A MINI PROJECT REPORT

ON

"Ulcer patient's report management system"

Submitted in partial fulfillment of the requirements
For the termwork of
Database & Information System Laboratory for
THIRD YEAR OF COMPUTER ENGINEERING

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(Year 2019-2020)

CERTIFICATE

This is to certify that the mini project entitled **“Ulcer patients’ report management system”** is a bonafide work of **“Hardik Deshmukh” (115)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the **termwork for Database & Information System Laboratory for Third Year Computer Engineering .**

Prof. Rajendra D. Gawali

Abstract

This app will assist you to maintain track of the advancement of pressure injuries.By providing only a few details such as patient details and wound details, allows the user to visualize the remedies and causes of the wound. Even though it's meant for doctors and nurses it has been designed having patients in mind, so it's functionality it's meant to be interactive and friendly for patients to comprehend. In this project I was able to learn the real world applications of Database management system. I was successfully able to execute by dealing with Microsoft Visual studio ,C# higher level language and T-SQL.

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1. Introduction

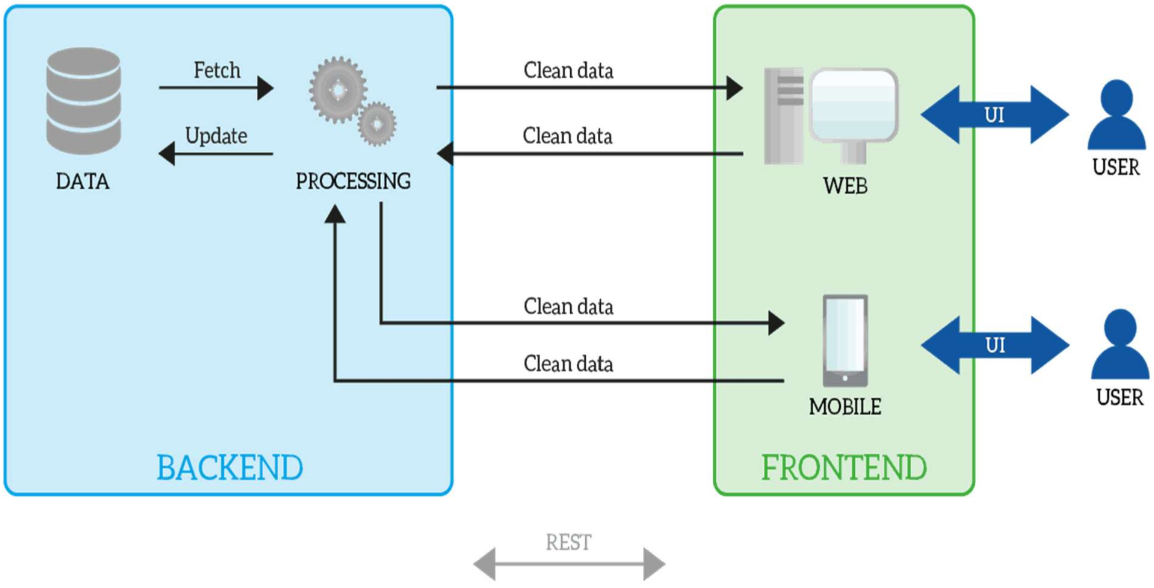
1.1 Windows Application:-

Windows Application is a two tier client server database application. It uses Windows Desktop application to perform a particular task. The client side scripts which is known as Front End uses c# to present information to user and the server side script which is known as Back End T-SQL to store and retrieve information.

The flow of web application:-

- The User triggers a request to the database through the application or the application's user interface. The application forwards this request to the database server.
- The application server performs the requested task such as querying the database or processing the data then generates the results of the requested data.
- The application server sends results to the database with the requested information or processed data the server responds back to the client with the requested information that then appears on the user's display.

