Designing and Implementing a Project on

"Patient Management System"

Submitted to the

Savitribai Phule Pune University

In partial fulfilment for the award of the Degree of

Bachelor of Engineering

in

Information Technology

by

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2022-2023

Sinhgad Institutes

CERTIFICATE

This is to certify that the mini project report entitled **"Patient Management System"** being submitted by **Suraj Subhash Walke** (Roll No: I3275 & Division : 2) is a record of bonafide work carried out by him under the supervision and guidance of **Prof. S.A. Chavan** in partial fulfilment of the requirement for **TE (Information Technology Engineering) – 2019 course** of Savitribai Phule Pune University, Pune in the academic year 2022-2023.

Date:

Place: Pune

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This Mini Project report has been examined by us as per the Savitribai Phule Pune University, Pune requirements at SMT. Kashibai Navale College of Engineering, Vadgaon,Pune-41 on

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Suraj Subhash Walke

(Students Name & Signature)

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ABSTRACT

Hospital are the essential part of our lives which provides us with the best medical facilities for various sickness, it may be due to the change in climatic conditions, stress (emotional trauma) etc. It is necessary for the hospital to keep track of all activities and records day in and day out of its patient, doctors, nurses and other staffs that keeps the hospital in its operation. Keeping track of all activities and reports on paper is very inefficient and time consuming and also error prone. Keeping records on paper is a traditional base system that sometimes do not make it robust, in any case of damage all files will be lost that will cost a lot to the organization. Day in and day out many people visit the hospital and when using the traditional base system it make it unreliable in the sense that it will take longer time to enter or access data and also maintaining. It is not economically and technically feasible to maintain. Traditional base system it make it unreliable in the sense that it will take longer time to enter or access data and also maintaining. It is not economically and technically feasible to maintain these records on paper. Thus keeping the working on the manual system we have develop an automated version of the manual system called "Patient Management System". Patient Management System is designed specifically to manage episodes of care quickly and safely in demanding. The main aim of our project is to provide a paper-less and also providing low-cost reliable of automation of a reliable existing system. The system also provides excellent security of data at every level of user-system interaction and also provides robust and reliable storage and backup facilities.

2.INTRODUCTION

In the present era of globalization and advanced technology efficient record keeping cannot be overemphasized. Imagine the scenario when the manual processes and manual modes of instruction get replaced with electronic systems. One of such replacement can be done in the area of patient's database management system within a hospital. Developing patient database management system software would benefit the hospital management who can have effortless access to the data securely and more easily. Hospitals are not excluded in record keeping. The records kept include patient data, which help to maintain patient's medical records. The medical records must have correctly all of the patient medical history. Physicians must maintain flawless records, because this document serves a number of purposes. It serves as a communication tool. As an important source of patient information. Well-kept records usually reflect the level of care given to a patient by the physician. Therefore medical records can be used as an evaluation tool. The more complete the record, the better they will serve the physician and the patient in the event of any action. Patient's identity which includes the patient's first name, last name, sex, age etc. The Patient Management System helps register complete patient information. The project Patient Management system includes registration of patients, storing their details into the system. The software has the facility to give a unique id for every patient and stores the details of every patient . It includes a search facility to know the current status of patient. It captures and store patient name, id, email address, status of patient (admitted or discharged) and Disease of patient.

2.1 . Problem Statement.

Medical care is one of the most essential and in-demand services for all. It requires a lot of attention and high-quality service that also causes health care workers to do a lot of effort. These issues also add to the situations where there's a need for a physical attendant for every patient wherein it could be automated and handled with technology. It is very important to maintain efficient software to handle information of a patient. This application provides a way to record this information and to access this information and to access these in a simple way.

2.2 . Motivation

Motivation behind this project is to make easy process of all the management of the patients. It will become easy for Hospital staff to see directly the admitted patients details. Instead of going into various registers. we are designing a system of patient details, status and their actions , which will help hospital to work fast and effective. It will also reduce the paper work load.

2.3 . Objectives

1. To computerize all details regarding patient details
2. To provide online patient registration.
3. To manage patient database.
4. To maintain the record effectively.
5. To add the new patient details.
6. To update patient details.
7. To delete the patient details.
8. To maintain record of patient diseases.

