CSE2007 : Database Management Systems

Hospital Management System

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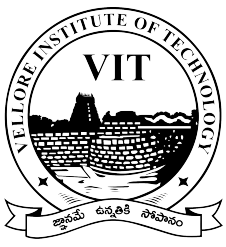

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Abstract

The purpose of the project entitled as "Hospital Management System" is to computerize the Front Office Management of Hospital to develop software which is user friendly simple, fast, and cost – effective. It deals with the collection of patient's information like add patient, update patient, delete patient, search patient, view patient appointment details, etc and similarly operations on doctor's information. Traditionally, it was done manually. The main function of the system is register and store patient details and doctor details and retrieve these details as and when required, and also to manipulate these details meaningfully. The Hospital Management System can be entered using a username and password. It is accessible by an Admin, Doctor and Receptionist. Only they can add data into the database. The data can be retrieved easily. The data are well protected for personal use and makes the data processing very fast.

Keywords : Management, admin, database, entity-relationship, usecase

1 Introduction :

The main objective of this project is to improve the quality and management of hospital in the areas of clinical process analysis and activity-based costing. Hospital Management System enables you to develop your organization and improve its effectiveness and quality of work. Managing the key processes efficiently is critical to the success of the hospital helps you manage your processes.

The Hospital Management System can be entered using a username and password. It is accessible by an Admin, Doctor and Receptionist. Only they can add data into the database. The data can be retrieved easily. The data are well protected for personal use and makes the data processing very fast. Hospital Management System is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to hospitals.

The project Hospital Management system includes registration of patients, storing their details into the system by using database. The software has the facility to give a unique id for every patient and stores the details of every patient and the staff manually. Admin can view availability of a doctor and the details of a patient using the name, id, and also this project ensures achieving Confidentiality, Integrity, Availability, Non-repudiation and finally Authentication.

2 Methodology :

The project is implement as full stack web application having front-end, back-end with a database connection. The front-end is designed using HTML, CSS, JavaScript and back-end is implemented using PHP programming with a connection to a database server MySQL and PHPmyAdmin, an Administration GUI (for MySQL).

3 Modules :

The entire project mainly consists of 4 modules, which are :

- **Admins**
    - ◇ Admin Activity
    - ◇ Doctor Activity
- **Doctors**
    - ◇ View Doctor
    - ◇ Add Doctor
    - ◇ Delete Doctor
    - ◇ Undo Delete Doctor
    - ◇ Update Doctor
    - ◇ Doctor Activity
    - ◇ Patient Details
- **Appointments**
    - ◇ Appointment Details
    - ◇ Doctor Details
    - ◇ Patient Details
- **Patients**
    - ◇ View Patient
    - ◇ Add Patient
    - ◇ Delete Patient

◇ Undo Delete Patient

◇ Update Patient

◇ Patient Activity

◇ Doctor Details

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4 System Design :

