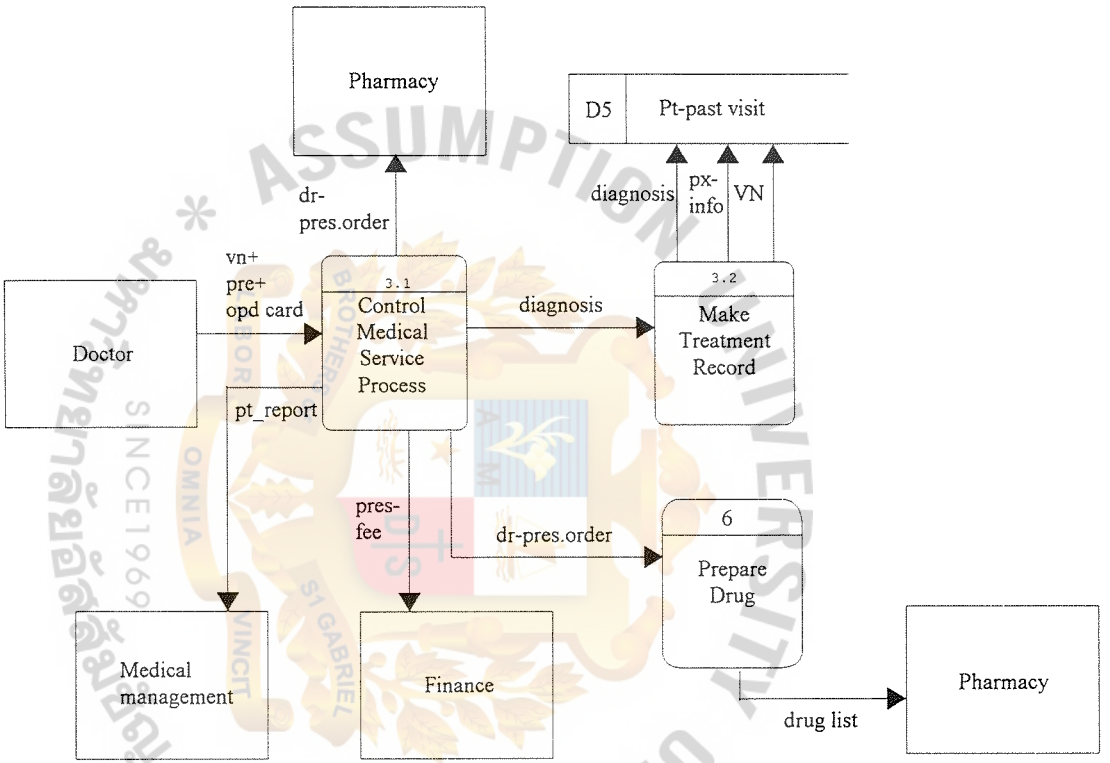

Figure B.5. DFD of Process 3 : Do Medical Management.

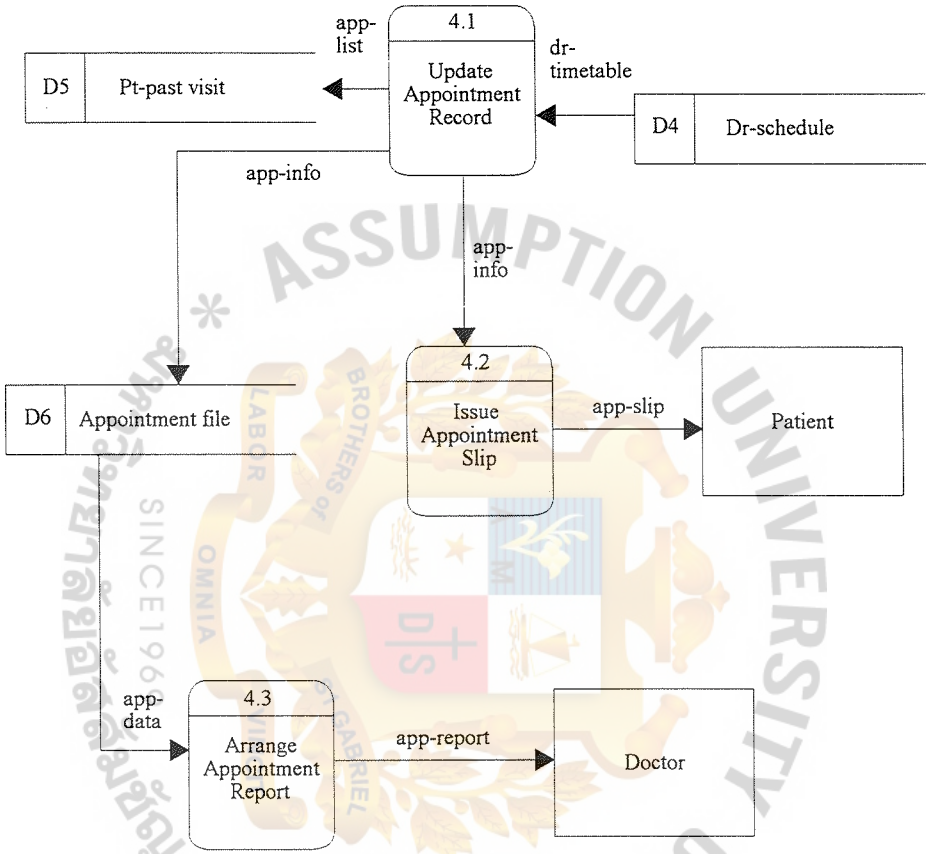

Figure B.6. DFD of Process 4 : Make Appointment.

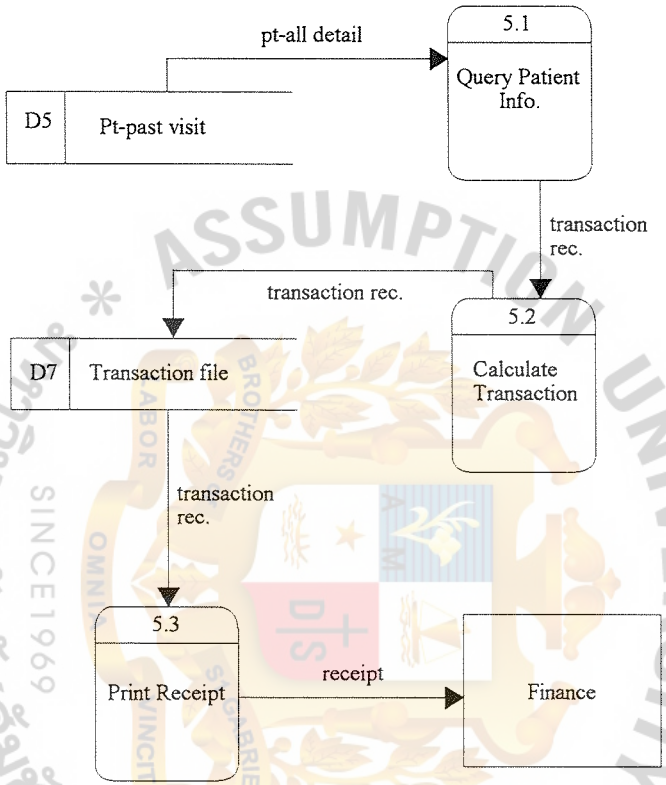

Figure B.7. DFD of Process 5 : Prepare Receipt.

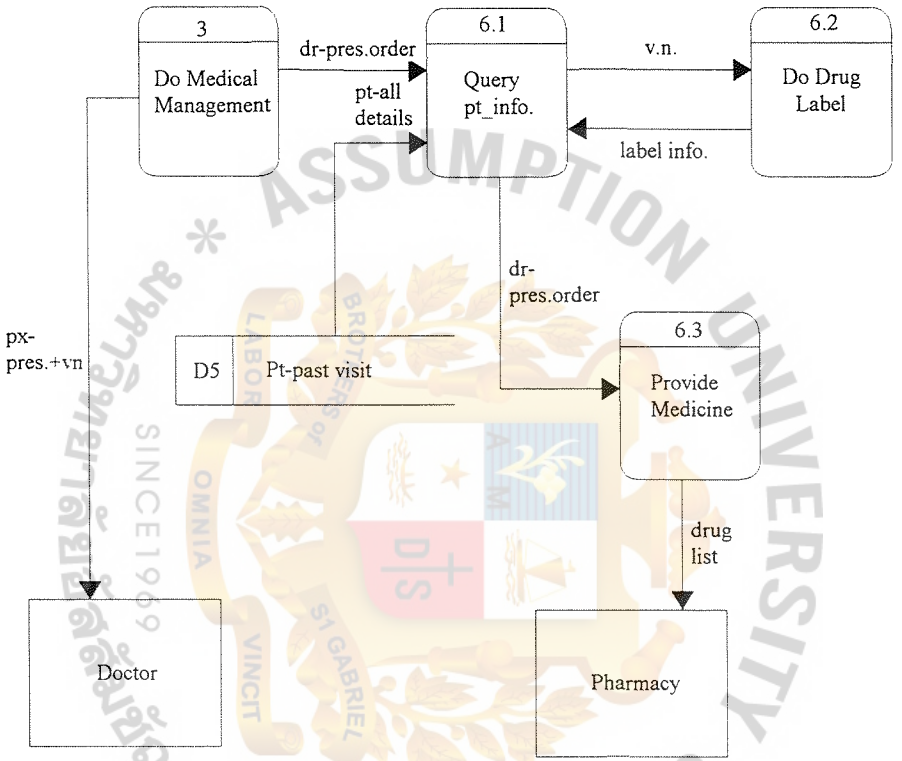

Figure B.8. DFD of Process 6 : Prepare Drug.

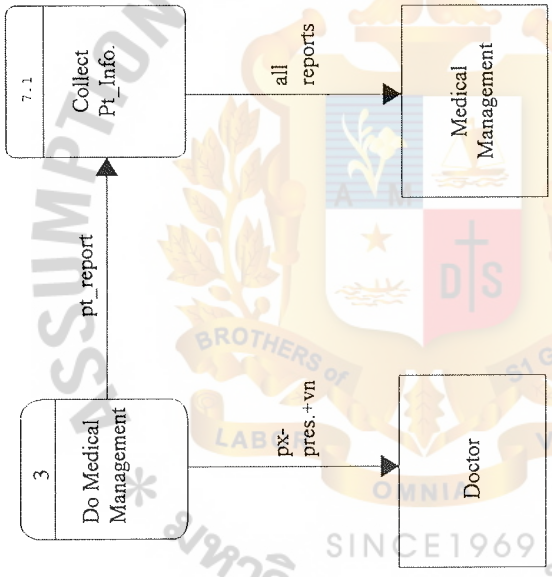

Figure B.9. DFD of Process 7 : Write Report.

