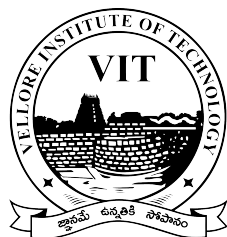

Hospital Management System

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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
-

4 System Design :

- Use case diagram :

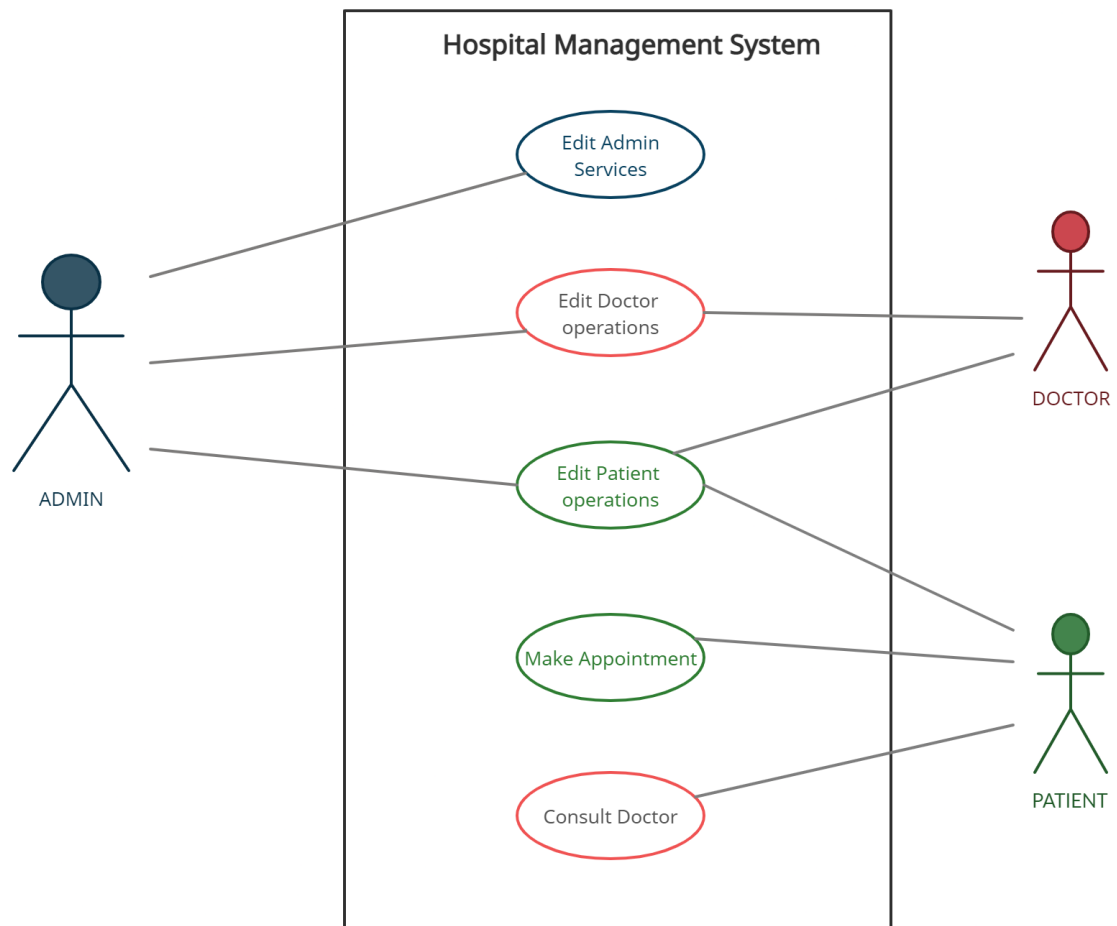


Figure 1: Graphic depiction of the interactions among the elements

- Entity Relationship Diagram :

