DISS
1988
COM

Disease Diagnostic & Treatment System

A project report is submitted to the Quaid-i-Azam University Islamabad in the partial fulfillment of the requirement of the Post Graduate Diploma in Computer Science.

Computer Center

Quaid-i-Azam University

Islamabad

May 2002

By

Syed Muhammad Nadeem
Tariq Mahmood

MAN 3402

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Imedwatch.com

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Saturday, May 27, 2002

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Tariq Mahmood

Quaid-i-Azam University
Computer Center
Final Approval

This is to certify that we are have read the project report Submitted by Syed Muhammad Nadeem & Tariq Mahmood and it is our judgment that this thesis is of sufficient Standard to warrant its acceptance by Quaid-i-Azam University Islamabad for Post Graduate Diploma In Computer Science.

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  - Islamabad.
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  - Dr Ghulam Muhammad
  - Computer Center
  - Quaid-i-Azam University
  - Islamabad.

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Project Brief

- **Project title** Imedwatch.com
- **Objective** Disease Diagnostic and treatment of patient
- **Under taken by** Syed Muhammad Nadeem & Tariq Mahmood
- **Supervised by** Dr Ghulam Muhammad
- **Starting Date**: 20 March, 2002.
- **Date of Completion** 27 May, 2002.
- **Source Language** Java
- **Operating System Used** Windows 2000

Abstract

A computer based Imedwatch.com Software has been developed for the Disease Diagnostic and treatment of a patient. The system provides efficient means of data storage and retrieval through a variety of fields. During the storage of information certain validation checks are provided on the data which improves the accuracy of the system and makes it more reliable. Advantage of computerized system over the present manual system is highlighted because it provides the facilities for on line retrieval of information in the form of reports as queried required by the department.

Acknowledgement

Our deepest gratitude is to Almighty Allah, who enabled us to complete the project. We feel great depth of obligation for our loving parents whose prayers have enabled us to reach this stage. We express our gratitude to all teachers specially Dr. Ghulam Muhammad for his invaluable guidance and co-operation during our project. We extend our gratitude to all teachers.Mr. Nazim-ud-Din, Mr. Javed Hussain, Mr. Abdul Subhan, Mr.Azhar Kaleem and Mr. Sheer Muhammad for their encouragement and moral support during our academic career of Post Graduate Diploma. We would like to thank all our class fellows and staff of the Computer center individually for their encouragement, moral support and kind Co-operation during our stay at the university.

Dedicated to
Our kind Parents and loving Brothers & Sisters

Table of Contents

Chapter1: Introduction

1.1 Objective of study---8
1.2 Existing system---8
1.3 History of patient---8
1.4 Diagnosis of Disease of a patient---8
1.5 Treatment---9
1.6 Record of a patient---9

Chapter 2 Proposed System

2.1 Study Phase---10
2.1.1 Requirements of the proposed system---10
2.1.2 Objectives of the proposed system---11
2.2 Design phase---11
2.3 Development phase---12
2.4 Proposed system---12

Chapter 3 System Design Phase

3.1 Input designing system---13
3.1.1 Code designing---13
3.1.2 Designing input screen---14
3.2 Output designing---14
3.2.1 Reports---14

Chapter 4 Software Development & implementation

4.1 Language selection---16
4.2 Software development---16
4.2.1 Login Module---16
4.2.2 Insertion module---16
4.2.3 Retrieval Module---16
4.2.4 Updating Module---17
4.2.5 Logout---17
4.2.6 Technologies software's used---17
4.2.7 Java server architecture---17

Chapter 5 Physical Database

5.1 Database files---21
5.1.1 Patient database---
5.1.2 Diagnoses database---
5.1.3 Disease Database---
5.1.4 Drug Database---

Chapter 6 **Conclusion**
6.1 Feeding----------24
6.2 System evaluation.----------

Chapter 7 **System Flowchart**----------26

Appendix A **Input screens**----------31
Appendix B **Output screens**----------35

CHAPTER 1
INTRODUCTION

In the present days the computer has become a part of life. Every activity of life through computer has become more active and quick. Now computers are used in hospitals to our come the problems of the doctors due to the increasing number of patients. Therefore, there is need to develop such a software through which doctor can have direct and easy access to the data released to the patient.

1.1 Objective of the study

This software provides diagnosis, evaluation, treatment of new and follows up patients suffering from different diseases. Its activities in the past few years have encompassed all areas of clinical work which comes under its fields. Statistical data indicate and increasing work load on the hospital. Keeping in view this increasing work load can wastage of precious time utilizing the costly equipment due to the slow manual file work. So it is needed to computerize the medical treatment system. Therefore the present system study was carried out to design a database which will provide relevant information about any patient visiting to the hospital.

1.2 Existing system

Presently there is a conventional card based system in the hospital. Therefore through every patient is registered.

1.3 History of patient

In this software first of all the patient will enter his history or symptoms and on the bases of the history of patient or symptoms the computer will save his history and then take further decision according to the patient's history.

1.4 Diagnosis of disease

When a history is entered to a patient the computer will diagnosis his disease according to his symptoms. If symptoms are not properly entered then computer will not give any reasonable response.

1.5 Treatment of patient

After the diagnosis of disease the computer will suggest the proper treatment corresponding to the disease. We can also add any medicine according to the condition of patient.

1.6 Record of Patient

All the patients will be registered according to the patient login name and password. We can easily search of record of any patient within no time through id no.

CHAPTER 2
PROPOSED SYSTEM

2.1 Study phase

We achieved the following the from the study phase.

- The problem is clearly defined and identified.
- The objectives of the proposed system are defined.
- The requirement of the system are analyzed and noted.
- Performed the feasibility study and selection of most feasible solution.
- Study of various other solutions and possibilities.

Following are the main requirements of the system.

2.1.1 Requirements of the proposed system

- System must be capable of doing things in order to fulfill the requirements of the proposed system.
- How it is possible to implement the system. It is designed on the basis of the user's requirement and problems faced by him.
- How the system can be functional in itself and it is environment and should behave under certain conditions.
- Another requirement indicates about the physical environment of human behavior and interface.

According to the suggestion and requirements, development of software and selection of hardware discuss below.

There are main functions of data.

- Inputting the data and detail information.
- Output of this information.
- The main program should manage all the processing and storage of this information.

Beyond the major functions the most important thing is that the program must keep control on input and output activities as well as storage along with the processing of information inside the memory. So keeping in view all these factors and problems, the selection of programming language or database package is very important. Therefore database tool should be selected as database system because it provides more features and control our huge data.

2.1.2 Objective of the proposed system

Having detailed study of the system the main objectives of the Proposed system is following.

Easy input of data

In the present fast moving world where time is very important so the system should be designed ins such a way that inputting of data and storage facilities must be simple and easy to use.

Easy access and availability of information

System should have been designed in such a way that it could provide facilities for each and quick access for the stored information.

Efficient update system

The new system provides efficient update facilities. Editing and changing in data should be possible.

Important checks and confirmations

In order to maintain correctness of data during the input process, the proposed system uses the no of validation and variety of warnings is given before processing of data.

Flexibility of the system

The proposed system has been made so easy that even those people who have limited knowledge of computer can use it. Simple letters and keys should have to be used where ever it is possible. It provides facilities the users for entering the data and saves the time and memory. Its also helps the user to identify the problems which may occur during the data entry process and information which was not return properly can be corrected

2.2 Design phase

The objectives of this phase are given below.

- Designing of the input and output data.
- Development of the logic for the implementation of the objective identified by the proposed system.
- Designing of input and output files to the logic.
- Documentation of logic.
-

2.3 Development phase

The major considerations in this phase are as follows.

- Development of computer program.
- We can test of complete system software.

2.4 Proposed system

After the detailed study of the objectives and requirements of project. A model is developed which can satisfied all the requirements and outputs. The outputs were finalized according to the objectives and necessary requirements.

CHAPTER 3
SYSTEM DESIGN PHASE

This chapter gives the detail of the system specification, flow of information, processing and design of output files.

In system designing phase there are number of steps involved. First of all involves of designing of impacts in form of screen displays, which the system required to produced. After that second step covers the out data and information which will be used by the screen, decided already according to the requirement. Finally the program logic is designed which can hold all the inputs. In this phase while designing the program input available and output required are considered. So all over this chapter briefly described all the above steps. The system design has the following the major parts.