- **Use case diagram :**

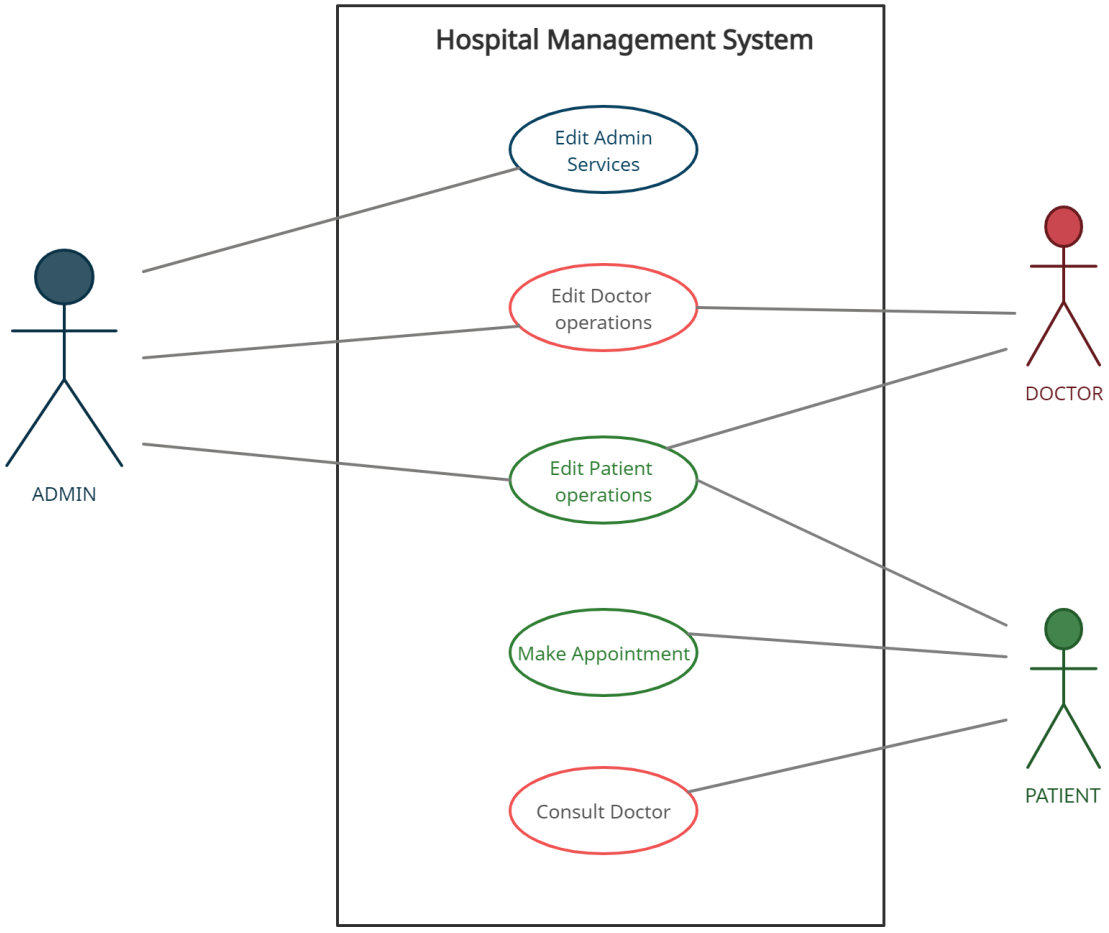

Figure 1: Graphic depiction of the interactions among the elements

- **Entity Relationship Diagram :**

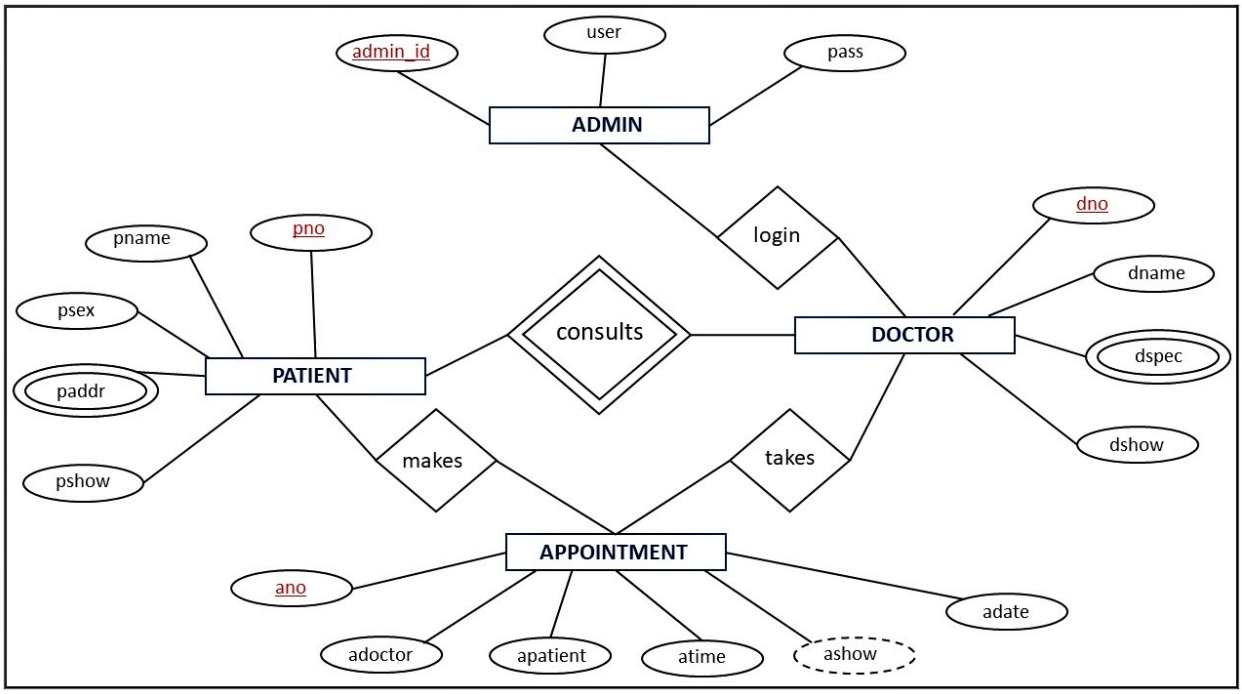

Figure 2: Relationship of entity sets stored in a database - ERD

- **ER to Relational Mapping :**

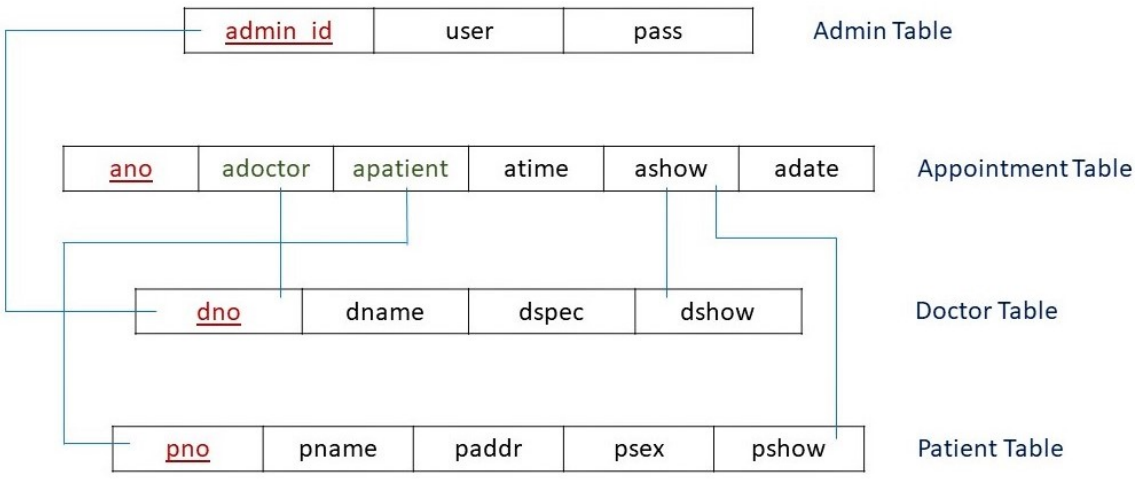

Figure 3: overview of ER mapped to create relational schema

5 Source Code :

1. **Database Connectivity Code :**

   connection.php

```php
<?php
session_start();
$connection = mysqli_connect('localhost', 'root', '');
$select_db = mysqli_select_db($connection, 'hospital');
if($_SESSION['admin']=="") {
header('index.php');
}
?>
```

2. **SQL Queries - Database :**

   hospital.sql

```sql
-- phpMyAdmin SQL Dump
-- version 5.0.2
-- https://www.phpmyadmin.net/
-- Host: 127.0.0.1
-- Generation Time: May 19, 2021 at 03:21 PM
-- Server version: 10.4.14-MariaDB
-- PHP Version: 7.4.10

SET SQL_MODE = "NO_AUTO_VALUE_ON_ZERO";
START TRANSACTION;
SET time_zone = "+00:00";

-- Database: `hospital`
-- --------------------------------------------------------
-- Table structure for table `admin`

CREATE TABLE `admin` (
```

```
  `admin_id` int(11) NOT NULL,
  `user` varchar(100) NOT NULL,
  `pass` varchar(100) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

-- Dumping data for table `admin`

INSERT INTO `admin` (`admin_id`, `user`, `pass`) VALUES
(1, 'yaswanth@gmail.com', 'yaswanth');
-- --------------------------------------------------------
-- Table structure for table `appt`

CREATE TABLE `appt` (
  `ano` int(11) NOT NULL,
  `adoctor` int(11) NOT NULL,
  `apatient` int(11) NOT NULL,
  `atime` varchar(11) NOT NULL,
  `ashow` varchar(1) NOT NULL DEFAULT 'Y',
  `adate` date NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

-- Dumping data for table `appt`

INSERT INTO `appt` (`ano`, `adoctor`, `apatient`, `atime`, `ashow`,
   `adate`) VALUES
(1, 1, 1, '12:12', 'Y', '2021-12-12'),
(2, 3, 2, '12:40', 'N', '2020-10-22'),
(3, 4, 3, '12:10', 'Y', '2019-12-05'),
(4, 4, 4, '12:10', 'Y', '2021-04-20'),
(5, 6, 4, '10:10', 'Y', '2021-05-19'),
(6, 11, 11, '11:15', 'N', '2021-05-21');
-- --------------------------------------------------------
-- Table structure for table `doct`

CREATE TABLE `doct` (
  `dno` int(11) NOT NULL,
  `dname` varchar(30) NOT NULL,
  `dspec` varchar(30) NOT NULL,
  `dshow` varchar(1) NOT NULL DEFAULT 'Y'