3.Software Requirements

Name Of Component	**Specification**
Operating System	Windows
Language	Front-end: HTML, CSS Back-end: Javascript
Database	MongoDB
Browser	Chrome
Software Development Kit	VS Code
Database driver	MongoDB cloud

4.Data Types

- **Data types and its description**
- MongoDB supports many data types.
- **String** − This is the most commonly used datatype to store the data. String in MongoDB must be UTF-8 valid.
- **Integer** − This type is used to store a numerical value. Integer can be 32 bit or 64 bit depending upon your server.
- **Boolean** − This type is used to store a boolean (true/ false) value.
- **Double** − This type is used to store floating point values.
- **Min/ Max keys** − This type is used to compare a value against the lowest and highest BSON elements.
- **Arrays** − This type is used to store arrays or list or multiple values into one key.
- **Timestamp** − timestamp. This can be handy for recording when a document has been modified or added.
- **Object** − This datatype is used for embedded documents.
- **Null** − This type is used to store a Null value.
- **Symbol** − This datatype is used identically to a string; however, it's generally reserved for languages that use a specific symbol type.
- **Date** − This datatype is used to store the current date or time in UNIX time format. You can specify your own date time by creating an object of Date and passing day, month, year into it.
- **Object ID** − This datatype is used to store the document's ID.
- **Binary data** − This data type is used to store binary data.
- **Code** − This datatype is used to store JavaScript code into the document.
- **Regular expression** − This datatype is used to store regular expressions.

5.Creating Database Using MongoDB

5.1 What is MongoDB?

MongoDB is a document-oriented NoSQL database used for high volume data storage. Instead of using tables and rows as in the traditional relational databases, MongoDB makes use of collections and documents. Documents consist of key-value pairs which are the basic unit of data in MongoDB. Collections contain sets of documents and functions which is the equivalent of relational database tables. MongoDB is a database which came into light around the mid-2000s.

5.2 MongoDB Features

1. Each database contains collections which in turn contains documents. Each document can be different with a varying number of fields. The size and content of each document can be different from each other.
2. The document structure is more in line with how developers construct their classes and objects in their respective programming languages. Developers will often say that their classes are not rows and columns but have a clear structure with key-value pairs.
3. The rows (or documents as called in MongoDB) don't need to have a schema defined beforehand. Instead, the fields can be created on the fly.

4. The data model available within MongoDB allows you to represent hierarchical relationships, to store arrays, and other more complex structures more easily. 5. Scalability – The MongoDB 11 environments are very scalable. Companies across the world have defined clusters with some of them running 100+ nodes with around millions of documents within the database.

5.3 Key Components of MongoDB Architecture

Below are a few of the common terms used in MongoDB

1. **_id** – This is a field required in every MongoDB document. The _id field represents a unique value in the MongoDB document. The _id field is like the document's primary key. If you create a new document without an _id field, MongoDB will automatically create the field. So for example, if we see the example of the above customer table, Mongo DB will add a 24 digit unique identifier to each document in the collection.

2. **Collection** – This is a grouping of MongoDB documents. A collection is the equivalent of a table which is created in any other RDMS such as Oracle or MS SQL. A collection exists within a single database. As seen from the introduction, collections don't enforce any sort of structure.

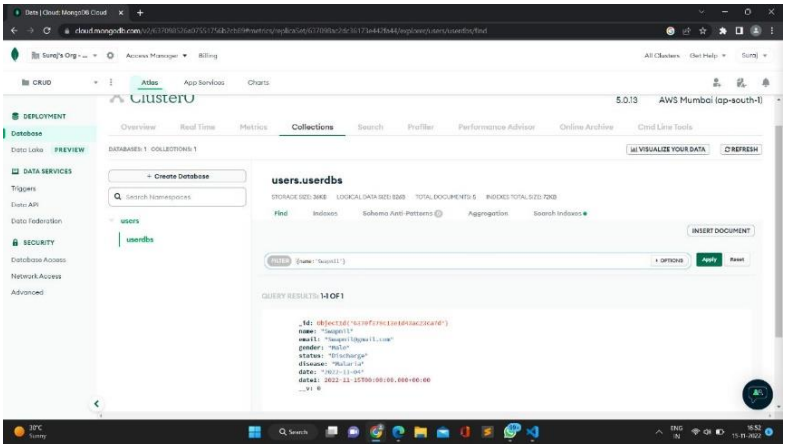
3. **Cursor** – This is a pointer to the result set of a query. Clients can iterate through a cursor to retrieve results.