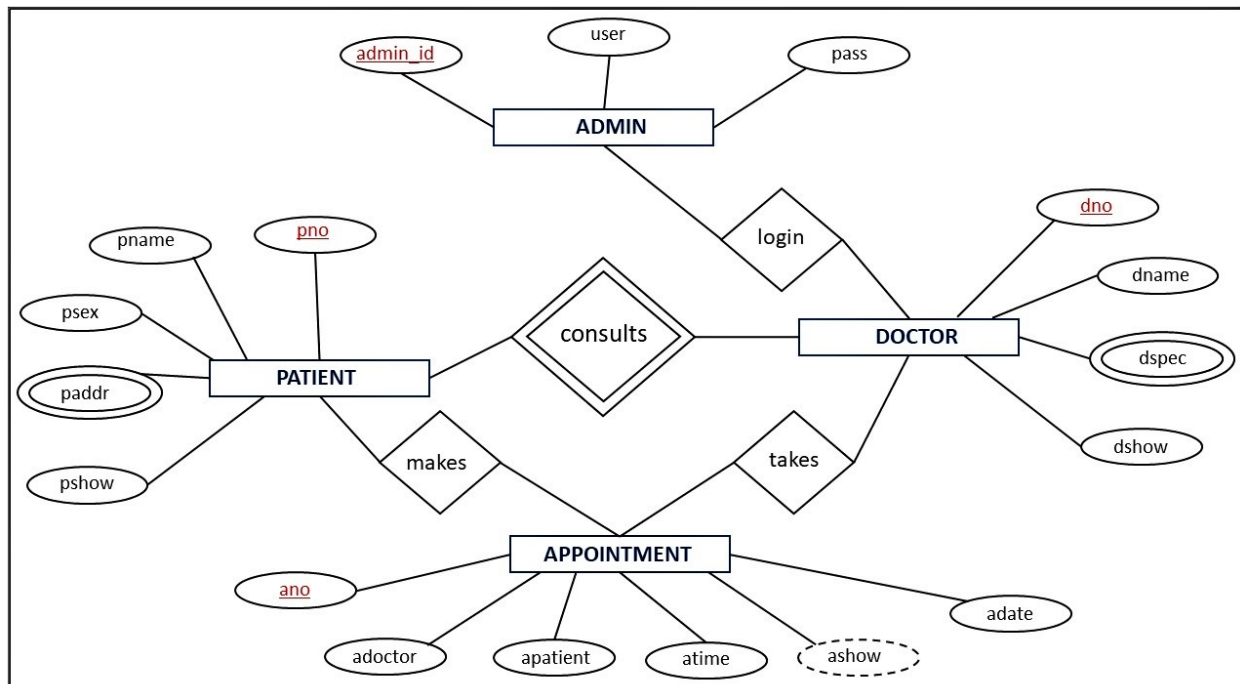


Figure 2: Relationship of entity sets stored in a database - ERD

- ER to Relational Mapping :

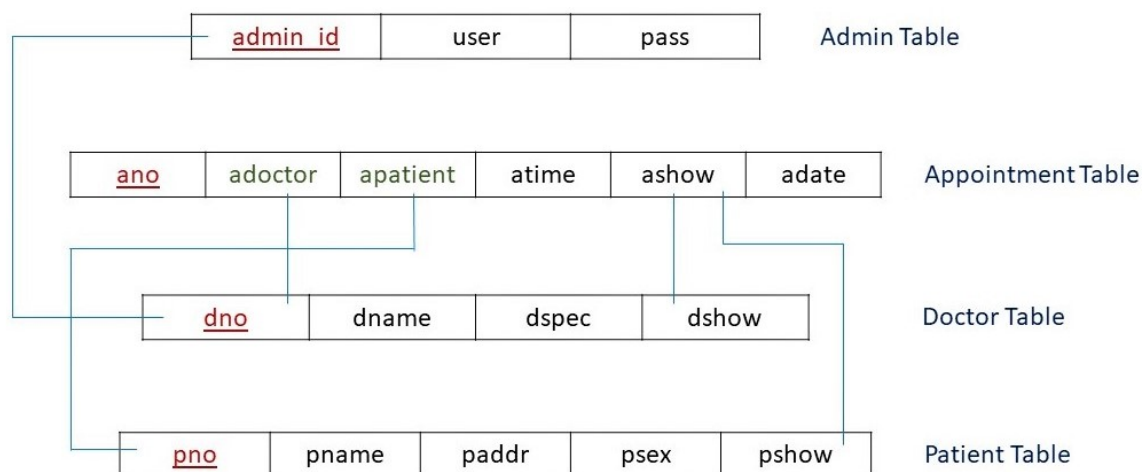


Figure 3: overview of ER mapped to create relational schema

5 Source Code :

1. Database Connectivity Code :

connection.php

```
1 <?php
2 session_start();
3 $connection = mysqli_connect('localhost', 'root', '');
4 $select_db = mysqli_select_db($connection, 'hospital');
5 if($_SESSION['admin']== "") {
6 header('index.php');
7 }
8 ?>
```