```

```sql
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

-- Dumping data for table `doct`
INSERT INTO `doct` (`dno`, `dname`, `dspec`, `dshow`) VALUES
(1, 'Doctor 1', 'Heart', 'Y'),
(2, 'Doctor 2', 'Lungs', 'N'),
(3, 'Doctor 3', 'Kidney', 'N'),
(4, 'Doctor 4', 'Cold', 'Y'),
(5, 'Doctor 5', 'Eyes', 'Y'),
(6, 'Doctor 6', 'Food Poisoning', 'Y'),
(7, 'Doctor 7', 'COVID', 'Y'),
(8, 'Doctor 8', 'Fungal Infection', 'Y'),
(9, 'Doctor 9', 'Knee Pains', 'N'),
(10, 'Doctor 10', 'Swelling', 'N'),
(11, 'Dr.Yaswanth', 'Surgery', 'Y');
-- --------------------------------------------------------
-- Table structure for table `patient`

CREATE TABLE `patient` (
  `pno` int(11) NOT NULL,
  `pname` varchar(30) NOT NULL,
  `paddr` varchar(30) NOT NULL,
  `psex` varchar(1) NOT NULL,
  `pshow` varchar(1) NOT NULL DEFAULT 'Y'
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

-- Dumping data for table `patient`
INSERT INTO `patient` (`pno`, `pname`, `paddr`, `psex`, `pshow`)
   VALUES
(1, 'Patient 1', 'Hyderabad', 'M', 'Y'),
(2, 'Patient 2', 'Warangal', 'F', 'Y'),
(3, 'Patient 3', 'Delhi', 'M', 'Y'),
(4, 'Patient 4', 'Noida', 'M', 'Y'),
(5, 'Patient 5', 'Amaravati', 'F', 'Y'),
(6, 'Patient 6', 'Guntur', 'F', 'Y'),
(7, 'Patient 7', 'Rajahmundry', 'F', 'N'),
(8, 'Patient 8', 'Ongole', 'F', 'N'),
(9, 'Patient 8', 'Khammam', 'F', 'N'),
(10, 'Patient 10', 'Vizag', 'M', 'N'),
```

```
(11, 'Y Naidu', 'VITAP', 'M', 'Y');

-- Indexes for dumped tables
-- Indexes for table `admin`
ALTER TABLE `admin`
  ADD PRIMARY KEY (`admin_id`);

-- Indexes for table `appt`
ALTER TABLE `appt`
  ADD PRIMARY KEY (`ano`);

-- Indexes for table `doct`
ALTER TABLE `doct`
  ADD PRIMARY KEY (`dno`);

-- Indexes for table `patient`
ALTER TABLE `patient`
  ADD PRIMARY KEY (`pno`);
-- --------------------------------------------------------
-- AUTO_INCREMENT for dumped tables
-- AUTO_INCREMENT for table `admin`
ALTER TABLE `admin`
  MODIFY `admin_id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=2;

-- AUTO_INCREMENT for table `appt`
ALTER TABLE `appt`
  MODIFY `ano` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=7;

-- AUTO_INCREMENT for table `doct`
ALTER TABLE `doct`
  MODIFY `dno` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=12;

-- AUTO_INCREMENT for table `patient`
ALTER TABLE `patient`
  MODIFY `pno` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=12;

COMMIT;
```