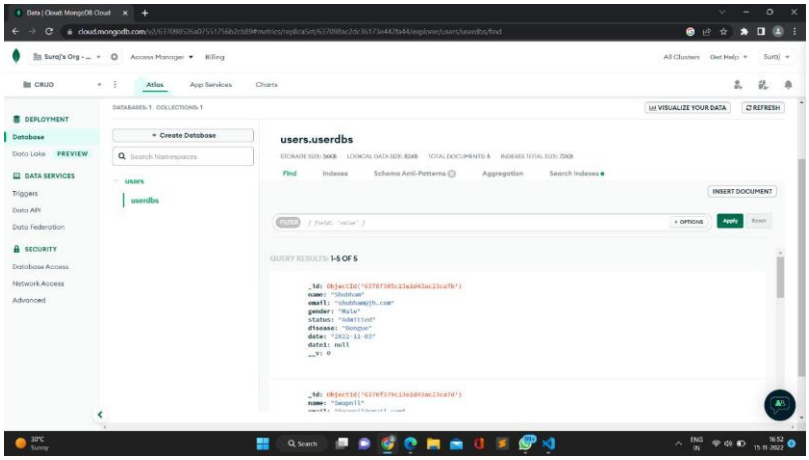
4. **Database** – This is a container for collections like in RDBMS wherein it is a container for tables. Each database gets its own set of files on the file system. A MongoDB server can store multiple databases.

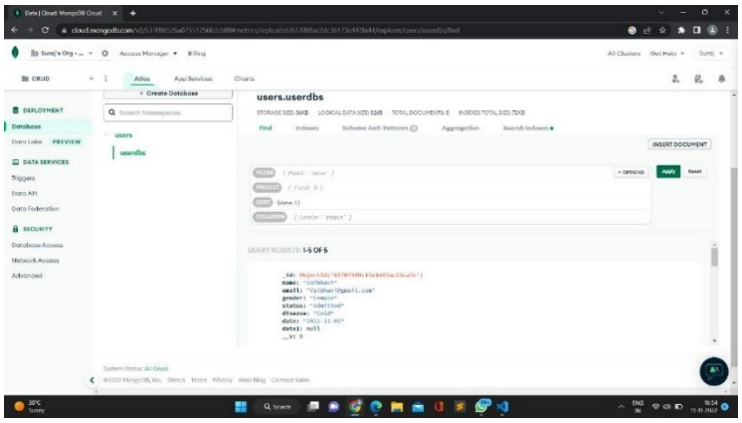
5. **Document** – A record in a MongoDB collection is basically called a document. The document, in turn, will consist of field names and values.

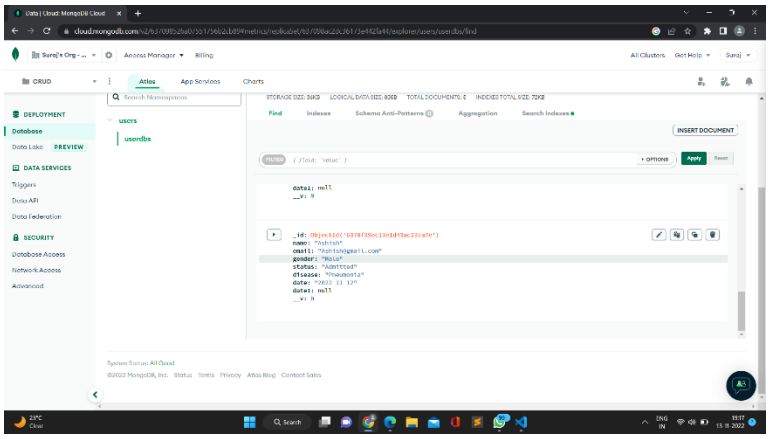
6. **Field** – A name-value pair in a document. A document has zero or more fields. Fields are analogous to columns in relational databases.The following diagram shows an example of Fields with Key value pairs. So in the example below CustomerID and 11 is one of the key value pairs defined in the document.