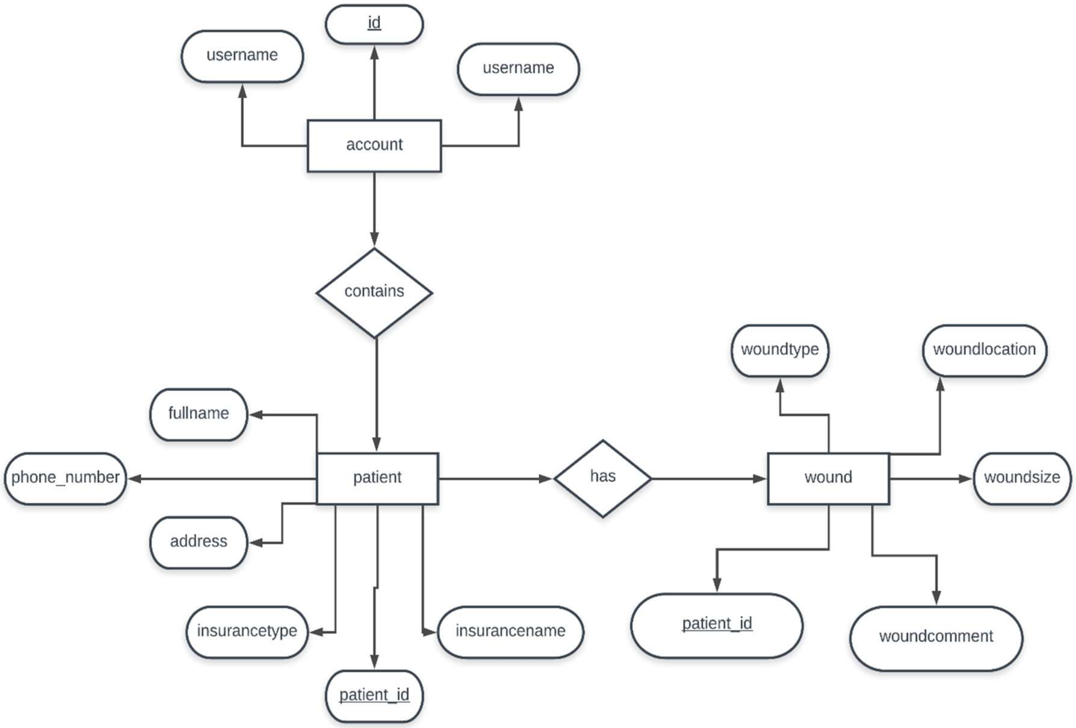
Fig 1.1 Structure of The application.



2. Problem Statement

A patient will have unique ID and Password to log into the application .Then the patient has to fill his details followed by wound details. The wound details contains the attribute wound type which will drop down representing different types of Ulcers. According to wound details this application will give details and remedies about the Ulcer. Based on this database the doctor can log in and search for patient's details about the wound. The doctor will be able to view entire database and the patient will have his report generated.

2.1 ER Diagram:-



Over here we see three relations. The account has id as primary key, patient has patient_id as primary key and wound has patient_id as primary key. The accounts contains username and password for two different users i.e. doctors and patients.
The patient contains all his personal details and the wound holds all his wound details. This information is stored in database and a final report is generated with remedies and causes of wound. The remedies and causes are determined by the wound type. And for the doctor the entire database is viewable and he can search and delete particular row.

2.2 Relation database:-

A relational database is a set of formally described tables from which data can be accessed or reassembled in many different ways without having to reorganize the database tables. The standard user and application programming interface (API) of a relational database is the Structured Query Language (SQL). SQL statements are used both for interactive queries for information from a relational database and for gathering data for reports. Each table, which is sometimes called a *relation*, in a relational database contains one or more data.

Categories in columns, or *attributes*. Each row, also called a *record* or *tuple*, contains a unique instance of data, or *key*, for the categories defined by the columns. Each table has a unique primary key, which identifies the information in a table. The relationship between tables can then be set via the use of foreign keys -- a field in a table that links to the primary key of another table.For example, a typical business order entry database would include a table that described a customer with columns for name, address, phone number and so forth. Another table would describe an order: product, customer, date, sales price and so forth. A user of a relational database can then obtain a view of the database to fit their needs. For example, a branch office manager might like a view or report on all customers that bought products after a certain date. A financial services manager in the same company could, from the same tables, obtain a report on accounts that need to be paid. When creating a relational database, you can define the domain of possible values in a data column and further constraints that may apply to that data value. For example, a domain of possible customers could allow up to 10 possible customer names but be constrained in one table to allowing only three of these customer names to be specifiable. Two constraints relate to data integrity and the primary and foreign keys:

Entity integrity ensures that the primary key in a table is unique and that the value is not set to null.