3. **MySQL Connection Queries :**

These are the list of MySQL connection Queries retrieved by connection server from database while the user is performing operations in the web application.

```
1  <?php
2  mysqli_query($connection, "update appt SET ashow='N' where
       ano='$todel'");
3
4  mysqli_query($connection, "SELECT * from appt where ashow='Y'");
5
6  mysqli_query($connection, "SELECT pname from patient where
       pno='$row[2]'");
7
8  mysqli_query($connection, "SELECT dname from doct where
       dno='$row[1]'");
9
10 mysqli_query($connection, "SELECT * from appt where ashow='N'");
11
12 mysqli_query($connection, "SELECT dname from doct where
       dno='$row[1]'");
13
14 mysqli_query($connection, "SELECT * from patient where pshow='Y'
       order by pname;");
15
16 mysqli_query($connection, "SELECT * from doct where dshow='Y' order
       by dname;");
17
18 mysqli_query($connection, "insert into
       appt(adoctor,apatient,atime,adate,ashow)
19 values('".$doc."','".$pat."','".$tim."','".$dat."','Y')");
20
21 mysqli_query($connection, "update appt set ashow='Y' where
       ano='$rno'");
22
23
24 mysqli_query($connection, "update doct SET dshow='N' where
       dno='$todel' ;");
25
```

```
26  mysqli_query($connection, "SELECT * from doct where dshow='N' order
        by dname;");
27
28  mysqli_query($connection, "SELECT * from doct where dno='".$rno."'");
29
30  mysqli_query($connection, "insert into doct(dname,dspec,dshow)
        values('".$name."','".$spec."','Y')");
31
32  mysqli_query($connection, "update doct set dshow='Y' where
        dno='$rno'");
33
34  mysqli_query($connection, "update doct set
        dname='".$name."',dspec='".$spec."' where dno='".$rno."'");
35
36
37  mysqli_query($connection, "update Patient SET pshow='N' where
        pno='$todel' ;");
38
39  mysqli_query($connection, "SELECT * from patient where pshow='N'
        order by pname;");
40
41  mysqli_query($connection, "SELECT * from patient where
        pno='".$rnooo."'");
42
43  mysqli_query($connection, "insert into
        patient(pname,paddr,psex,pshow)
        values('".$name."','".$addr."','".$sex."','Y')");
44
45  mysqli_query($connection, "update Patient set pshow='Y' where
        pno='$rno'");
46
47  mysqli_query($connection, "update patient set
        pname='".$name."',psex='".$sex."',paddr='".$addr."' where
        pno='".$rno."'");
```

4. **CLICK HERE - Full Website Source Code**

6 Outcomes :

These are the screenshots and results of the project. This is categorized into 5 different parts :