APPENDIX C

PROCESS SPECIFICATION

PROCESS SPECIFICATION

Allocate doctor Process

Process No.2.2

Location:

Screen Patient (2)

Input Flows:

dr-name

Output Flows:

pt-type

Arrange appointment report Process

Process No. 4.3

Location:

Make appointment (4)

Input Flows:

app-data

Output Flows:

app-report

Calculate transaction Process

Process No.5.2

Location:

Prepare receipt (5)

Input Flows:

Transaction rec.

Output Flows:

transaction rec.

Collect pt-info. Process

Process No.7.1

Location:

Write report (7)

Input Flows

pt_report

Output Flows:

all reports

Control medical service process Process

Process .No.3.

Location:

Do medical mgt. (3)

Output Flows:

dr-pres.order

pt_report

pres-fee

diagnosis

appointment request

Do drug label Process

Description: To create drug label that contains name of drug, how to take drug and amount of drug for taking in each time.

Process No. 6.2

Location:

prepare drug (6)

Input Flows:

v.n.

Output Flows:

label info.

Do medical mgt Process

Process No. 3

Location:

OPD system (0)

Input Flows:

pt_report

Output Flows:

dr-pres.order

pt_report

pres-fee

Identify patient symptom Process

Process No. 2.1

Location:

Screen Patient (2)

Input Flows:

pt-symptom

pt-detail

Output Flows:

pt-HN

Issue appointment slip Process

Process No . 4.2

Location:

Make appointment (4)

Input Flows:

app-info

Output Flows:

app-slip

Issue prescription Process

Process .No. 2.3

Screen Patient (2)

Input Flows:

pres no.

Output Flows

VN

pres-inf

Make appointment Process

Process No. 4

Location:

OPD system (0)

Output Flows:

app-info

app-list

app-slip

app-report

Make registration Process

Process No. 1

Location:

OPD system (0)

Input Flows:

update file

Output Flows:

Id card

opd card

Make treatment record Process

Process No.3.2

Location:

Do medical mgt. (3)

Input Flows:

Diagnosis

Output Flows:

VN

Diagnosis

px-info

Prepare drug Process

Process No. 6

Location:

OPD system (0)

Input Flows

dr-pres.order

Output Flows:

drug list

Prepare receipt Process

Process No. 5

Location:

OPD system (0)

Input Flows:

pres-fee

Output Flows:

transaction rec.

receipt

Print pt_idcard Process

Description:

To print patient identity card that is given to the new patient. This card contains name of patient, date of registration, age ,blood group and allergy.

Process No. 1.3

Location:

Make registration (1)

Input Flows:

pt_info.

Output Flows:

pt_idcard

Print receip Process

Process No. 5.3

Location:

Prepare receipt (5)

Input Flows:

transaction rec.

Output Flows:

Receipt

Provide medicine Process

Process No. 6.3

Location:

prepare drug (6)

Input Flows:

dr-pres.order

Output Flows:

drug list

Query patient info. Process

Description:

Searching all the patient information for preparing the receipt

Process No. 5.1

Location:

Prepare receipt (5)

Input Flows:

pres-fee

pt-all detail

Output Flows:

transaction rec.

Query pt_info. Process

Description

Searching all patient information for preparing patient's medicine

Process No. 6.1

Location:

prepare drug (6)

Input Flows:

dr-pres.order

pt-all detail

label info.

Output Flows:

dr-pres.order

v.n.

Register OPD Card Process

Description:

To create out patient card

Process No. 1.4

Location:

Make registration (1)

Input Flows:

pt_H.N.

pt_inf.

Output Flows:

update file

pt_personnal data

new opd card

Request user id Process

Description

To insert user password for security controlling

Process No. 1

Location:

Make registration (1)

Input Flows:

pt_name

Output Flows:

pt-symptom

VN

OPD card

Output Flows:

vn_Px

Search location file Process

Process No. 1.5

Location

Make registration (1)

Input Flows

pt_H.N.

file location

Output Flows:

update file

old opd card

Update appointment record Process

Process No. 4

Location:

Make appointment (4)

Input Flows:

dr-timetable

Output Flows:

app-info

app-list

Verify pt_record Process

Process No. 1.

Location:

Make registration (1)

Input Flows:

pt_H.N.

pt_info

Output Flows:

Write report Process

Process No. 7

Location:

OPD system (0)

Input Flows:

pt_report

Output Flows:

all reports

Calculate transaction Process

Process No. 5.2

Location:

Prepare receipt (5)

Input Flows:

transaction rec

Output Flows:

transaction rec.

Collect pt_info. Process

Process No. 7.1

Location:

Write report (7)

Input Flows:

pt_report

Output Flows:

all reports

Control medical service process Process

Process No. 3.1

Location

Do medical mgt. (3)

Output Flows:

dr-pres.order

pt_report

pres-fee

diagnosis

appointment request

Do drug label Process

Description:

To create drug label that contains name of drug, how to take drug and amount of drug for taking in each time.

Process No. 6.2

Location:

prepare drug (6)

Input Flow

v.n.

Output Flows:

label info.

Do medical mgt. Process

Process No. 3

Location:

OPD system (0)

Input Flows

pt_report

Output Flows

dr-pres.order

pt_report

pres-fee

Identify patient symptom Process

Process No. 2.1

Location

Screen Patient (2)

Input Flows:

pt-symptom

pt-detail

Output Flows:

pt-HN

Issue appointment slip Process

Process No. 4.

Location:

Make appointment (4)

Input Flows:

app-info

Output Flows:

app-slip

Issue prescription Process

Process No. 2.3

Location

Screen Patient (2)

Input Flows:

pres no.

Output Flows:

V.N.

pres-info

Make appointment Process

Process No. 4

Location:

OPD system (0)

Output Flows:

app-info

app-list

app-slip

app-report

Make registration Process

Process No.1

Location:

OPD system (0)

Input Flows:

update fil

Output Flows:

Id card

opd card

Make treatment record Process

Process No. 3.2

Location:

Do medical mgt. (3)

Input Flows

Diagnosis

Output Flows:

VN

Diagnosis

px-inf

Prepare drug Process

Process No. 6

Location:

OPD system (0)

Input Flows:

dr-pres.order

Output Flows:

drug list

Prepare receipt Process

Process No. 5

Location:

OPD system (0)

Input Flows:

pres-fee

Output Flows:

transaction rec.

receipt

Print pt_idcard Process

Description:

To print patient identity card that is given to the new patient. This card contains name of patient, date of registration, age,blood group and allergy.

Process No. 1.3

Location:

Make registration (1)

Input Flows:

pt_info.

Output Flows:

pt_idcard

Print receipt Process

Process No. 5.3

Location:

Prepare receipt (5)

Input Flows:

transaction rec.

Output Flows:

Receipt

Provide medicine Process

Process No. 6.3

Location:

prepare drug (6)

Input Flows:

dr-pres.order

Output Flows:

drug list

Query patient info. Process

Description

Searching all the patient information for preparing the receipt

Process No. 5.1

Location:

Prepare receipt (5)

Input Flows:

pres-fee

pt-all detail

Output Flows:

transaction rec.

Query pt_info. Process

Description:

Searching all patient information for preparing patient's medicine

Process No. 6.1

Location:

prepare drug (6)

Input Flows:

dr-pres.order

pt-all detail

label info.

Output Flows:

dr-pres.order

v.n.

Register OPD Card Process

Description:

To create out patient card

Process No. 1.4

Location:

Make registration (1)

Input Flows:

pt_H.N.

pt_inf.

Output Flows:

update file

pt_personnal data

new opd card

Request user id Process

Description

To insert user password for security controlling

Process No. 1.1

Location:

Make registration (1)

Input Flows:

pt_name

Output Flows:

pt_H.N.

Screen Patient Process

Description:

To identify patient disease and symptom

Process No. 2

Location

OPD system (0)

Input Flows:

pt-symptom

VN

opd card

Output Flows:

vn_Px

Search location file Process

Process No. 1.5

Location:

Make registration (1)

Input Flows:

pt_H.N.

file location

Output Flows:

update file

old opd card

Update appointment record Process

Process No. 4.1

Location:

Make appointment (4)

Input Flows:

dr-timetable

Output Flows:

app-info

app-list

Verify pt_record Process

Process No. 6.1

Location:

prepare drug (6)

Input Flows:

dr-pres.order

pt-all detail

label info.

Output Flows:

dr-pres.order

v.n.

Register OPD Card Process

Description:

To create out patient card

Process No. 1.4

Location:

Make registration (1)

Input Flows:

pt_H.N.

pt_inf.

Output Flows:

update file

pt_personnal data

new opd card

Request user id Process

Description

To insert user password for security controlling

Process No. 1.1

Location:

Make registration (1)

Input Flows:

pt_name

Output Flows:

pt_H.N.

Screen Patient Process

Description:

To identify patient disease and symptom

Process No. 2

Location

OPD system (0)

Input Flows:

pt-symptom

VN

opd card

Output Flows:

vn_Px

Search location file Process

Process No. 1.5

Location:

Make registration (1)

Input Flows:

pt_H.N.

file location

Output Flows:

update file

old opd card

Update appointment record Process

Process No. 4.1

Location:

Make appointment (4)

Input Flows:

dr-timetable

Output Flows:

app-info

app-list

Verify pt_record Process

Process No. 1.2

Location:

Make registration (1)

Input Flows:

pt_H.N.

pt_info.

Output Flows:

pt_H.N..

pt_inf.

Write report Process

Process No. 7

Location:

OPD system (0)

Input Flows:

output_report

all report

APPENDIX D

DATA DICTIONARY

DATA DICTIONARY

all reports Data Flow

Description:

The report that are submitted to top level management for decision making.

Location:

OPD system (0)

Source: Write report (Process)

Dest: *** Not on Diagram **

Write report (7)

Source: collect pt_info. (Process)

Dest: *** Not on Diagram ***

app-data Data Flow

Description:

The patient appointment information that includes H.N., DR.name and the appointment time.