Referential integrity requires that every value in a foreign key column will be found in the primary key of the table from which it originated.

2.3 Front End:-

Windows Forms (WinForms) is a graphical (GUI) class library included as a part of Microsoft .NET Framework or Mono Framework,[1] providing a platform to write rich client applications for desktop, laptop, and tablet PCs

Windows Forms (WinForms) is a graphical (GUI) class library included as a part of Microsoft .NET Framework or Mono Framework, providing a platform to write rich client applications for desktop, laptop, and tablet PCs All visual elements in the Windows Forms class library derive from the Control class. This provides the minimal functionality of a user interface element such as location, size, color, font, text, as well as common events like click and drag/drop. The Control class also has docking support to let a control rearrange its position under its parent. The Microsoft Active Accessibility support in the Control class also helps impaired users to use Windows Forms better.Besides providing access to native Windows controls like button, textbox, checkbox and listview, and Windows Forms. The DataGridView control makes it easy to define the basic appearance of cells and the display formatting of cell values. The cell is the fundamental unit of interaction for the DataGridView. All cells derive from the DataGridViewCell base class. Each cell within the DataGridView control can have its own style, such as text format, background color, foreground color, and font. Typically, however, multiple cells will share particular style characteristics. The data type for the cell's Value property by default is of type ObjThe DataGridView can display data in Bound mode, unbound mode and Virtual mode . Bound mode is suitable for managing data using automatic interaction with the data store. One very common use of the DataGridView control is binding to a table in a database. Unbound mode is suitable for displaying relatively small amounts of data that you manage programmatically.

3. System Description

Structured Query Language(SQL) as we all know is the database language by the use of which we can perform certain operations on the existing database and also we can use this language to create a database. SQL uses certain commands like Create, Drop, Insert etc. to carry out the required tasks.

3.1 DDL ,DQL AND DML:- DDL or Data Definition Language actually consists of the SQL commands that can be used to define the database schema. It simply deals with descriptions of the database schema and is used to create and modify the structure of database objects in the database.

Examples of DDL commands:
CREATE – is used to create the database or its objects (like table, index, function, views, store procedure and triggers).
DROP – is used to delete objects from the database.
ALTER-is used to alter the structure of the database.
TRUNCATE–is used to remove all records from a table, including all spaces allocated for the records are removed.
COMMENT –is used to add comments to the data dictionary.
RENAME –is used to rename an object existing in the database.
The SQL commands that deals with the manipulation of data present in the database belong to DML or Data Manipulation Language and this includes most of the SQL statements.

Examples of DML:
INSERT – is used to insert data into a table.
UPDATE – is used to update existing data within a table.
DELETE – is used to delete records from a database table.
DML statements are used for performing queries on the data within schema objects. The purpose of DQL Command is to get some schema relation based on the query passed to it.

Example of DQL:
SELECT – is used to retrieve data from the database.

3.2 SQL QUERIES:-
Structured Query Language is a standard Database language which is used to create, maintain and retrieve the relational database. Following are some interesting facts about SQL.
SQL is case insensitive. But it is a recommended practice to use keywords (like SELECT, UPDATE, CREATE, etc) in capital letters and use user defined things (liked table name, column name, etc) in small letters.
We can write comments in SQL using "–" (double hyphen) at the beginning of any line.
SQL is the programming language for relational databases (explained below) like MySQL, Oracle, Sybase, SQL Server, Postgre, etc. Other non-relational databases (also called NoSQL) databases like MongoDB, DynamoDB, etc do not use SQL
Although there is an ISO standard for SQL, most of the implementations slightly vary in syntax. So we may encounter queries that work in SQL Server but do not work in MySQL.