1. **ADMIN ACCESS :**

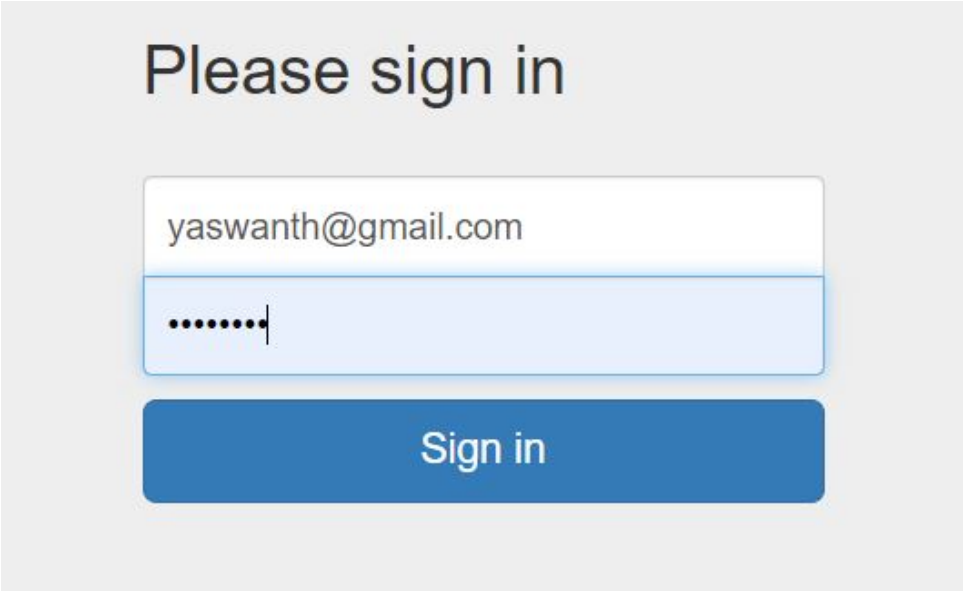

Figure 4: Admin has login credentials to access

2. **DOCTOR :**

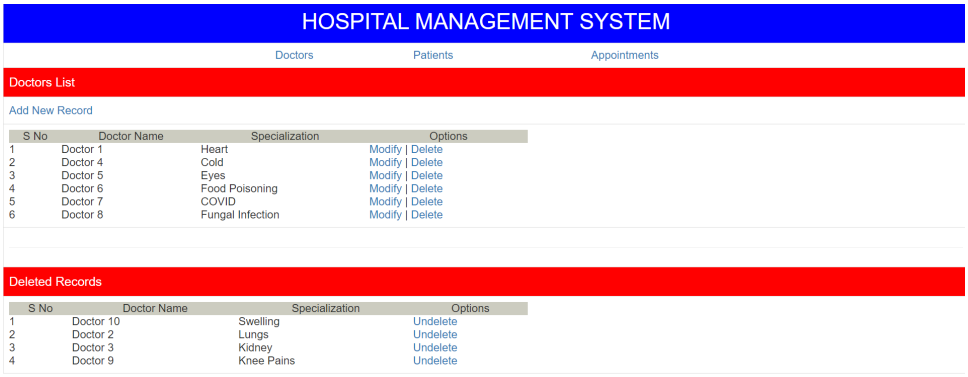

Figure 5: Physical View of Doctor

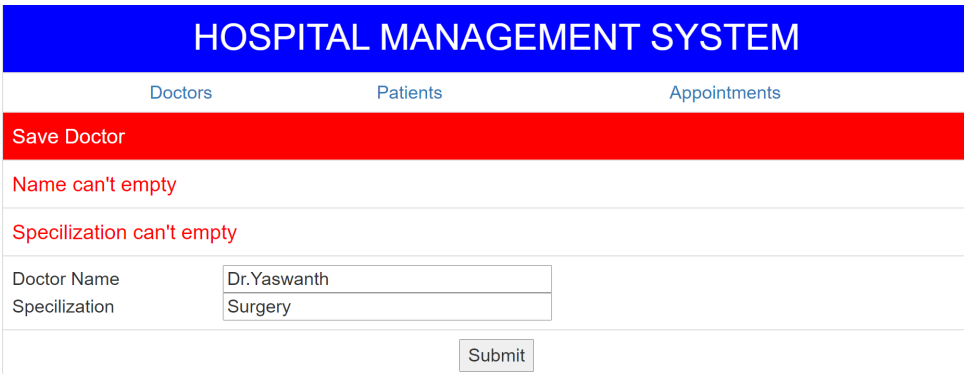

Figure 6: Add, Delete, Undo, Modify operations of doctor

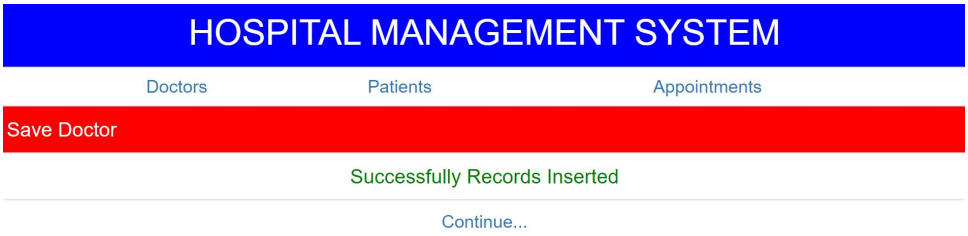

Figure 7: Doctor Services and Operations