5.4 Database Collection



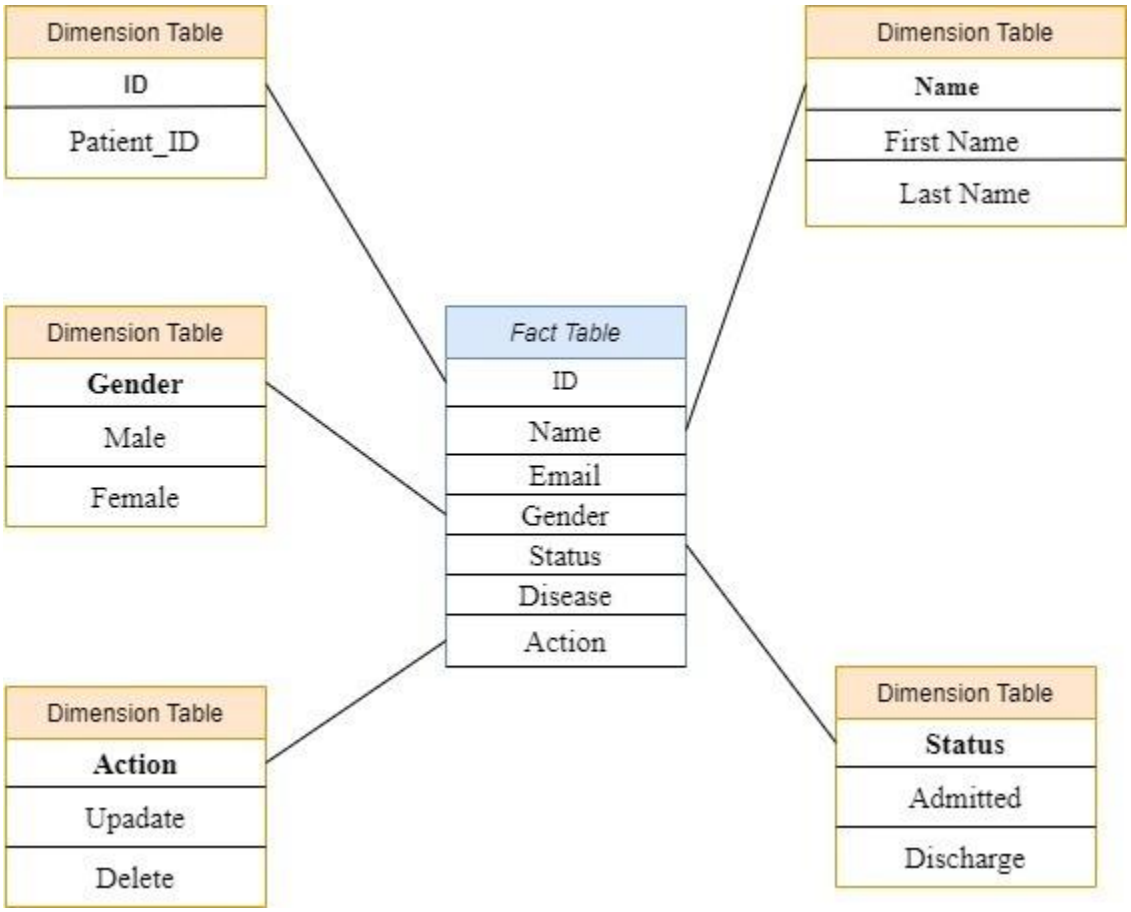




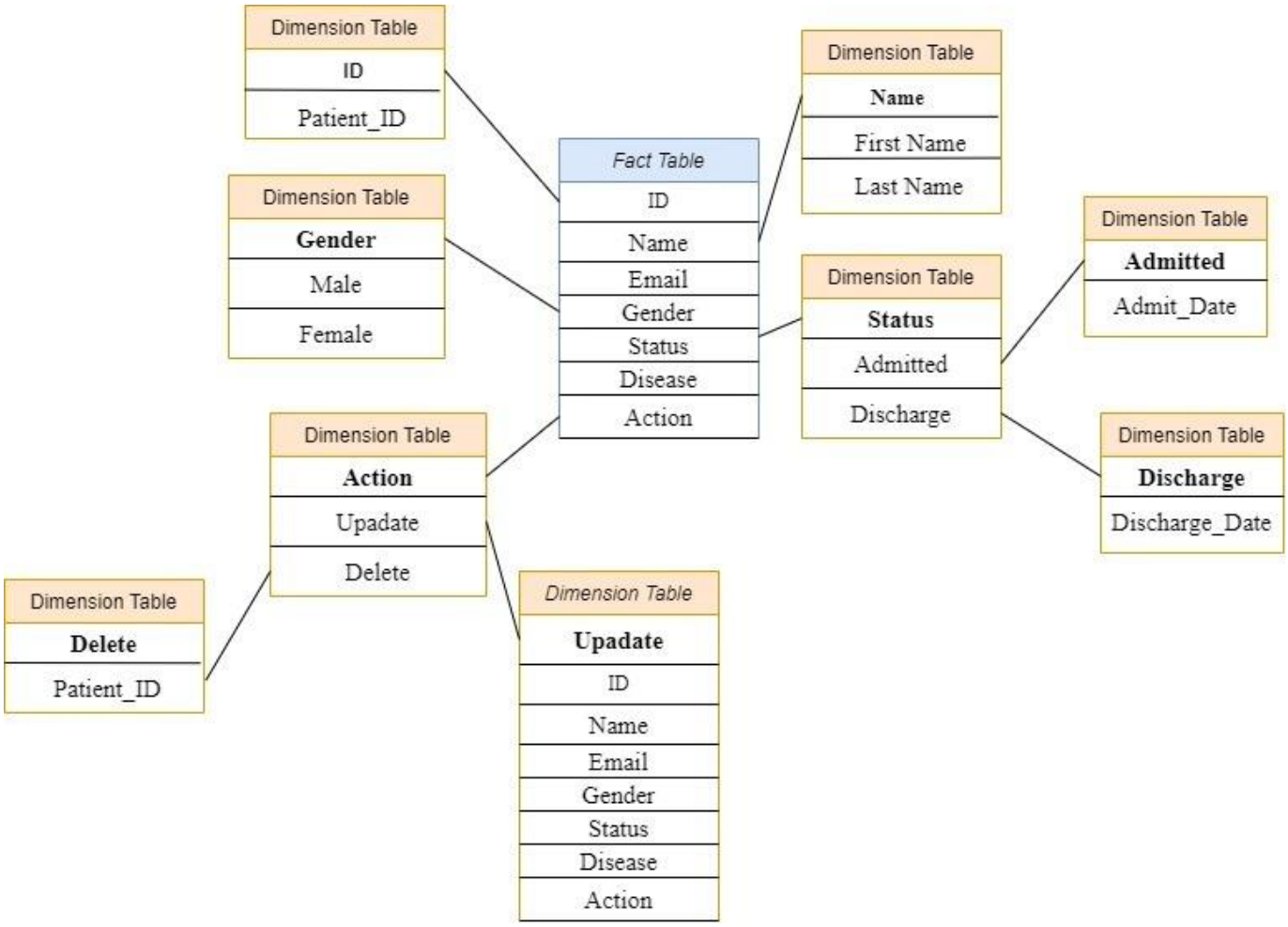


5.6 MongoDB Schema

1.Star Schema

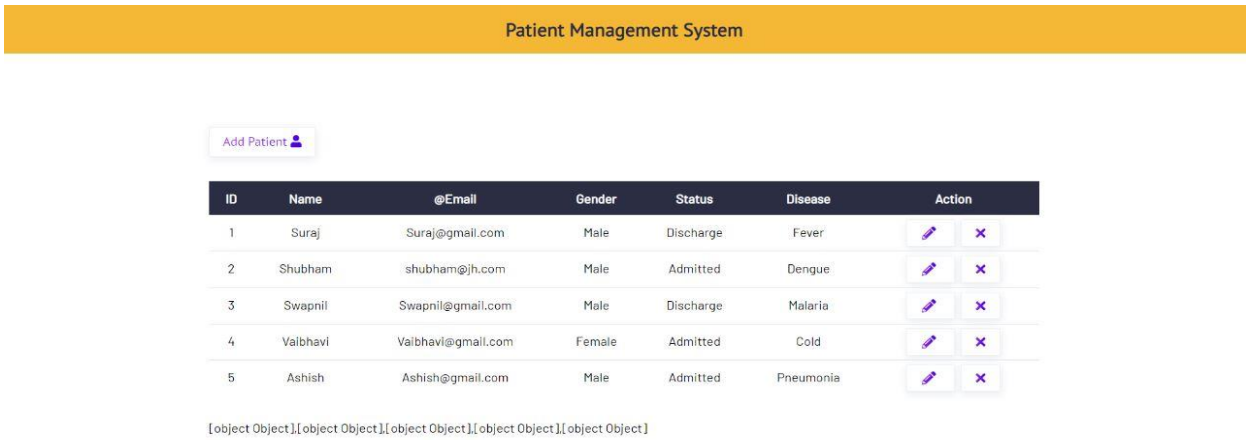


2. Snowflake Schema

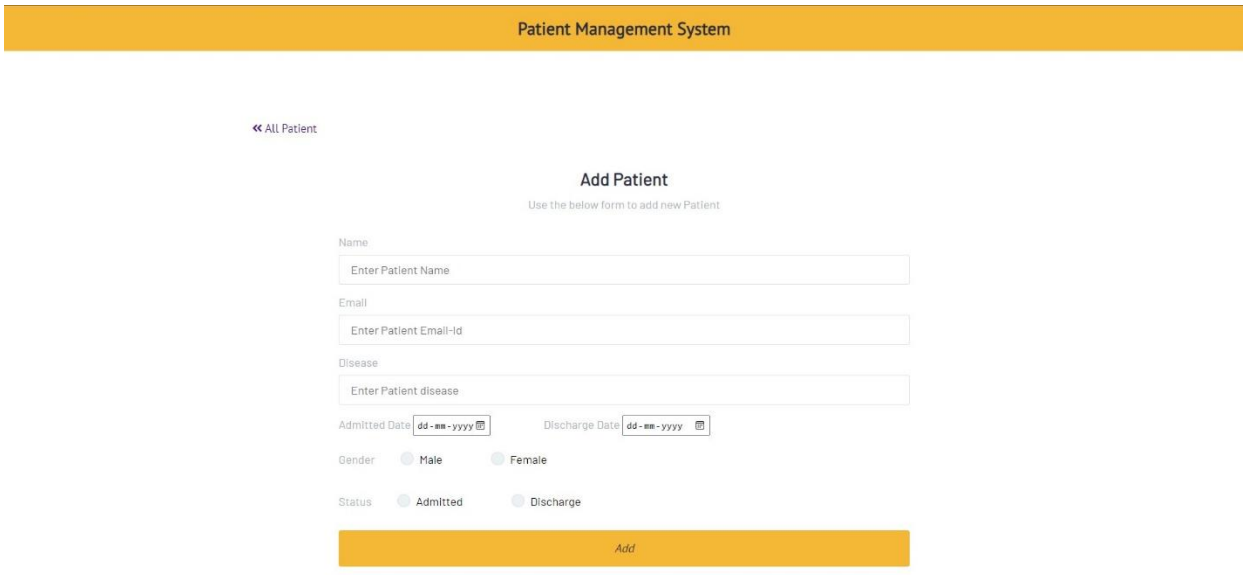


7. Graphical User Interface