- Input design.
- Output design.
- Program logic.

3.1 Input designing

The first step of the system design is to describe the input designing required to produce the proposed outputs. The computerized database system handles manually prepared information (Patient Registration slip) provides to the data entry operator who is responsible to enter the correct data into the system.

If the operator does not give the correct data he should not the expect the reasonable output. An excellent data entry system must be designed to give a reasonable performance while designing the inputs following parameters would be helpful.

3.1.1Code designing

The code is a brief title which is composed of combination of numeric number which is used to identify data item of data. Code must be unique for each patient that is why in proposed computerized system there is an arrangement to allot a code number in automatic ways just to avoid the duplication of data, in code designing codes need to be design carefully.

For example

	Description of patient id	
Id	int	size = 11

Id is an access key and all the processing takes place regarding this primary key.

3.1.2 Designing of input screen

An input plays a very important role to provide relevant data for processing and producing required results.

Perfect design inputs increase level of accuracy, the designing must be carefully planned. Inputs help in providing necessary information for the accomplishment of objectives of the system. Therefore, inputs must be easy to understand and convenient to use.

While designing the inputs, the objectives are given below.

Screen is used for the purpose of data entry. The data is entered from the patient's registration slip). Most common information which any person may require is entered.

- Only important information must be input and all the redundant fields should be removed.
- Length and size of each field is designed according to its importance.
- Expected space for each entry is provided.

3.2 Output Designing

The output requirement plays a vital role in the system designing therefore before designing the system all inputs must be clearly defined. The major function of any system is to produce relevant and timely information when needed. The outputs of any system determine the efficiency and reliability. Output must be design in such a way that it must contain all types of information which are needed for the system.

These outputs can be placed into the following categories.

3.2.1 Reports

This software generates the different types of reports which are given below.

Patient description

The patient description describe the detail report about the patient's history through which computer can easily diagnose the disease

Diagnosis of patient's disease

Based on the patient's history the computer will diagnosis the disease and its type in detail.

Medicine description

Based on the diagnosis the computer will suggest the list of medicines along with its dose, side effect and cautions.

Reference Section
University

CHAPTER 4
Software Development and Implementation

Language Selection

Selection of a programming language is an important task while developing a system. But selection of a suitable programming language or package is very difficult because certain facilities provided by the different languages and packages. Selection of language also depends upon the problem nature. Keeping in mind the objectives of the proposed system. Java is preferred for developing patient diagnostic and treatment system. Java carries following advantages.

4.2 Software Development

The develop software is named is Imedwatch.com and provides the following. Five main modules.

- Login Module
- Insertion module.
- Retrieval module.
- Modification module.
- Reports.

4.2.1 Login Module

In login module first of all the patient will give his login name and then give the password. If any one of these two does not match with the actual login name and password the message will display at the top of the login's screen i.e. invalid login name or password.

4.2.2 Insertion Module

Data entry in data files means writing record at the end of files. But due to special design code no. It is possible to insert record or records at any time, position in the data file.

Whenever it is necessary to insert new record into the file. It is possible that the current data should automatically be located at its place.

4.2.3 Retrieval module

It is a second feature of main menu by using this function. Any person may get any information about the patient within no time.

4.2.4 Modification module

We can modify any existing record in the patient's record or treatment record by specifying the patient's revised history.

4.2.5 Logout Module

In this module we can logout from this module by click on logout option.

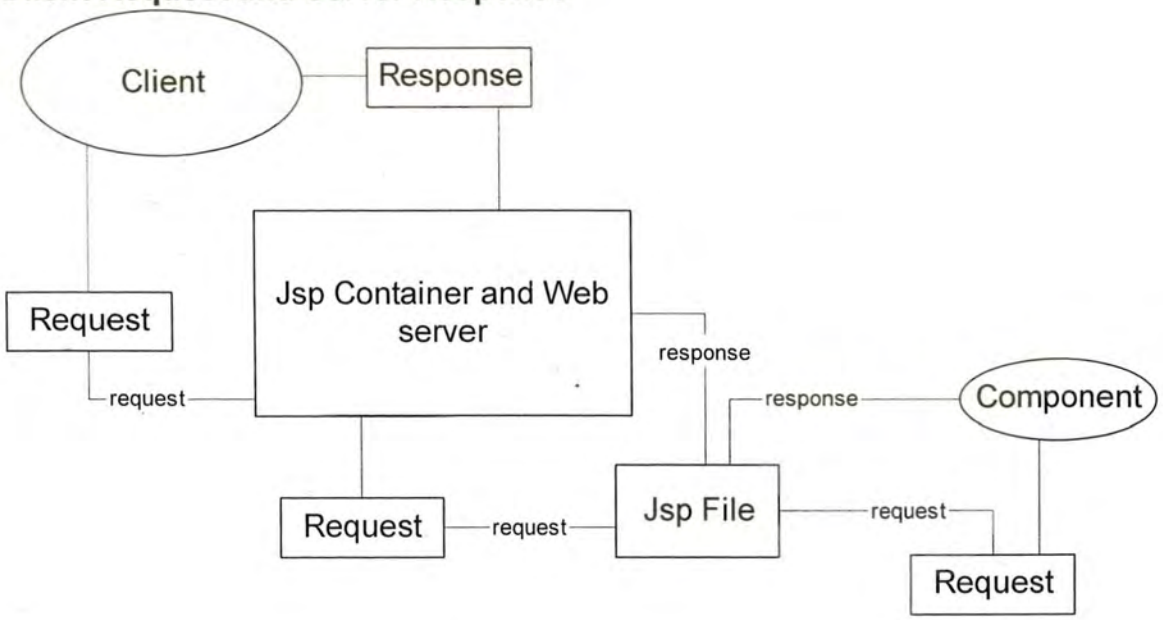
4.2.6 Technologies and Software's Used

1. Java server pages
2. Borland JBuilder 4.0
3. Allaire Jrun 3.0
4. Macromedia Ultradev 4.0
5. Adode Photo Shop 6.0
6. Mysql (Database)

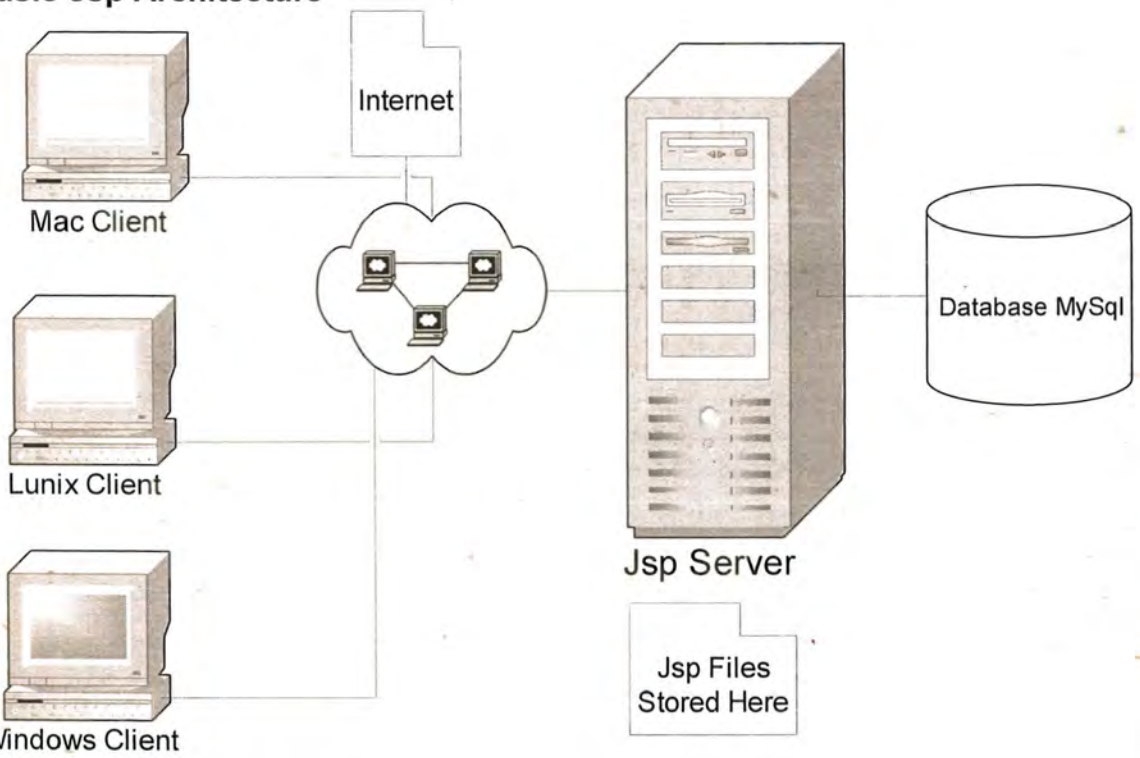
4.2.7 Java server pages Architecture

JavaServer Pages—JSP, for short—is a Java-based technology that simplifies the process of developing dynamic web sites. With JSP, web designers and developers can quickly incorporate dynamic elements into web pages using embedded Java and a few simple markup tags. These tags provide the HTML designer with a way to access data and business logic stored inside Java objects without having to master the complexities of Java application development. Think of JSP as a type of server-side scripting language, although, as we'll see Later, it operates quite differently behind the scenes. JavaServer Pages are text files, usually with the extension .jsp, that take the place of traditional HTML pages. JSP files contain traditional HTML along with embedded code that allows the page designer to access data from Java code running on the server. When the page is requested by a user and processed by the Hypertext Transport Protocol (HTTP) server, the HTML portion of the page is passed straight through. The code portions of the page, however, are executed at the time the request is received, and the dynamic content generated by this code is spliced into the page before it is sent to the user. This provides for a separation of the HTML presentation aspects of the page from the programming logic contained in the code, a unique benefit we'll consider in detail below.

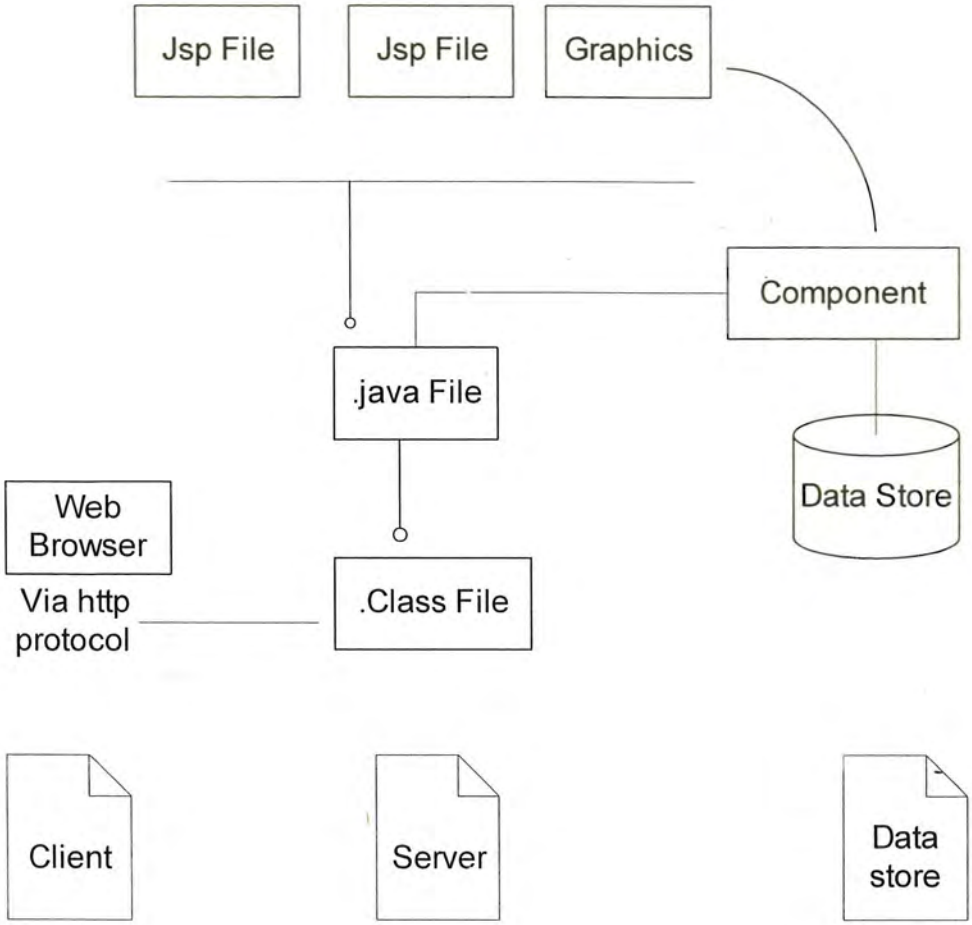
Client Request and Server Response



Basic Jsp Architecture



Jsp File Compilation


Jsp File
Jsp File
Graphics
Component
.java File
Data Store
Web Browser
Via http protocol
.Class File
Client
Server
Data store

CHAPTER 5
PHYSCIAL DATABASE DESIGN

Database Structure

The data base files which were designed mainly consist of the forms and applications which are being used in the hospital. These files were designed by recommendation of the computer. These requirements were given main priority.
Here is the structure description of some database files.

Patient Database

Field	Fieldname	Type	Width	Description
1	Id	Int	11	Patient's id number
2	Login name	Varchar	15	Patient's login name
3	Password	Varchar	15	Patient's password
4	Pname	Varchar	255	Patient's name
5	Age	Int	0 3	Patient's age
6	Sex	Char	01	Patient's sex
7	Email	Varchar	255	Patient's email address
8	Address	Varchar	255	Patient's address
9	Contactno	Int	12	Patient's telephone number
10	Medical Description	long text		Patient's history

Drug Database

Field	Fieldname	Type	Width	Description
1	Id	Int	11	drug id number
2	Medicine's name	long text		Medicine's name
3	Disease's name	long text		Disease's name
4	Dose	long text		Medicine's dose
5	Side effect	long text		Side effect of medicine
6	Description	long text		Caution about medicine

Disease Database

Field	Fieldname	Type	Width	Description
1	Id	Int	11	disease id number
2	Disease name	long text		Disease name
3	Symptoms	long text		Symptoms of disease

Diagnosis Database

Field	Fieldname	Type	Width	Description
1	DId	Int	11	Diagnose id number
2	Disease name	long text		Disease name
3	Symptoms	long text		Symptoms of disease
4	Patient Id	Int	11	Patient id

CHAPTER 6
CONCLUSION

A computerized data system has been developed. The system provides efficient way of data storage and several retrieval methods, through specific field description.

6.1 Feeding

During the storage of information different validation checks and signals against these checks are provided on the data before a final entry.
An advantage of these checks improves the accuracy of the system and makes it more reliable. Facilities of new computerized system are highlighted over the present system as it provides quick retrieval of information in the form of daily and monthly reports by the system.

6.2 System evaluation

An evaluation of a newly developed computerized system is necessary to judge weather the objectives setout for the system have been achieved or not. A system is reviewed and evaluated with respect to completion, correctness and consistency.
The new computerized system has a number of advantages over the old one. Some are given below.

Efficiency

The new system is efficient and suitable for easy for retrieval within a short Time. This database responds the quickly and accurately. The reason for this quick approach directly to there required record is due to the usage of a standard query language. While in old system data remains in register and files whereas retrieval of information takes a long period of time.

While the new system has been designed in such a manner that even a layman does not face any problem during the data information, retrieval and modification and formation of reports.

Correctness

The result produced by the new system is accurate which is made possible by providing validation checks all the data entry fields. Thus the system assures the results that are outputs are correct.

Reliability

The proposed system is more reliable and efficient then the old one's. In this system the data can be copied for backup and kept at another place and thus the risk of loosing and damaging of data is reduced.

Consistency

Duplicate information and details create many problems as is done in the manual system. But in the proposed system different validation, routines are provided which update the files different times. So consistency is achieved to some extent, by providing automatic generation of code numbers.

Minimum data redundancy

There is a minimum data redundancy in the new developed system. The data file is designed in such a way that minimum data is duplicated. This process is very important that helps the system to work in better way and saves storage space and time of processing.

Easy modification

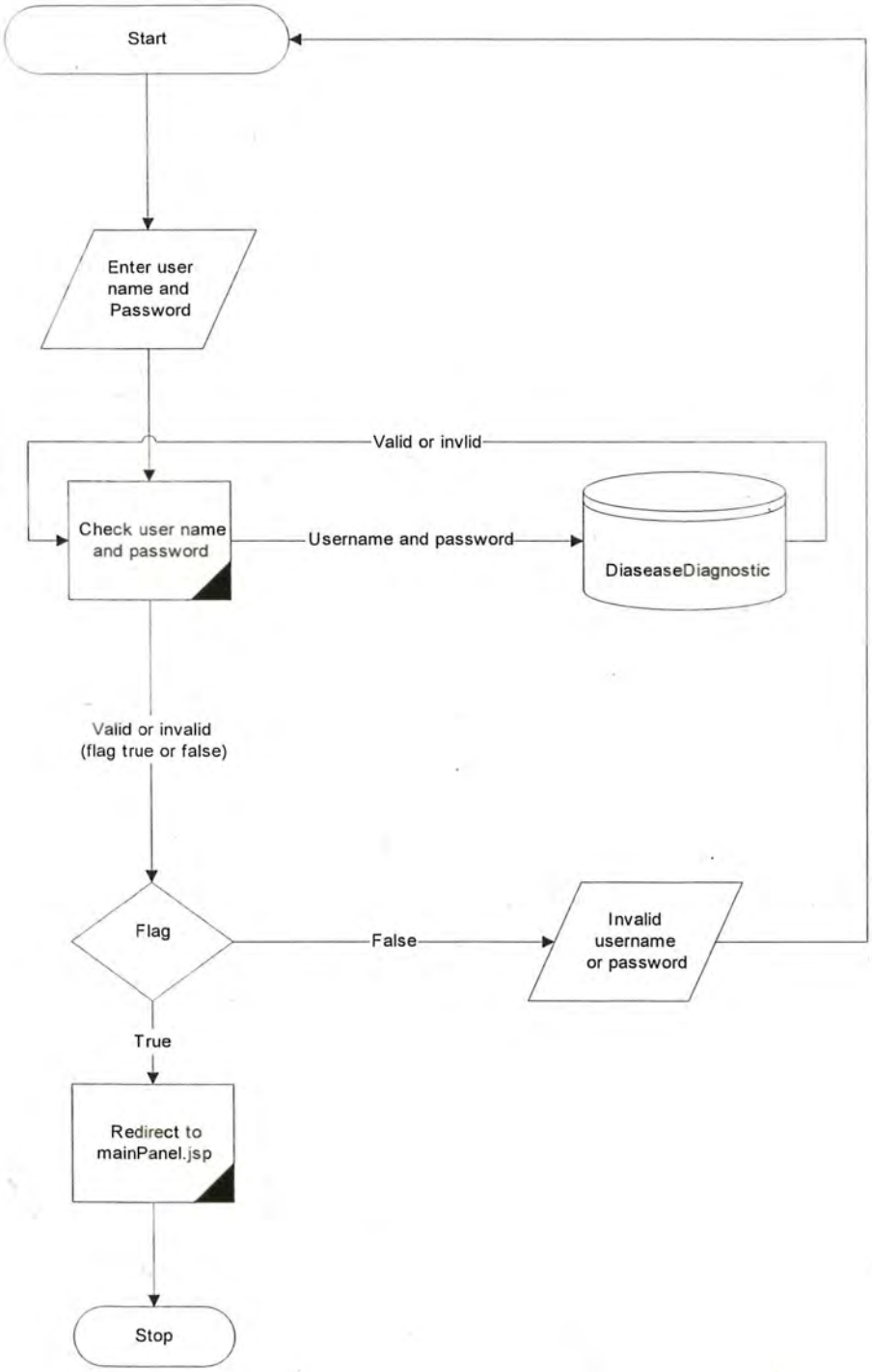
Operation of a new computerized system becomes simple and its modification becomes easy. This is because of the flexibility provided by the system which makes it convenient in daily use. The system is designed in such way that it could provide the user with the facility of modification or change of data. When ever required but change in record number (Id no) cannot be done.

Screen designing and operation

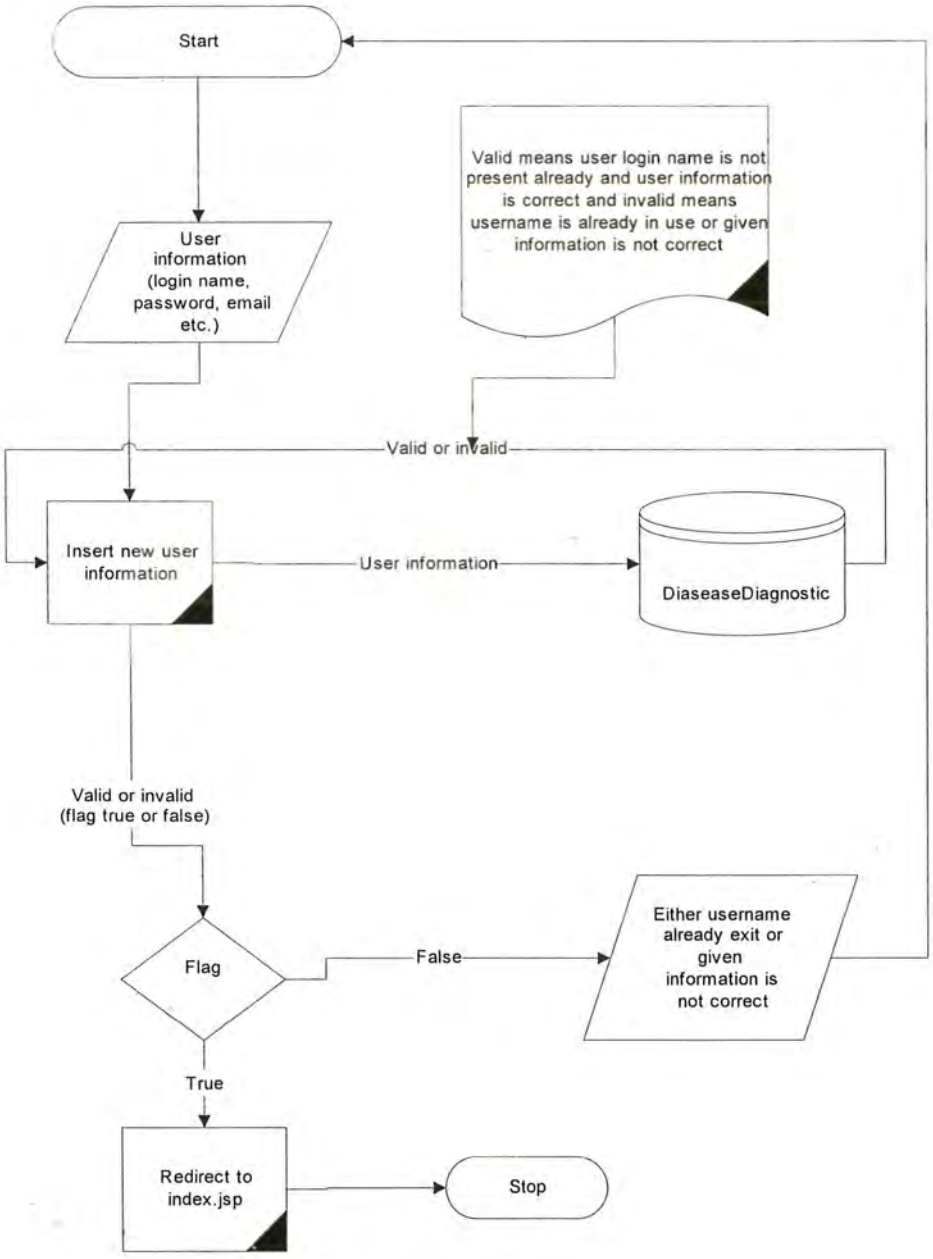
The input screen and operation of the system are so easy and simple that even a person with no background of computers can also understand these operations without any difficulty.

Chapter 7
Flow Chart

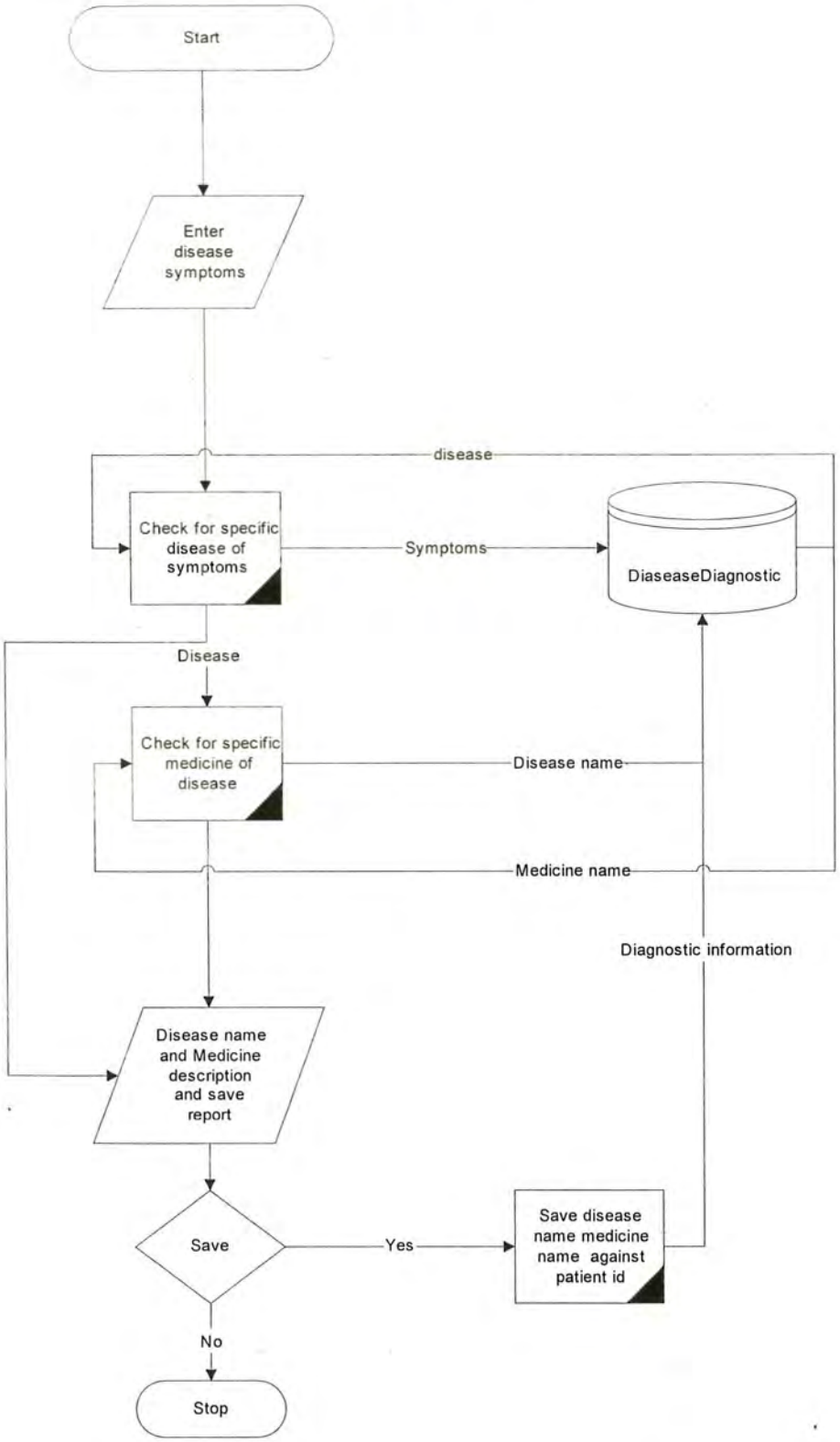
Login


Start
Enter user name and Password
Valid or invlid
Check user name and password
Username and password
DiaseaseDiagnostic
Valid or invalid (flag true or false)
Flag
False
Invalid username or password
True
Redirect to mainPanel.jsp
Stop

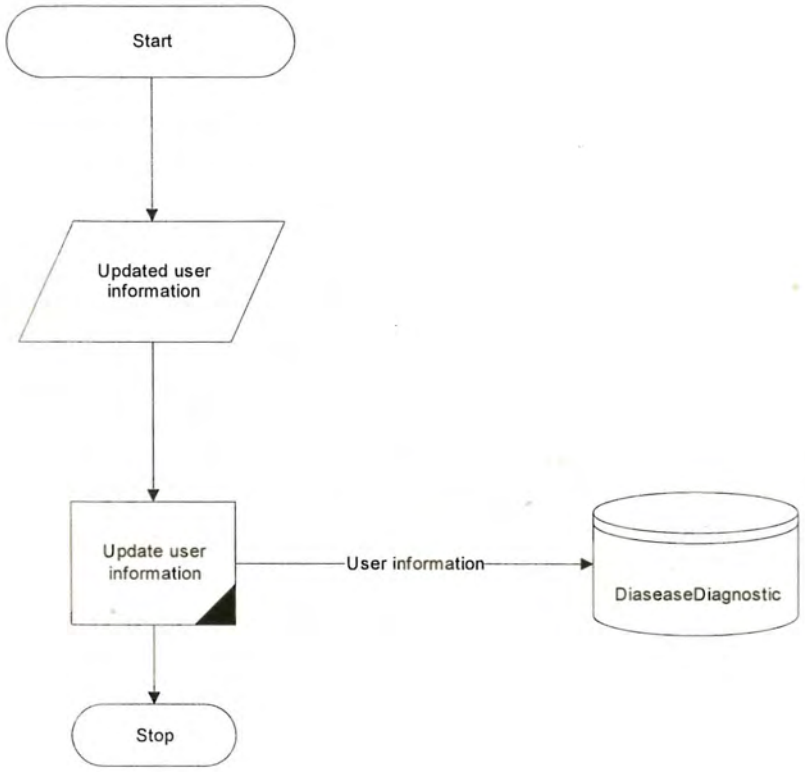
Signup


Start
User information (login name, password, email etc.)
Valid means user login name is not present already and user information is correct and invalid means username is already in use or given information is not correct
Valid or invalid
Insert new user information
User information
DiaseaseDiagnostic
Valid or invalid (flag true or false)
Flag
False
Either username already exit or given information is not correct
True
Redirect to index.jsp
Stop

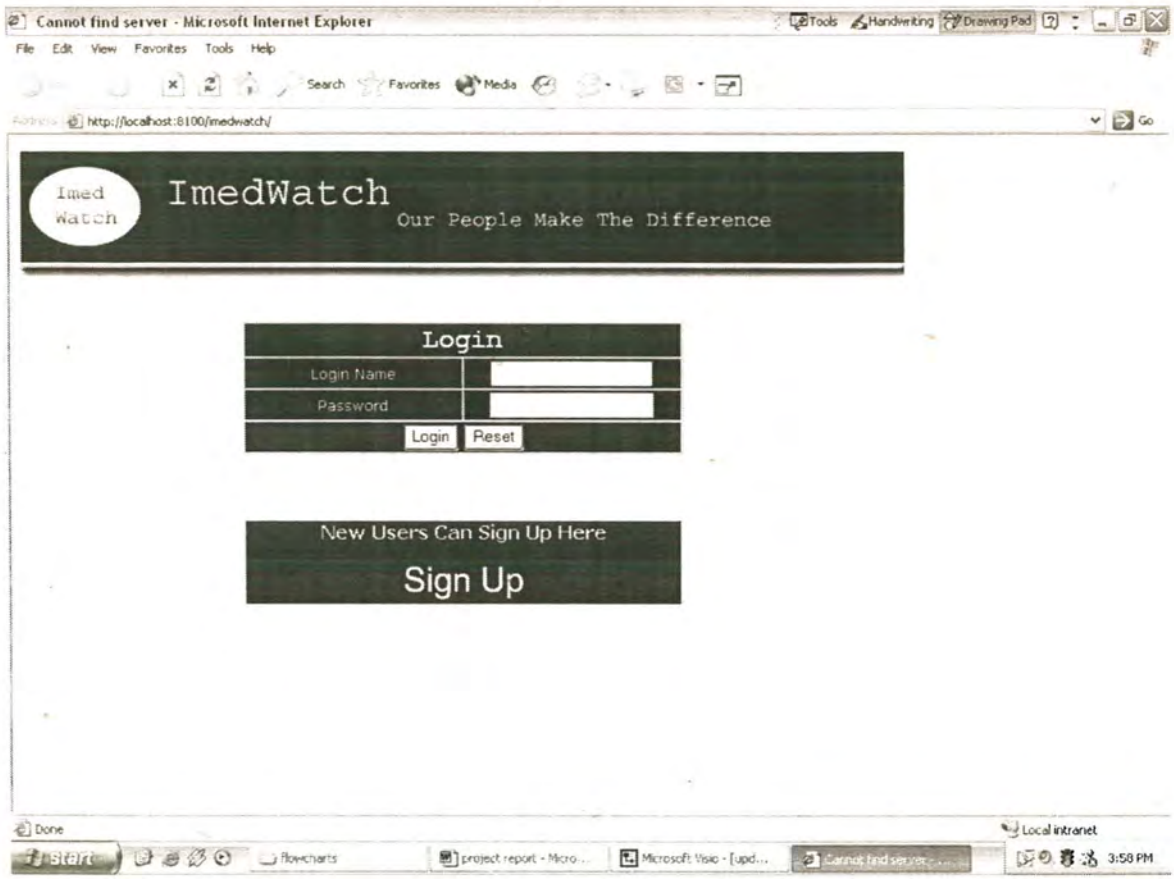
Disease diagnostic

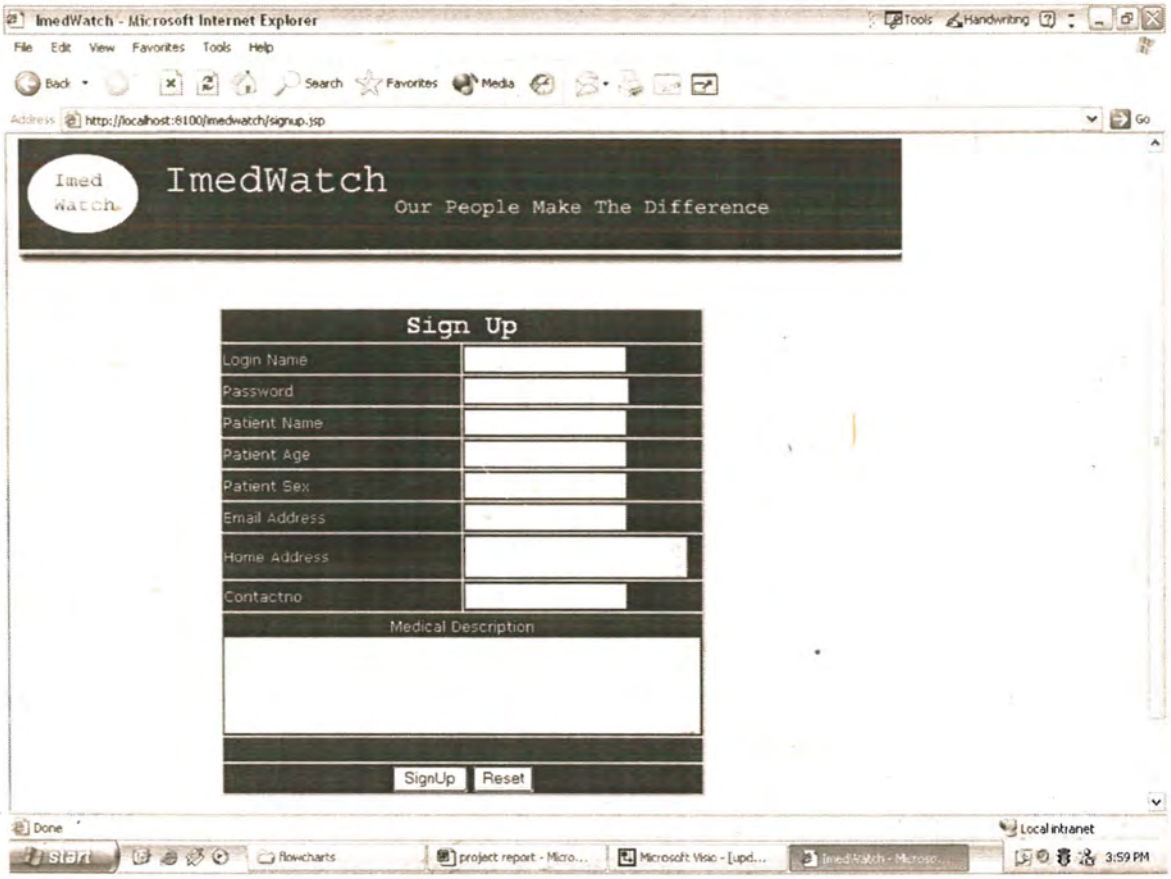


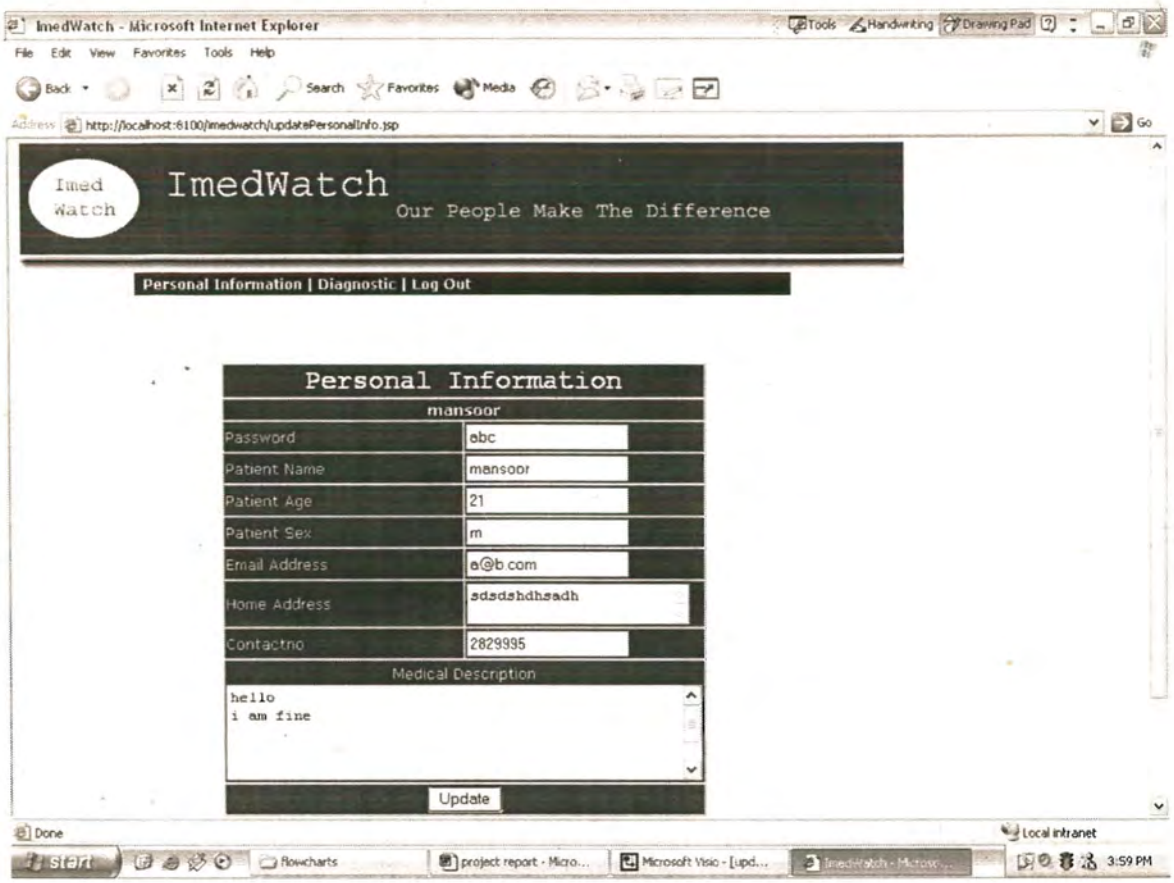
Update user Information

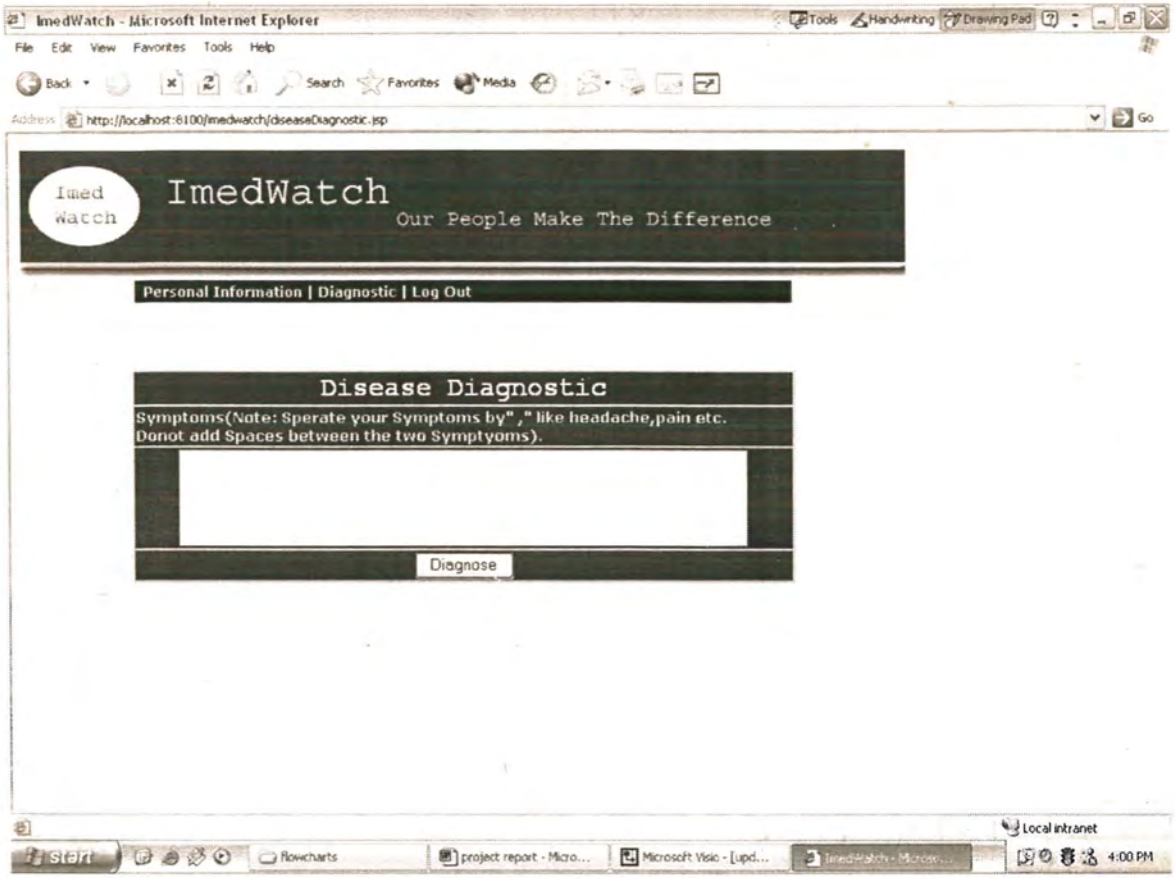


Appendix A
Input Screen

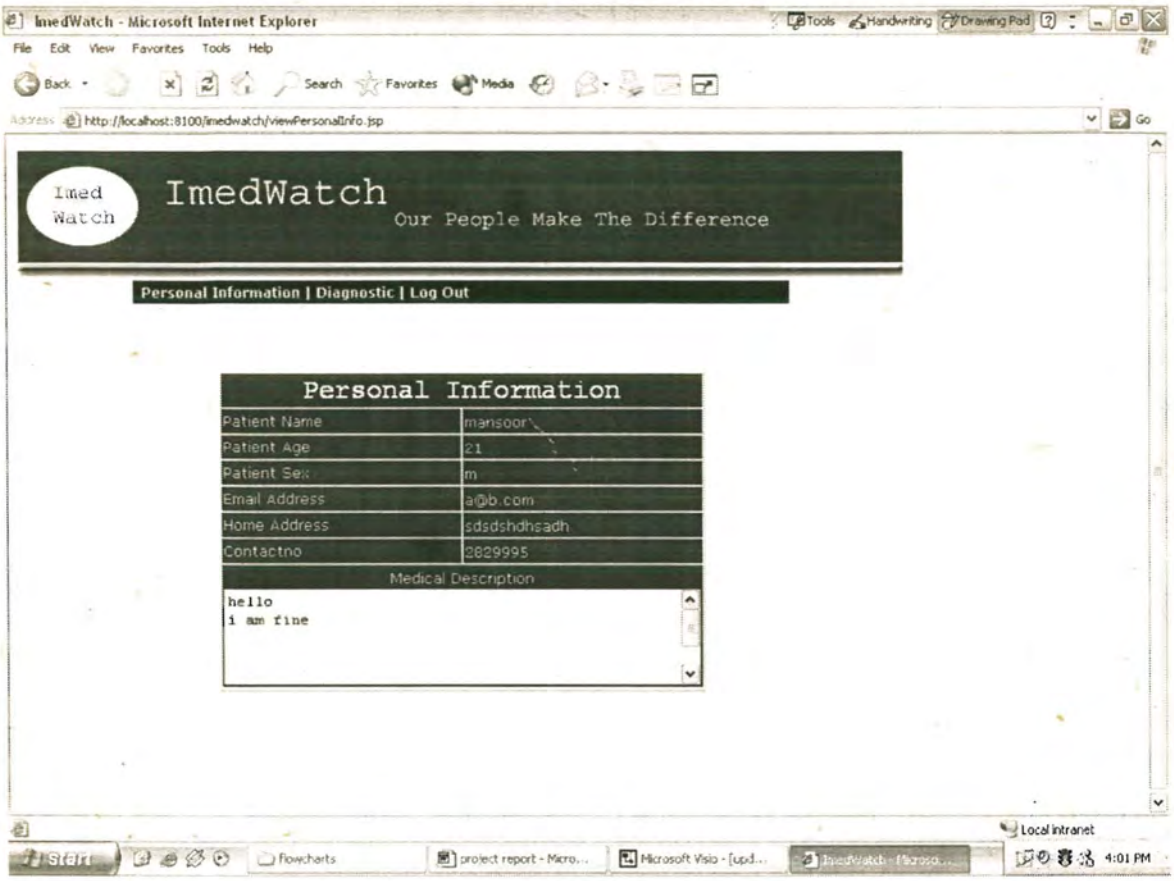



ImedWatch - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost:8100/imedwatch/signup.jsp
Go
Imed Watch
ImedWatch
Our People Make The Difference
Sign Up
Login Name
Password
Patient Name
Patient Age
Patient Sex
Email Address
Home Address
Contactno
Medical Description
SignUp
Reset
Done
Local intranet
start
flowcharts
project report - Micro...
Microsoft Visio - [upd...
ImedWatch - Microso...
3:59 PM

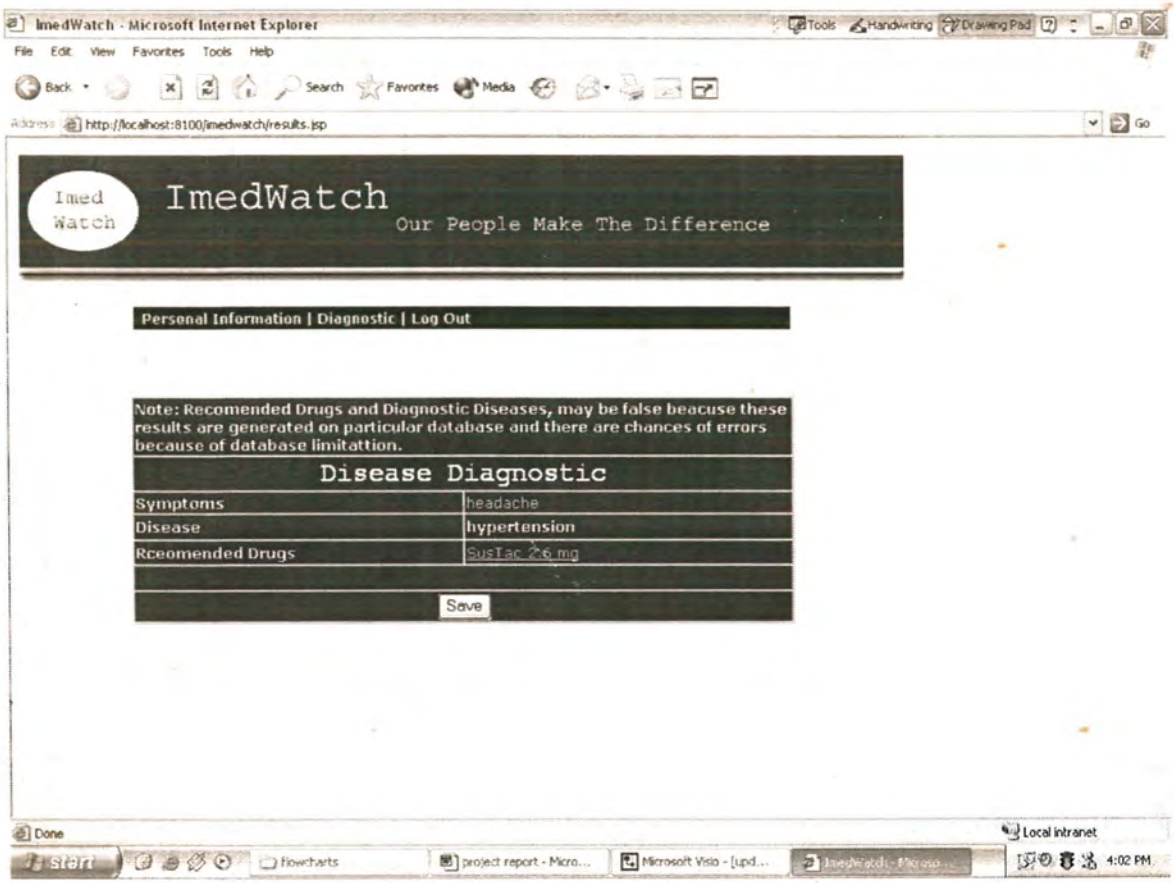

ImedWatch - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost:6100/imedwatch/updatePersonalInfo.jsp
Go
Imed Watch
ImedWatch
Our People Make The Difference
Personal Information | Diagnostic | Log Out
Personal Information
mansoor
Password
abc
Patient Name
mansoor
Patient Age
21
Patient Sex
m
Email Address
a@b.com
Home Address
sdsdshdhsadh
Contactno
2829995
Medical Description
hello
i am fine
Update
Done
Local intranet
start
flowcharts
project report - Micro...
Microsoft Visio - [upd...
ImedWatch - Microsof...
3:59 PM

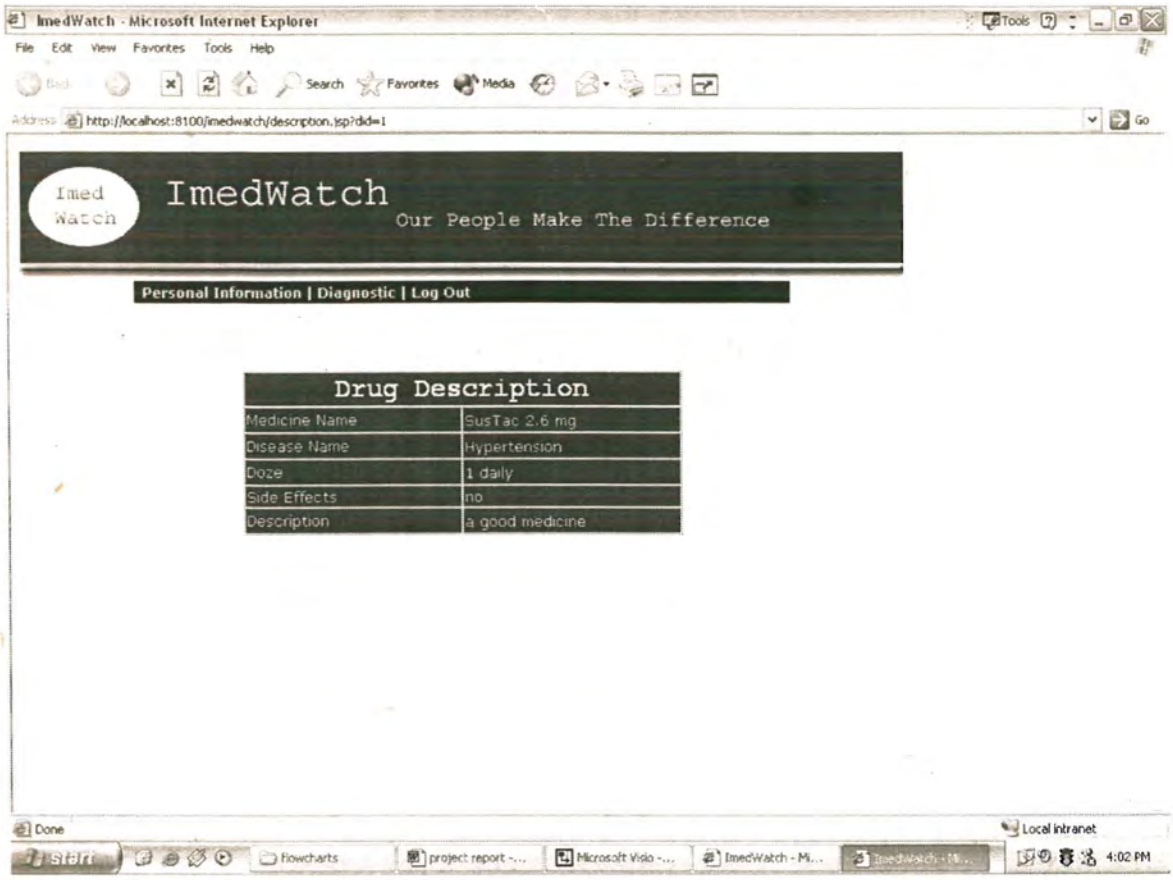

ImedWatch - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost:6100/imedwatch/diseaseDiagnostic.jsp
Go
Imed Watch
ImedWatch
Our People Make The Difference
Personal Information | Diagnostic | Log Out
Disease Diagnostic
Symptoms(Note: Sperate your Symptoms by"," like headache,pain etc.
Donot add Spaces between the two Symptyoms).
Diagnose
Local intranet
start
flowcharts
project report - Micro...
Microsoft Visio - [upd...
4:00 PM

Appendix B
Input Screens



ImedWatch - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
http://localhost:8100/imedwatch/mainPanel.jsp
Imed Watch
ImedWatch
Our People Make The Difference
Personal Information | Diagnostic | Log Out
WellCome
mansoor
Done
Local intranet
start
flowcharts
project report - Micro...
Microsoft Visio - [upd...
4:01 PM


ImedWatch - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
http://localhost:8100/imedwatch/results.jsp
Imed Watch
ImedWatch
Our People Make The Difference
Personal Information | Diagnostic | Log Out
Note: Recomended Drugs and Diagnostic Diseases, may be false beacuse these results are generated on particular database and there are chances of errors because of database limitattion.
Disease Diagnostic
Symptoms
headache
Disease
hypertension
Rceomended Drugs
Save
Done
Local intranet
start
Flowcharts
project report - Micro...
Microsoft Visio - [upd...
4:02 PM


ImedWatch - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Search Favorites Media
http://localhost:8100/imedwatch/description.jsp?did=1
Imed Watch
ImedWatch
Our People Make The Difference
Personal Information | Diagnostic | Log Out
Drug Description
Medicine Name
SusTac 2.6 mg
Disease Name
Hypertension
Doze
1 daily
Side Effects
no
Description
a good medicine
Done
Local intranet
start
flowcharts
project report -...
Microsoft Visio -...
ImedWatch - Mi...
4:02 PM