3.3 Join Operations:- A SQL Join statement is used to combine data or rows from two or more tables based on a common field between them. Different types of Joins are:

- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- FULL JOIN

INNER JOIN: The INNER JOIN keyword selects all rows from both the tables as long as the condition satisfies. This keyword will create the result-set by combining all rows from both the tables where the condition satisfies i.e value of the common field will be same.

```
Syntax:- SELECT table1.column1,table1.column2,table2.column1,....

FROM table1

INNER JOIN table2

ON table1.matching_column = table2.matching_column;
```

LEFT JOIN: This join returns all the rows of the table on the left side of the join and matching rows for the table on the right side of join. The rows for which there is no matching row on right side, the result-set will contain *null*.
LEFT JOIN is also known as LEFT OUTER JOIN.**Syntax:**

```
SELECT table1.column1,table1.column2,table2.column1,....

FROM table1

LEFT JOIN table2

ON table1.matching_column = table2.matching_column;
```

RIGHT JOIN: RIGHT JOIN is similar to LEFT JOIN. This join returns all the rows of the table on the right side of the join and matching rows for the table on the left side of join. The rows for which there is no matching row on left side, the result-set will contain *null*. RIGHT JOIN is also known as RIGHT OUTER JOIN.**Syntax:**

```
SELECT table1.column1,table1.column2,table2.column1,....

FROM table1 RIGHT JOIN table2

ON table1.matching_column = table2.matching_column;

table1: First table.

table2: Second table

matching_column: Column common to both the tables.
```

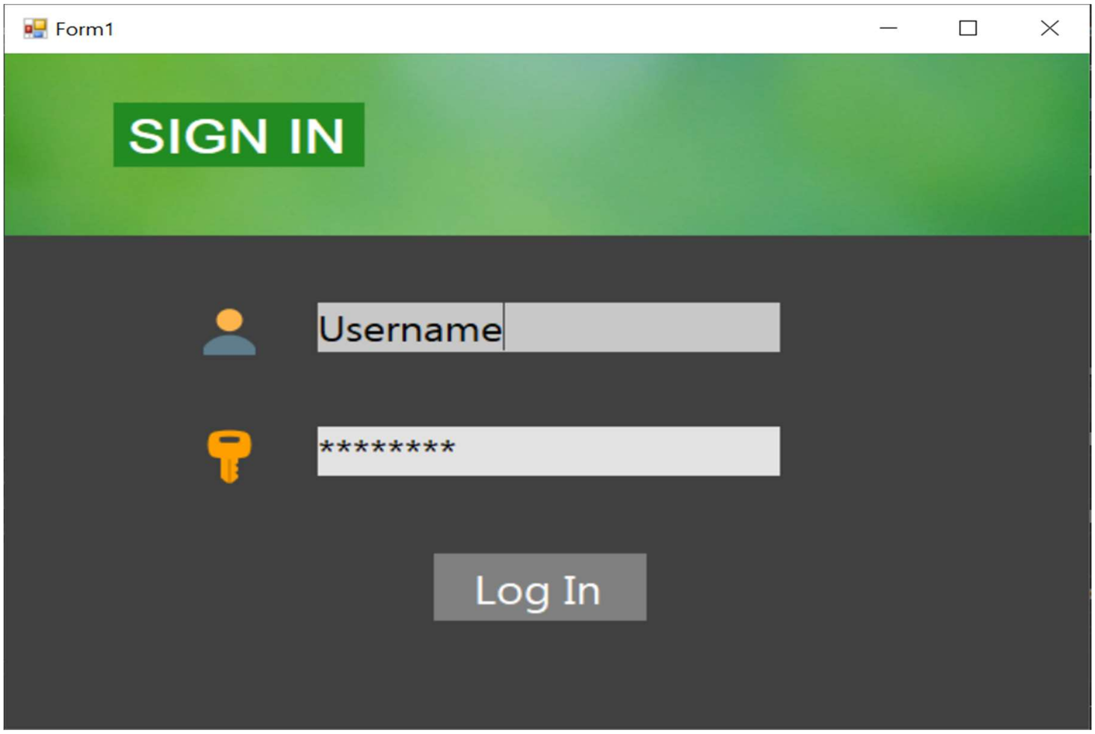
FULL JOIN: FULL JOIN creates the result-set by combining result of both LEFT JOIN and RIGHT JOIN. The result-set will contain all the rows from both the tables. The rows for which there is no matching, the result-set will contain *NULL* values.**Syntax:**

```
SELECT table1.column1,table1.column2,table2.column1,....

FROM table1

FULL JOIN table2 ON table1.matching_column = table2.matching_column;
```