3. **PATIENT :**

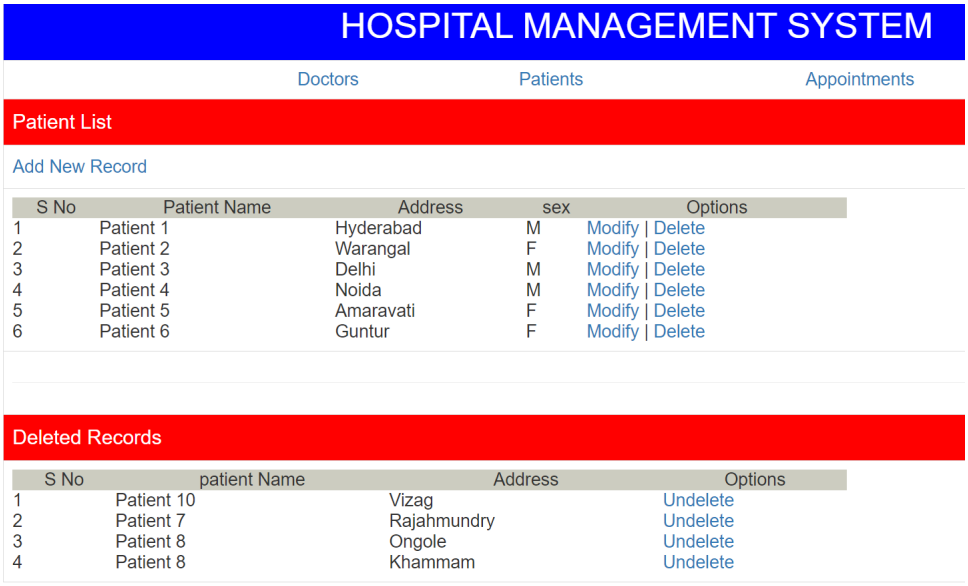

Figure 8: Physical View of Patient

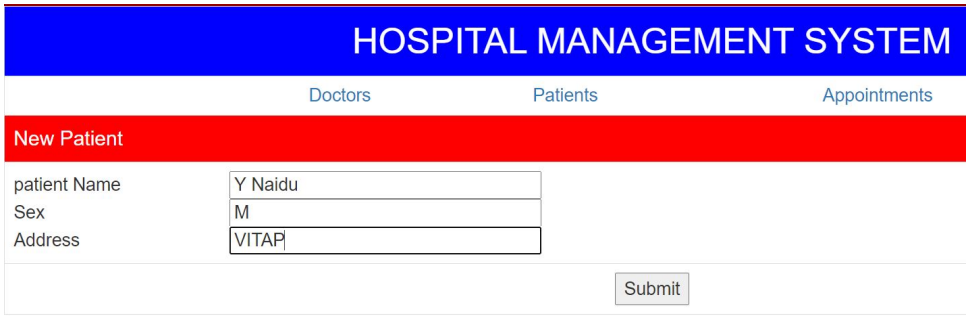

Figure 9: Add, Delete, Undo, Modify operations of patient

Figure 10: Patient Services and Operations

4. APPOINTMENT :

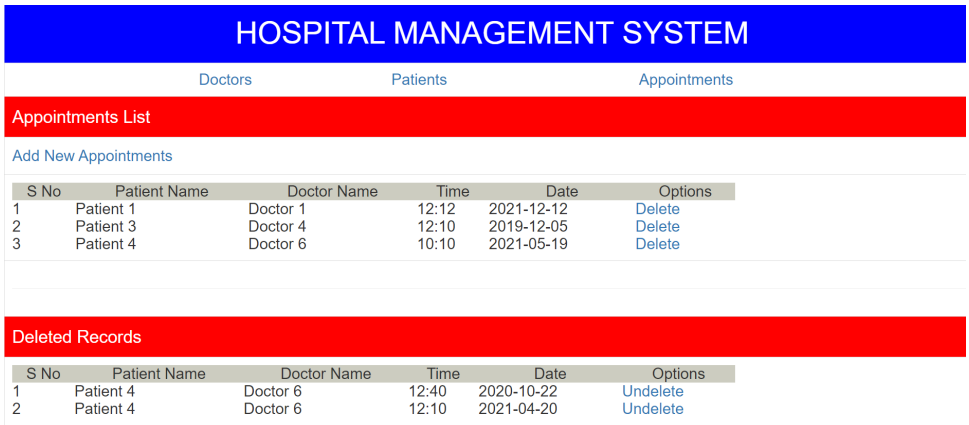

Figure 11: Appointments can be fixed by patient