Location:

Make appointment (4)

Source: *** Not on Diagram ***

Dest: Arrange appointment report (Process)

app-info Data Flow

Description:

same as appointment data

Location

OPD system (0)

Source: Make appointment (Process)

Dest: *** Not on Diagram ***

Make appointment (4)

Source: Update appointment record (Process)

Dest: Issue appointment slip (Process)

Source: Update appointment record (Process)

Dest: *** Not on Diagram

app-list Data Flow

Description:

Daily summary of all appointed patients that is printed and send to each doctor as

Reference

Location

OPD system (0)

Source: Make appointment (Process)

Dest: *** Not on Diagram **

Make appointment (4)

Source: Update appointment record (Process)

Dest: *** Not on Diagram

app-report Data Flow

Description:

The appointment report that contains daily appointment report for doctor.

Location

OPD system (0)

Source: Make appointment (Process)

Dest: *** Not on Diagram **

Make appointment (4)

Source: Arrange appointment report (Process)

Dest: *** Not on Diagram *

appointment request Data Flow

Description:

The note which consists of the details of appointment requested by the doctor, used for printing the appointment slip sending to the patient

Location:

Do medical mgt. (3)

Source: Control medical service process (Process)

Dest: *** Not on Diagram ***

app-slip Data Flow

Location:

OPD system (0)

Source: Make appointment (Process)

Dest: *** Not on Diagram ***

Make appointment (4)

Source: Issue appointment slip (Process)

Dest: *** Not on Diagram **

Diagnosis Data Flow

Description:

The name of patient's disease that is indicated by the doctor.

Location:

Do medical mgt. (3)

Source: Control medical service process (Process)

Dest: Make treatment record (Process)

Source: Make treatment record (Process)

Dest: *** Not on Diagram **

dr-name Data Flow

Description:

The name of doctor who works at OPD in current time.

Location:

OPD system (0)

Source: *** Not on Diagram

Dest: *** Not on Diagram *

Screen Patient (2)

Source: *** Not on Diagram ***

Dest: allocate doctor (Process)

dr-pres.order Data Flow

Description:

The formal form of prescription that is printed for the doctor to fill up all treatment.

Location:

Source: Control medical service process (Process)

Dest: *** Not on Diagram ***

prepare drug (6)

Source: query pt_info. (Process)

Dest: provide medicine (Process)

OPD system (0)

Source: Do medical mgt. (Process)

Dest: Prepare drug (Process)

dr-timetable Data Flow

Description:

The information about work time of doctors .

Location:

Make appointment (4)

Source: *** Not on Diagram ***

Dest: Update appointment record (Process)

drug list Data Flow

Description:

The list of drug that doctor writes after making diagnosis of the patien

Location:

OPD system (0)

Source: Prepare drug (Process)

Dest: *** Not on Diagram ***

prepare drug (6)

Source: provide medicine (Process)

Source: *** Not on Diagram **

Dest: query pt_info. (Process)

Do medical mgt. (3)

Source: Control medical service process (Process)

Dest: *** Not on Diagram ***

prepare drug (6)

Source: query pt_info. (Process)

Dest: provide medicine (Process)

OPD system (0)

Source: Do medical mgt. (Process)

Dest: Prepare drug (Process)

dr-timetable Data Flow

Description:

The information about work time of doctors .

Location:

Make appointment (4)

Source: *** Not on Diagram ***

Dest: Update appointment record (Process)

drug list Data Flow

Description:

The list of drug that doctor writes after making diagnosis of the patien

Location:

OPD system (0)

Source: Prepare drug (Process)

Dest: *** Not on Diagram ***

prepare drug (6)

Source: provide medicine (Process)

Dest: *** Not on Diagram ***

file location Data Flow

Description:

The location of patient record or OPD card

Location

Make registration (1)

Source: *** Not on Diagram ***

Dest: Search location file (Process)

Id card Data Flow

Description:

The identity card is issued by registration department that patient must keep one as reference when visiting hospital every time.

Location:

OPD system (0)

Source: Make registration (Process)

Dest: *** Not on Diagram ***

label info. Data Flow

Description:

label of drug that contains patient name, drug name,and describe the way to take

medicine.

Location

prepare drug (6)

Source: do drug label (Process)

Dest: query pt_info. (Process)

new opd card Data Flow

Description

The out patient medical record or OPD . Card of new patient.

Location:

Make registration (1)

Source: Register opd card (Process)

Dest: *** Not on Diagram ***

old opd card Data Flow

Description:

The out patient medical record or OPD card of existing patient.

Location:

Make registration (1)

Source: Search location file (Process)

Dest: *** Not on Diagram ***

opd card Data Flow

Description:

The card that contains patient H.N., name, doctor's diagnosis and doctor's drug comment.

Location:

OPD system (0)

Source: Make registration (Process)

Dest: Screen Patient (Process)

pres no. Data Flow

Description:

The formal form of prescription that contains the patient's hospital number card is printed for the doctor to fill up all treatment.

Location:

Screen Patient (2)

Source: *** Not on Diagram ***

Dest: issue prescription (Process)

pres-fee Data Flow

Description:

The amount of money determined by the pharmacy for medical charged

Location:

OPD system (0)

Source: Do medical mgt. (Process)

Dest: Prepare receipt (Process)

Do medical mgt. (3)

Source: Control medical service process (Process)

Dest: *** Not on Diagram ***

Prepare receipt (5)

Source: *** Not on Diagram ***

Dest: Query patient info. (Process)

pres-info Data Flow

Description:

The formal form of prescription that is printed for the doctor to fill up all treatment.

Location

Screen Patient (2)

Source: issue prescription (Process)

Dest: *** Not on Diagram ***

pt-all detail Data Flow

Description

Detail of patient includes the patient's hospital number, visit number and the doctor name.

Location:

Prepare receipt (5)

Source: *** Not on Diagram ***

Dest: Query patient info. (Process)

prepare drug (6)

Source: *** Not on Diagram ***

Dest: query pt_info. (Process)

pt-detail Data Flow

Description:

The detail that contains H.N. ,doctor's name .v.n. and patient report.

Location:

Screen Patient (2)

Source: *** Not on Diagram ***

Dest: identify patient symptom (Process)

pt-HN Data Flow

Description:

The hospital number of the patient who visits the hospital as reference number of all patient for hospital.

Location:

Screen Patient (2)

Source: identify patient symptom (Process)

Dest: *** Not on Diagram ***

pt-symptom Data Flow

Description:

The symptom of the patient.

Location:

OPD system (0)

Source: *** Not on Diagram ***

Dest: Screen Patient (Process)

Screen Patient (2)

Source: *** Not on Diagram ***

Dest: identify patient symptom (Process)

pt_H.N. Data Flow

Description:

The hospital number of patient that is unique. same as pt-H.N.

Location

Make registration (1)

Source: Request user id (Process)

Dest: Verify pt_record (Process)

Source: Verify pt_record (Process)

Dest: *** Not on Diagram ***

Source: *** Not on Diagram ***

Dest: Register opd card (Process)

Source: Request user id# (Process)

Dest: Search location file (Process)

pt_idcard Data Flow

Description:

An identification card that is given to patients after they newly register.

Location

Make registration (1)

Source: Print pt_idcard (Process)

Dest: *** Not on Diagram ***

pt_inf. Data Flow

Description

Patient information needed to key in when register new patient.

Location:

Make registration (1)

Source: Verify pt_record (Process)

Dest: Register opd card (Process)

pt_info. Data Flow

Description:

same as patient information

Location:

Make registration (1)

Source: Verify pt_record (Process)

Dest: Print pt_idcard (Process)

Source: *** Not on Diagram ***

Dest: Verify pt_record (Process)

pt_name Data Flow

Description:

The name of patient who comes to register.

Location:

Make registration (1)

Source: *** Not on Diagram ***

Dest: Request user id (Process)

pt_personnal data Data Flow

Description

Patient information that is already kept including patient's name and patient's hospital number.

Location:

Make registration (1)

Source: Register opd card (Process)

Dest: *** Not on Diagram ***

pt_report Data Flow

Location:

Write report (7)

Source: *** Not on Diagram ***

Dest: collect pt_info. (Process)

Do medical mgt. (3)

Source: Control medical service process (Process)

Dest: *** Not on Diagram ***

OPD system (0)

Source: *** Not on Diagram ***

Dest: Do medical mgt. (Process)

Source: Do medical mgt. (Process)

Dest: Write report (Process)

pt-type Data Flow

Location:

OPD system (0)

Source: *** Not on Diagram ***

Dest: *** Not on Diagram **

Screen Patient (2)

Source: allocate doctor (Process)

Dest: *** Not on Diagram ***

px-info Data Flow

Description:

The information of patient's prescription order

Location:

Do medical mgt. (3)

Source: Make treatment record (Process)

Dest: *** Not on Diagram ***

Receipt Data Flow

Description:

A printed document that is given to the patient in order to show each service item charged by the hospital.

Location:

Prepare receipt (5)

Source: Print receipt (Process)

Dest: *** Not on Diagram **

OPD system (0)

Source: Prepare receipt (Process)

Dest: *** Not on Diagram ***

transaction rec. Data Flow

Description:

Record that includes all patient's receipt and payment.

Location

OPD system (0)

Source: Prepare receipt (Process)

Dest: *** Not on Diagram ***

Prepare receipt (5)

Source: Query patient info. (Process)

Dest: Calculate transaction (Process)

Source: Calculate transaction (Process)

Dest: *** Not on Diagram ***

Source: *** Not on Diagram ***

Dest: Print receipt (Process)

update file Data Flow

Location:

OPD system (0)

Source: *** Not on Diagram ***

Dest: Make registration (Process)

Make registration (1)

Source: Search location file (Process)

Dest: *** Not on Diagram ***

Source: Register opd card (Process)

Dest: *** Not on Diagram ***

v.n. Data Flow

Description:

Visit number of patient who comes to take service in each day.

Location:

prepare drug (6)

Source: query pt_info. (Process)

Dest: do drug label (Process)

VN Data Flow

Description:

visit number of patient in each day

Location:

OPD system (0)

Source: *** Not on Diagram ***

Dest: Screen Patient (Process)

Screen Patient (2)

Source: issue prescription (Process)

Dest: *** Not on Diagram ***

Do medical mgt. (3)

Source: Make treatment record (Process)

Dest: *** Not on Diagram ***

vn_Px Data Flow

Description:

Visit number of patient on the prescription order form

Location:

OPD system (0)

Location:

OPD system (0)

Source: *** Not on Diagram ***

Dest: Make registration (Process)

Make registration (1)

Source: Search location file (Process)

Dest: *** Not on Diagram ***

Source: Register opd card (Process)

Dest: *** Not on Diagram ***

v.n. Data Flow

Description

Visit number of patient who comes to take service in each day.