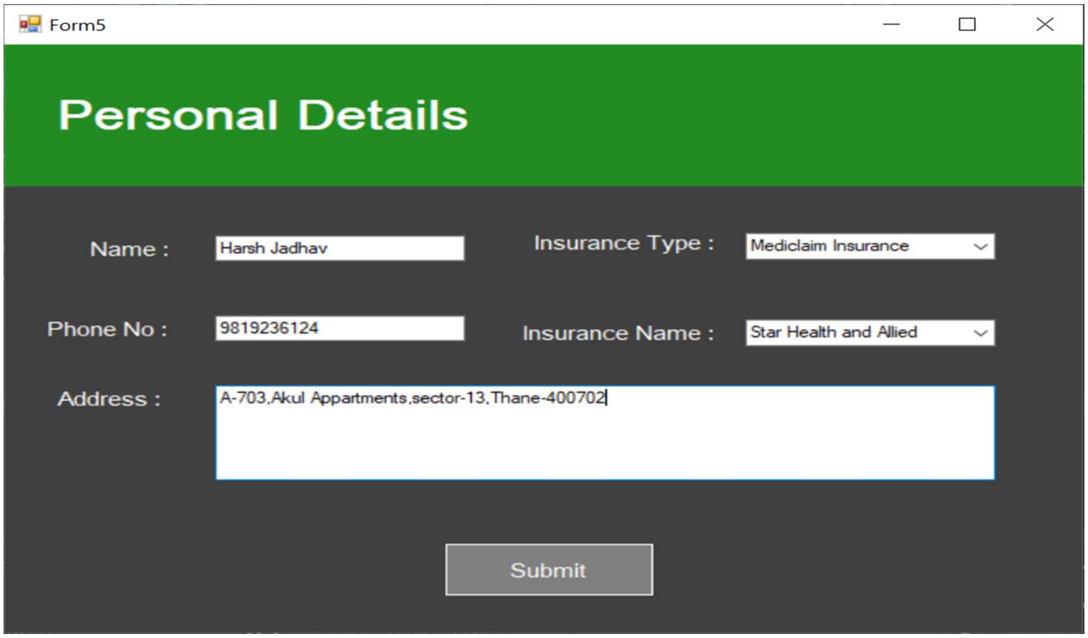
4. Results & Snapshots of the system



Username

****

Fig: Login Page for two different users.



Name : Harsh Jadhav

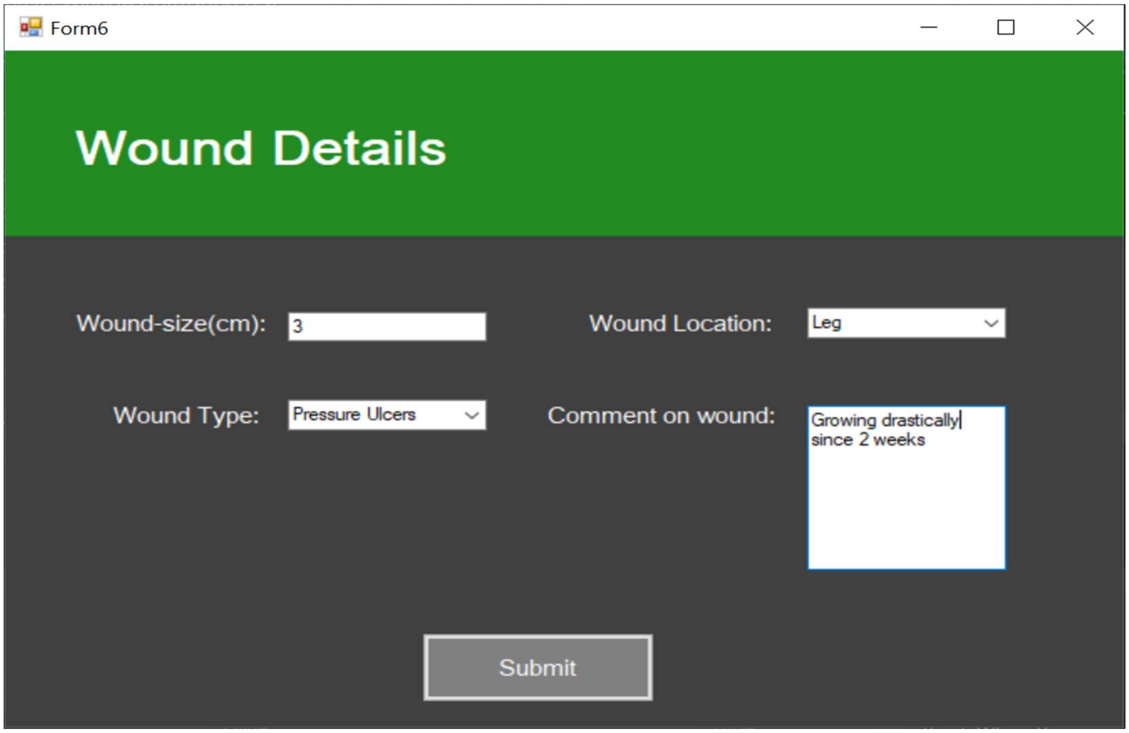
Phone No : 9819236124

Address : A-703,Akul Appartments,sector-13,Thane-400702

Insurance Type : Mediclaim Insurance

Insurance Name : Star Health and Allied

Fig: Adding Personal details.



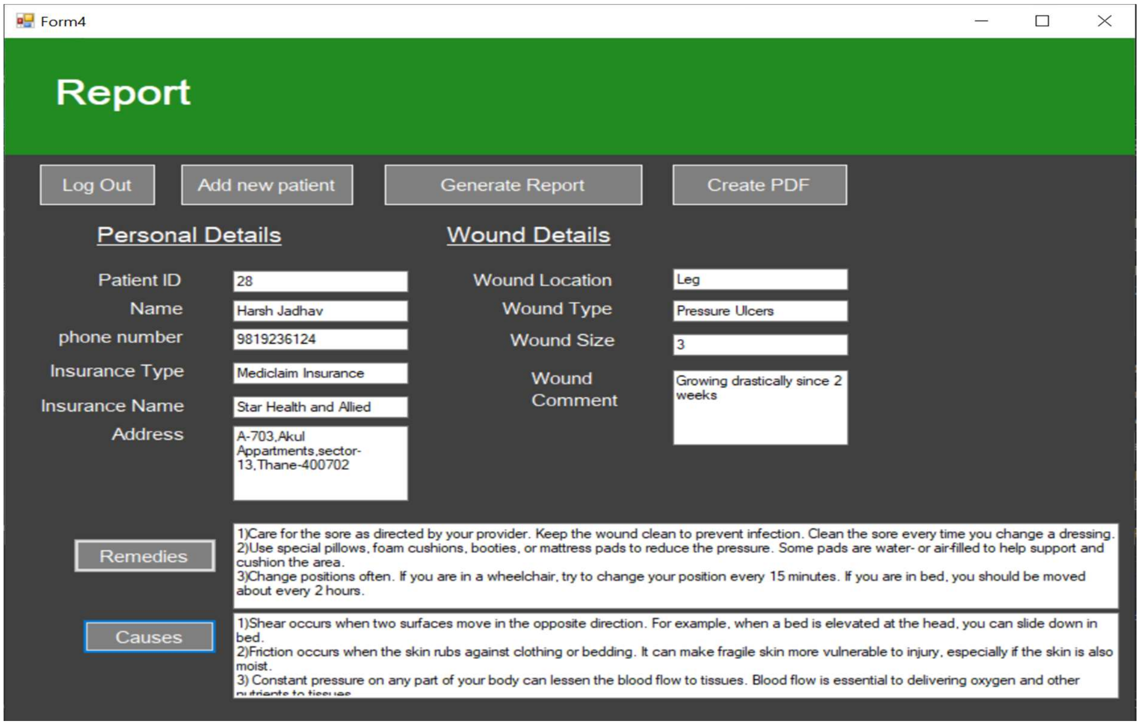
Wound-size(cm): 3

Wound Location: Leg

Wound Type: Pressure Ulcers

Comment on wound: Growing drastically
since 2 weeks

Fig: Adding Wound details.



Personal Details

Patient ID: 28

Name: Harsh Jadhav

phone number: 9819236124

Insurance Type: Mediclaim Insurance

Insurance Name: Star Health and Allied

Address: A-703,Akul Appartments,sector-13,Thane-400702

Wound Details

Wound Location: Leg

Wound Type: Pressure Ulcers

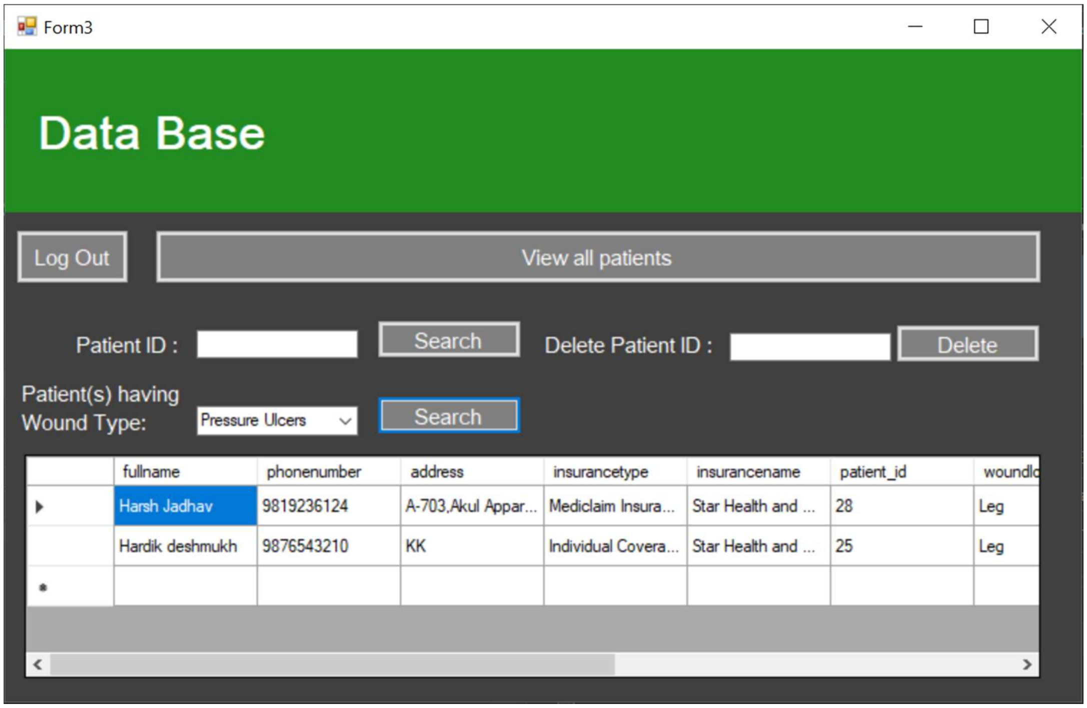
Wound Size: 3

Wound Comment: Growing drastically since 2 weeks

1)Care for the sore as directed by your provider. Keep the wound clean to prevent infection. Clean the sore every time you change a dressing.
2)Use special pillows, foam cushions, booties, or mattress pads to reduce the pressure. Some pads are water- or air-filled to help support and cushion the area.
3)Change positions often. If you are in a wheelchair, try to change your position every 15 minutes. If you are in bed, you should be moved about every 2 hours.

1)Shear occurs when two surfaces move in the opposite direction. For example, when a bed is elevated at the head, you can slide down in bed.
2)Friction occurs when the skin rubs against clothing or bedding. It can make fragile skin more vulnerable to injury, especially if the skin is also moist.
3) Constant pressure on any part of your body can lessen the blood flow to tissues. Blood flow is essential to delivering oxygen and other nutrients to tissues

Fig. Report generated.



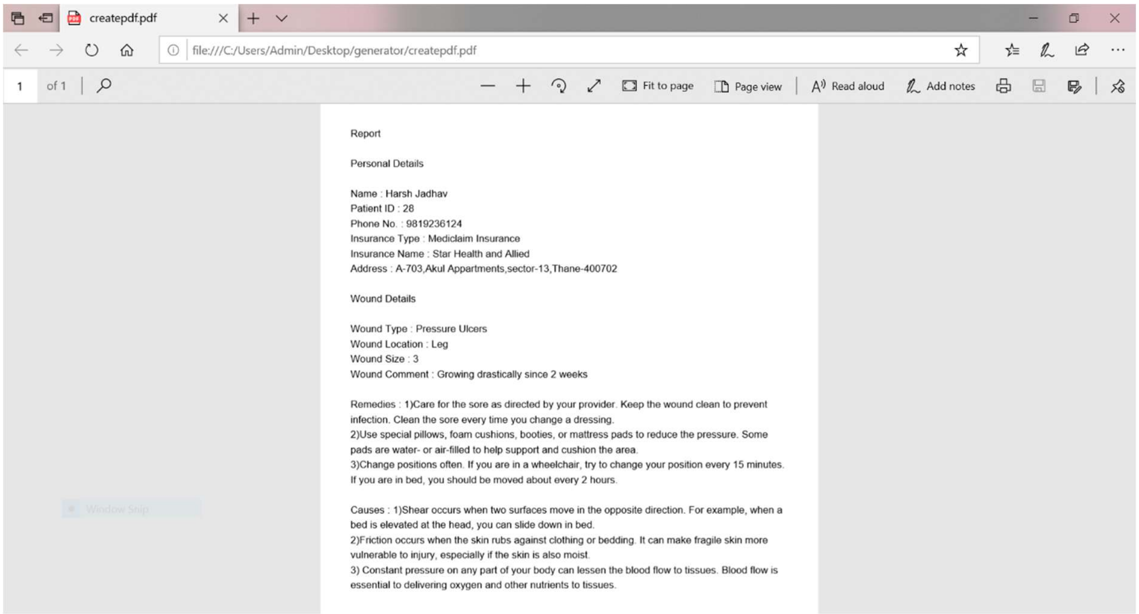
Patient ID :

Delete Patient ID :

Patient(s) having Wound Type: Pressure Ulcers

	fullname	phonenumber	address	insurancetype	insurancename	patient_id	woundlo
▸	Harsh Jadhav	9819236124	A-703,Akul Appar...	Mediclaim Insura...	Star Health and ...	28	Leg
	Hardik deshmukh	9876543210	KK	Individual Covera...	Star Health and ...	25	Leg
*							

Fig: Doctor’s End view of database.



Report

Personal Details

Name : Harsh Jadhav
Patient ID : 28
Phone No. : 9819236124
Insurance Type : Mediclaim Insurance
Insurance Name : Star Health and Allied
Address : A-703,Akul Appartments,sector-13,Thane-400702

Wound Details

Wound Type : Pressure Ulcers
Wound Location : Leg
Wound Size : 3
Wound Comment : Growing drastically since 2 weeks

Remedies : 1)Care for the sore as directed by your provider. Keep the wound clean to prevent infection. Clean the sore every time you change a dressing.
2)Use special pillows, foam cushions, booties, or mattress pads to reduce the pressure. Some pads are water- or air-filled to help support and cushion the area.
3)Change positions often. If you are in a wheelchair, try to change your position every 15 minutes. If you are in bed, you should be moved about every 2 hours.

Causes : 1)Shear occurs when two surfaces move in the opposite direction. For example, when a bed is elevated at the head, you can slide down in bed.
2)Friction occurs when the skin rubs against clothing or bedding. It can make fragile skin more vulnerable to injury, especially if the skin is also moist.
3) Constant pressure on any part of your body can lessen the blood flow to tissues. Blood flow is essential to delivering oxygen and other nutrients to tissues.

Fig: Report generated for patient.

5. Conclusion

In the present work ,the build of application based on analyzing and generating report on on Ulcers wound has been completed successfully. Implementation of several SQL operations and features such as DDL, DML,DQL,SQL Query and Join operations were gracefully implemented . Several experiments were initially carried out using software's such as visual studio and SQL.Overall, the build of the application with language c# in visual studio and using database T-SQL was successful.