2. SQL Queries - Database :

hospital.sql

```
1 -- phpMyAdmin SQL Dump
2 -- version 5.0.2
3 -- https://www.phpmyadmin.net/
4 -- Host: 127.0.0.1
5 -- Generation Time: May 19, 2021 at 03:21 PM
6 -- Server version: 10.4.14-MariaDB
7 -- PHP Version: 7.4.10
8
9 SET SQL_MODE = "NO_AUTO_VALUE_ON_ZERO";
10 START TRANSACTION;
11 SET time_zone = "+00:00";
12
13 -- Database: `hospital`
14 -- -----
15 -- Table structure for table `admin`
16
17 CREATE TABLE `admin` (
```

```

18     `admin_id` int(11) NOT NULL,
19     `user` varchar(100) NOT NULL,
20     `pass` varchar(100) NOT NULL
21 ) ENGINE=InnoDB DEFAULT CHARSET=latin1;
22
23 -- Dumping data for table `admin`
24
25 INSERT INTO `admin` (`admin_id`, `user`, `pass`) VALUES
26 (1, 'yaswanth@gmail.com', 'yaswanth');
27 -----
28 -- Table structure for table `appt`
29
30 CREATE TABLE `appt` (
31     `ano` int(11) NOT NULL,
32     `adoctor` int(11) NOT NULL,
33     `apatient` int(11) NOT NULL,
34     `atime` varchar(11) NOT NULL,
35     `ashow` varchar(1) NOT NULL DEFAULT 'Y',
36     `adate` date NOT NULL
37 ) ENGINE=InnoDB DEFAULT CHARSET=latin1;
38
39 -- Dumping data for table `appt`
40
41 INSERT INTO `appt` (`ano`, `adoctor`, `apatient`, `atime`, `ashow`,
42     `adate`) VALUES
43 (1, 1, 1, '12:12', 'Y', '2021-12-12'),
44 (2, 3, 2, '12:40', 'N', '2020-10-22'),
45 (3, 4, 3, '12:10', 'Y', '2019-12-05'),
46 (4, 4, 4, '12:10', 'Y', '2021-04-20'),
47 (5, 6, 4, '10:10', 'Y', '2021-05-19'),
48 (6, 11, 11, '11:15', 'N', '2021-05-21');
49 -----
50 -- Table structure for table `doct`
51
52 CREATE TABLE `doct` (
53     `dno` int(11) NOT NULL,
54     `dname` varchar(30) NOT NULL,
55     `dspec` varchar(30) NOT NULL,
56     `dshow` varchar(1) NOT NULL DEFAULT 'Y'

```



```

56 ) ENGINE=InnoDB DEFAULT CHARSET=latin1;
57
58 -- Dumping data for table `doct`
59 INSERT INTO `doct` (`dno`, `dname`, `dspec`, `dshow`) VALUES
60 (1, 'Doctor 1', 'Heart', 'Y'),
61 (2, 'Doctor 2', 'Lungs', 'N'),
62 (3, 'Doctor 3', 'Kidney', 'N'),
63 (4, 'Doctor 4', 'Cold', 'Y'),
64 (5, 'Doctor 5', 'Eyes', 'Y'),
65 (6, 'Doctor 6', 'Food Poisoning', 'Y'),
66 (7, 'Doctor 7', 'COVID', 'Y'),
67 (8, 'Doctor 8', 'Fungal Infection', 'Y'),
68 (9, 'Doctor 9', 'Knee Pains', 'N'),
69 (10, 'Doctor 10', 'Swelling', 'N'),
70 (11, 'Dr.Yaswanth', 'Surgery', 'Y');
71 -----
72 -- Table structure for table `patient`
73
74 CREATE TABLE `patient` (
75   `pno` int(11) NOT NULL,
76   `pname` varchar(30) NOT NULL,
77   `paddr` varchar(30) NOT NULL,
78   `psex` varchar(1) NOT NULL,
79   `pshow` varchar(1) NOT NULL DEFAULT 'Y'
80 ) ENGINE=InnoDB DEFAULT CHARSET=latin1;
81
82 -- Dumping data for table `patient`
83 INSERT INTO `patient` (`pno`, `pname`, `paddr`, `psex`, `pshow`)
84   VALUES
85 (1, 'Patient 1', 'Hyderabad', 'M', 'Y'),
86 (2, 'Patient 2', 'Warangal', 'F', 'Y'),
87 (3, 'Patient 3', 'Delhi', 'M', 'Y'),
88 (4, 'Patient 4', 'Noida', 'M', 'Y'),
89 (5, 'Patient 5', 'Amaravati', 'F', 'Y'),
90 (6, 'Patient 6', 'Guntur', 'F', 'Y'),
91 (7, 'Patient 7', 'Rajahmundry', 'F', 'N'),
92 (8, 'Patient 8', 'Ongole', 'F', 'N'),
93 (9, 'Patient 8', 'Khammam', 'F', 'N'),
94 (10, 'Patient 10', 'Vizag', 'M', 'N'),

```

```

94 (11, 'Y Naidu', 'VITAP', 'M', 'