Project on

SMART PATIENT SYSTEM

Under the supervision
Of

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Project Submitted
By

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Disclaimer

This is to certify that this project is our original work. No part of this has been submitted elsewhere partially or fully for the award of any other degree. Any material reproduced in this project has been properly acknowledged.

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Approval

The Software Project or Project titled “Smart Patient System ” has been submitted to the following respected members of the Board of Examiners of the Faculty of Science and Engineering in partial fulfillments of the requirements for the degree of Bachelor of Science in Information and Communication Engineering on December,2016 by the following students and has been accepted satisfactory.

_____

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_____

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Acknowledgements

Firstly We would like to take the chance to express our gratitude to our honorable teacher and Supervisor Dr. Mohammad Arifuzzaman, for his continuous guidance and support regarding this report. Besides this, we have found so many sincere and productive advices from many people that we would like pay homage to them. We also convey our gratitude to our Chairperson of the ECE department Dr. Mohammad Mofazzal Hossain.

Our appreciation goes to our parents who supported us all these years. Their unconditional love, encouragement and inspiration gave us the strength to complete the project
We are specially grateful to our seniors for their technical suggestions.

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CHAPTER 1: STATEMENT OF WORK

1.1 Purpose/Objectives

The objective of this project is to develop a technology based health care system where each individual user have access to his/her total medical history and sharing option to the doctors for better solution. The name of the system is **Smart Patient System**. Through our system better decision making for both doctor and patient will be encouraged. The System can ensure the patients ownership of the data, increase the reliability, efficiency and accuracy of the treatment procedure which will be time consuming and satisfactory to both doctor and patient. We belief this kind of practice can reduce the corruption of medical business. The project is part of the coursework for ICE-498 at the East West University (EWU).

1.2 Features

This purpose of this project is to develop a smart patient system using desktop applications. The software should get the primary basic information and also different types of medical history, symptoms in different situations. The product name will be **Smart Patient System**.

Our system contains three major Features:

1. This system has easy sign up system

This System takes basic information of a patient. This System will took some health information, specially which is very much significant to checkup any new patient

2. This System will maintain the full privacy to the user; great functions are used to sharing option to the registered doctor.

1.3 Proposed System

This system is intended to give a smart solution for treatment system. User can use this system any time and share his medical history to his doctor.

Our system is actually proposed digital based prescriptions of previous time, It just took all the information of previous medical history of a patient and patient have right to access those data and share it to the right person (like family doctor, doctor, guardian)for increasing his treatment system.

1.3.1 Benefits of Proposed System

Our system mainly gathers lots of information from different field which is very much needed for starting a new treatment. Any user can gather his data in different situation

1. Personal doctor review
2. Previous prescription details.
3. Information on at birth
4. Multiple doctor review
5. Gathering information through browsing internet(like find out surgery success rate)
6. Surgery history
7. Vaccination history
8. Family medical history

1.4 Abbreviations

Provide a list of the abbreviations used in this document and the meaning of each.

EWU – East West University
ICE – Information and Communication Engineering
ECE – Electronics and Communications Engineering
IDE – Integrated Development Environment

1.5 System Features

1.5.1 Patient's Data Ownership:

1. Patient will be the owner of his/her own data
2. In case of baby, parents will maintain the data.

1.5.2 Data Sharing:

1. Patient will control all the data sharing
2. Allowed people like doctor can only upload or see the particular data allowed by patient
3. Patient can maintain the privacy of sensitive or personal data

1.5.3 Personal research:

1. Patient can make his/her personal research beside doctor
2. Patient can do his/her through internet browsing, personal experience or experiment.
3. Patient's self-satisfaction can be ensured

1.5.4 Data Reuse:

1. One doctor can easily understand the condition through previous record
2. Correct treatment can be ensured
3. Treatment efficiency increases.
4. Data reuse decreases additional time and cost

1.5.5 Treatment Efficiency:

1. Doctor will use less time to understand the current treatment and condition
2. Doctor will get more time study patient
3. Doctor can get more solution from patient data
4. Treatment accuracy can be increased up to 80%

1.6 Environment

1.6.1 Processing

1. This Desktop based application will perform in windows 7 or later in version.

2. This application will store the information of all registered user.

3. Authenticated and secure login system and secure data transmission for all users.

1.6.2 Security

System's security requirements:

1. User authentication is required to access the application.

2. A client or user must be a registered user to login.

3. Without proper authentication no user will be allowed.

1.7 Constraints

It may cause (In case of internet security) –

1. **Authentication problem:** Server may not recognize/confirm actual valid user.

2. **Confidentiality problem:** User, intended server fails "understanding" message contents.

3. **Integrity problem:** sender, server may fail to ensure message not altered without detection

4. **Impersonation:** can fake (spoof) source address in packet (or any field in packet)

5. **Hijacking:** "take over" ongoing connection by removing sender or server, inserting himself in place

6. **Denial of service:** prevent service from being used by others (e.g., by overloading resources)

1.8 PROPOSED SYSTEM

1.8.1 Description/Improvements of Proposed System

1. Reduce the extra harassment of physical data saving
2. Efficient treatment of doctors.
3. Time consuming treatment
4. Data reuse reduce the complicacy of the treatment
5. Assure the correct treatment
6. Patient's satisfaction

1.8.2 Resources

All the resource needed is provided below.

1.8.3 Hardware:

1. The application is intended to be a stand-alone, single-user system where multiple user can use it any log in different session.

2. The application will run on any desktop computer

3. No further hardware devices or interfaces will be required.

1.8.4 Software

The software will run on the Windows operating system, good to be version 7 and above. The main platform is used in the system is .NET[7]. C#[4][5] has used as the programming language. The database use in this system is Microsoft SQLserver database [2]. All the user information in system is saved in this database and according to this user will login. As the report designing environment we used SAP Crystal Report[6]. As the Integrated Development Environment we used Microsoft Visual Studio [1].

Current system software is standing on three layers [8] –

1. User Interface Layer
2. Business Logic Layer
3. Data Access Layer

1.9 Project Time

Time of completion of project is 7 months.

1.10 Comments and assessment of the project team

1. All the members are formally committed to support the project.
2. As the team has the sound knowledge about the requirements so it is easily understandable by the team.
3. The user has been fully involved in the definition of requirements. They are aware of the application requirements.
4. The software engineering team has the right mix of skills. The team members have the capability of doing their work in a team, ability to work in pressure and also have sound knowledge according to the software implementation.
5. Currently all possible requirements are being listed, and seem that if anything would be added later to the list will not make the project unstable. All requirements for this project are easily available that will enthusiast the end-user to use it.
6. The project team has experience with the technology to be implemented because they have the sound knowledge about the technologies and the technologies are also implemented by them before.
7. Project team prepare the possible risk assessment and aware of handling the risk

CHAPTER 2: SOFTWARE REQUIREMENT SPECIFICATION

2.1 Objectives and Scope

The objective of this project is to develop a Patient's Data System which can ensure the patients ownership of the data, increase the reliability, efficiency and accuracy of the treatment procedure which will be time consuming and satisfactory to both doctor and patient. The name of the system is **Smart Patient System**. The project is part of the coursework for ICE-498 under the department of ECE at East West University.

The main objective of this project is to

1. Ensure the ownership of the patient
2. Facilitate the treatment by data reusing.
3. Ensure the privacy of the patient's data.
4. Increase the reliability and accuracy of the treatment.

2.2 Overview of the Present System

Currently patients have to save the physical document of the medical report or prescription. Patients are usually get confused either they get the correct treatment if the treatment process seems different from the two doctors for the same purpose. Doctors also has to study an on the treatment new patient from the beginning through his required test which is time and additional cost wasting though the patient has the previous record. It is for the verification of the report again.

2.3 Data Flow Diagram of the Present System

Not required.

2.4 Overview of the Proposed System

This system will give different medical Data Solutions which can assure and increase the treatment accuracy by reusing the patient's data and ensure the satisfaction of both patient and doctor by increasing the treatment efficiency.

2.5 Benefit of proposed system

1. Ensure the personal data ownership of the patient
2. Facilitate the treatment by data reusing.
3. Decrease the harassment of patient.
4. Easy decision making platform for both doctor and patient.
5. Ensure the privacy of the patient's data.
6. Increase the reliability and accuracy of the treatment.

2.6 System Features

2.6.1 LOG in as a patient

1. As a patient they can easily log in
2. Creating a database by inputting own basic information
3. When anyone log in as a patient he can fully control the privacy of data.

2.6.2 Log in as a doctor

1. Log in as a doctor through register process
2. Doctor can only view particular portion of patient's data which is assigned by the patient.
3. Doctor can input his suggestion on a particular section like "Doctors Suggestion".

2.6.3 Log in as a trusted contact

1. Every user has to assign a trusted contact who is secondary one for making decision
2. Trusted contact can access patients account in the absence of patient in emergency case.

2.7 Hardware and Software Requirements

2.7.1 Hardware

Intel Core i3, HDD 100 gb, RAM 1 GB

2.7.2 Software

The system will run on the windows operating system, specifically version 7and above. The database use in this system is Microsoft SQL database. All the user information in system is saved in this database and according to this user will login.

2.8 Human Resource Requirements

No human resource is needed in this system.

2.9 Constraints and Limitations

1. **Bandwidth limitations**: It may lose server connection for technical error (Depends on Hardware/Internet connection). We need to run query again.
2. **limitations** we need to check databases and refresh table data. In case of lack of DB caching.
3. **Parallel login**: Log in in same account may occurred problem
4. **Language requirements**: Language is used in this software is C# [5] (C Sharp) .
5. **Communications protocoles**: Communication protocols we are using-TCP/IP to interact with the server.
6. **Database:** Databases we are using Microsoft SQL Database. User queries more than server'

It may cause (In case of internet security) –

1. **Authentication problem:** Server may not recognize/confirm actual valid user.

2. **Confidentiality problem:** User, intended server fails “understanding” message contents.

3. **Impersonation:** can fake (spoof) source address in packet (or any field in packet)

4. **Hijacking:** “take over” ongoing connection by removing sender or server, inserting himself in place

5. **Denial of service:** prevent service from being used by others (e.g., by overloading resources)

2.10 Intellectual Property Issue

This Requirement Specification Document has been developed based upon by the studying common scenario and previous experience of the project Instructor and the team. Thus any unusual circumstances rise on the process of development may derail the values and time frame mention in this document. All the right of using or developing the project concept will be reserved.

CHAPTER-3: DIAGRAM

3.1 User login interface:

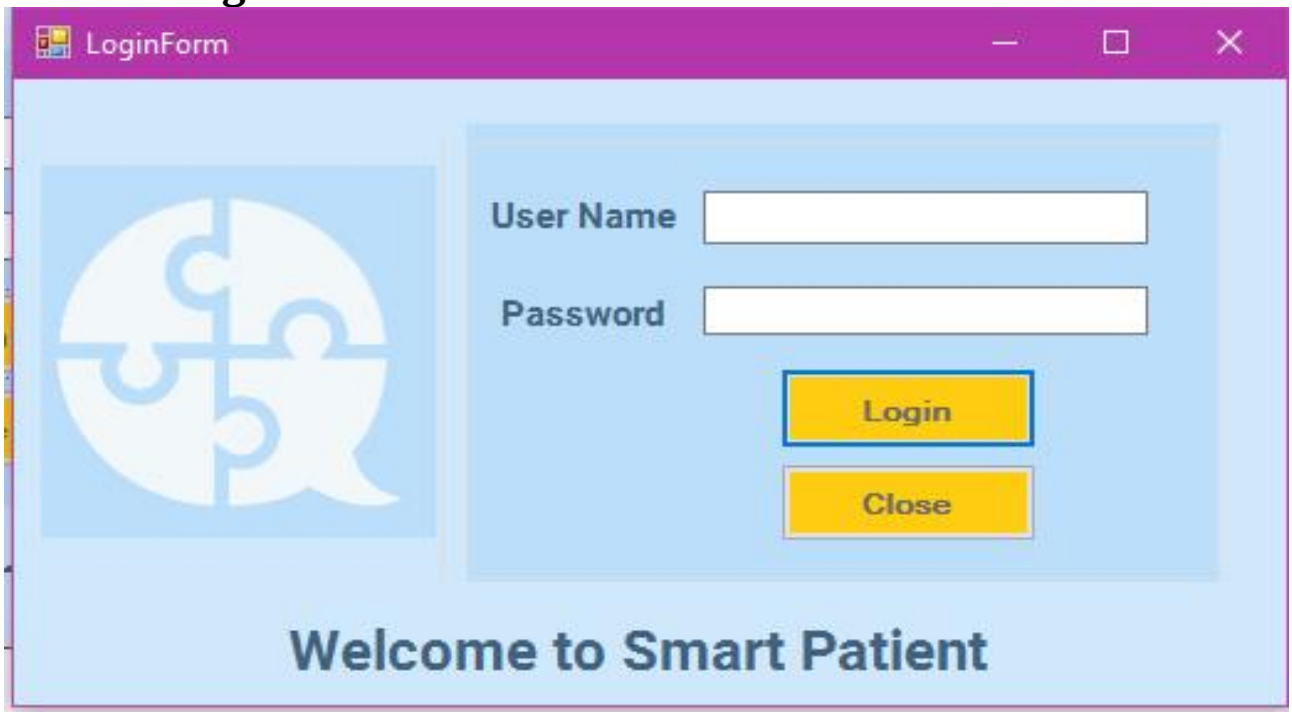

Figure 1: Window form of User registration interface.

3.2 Home interface:

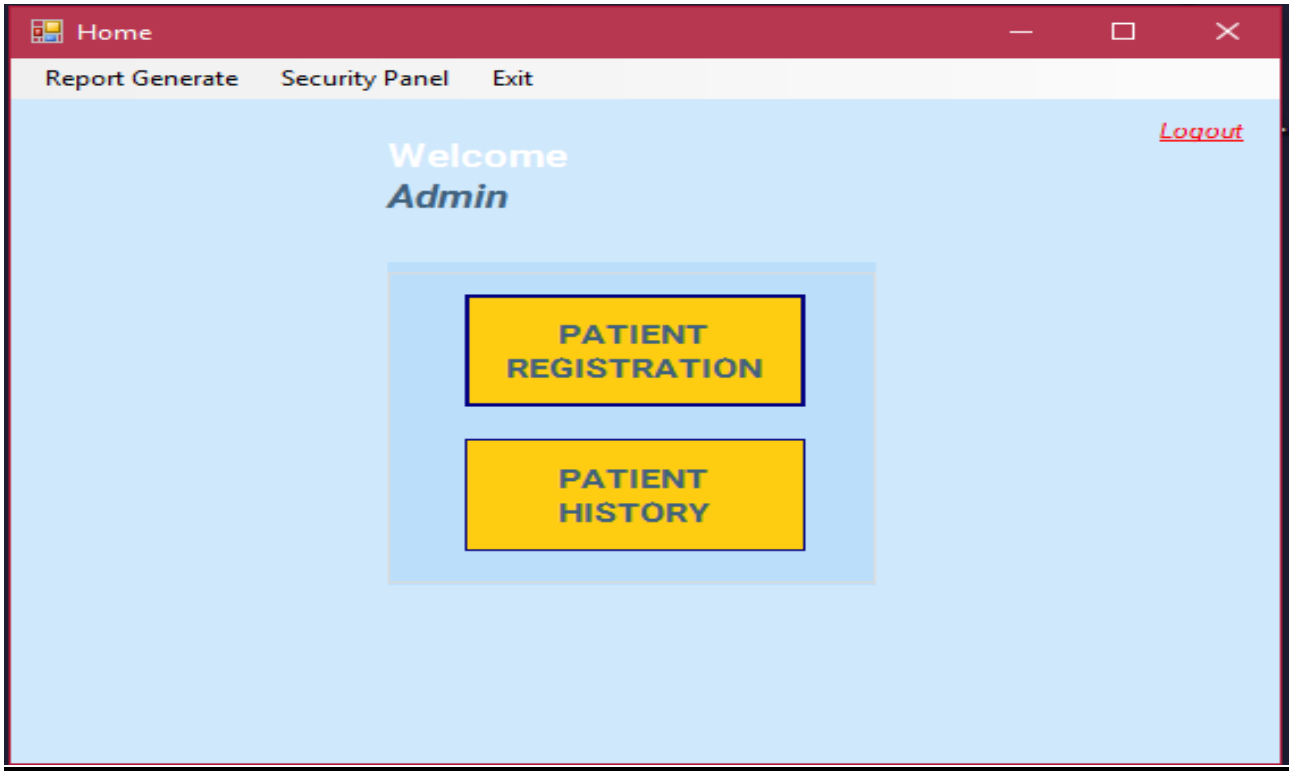

Figure 2: Window form of Home interface

3.3 Basic Information interface:

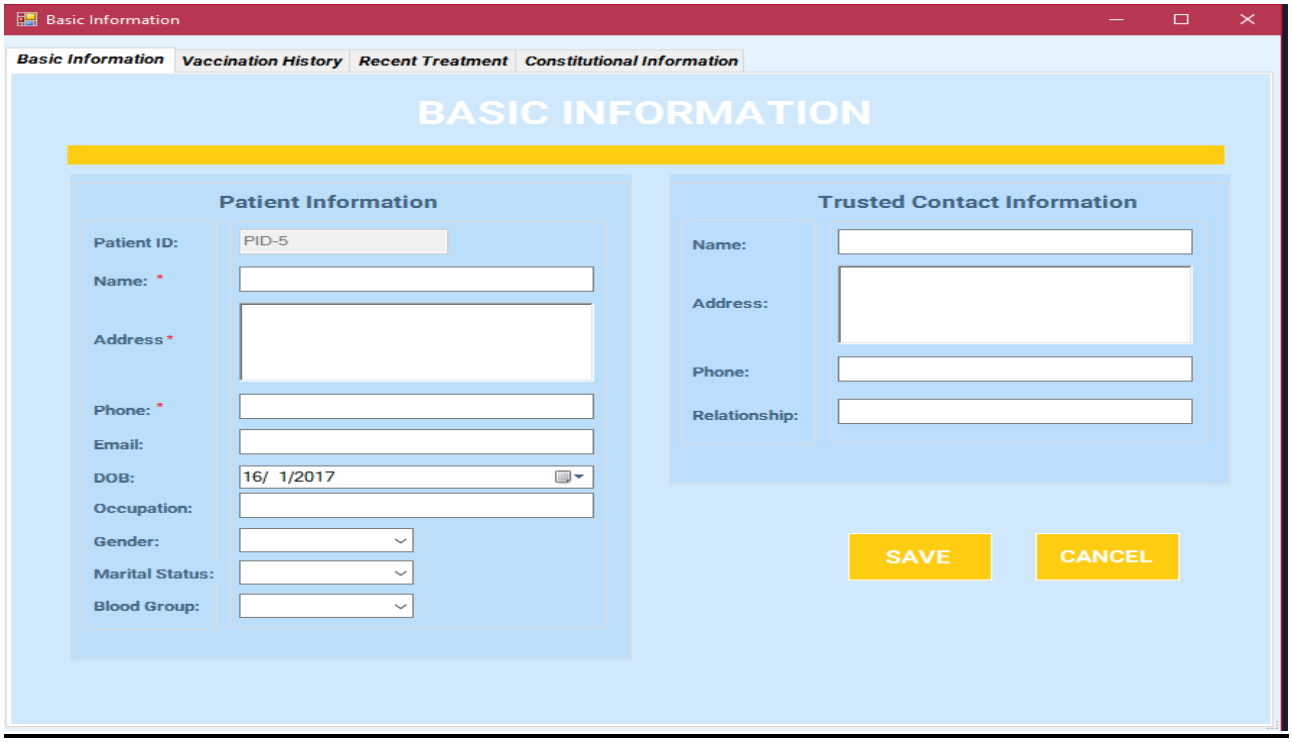

Figure 3: Window form of Basic Information interface

3.4 Vaccination History interface:

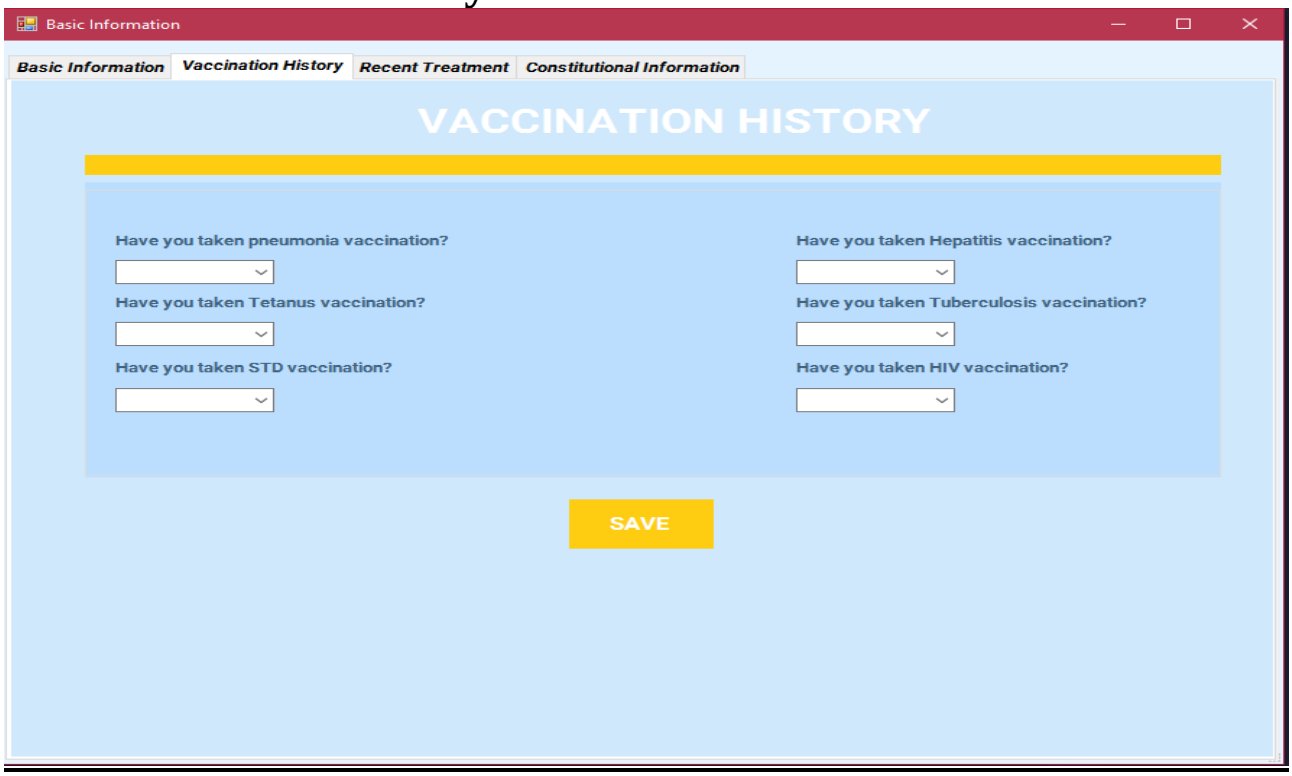

Figure 4: Window form of Vaccination History interface

3.5 Recent Treatment interface:

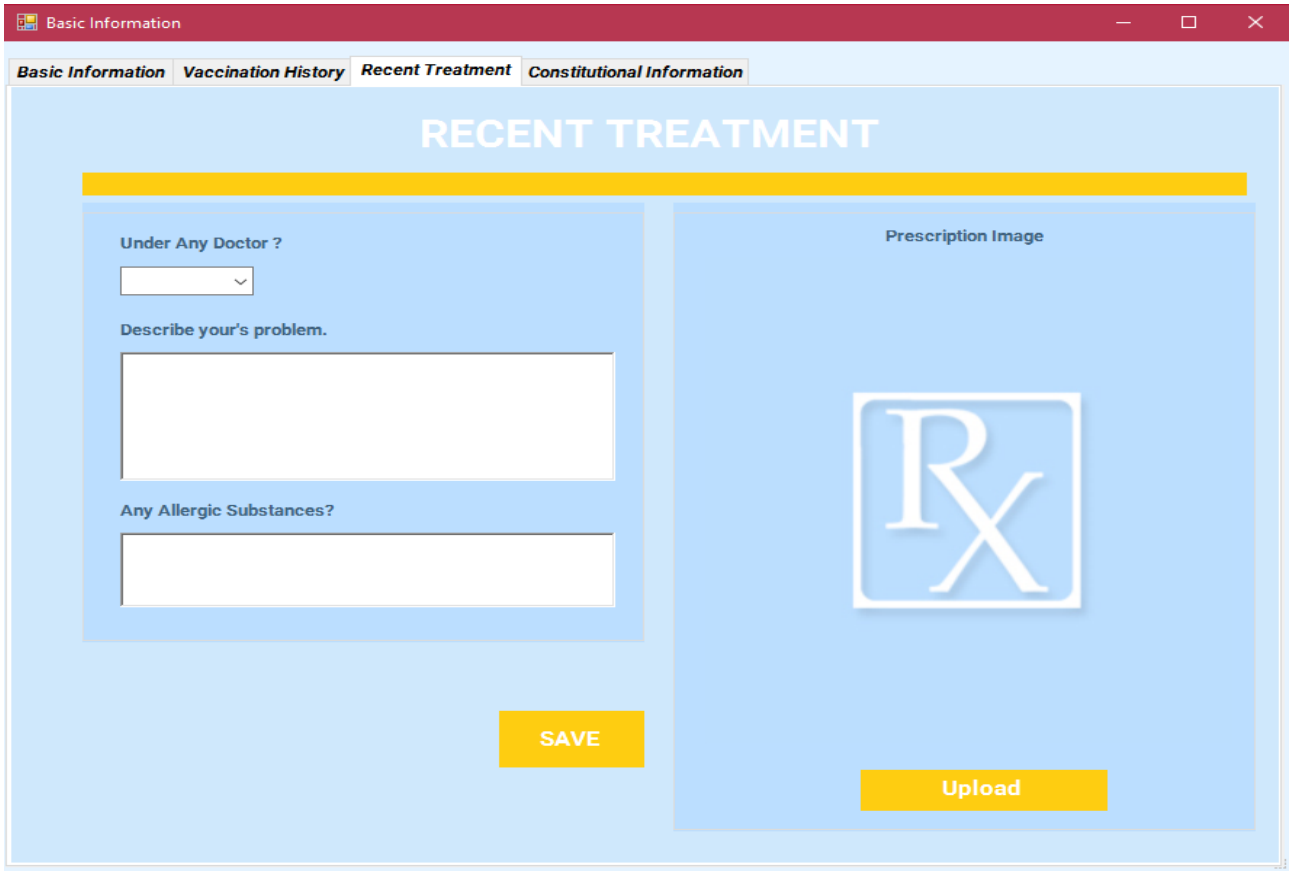

Figure 5: Window form of Recent Treatment interface

3.9 Constitutional Information interface:

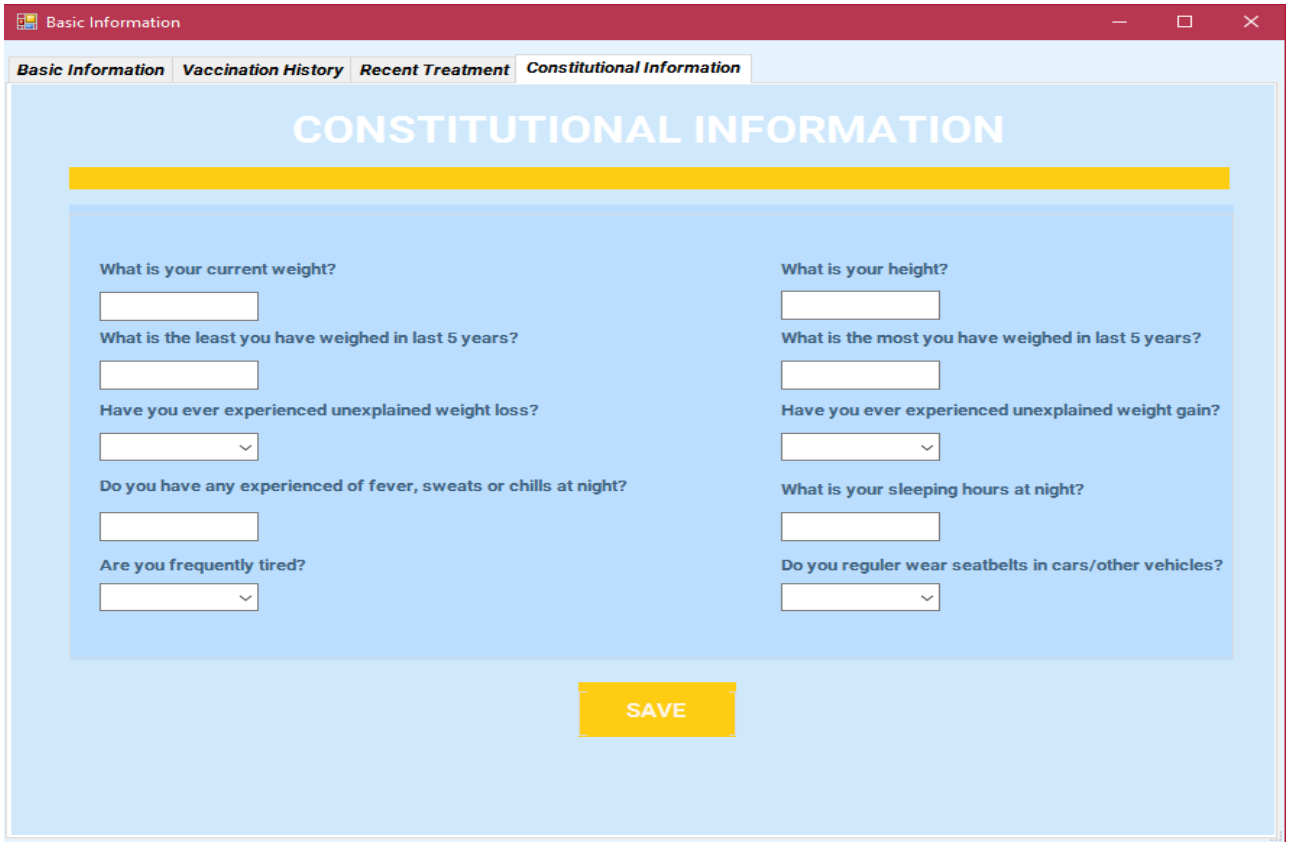

Figure 6: Window form of Constitutional Information interface

3.7 Medical History interface:

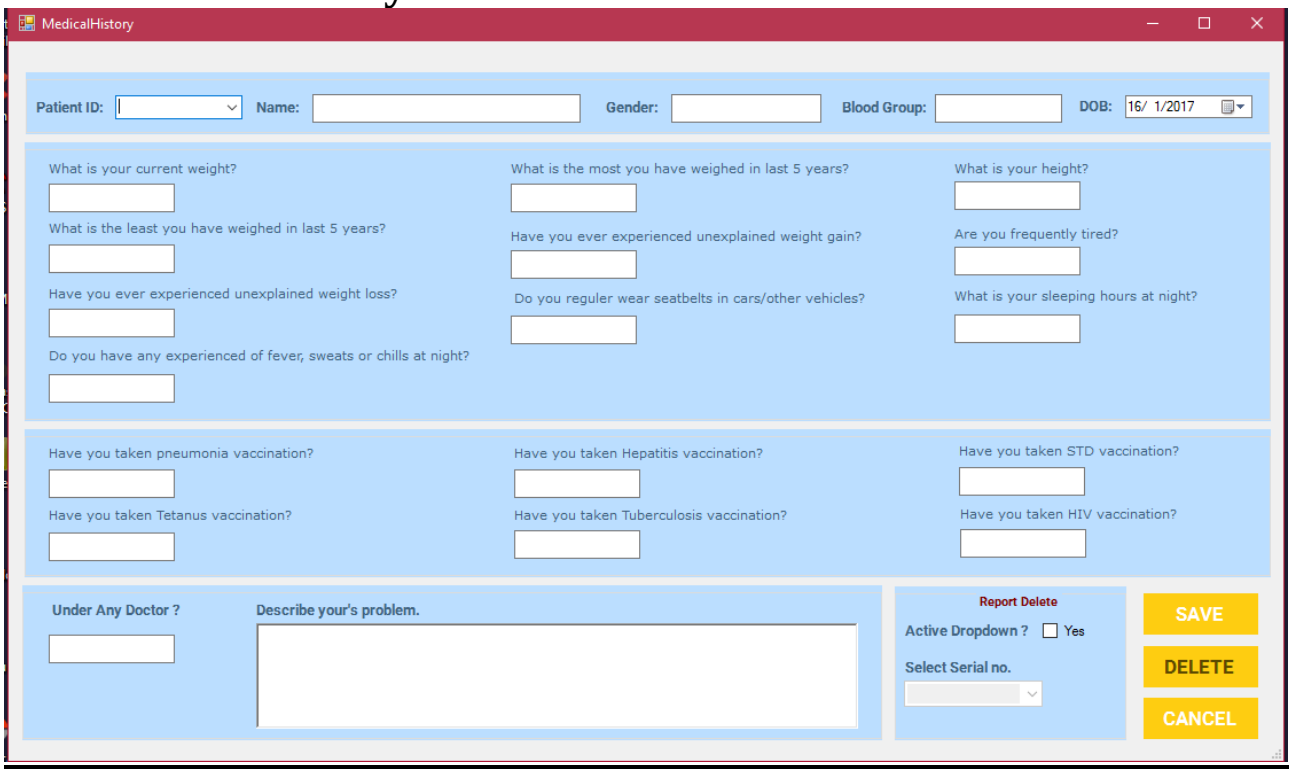

Figure 7: Window form of Medical History interface

3.8 Patient Report page-1 interface:

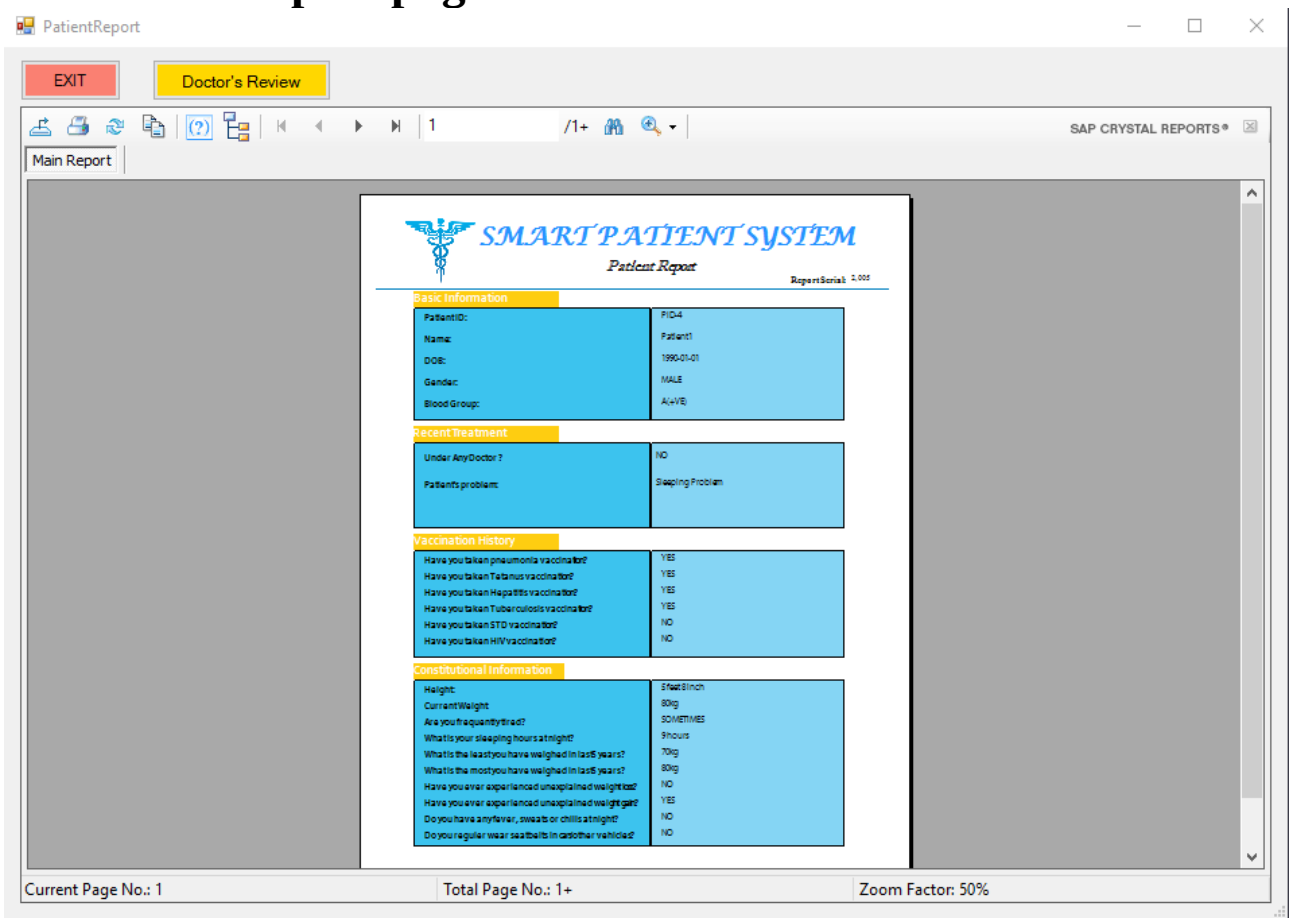

Figure 8: Window form of Patient Report page-1 interface

3.8 Patient Report page-2 interface:

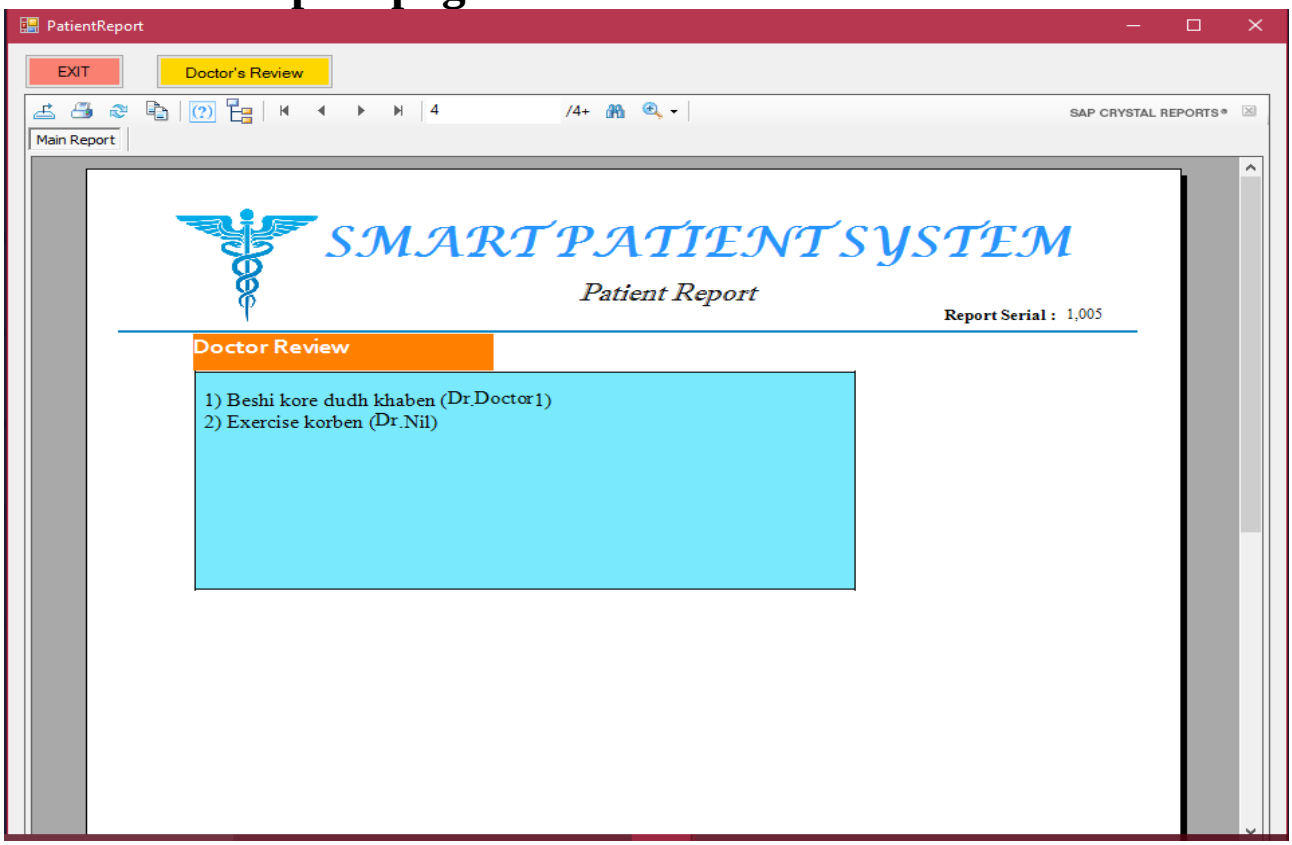

Figure 9: Window form of Patient Report page-2 interface

3.10 Doctor's Report Review interface:

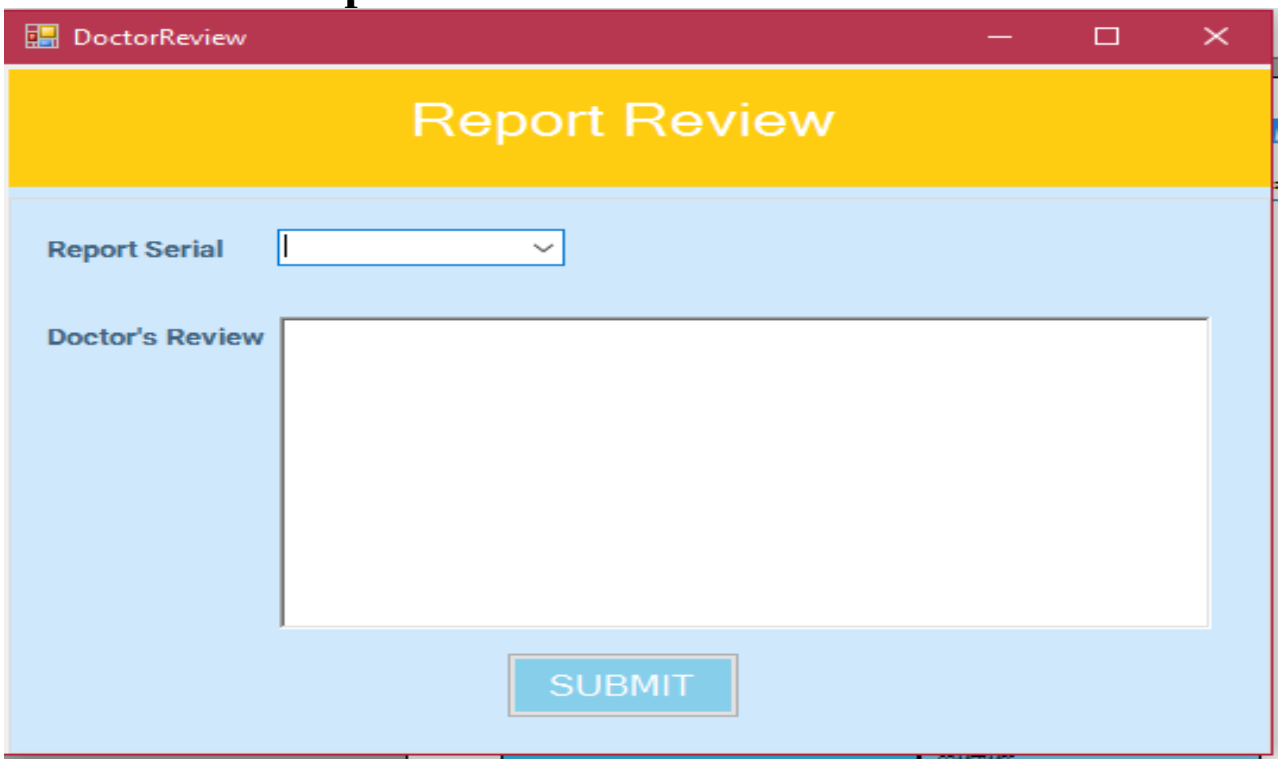

Figure 10: Window form of Doctor's Report Review interface

Chapter 4: Project Plan

4.1 Project Summary

4.1.1 Purpose

The objective of this project is to develop a Patient's Data System which can ensure the patients ownership of the data, increase the reliability, efficiency and accuracy of the treatment procedure which will be time consuming and satisfactory to both doctor and patient. The name of the system will be Smart Patient System. The project is part of the coursework for ICE-498 under the department of ECE at East West University.

4.1.2 Objectives

The main objective of this project is to

1. Ensure the ownership of the patient
2. Facilitate the treatment by data reusing.
3. Ensure the privacy of the patient's data.
4. Increase the reliability and accuracy of the treatment.

4.1.3 Project Scope

1. It can be available Social Network **System** for Patient and Doctor
2. Cloud based information storing can ensure the availability of the data from anywhere of the world
3. It can be device independent system
4. In scope of commercialization, the possible

Estimated service cost:

Description	**Cost Assumption**
Site launch (hosting)	15000 BDT
Maintenance (1 year)	10000 BDT
Developers	50000 BDT
Grand total	**75000 BDT**

4.1.4 Assumptions and Constraints

The assumptions during the projects are-

1. The development team has not quite enough experience as a whole to complete the project.
2. Additional resources (people or money) are not available for the project.

4.2 Evolution of the System Project Management Plan

The preliminary drafts will be submitted to the project manager and after approval; copies of the same will be distributed to the members of the group on the date as referred to in section.

4.3 Project Organization

Project organization depends on three major Structures

4.4 Project Process Plan

This section describes the materials and resources required to start the project. Because most of this information was pre-defined for the team, this section will not describe the rationale for many of these choices.

4.5 Closeout Plan

At the end of the project, the following actions will occur:

1. The developers team will make a hard copy file of all documents, source code, plans, etc. generated by the team.
2. The developers team will also copy of all material in electronic format on a CD-ROM.

4.6 Technical process plans

The Software Project Management Plan will specify the development process model, technical models, tools and techniques that will be used to develop the work products, project infrastructure and product acceptance plan.

4.7 Infrastructure Plan

The hardware resources are three Intel Core!5 Personal Computers running Windows operating system. The project using software resources are like Microsoft SQL server [2], SAP Crystal Report [6], C# [4][5], .NET [7] etc.

4.8 Service Acceptance Plan

Every milestone of the project will be accepted formally by the project manager by signing appropriate acceptance documentation. At the end of every phase the project manager will perform an acceptance test. This may result in additional requests for change and improvements. The project manager will test the final application for acceptance.

4.9 Verification and Validation Plan

The System Project Management Plan for this project shall contain the verification and validation plan for the software project and it shall include tools, techniques and responsibilities for the verification and validation work activities. The verification and validation plan will be part of a separate document and will be maintained accordingly.

4.10 Documentation Plan

The IEEE standards would be followed for all documentation purposes. All the documents would be discussed and reviewed with project manager before their baseline versions are issued and distributed to the members of the committee on the due dates.

4.11 Quality Assurance Plan

The quality of our project will be maintained and checked by the project manager. He will assure that this project is maintaining the quality.

4.12 Problem Resolution Plan

All problems would be resolved informally the team and the project manager. That is, there is no specific plan. But, The System Management Plan will be updated accordingly should the need for such a plan arises.

4.13 Process Improvement Plan

After the development, the project will be regularly checked by the project manager and he will suggest the developers if any kind of improvement is needed.

Conclusion:

Our invented technology based on health care system where each individual user has access to his/her total medical history; sharing option to the doctor for a better solution. We belief that every persons have right to make a decision of his own. Doctor can't make decision without the judgment, but through our system better decision making will be encouraged. We belief this kind of practice can reduce the corruption of medical business.

REFERENCES

[1] https://www.visualstudio.com/

[2] https://www.microsoft.com/en-us/sql-server/sql-server-2016

[3] https://Wikipedia.com/

[4] http://www.w3schools.com/asp/webpages_examples.asp

[5] https://msdn.microsoft.com/en-us/library/67ef8sbd.aspx

[6] http://www.sap.com/product/analytics/crystal-reports.html

[7] https://www.microsoft.com/net

[8] https://www.codeproject.com/Articles/36847/Three-Layer-Architecture-in-C-NET

Appendix:

Code for the System:

```
using SmartPatient.DAL;

using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.SqlClient;

using System.Drawing;

using System.IO;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;


namespace SmartPatient

{

public partial class Form1 : Form

{
```

```
public string ImgLoc = " ";

private readonly BasicInformationDB _db = new BasicInformationDB();

public Form1()

{
InitializeComponent();

}

private void Form1_Load(object sender, EventArgs e)

{

RefreshAll();

RefreshAll2();

}

private void RefreshAll()

{

txtPID.Enabled = false;

txtPID.Text = _db.PatientId();

txtName.Text = string.Empty;

txtTCName.Text = string.Empty;

txtAddress.Text = string.Empty;

txtTCAddress.Text = string.Empty;

txtOccupation.Text = string.Empty;
```

```
txtDOB.Text = string.Empty;

txtPhone.Text = string.Empty;

txtTCPhone.Text = string.Empty;

txtEmail.Text = string.Empty;

ComboGender.Text = string.Empty;

ComboBloodGroup.Text = string.Empty;

ComboMaritalStatus.Text = string.Empty;

txtTCRelationship.Text = string.Empty;

BtnSave.Enabled = true;

BtnUpdate.Enabled = false;

}

private void RefreshAll2()

{

txtCurrentWeight.Text=string.Empty;

txtHeight.Text=string.Empty;

txtWeighedLeast.Text=string.Empty;

txtWeighedMost.Text=string.Empty;

comboWeightGain.Text=string.Empty;

comboWeightLoss.Text=string.Empty;

txtSleepingHours.Text=string.Empty;
```

```
comboFrequentlyTired.Text=string.Empty;

txtFeverSweatsChills.Text=string.Empty;

comboWearSeatBelts.Text=string.Empty;
}


private bool Validation()

{

bool isValid = true;

if (txtName.Text == String.Empty)
{

isValid = false;

MessageBox.Show("Please Write Down The Patient Name");

}
else
    if (txtPhone.Text == String.Empty)
{

isValid = false;

MessageBox.Show("Please Write Down The Phone Number");

}
else
    if (txtAddress.Text == String.Empty)

{

isValid = false;
```

```
MessageBox.Show("Please Write down the Patient Address");

}
return isValid;

}
```

//Basic Information Code :

```
private void BtnSave_Click(object sender, EventArgs e)

{

if (Validation())

{

var c = new MODEL.BasicInformation()

{

PID = txtPID.Text,

Name = txtName.Text.Replace("'", "`"),

Address = txtAddress.Text.Replace("'", "`"),

Phone = txtPhone.Text.Replace("'", "`"),

Email = txtEmail.Text.Replace("'", "`"),

DOB = txtDOB.Text,

Occupation = txtOccupation.Text.Replace("'", "`"),
```

```
Sex=Convert.ToString(ComboGender.SelectedItem),

MaritalStatus=Convert.ToString(ComboMaritalStatus.SelectedItem),

BloodGroup = Convert.ToString(ComboBloodGroup.SelectedItem),

TCName=txtTCName.Text.Replace("'", "`"),

TCAddress=txtTCAddress.Text.Replace("'", "`"),

TCPhone=txtTCPhone.Text.Replace("'", "`"),

TCRelationship=txtTCRelationship.Text.Replace("'", "`")

};

SqlConnection con = ConnectDB.GetSqlConnection();

con.Open();

SqlCommand cmd = new SqlCommand("INSERT INTO

BasicInformation(PID,Name,Address,Phone,Email,DOB,Occupation,Sex
,MaritalStatus,BloodGroup

,TCName,TCAddress,TCPhone,TCRelationship)VALUES ('" + c.PID + "','" + c.Name + "','" +
c.Address +

"','" + c.Phone + "','" + c.Email + "',convert(date,'" + c.DOB + "',103),'" + c.Occupation +
"','"+c.Sex+"','"

+ c.MaritalStatus + "','" + c.BloodGroup + "','" + c.TCName+ "','" + c.TCAddress+ "','" +
c.TCPhone +

"','"+c.TCRelationship+"')", con);



var a = cmd.ExecuteNonQuery() > 0;
```

```
con.Close();
con.Dispose();
MessageBox.Show("Successfully Created");
RefreshAll();
}
}
private void txtPhone_KeyPress(object sender, KeyPressEventArgs e)
{
if (e.KeyChar < '0' || e.KeyChar > '9')
{
if (e.KeyChar != (char)8)
{
MessageBox.Show("You pressed " + e.KeyChar + "\nPlease enter number only!");
e.KeyChar = (char)0;
}
}
}

private void txtTCPhone_KeyPress(object sender, KeyPressEventArgs e)
{
if (e.KeyChar < '0' || e.KeyChar > '9')
```

```
{
if (e.KeyChar != (char)8)
{
MessageBox.Show("You pressed " + e.KeyChar + "\nPlease enter Amount only!");
e.KeyChar = (char)0;
}
}
}
private void BtnCancel_Click(object sender, EventArgs e)
{
this.Close();
}
```

//Constitutional_Information Code :

```
private void BtnSaveConstitutionalInformation_Click(object sender, EventArgs e)
{
var c = new MODEL.ConstitutionalInformation()
{
CurrentWeight =txtCurrentWeight.Text,
```

```
Height=txtHeight.Text,

LeastWeightInPast5=txtWeighedLeast.Text,

MostWeightInPast5 = txtWeighedMost.Text,

UnexplainedWeightGain=Convert.ToString(comboWeightGain.SelectedItem),

UnexplainedWeightLoss=Convert.ToString(comboWeightLoss.SelectedItem),

SleepingHoursAtNight = txtSleepingHours.Text,

FrequentlyTired=Convert.ToString(comboFrequentlyTired.SelectedItem),

RecentFeversNightSweatsChills=txtFeverSweatsChills.Text,

WearSeatbelts=Convert.ToString(comboWearSeatBelts.SelectedItem),

};

SqlConnection con = ConnectDB.GetSqlConnection();

con.Open();

try
{

SqlCommand cmd = new SqlCommand("INSERT INTO

PhysicalCondition(CurrentWeight,Height,LeastWeightInPast5,MostWeightInPast5,Unexplaine
dWeight

Gain,UnexplainedWeightLoss,SleepingHoursAtNight,FrequentlyTired,RecentFeversNightSwea
tsChills,

WearSeatbelts)VALUES ('" + c.CurrentWeight + "','" + c.Height + "','" + c.LeastWeightInPast5
+ "','" +
```

```
c.MostWeightInPast5 + "'," + c.UnexplainedWeightGain + "'," + c.UnexplainedWeightLoss + "'," +

c.SleepingHoursAtNight + "'," + c.FrequentlyTired + "'," + c.RecentFeversNightSweatsChills + "'," +

c.WearSeatbelts + "')", con);

var a = cmd.ExecuteNonQuery() > 0;

MessageBox.Show("Successfully Save");

RefreshAll2();

}

catch (Exception ex)

{

MessageBox.Show(ex.Message);

throw;

}
finally

{

con.Close();

con.Dispose();

} }
```

//Recent Treatment Code:

```
private void BtnRecentTreatmentSave_Click(object sender, EventArgs e)
```

```
{
var c = new MODEL.RecentTreatment()
{
UnderAnyDoctor = Convert.ToString(comboUnderAnyDoctor.SelectedItem),
AllergicSubstances = txtAnyAllergicSubtance.Text,
};
byte[] img = null;
FileStream fs = new FileStream(ImgLoc, FileMode.Open, FileAccess.Read);
BinaryReader br = new BinaryReader(fs);
img = br.ReadBytes((int)fs.Length);
SqlConnection con = ConnectDB.GetSqlConnection();
con.Open();
SqlCommand cmd = new SqlCommand("INSERT INTO
RecentTreatment(UnderAnyDoctor,PrescriptionDetails,AllergicSubstances)VALUES ('" +
c.UnderAnyDoctor + "',@img,'" + c.AllergicSubstances + "')", con);
cmd.Parameters.Add(new SqlParameter("@img", img));
var a = cmd.ExecuteNonQuery() > 0;
con.Close();
con.Dispose();
MessageBox.Show("Successfully Created");
```

```
// RefreshAll();

}

private void BtnUploadPrescription_Click(object sender, EventArgs e)

{
try
{

OpenFileDialog OpenFD = new OpenFileDialog();

OpenFD.Filter = "JPG Files(*.jpg)|*.jpg|GIF Files(*.gif)|*.gif |All Files(*.*)|*.*";

OpenFD.Title = "Select Prescription Picture";

if (OpenFD.ShowDialog() == DialogResult.OK)

{

ImgLoc = OpenFD.FileName.ToString();

pictureBox.ImageLocation = ImgLoc;

}

}
catch (Exception ex)

{
MessageBox.Show(ex.Message);

throw;

}

}
```

//Vaccination History Code:

```
private void BtnVaccinationHistory_Click(object sender, EventArgs e)
{

var c = new MODEL.VaccinationHistory()

{

PneumoniaVaccineYr = Convert.ToString(comboPneumonia.SelectedItem),

TBtestYr = Convert.ToString(comboTuberculosis.SelectedItem),

TetanusYr = Convert.ToString(comboTetanus.SelectedItem),

Hepatitis = Convert.ToString(comboHepatitis.SelectedItem),

HIV = Convert.ToString(comboHIV.SelectedItem),

STD = Convert.ToString(comboSTD.SelectedItem)

};

SqlConnection con = ConnectDB.GetSqlConnection();

con.Open();

try
{

SqlCommand cmd = new SqlCommand("INSERT INTO

VaccineDisease(PneumoniaVaccineYr,TBtestYr,TetanusYr,HIV,STD,Hepatitis)VALUES ('" +

c.PneumoniaVaccineYr + "','" + c.TBtestYr + "','" + c.TetanusYr + "','" + c.HIV + "','" + c.STD
+ "','" +

c.Hepatitis + "')", con);
```

```
var a = cmd.ExecuteNonQuery() > 0;

MessageBox.Show("Successfully Save");

// RefreshAll2();

}
catch (Exception ex)

{

MessageBox.Show(ex.Message);

throw;

}
finally
{
con.Close();

con.Dispose();

}

}

}

}
```