Location:

prepare drug (6)

Source: query pt_info. (Process)

Dest: do drug label (Process)

VN Data Flow

Description:

Visit number of patient in each day

Location:

OPD system (0)

Source: *** Not on Diagram ***

Dest: Screen Patient (Process)

Screen Patient (2)

Source: issue prescription (Process)

Dest: *** Not on Diagram ***

Do medical mgt. (3)

Source: Make treatment record (Process)

Dest: *** Not on Diagram ***

vn_Px Data Flow

Description:

Visit number of patient on the prescription order form

Location:

OPD system (0)

Source: Screen Patient (Process)

Dest: *** Not on Diagram ***

APPENDIX E

INPUT AND OUTPUT SCREEN

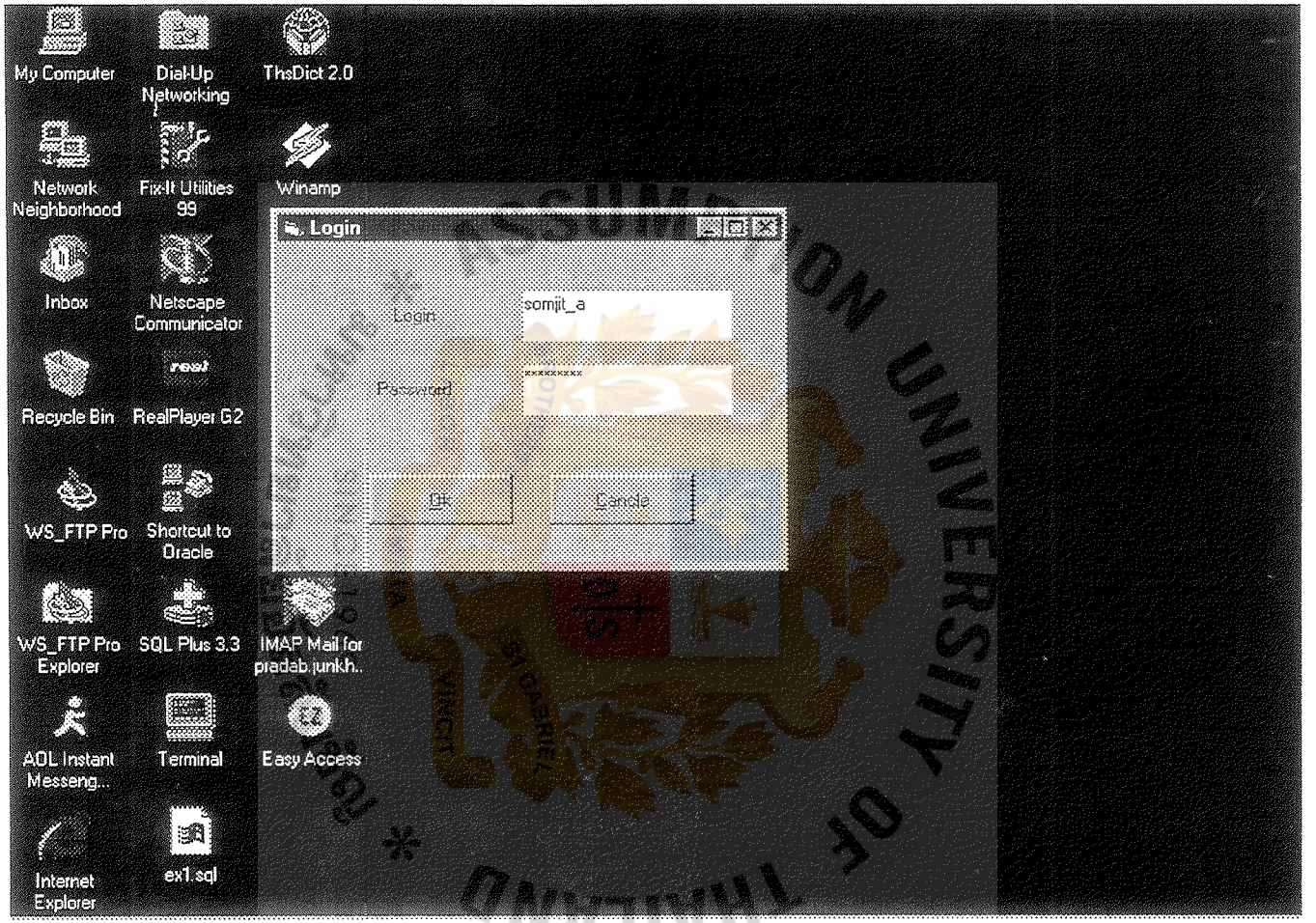

Figure E.1. Admin Logic Screen.

Figure E.2. Main Menu of OPD.

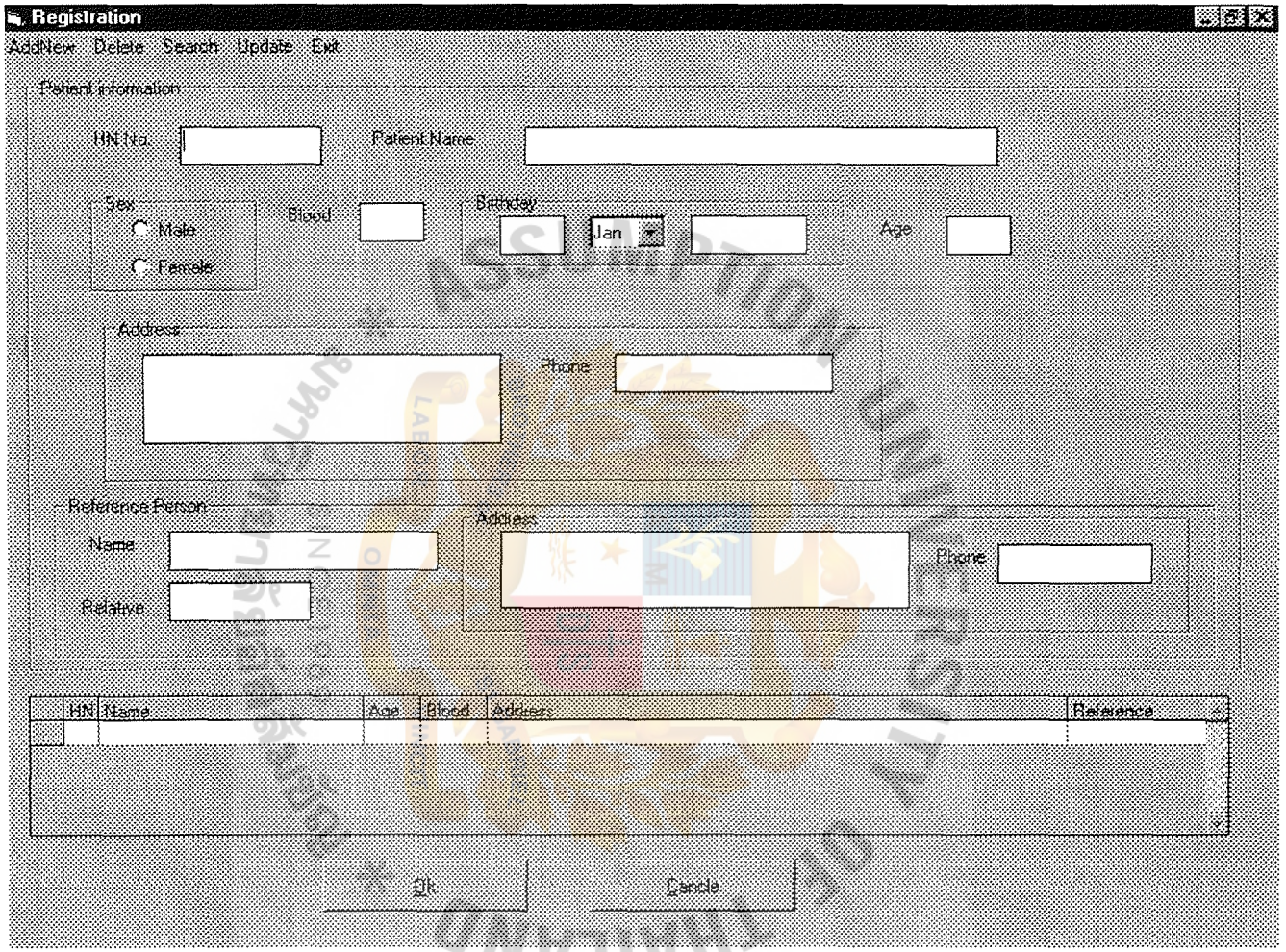

Figure E.3. Screen of Registration.

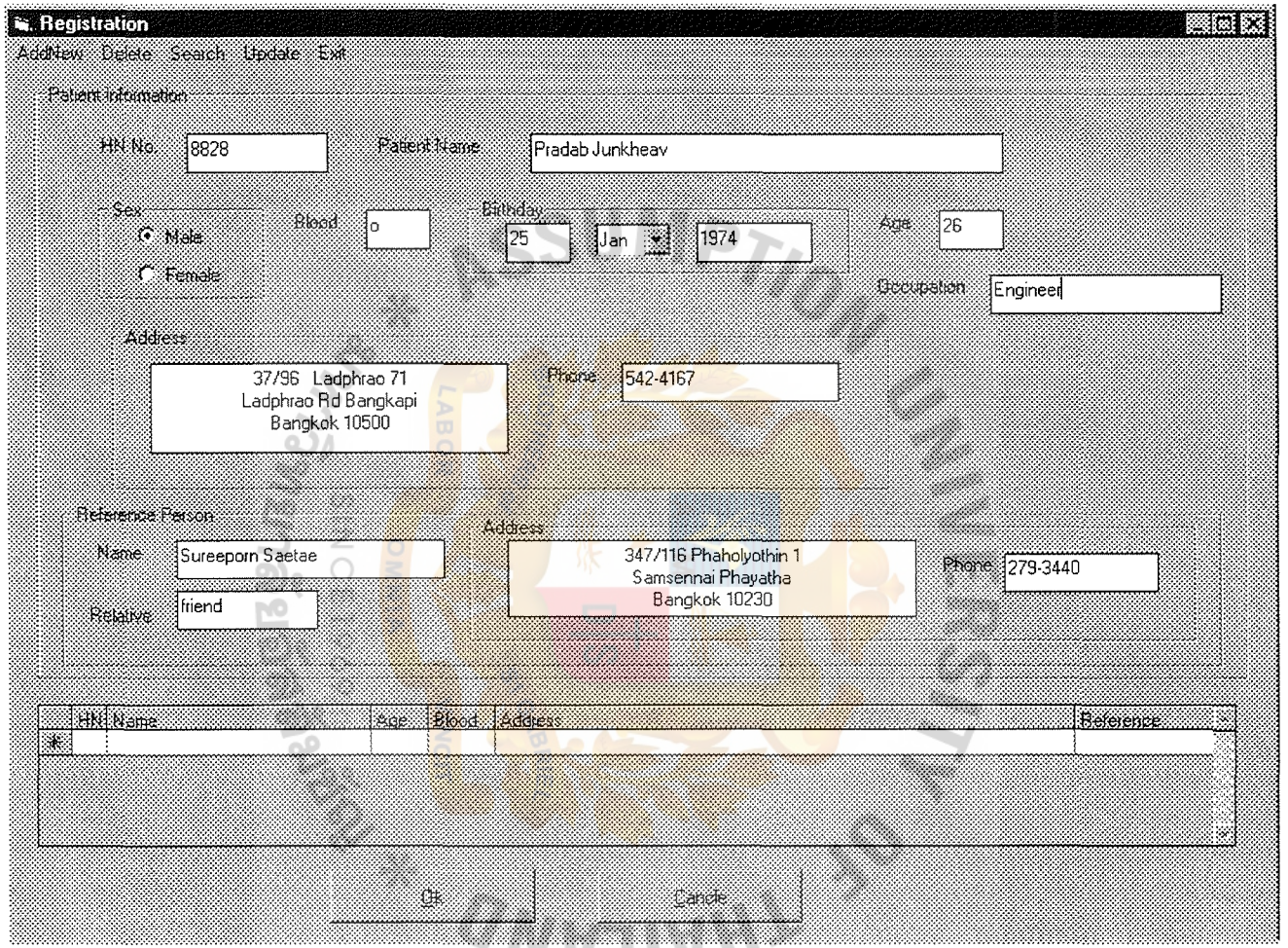

Figure E.4. Screen of Out Patient Registration Process with Some Example.

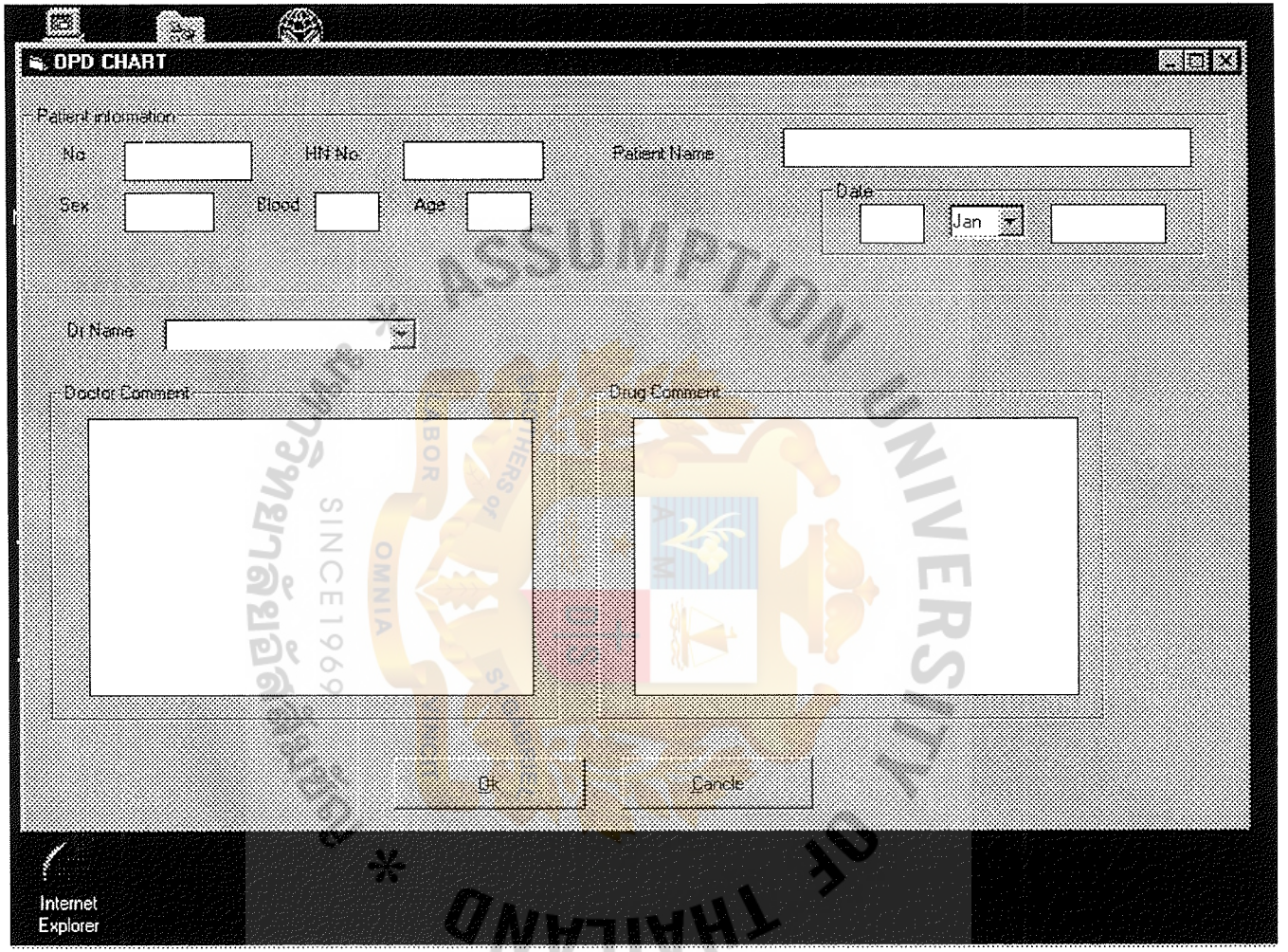

Figure E.5. Screen of OPD Chart.

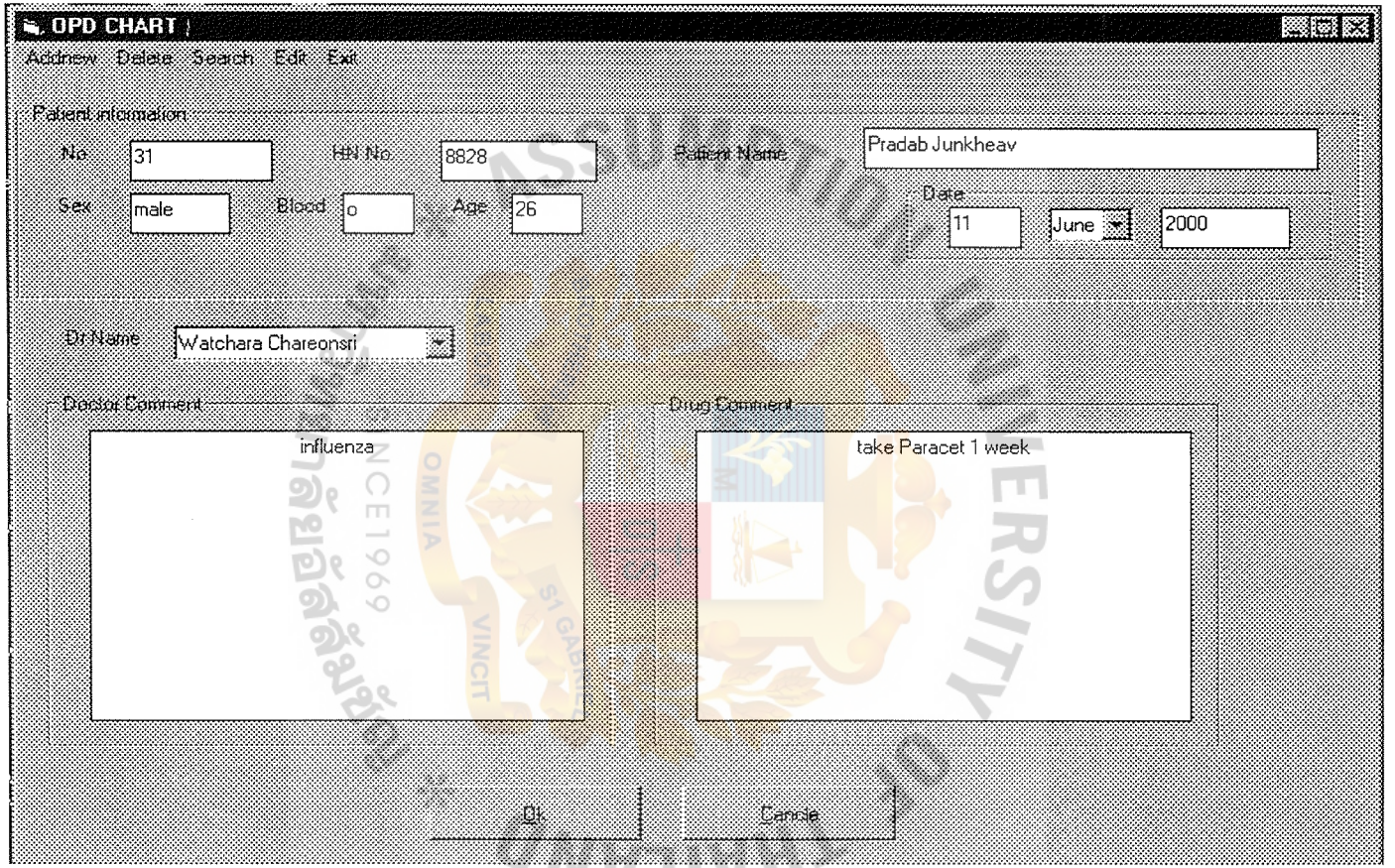

Figure E.6. Screen of OPD Chart with Some Example.

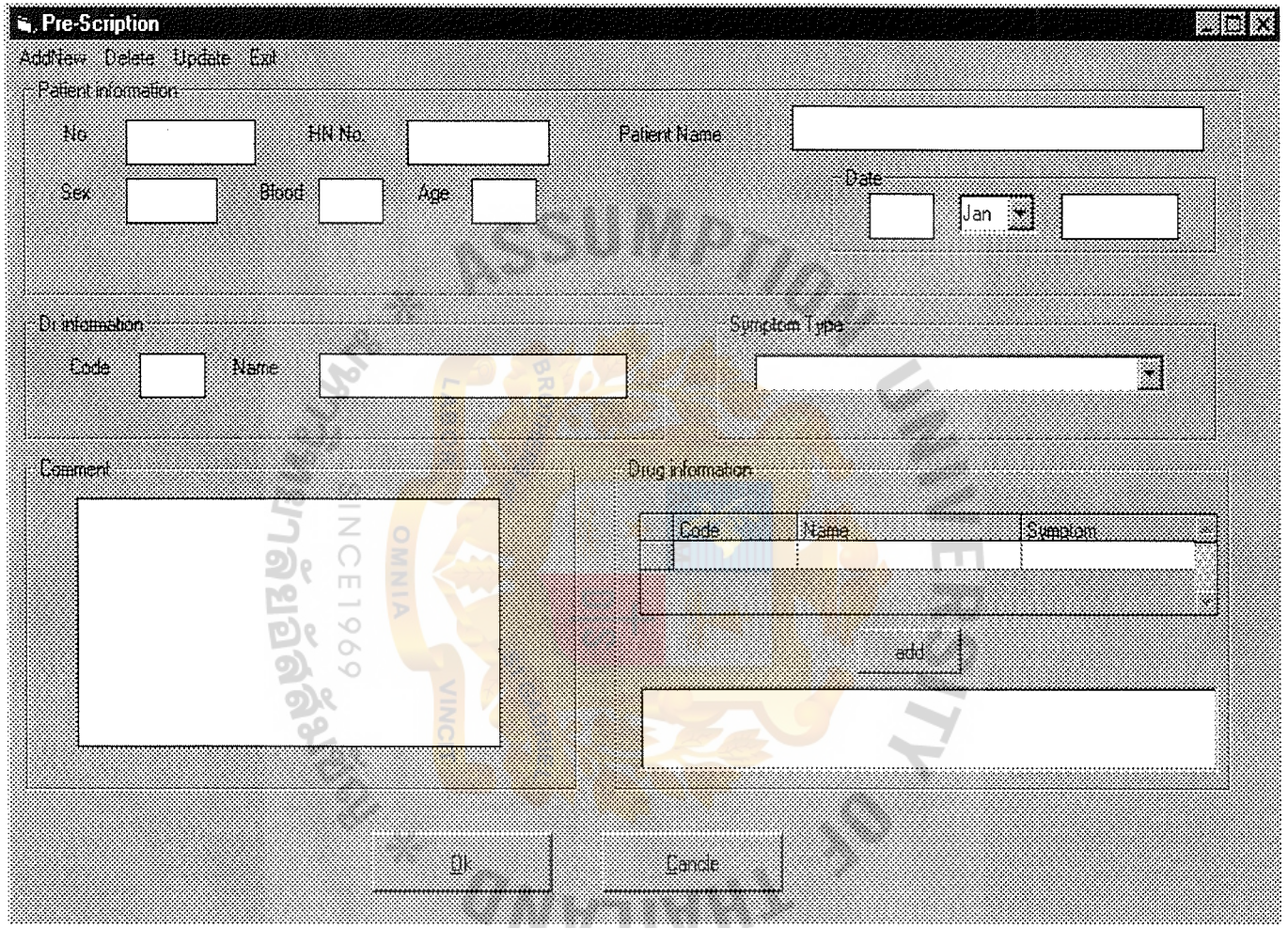

Figure E.7. Screen of Prescription Order.

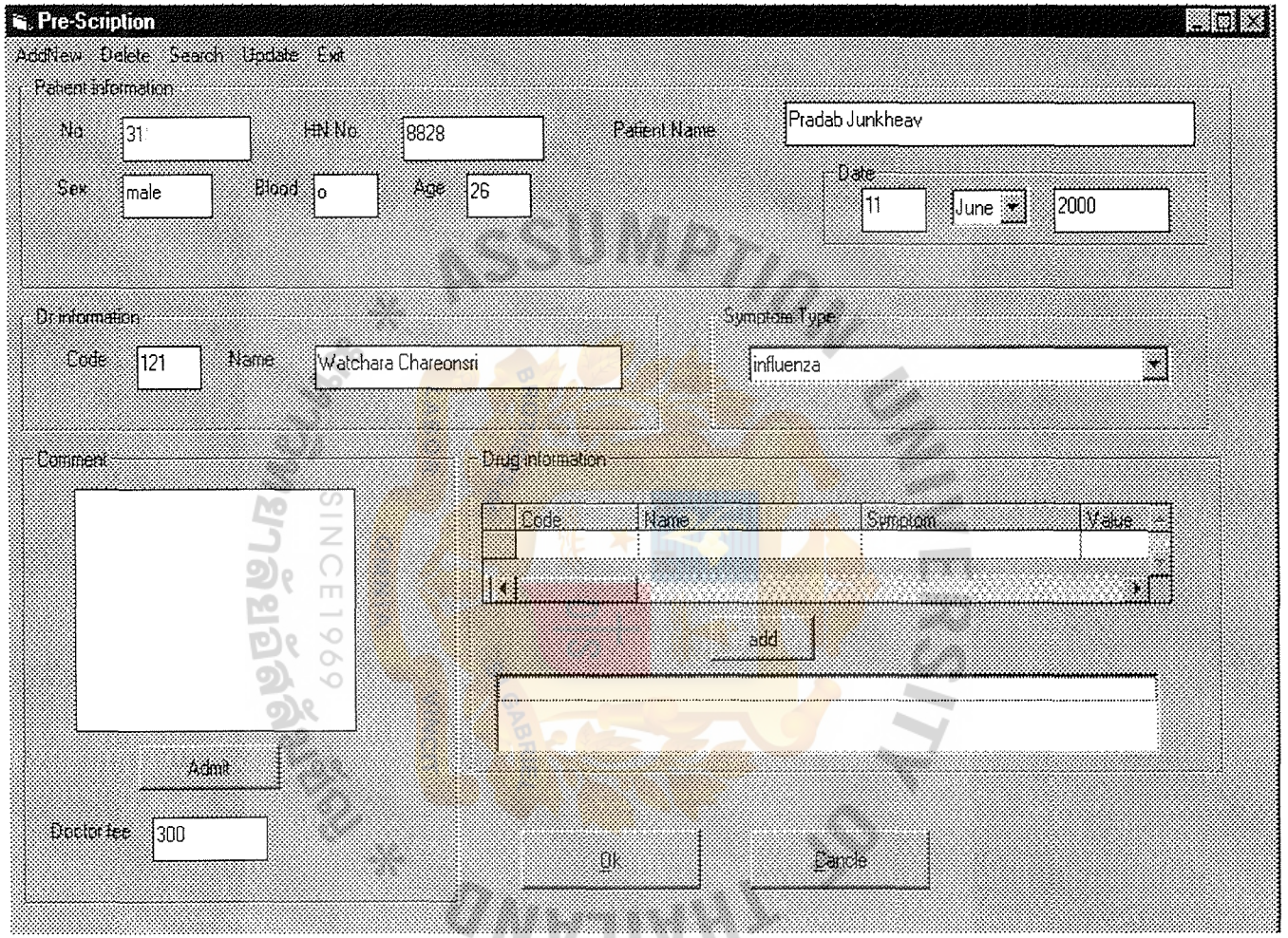

Figure E.8. Screen of Prescription Order with Some Example.

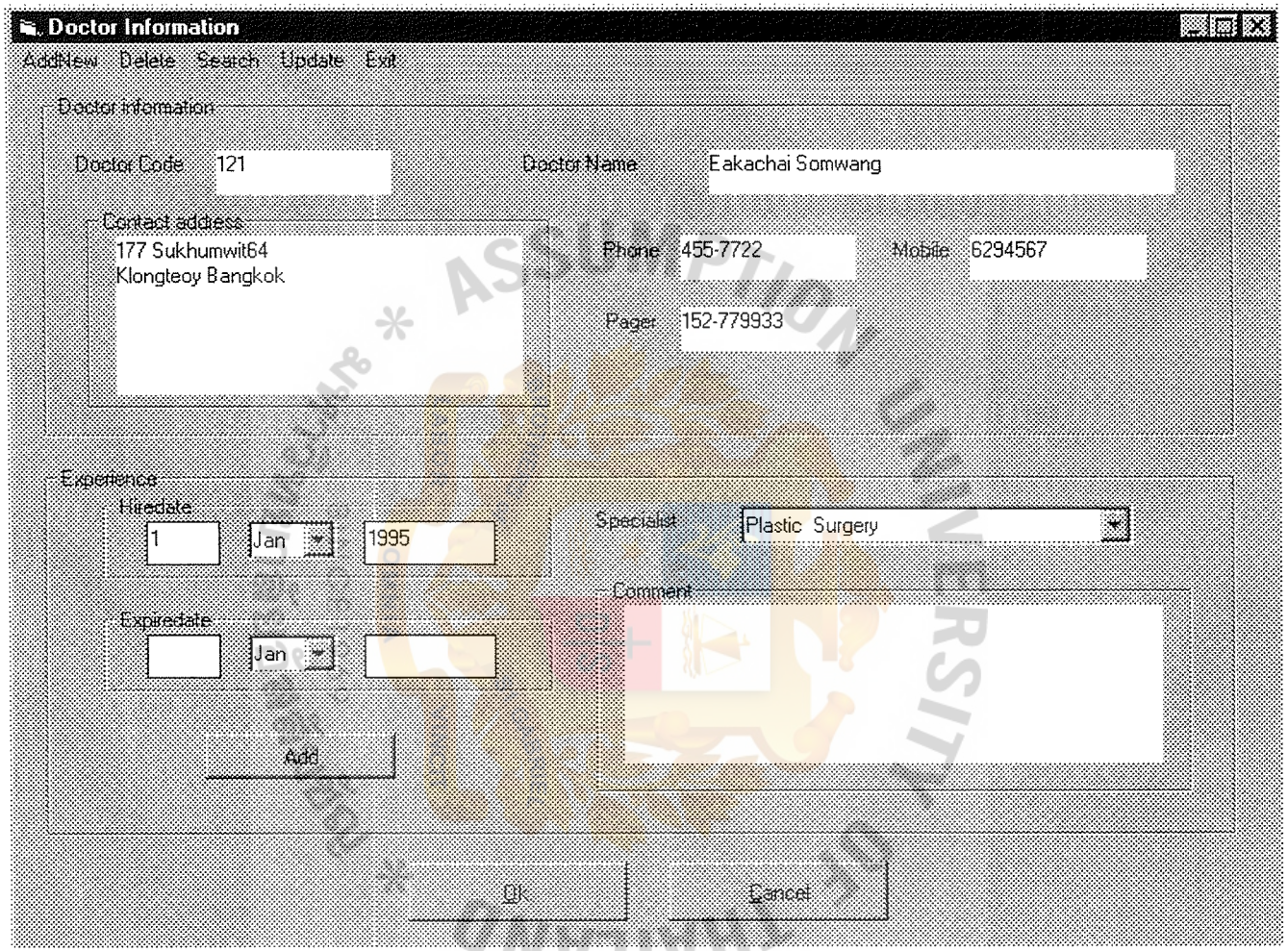

Figure E.9. Screen of Doctor Information.

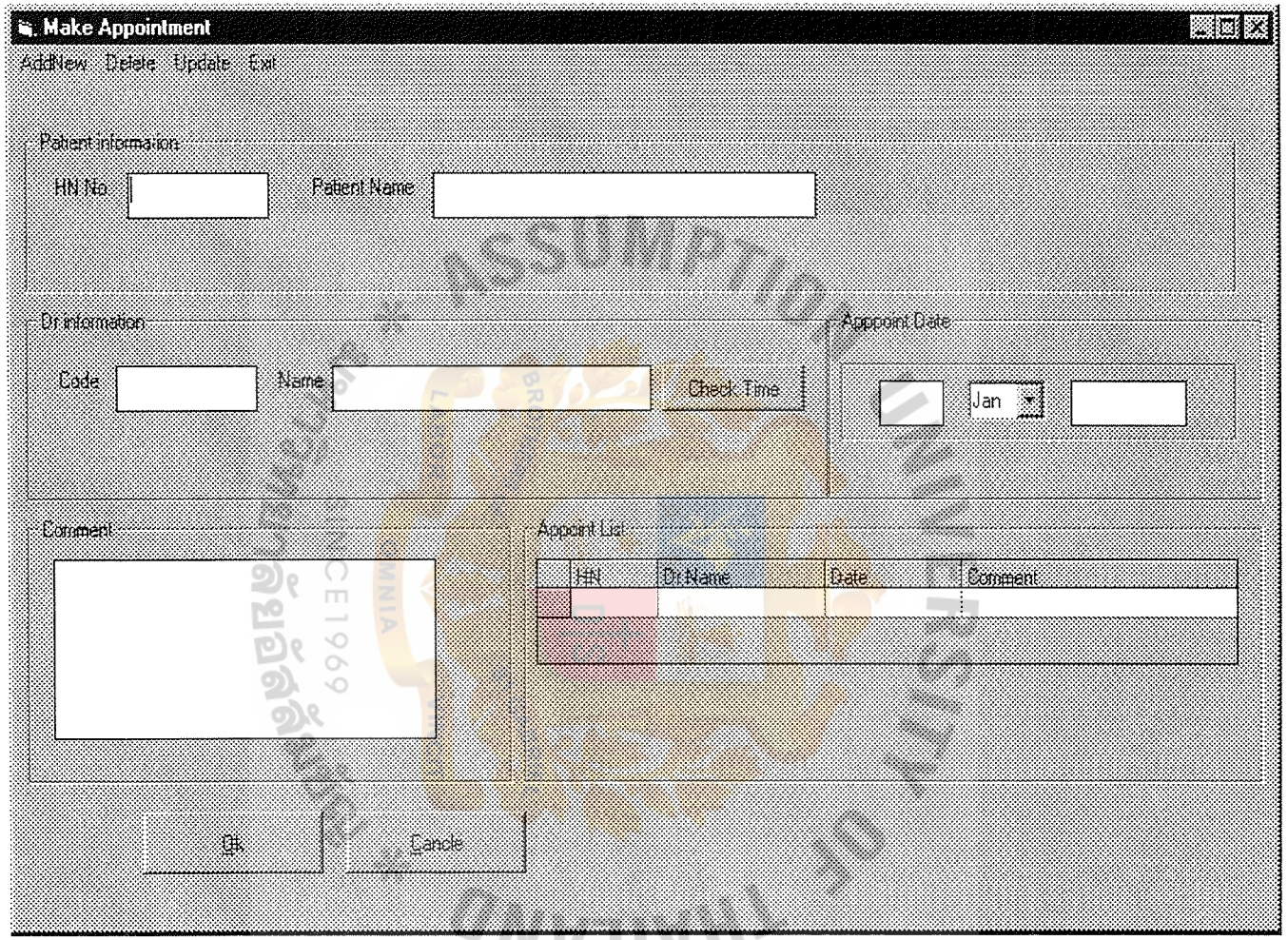

Figure E.10. Screen of Making Appointment.

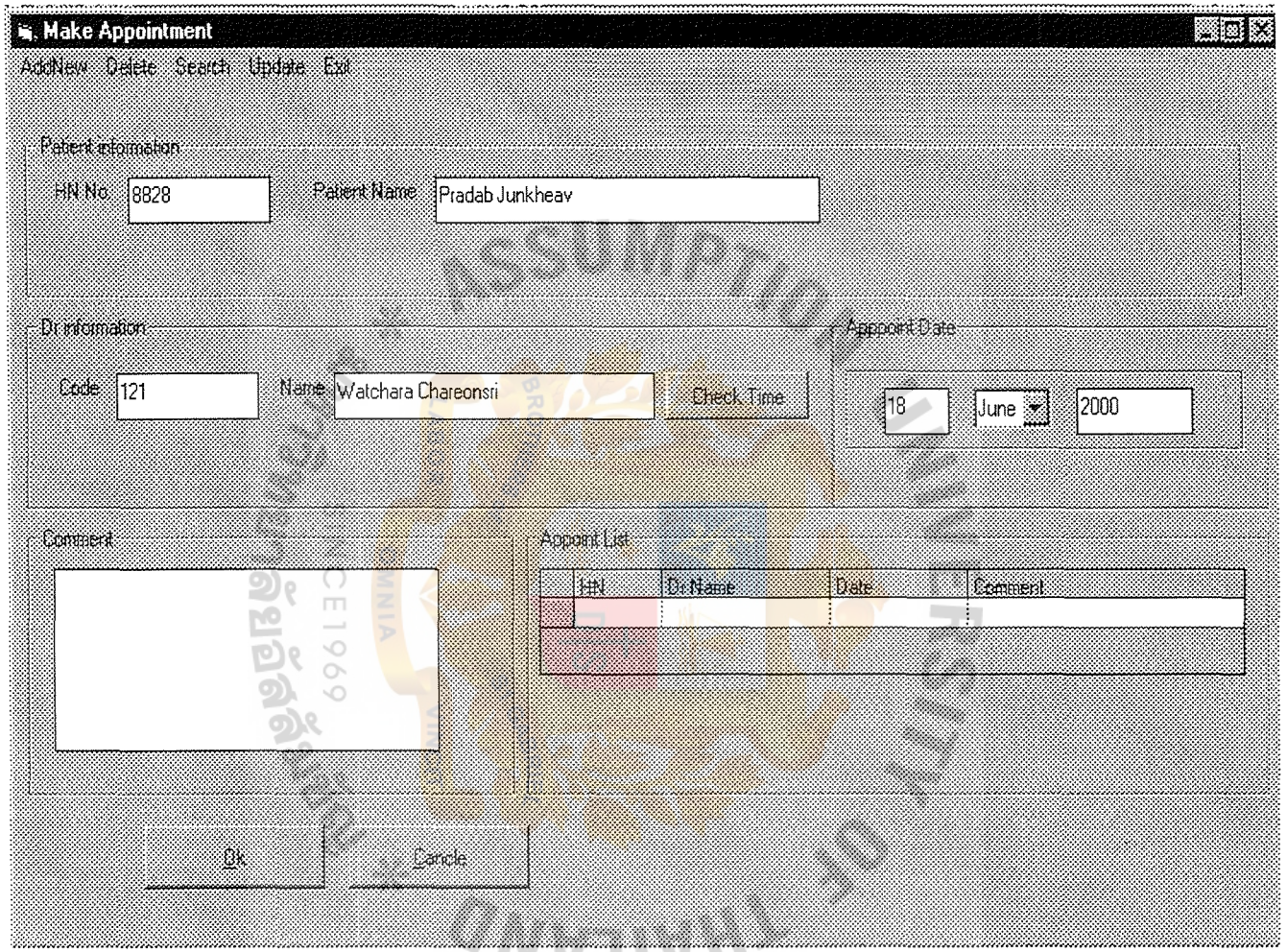

Figure E.11. Screen of Making Appointment with Example.

APPENDIX F

REPORT LAYOUT

โรงพยาบาลเจทีพี

JTP HOSPITAL

Sawanwithee Rd, A. Muang, Nakhonsawan 60000

Tel: 056-224288

MONTHLY OUT PATIENT SUMMARY REPORT

Date___/___/___

Month:_____

No.	Date	H.N.	Patient Name	Status	Doctor Name	Speciality
1	dd/mm/yyyy	99-99999	xxxxxxxxxxxxxx	N	xxxxxxxxxxxxxxx	xxxx
2	dd/mm/yyyy	99-99999	xxxxxxxxxxxxxx	N	xxxxxxxxxxxxxxx	xxxx
3	dd/mm/yyyy	99-99999	xxxxxxxxxxxxxx	O	xxxxxxxxxxxxxxx	xxxx

Figure F.1. Monthly Out Patient Summary Report.

โรงพยาบาล เจทีพี

JTP HOSPITAL

Sawanwithee Rd, A.Muang,Nakhonsawan 60000

Tel: 056-224228-95

MONTHLY NEW OUT PATIENT REPORT

Month:---------- Year:----------

No.	Date	H.N.	Patient Name	Doctor Name	Speciality
1	dd/mm/yyyy	99-99999	xxxxxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxx
2	dd/mm/yyyy	99-99999	xxxxxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxx
3	dd/mm/yyyy	99-99999	xxxxxxxxxxxxxxx	xxxxxxxxxxxx	xxxxxxxxx

Figure F.2. Monthly New Out Patient Report.