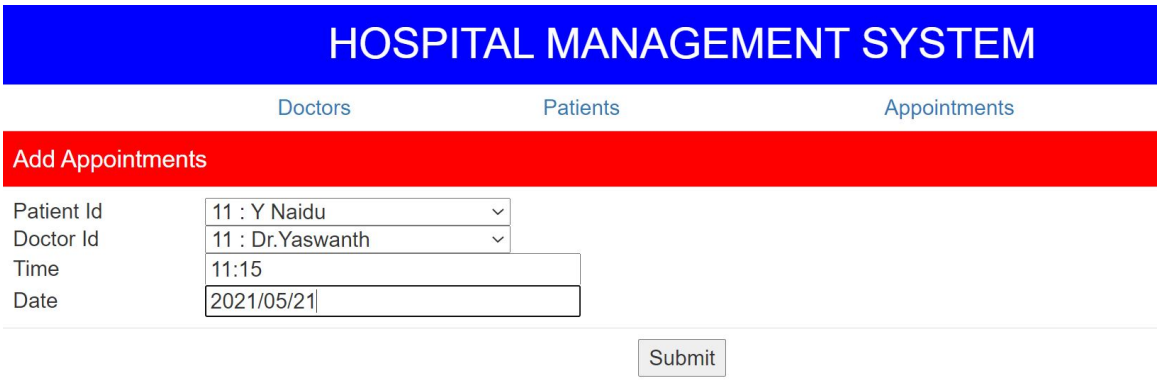

Figure 12: Add, Delete, Undo, Modify operations of Appointments

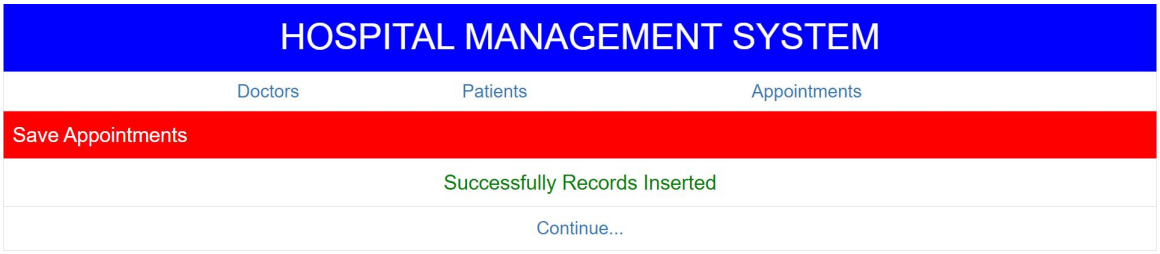

Figure 13: Appointment Services and Operations

5. **DATABASE - phpMyAdmin :**

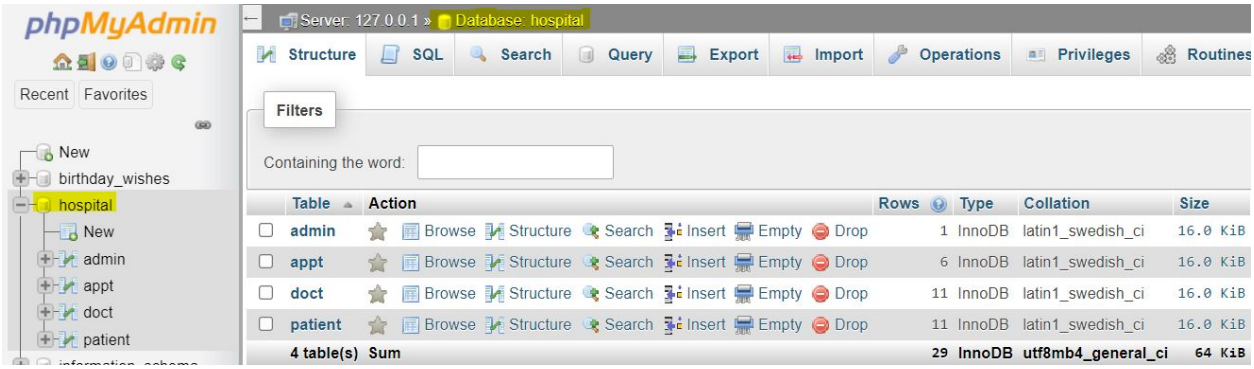

Figure 14: hospital Database

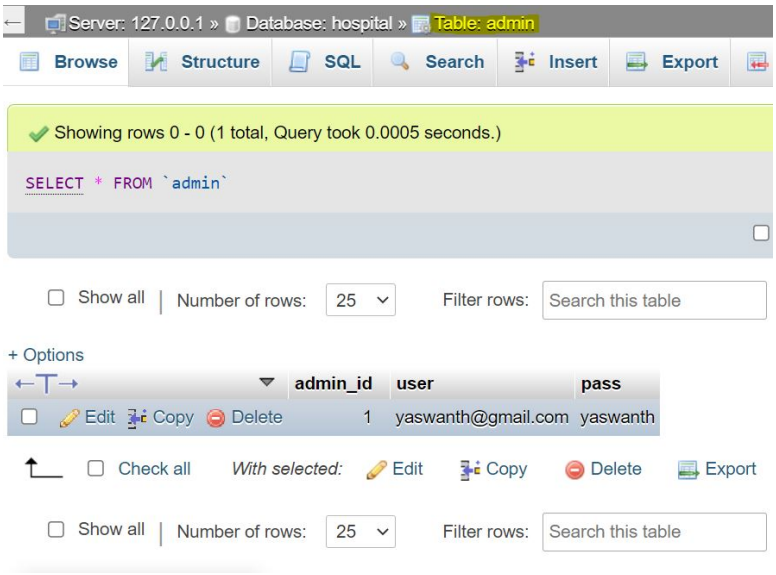

Figure 15: Admin Table (Relation)

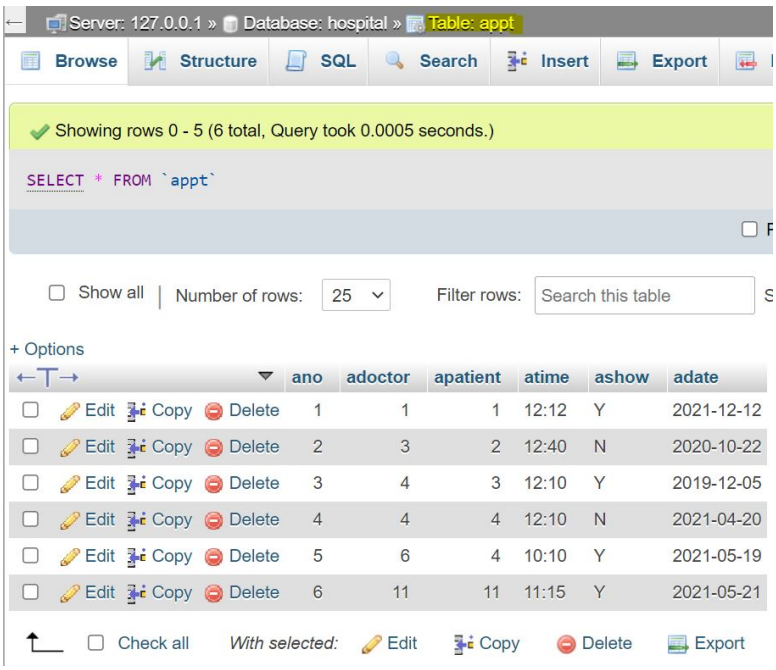

Figure 16: Appointment Table (Relation)

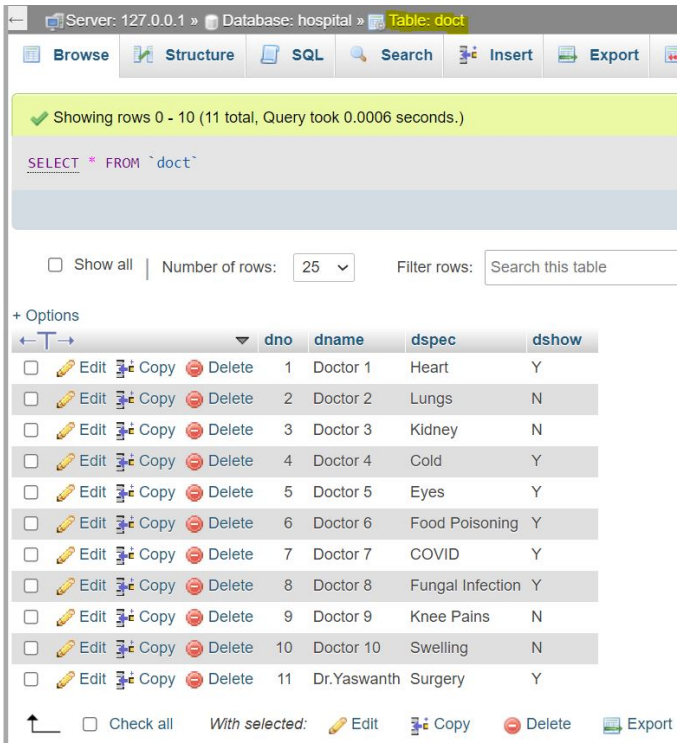

Figure 17: Doctor Table (Relation)

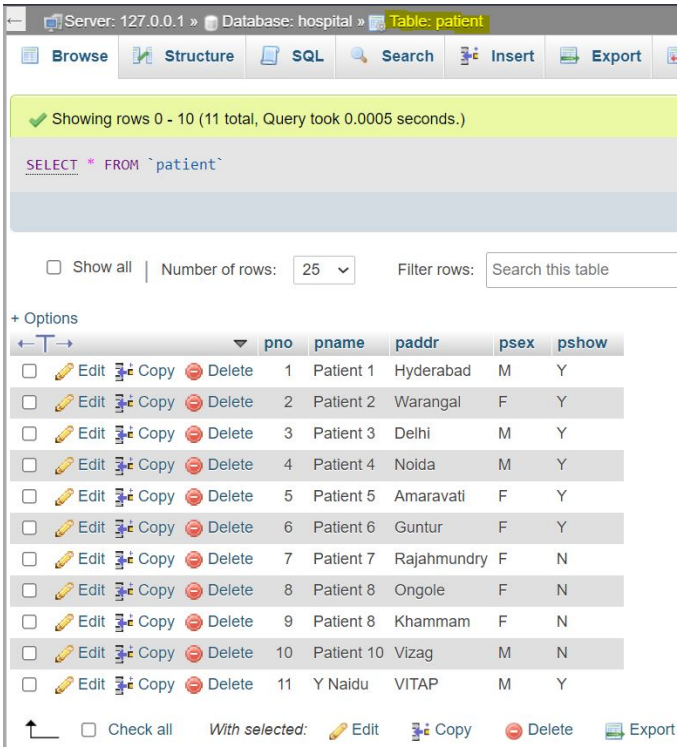

Figure 18: Patient Table (Relation)

7 Conclusion :

Since we are entering details of the patients electronically in the "Hospital Management System", data will be secured. Using this application, we can retrieve patient's 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 the human effort and increases accuracy speed.

Hospital Management System is essential for maintaining detail about the Doctor, Patient, Hospital staff etc. we understand that by using of Hospital Management System project the work became very easy and we save lot of time. Hospital administrators would be able to significantly improve the operational control and thus streamline operations. This would enable to improve the response time to the demands of patient care because it automates the process of collecting, collating and retrieving patient information. Accounting sometimes becomes awfully pathetic and complex. This product will eliminate any such complexity.

8 References :

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