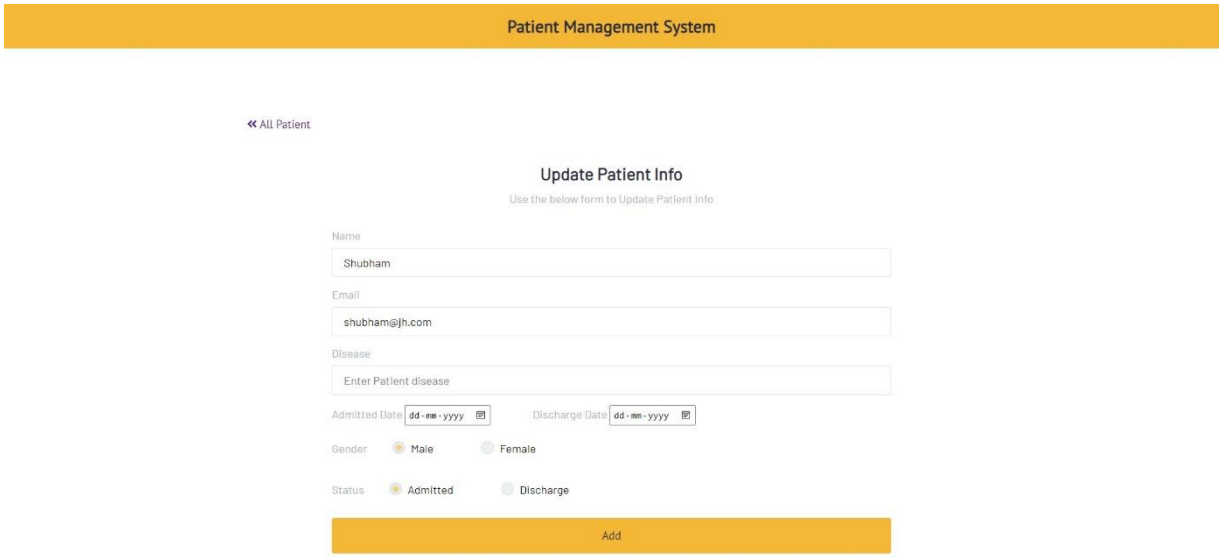
1. Patient Information Page



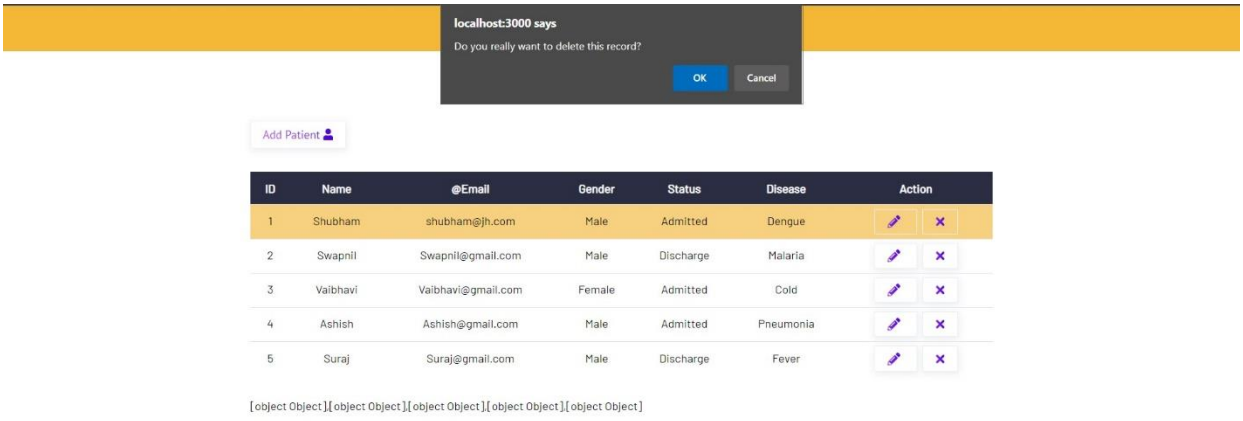
2. Add Patient



3. Update patient Information



4. Delete patient Information



8. Conclusion

The project Patient Management System is for computerised the working with hospital. The software takes care of all the requirements of hospital as is capable to provide easy and effective storage of information related to patients that come up to the hospital. Since we are entering the details of the patients electronically in the patient management system data will be secured using this application we can retrieve patients history with a single click. Thus processing information will be faster. It guarantees accurate maintenance of patient details.It easily reduces the book keeping task and thus reduces human effort and increases accuracy speed.

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