โรงพยาบาล เจทีพี

JTP HOSPITAL

Sawanwithee Rd, A.Muang, Nakhonsawan 60000

Tel:056-224288-95

NEW PATIENTS MONTHLY REPORT

CAUSE OF PATIENTS' DISEASE

Date__/__/__

Month:_____

Seq.	Date	H.N.	Patient Name	Cause of disease
1	dd/mm/yyyy	99-99999	xxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
2	dd/mm/yyyy	99-99999	xxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
3	dd/mm/yyyy	99-99999	xxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx

Figure F.3. Patient's Disease Report.

โรงพยาบาล เจทีพี

JTP HOSPITAL

Sawanwithee Rd, A.Muang, Nakhonsawan 60000

Tel: 056-224288-95

DAILY APPOINTMENT REPORT FOR DOCTOR

Date___/___/_____

Doctor Name:_____ Speciality:_____

Seq.	Appointment Time	H.N.	Patient Name	Appoint for
1	00.00-00.00	99-99999	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxx
2	00.00-00.00	99-99999	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxx
3	00.00-00.00	99-99999	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxx
4	00.00-00.00	99-99999	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxx

Figure F.4. Daily Appointment Report.

โรงพยาบาล เจทีพี

JTP HOSPITAL

Sawanwithee Rd, A.Muang,Nakhonsawan 60000

Tel:056-224288-95

APPOINTMENT WEEKLY REPORT

Starting date_____ Ending date_____

Seq.	Date	H.N.	Patient Name	Appointment Time	Dr.name	Appoint for
1	dd/mm/yyyy	99-99999	xxxxxxxxxxxxx	00.00-00.00	xxxxxxxxxx	xxxxx
2	dd/mm/yyyy	99-99999	xxxxxxxxxxxxx	00.00-00.00	xxxxxxxxxx	xxxxx
3	dd/mm/yyyy	99-99999	xxxxxxxxxxxxx	00.00-00.00	xxxxxxxxxx	xxxxx

Figure F.5. Weekly Appointment Report.

โรงพยาบาล เจทีพี

JTP HOSPITAL

Sawanwithee Rd, A.Muang ,Nakhonsawan 60000

Tel 056-224288-95

MONTHLY PATIENT TYPE REPORT

Month_____ Date_____/____/_____

No.	Date	H.N.	Patient Name	Occupation	Remark
1	dd/mm/yyyyy	99-99999	xxxxxxxx	xxxxxxxx	xxxxx
2	dd/mm/yyyyy	99-99999	xxxxxxxx	xxxxxxxx	xxxxx
3	dd/mm/yyyyy	99-99999	xxxxxxxx	xxxxxxxx	xxxxx

Figure F.6. Monthly Patient Type Report.

โรงพยาบาล เจทีพี

JTP HOSPITAL

Sawanwithee Rd, A.Muang ,Nakhonsawan 60000

Tel:056-224288-95

NEW ADMITTED OUT PATIENT WEEKLY REPORT

Starting Date____/____/____ Ending Date____/____/____ Printing date___/____/_____

No.	Date	H.N.	Patient Name	Cause of admitting	Age	Dr.Name
1	dd/mm/yyyyy	99-99999	xxxxxxx	xxxxxxxx	xxx	xxxxx
2	dd/mm/yyyyy	99-99999	xxxxxxx	xxxxxxxx	xxx	xxxxx

Figure F.7. New Admitted Out Patient Weekly Report.

โรงพยาบาล เจทีพี

JTP HOSPITAL

Sawanwithee Rd, A.Muang ,Nakhonsawan 60000

Tel:056-224288-95

DAILY DOCTOR FEE REPORT

Date____/___/____

Dr.code	Dr.Name	Speciality	H.N.	Patient Name	Total Fee
0001	xxxxxxxx	xxxxxxx	99-99999	xxxxxxxx	00.00
0002	xxxxxxxx	xxxxxxx	99-99999	xxxxxxxx	00.00
0003	xxxxxxxx	xxxxxxx	99-99999	xxxxxxxx	00.00

Figure F.8. Daily Doctor Fee Report.

โรงพยาบาล เจทีพี

ใบทะเบียนประวัติผู้รับบริการ

.....ผู้ป่วยใหม่

.....ผู้ป่วยเก่า H.N.....

แพ้ยา..... หมู่โลหิต.....

ชื่อ..... นามสกุล..... เพศ.....

อายุ..... สัญชาติ.....

เลขที่บัตรประชาชน..... สถานภาพ.....

ที่อยู่.....

โทรศัพท์.....

วันเดือนปีเกิด..... อาชีพ.....

สถานที่ทำงาน..... โทรศัพท์.....

ญาติที่ติดต่อ..... เกี่ยวข้องเป็น.....

ที่อยู่.....

โทศัพท์.....

Figure F.9. Registration Form.

JTP HOSPITAL PRESCRIPTION		Px	Qty.	Unit price	Amount
HN. 25-29052					
Name: นางกัญญวีณ์ คงพันธ์					
Age: 44					
Dept. ER	DATE 20 พ.ค.2542				
Room No.	VN 733				
Appt.	VISIT 19.13 น.				
Doctor นพ.ธานินทร์ สันธนะวนิช					
Patient Type	บุคคลภายนอก				
Rem	ตัดไหม+ฉีดverorab เข็มที่ 3	_____M.D.		Total:	

Figure F.10. Prescription Order Form.

โรงพยาบาล เจทีพี

JTP HOSPITAL

Sawanwithee Rd,A.Muang,Nakhonsawan 60000

Tel: 056-224288-95

บัตรนัด(APPOINTMENT)

HN. ----------

ชื่อ ----------

มีนัดกับแพทย์ (Dr.) :----------

วันที่(Date) :---------- เวลา (Time)----------

หมายเหตุ (Remark) :----------

ถ้าท่านต้องการเลื่อนเวลานัดโปรดโทร.(056) 224-288-95 ต่อ 122

IF YOU HAVE TO CHANGE YOUR APPOINTMENT

PLEASE PHONE (056) 224-288-95 EXT.122

Figure F.11. Appointment Card.

โรงพยาบาล เจทีพี

JTP HOSPITAL

Sawanwithee Rd, A.Muang,Nakhonsawan 60000

Tel:056-224288-95

ใบเสร็จรับเงินคนไข้นอก

HN. 99-99999

VN.9999 วันที่___/___/_____ เวลา 00.00

ชื่อ_____

รายการ		บาท
1.xxxxxxxxx		99.99
2.xxxxxxxxx		99.99
3.xxxxxxxxx		99.99
ชำระโดย		
จำนวน	(xxxxxxxxxx)	รวมเงิน 99.99
ผู้รับเงิน _____		

Figure F.12. Receipt.

Figure F.13. The Front and Back of Patient ID-Card.

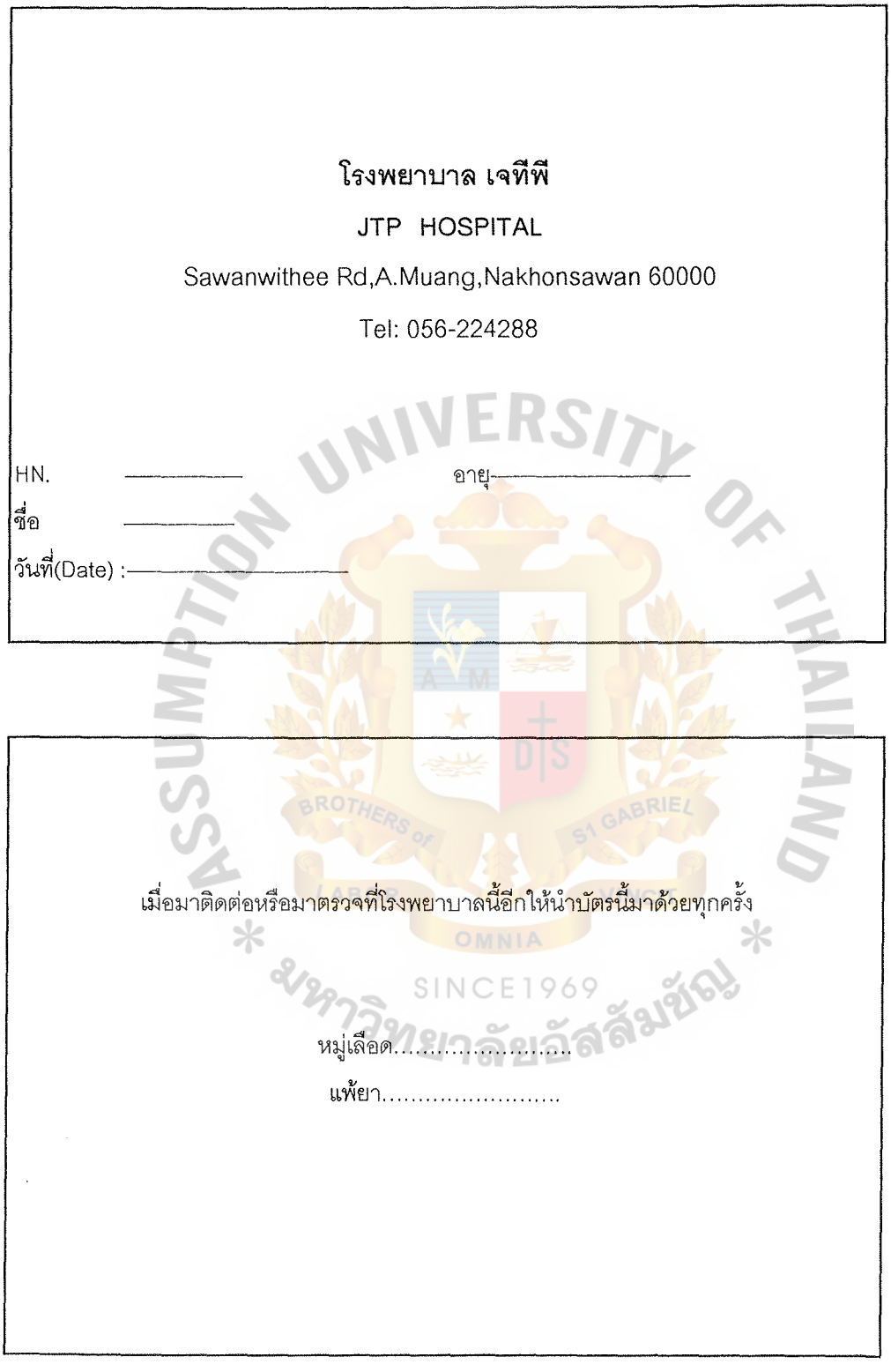

Figure F.13. The Front and Back of Patient ID-Card.

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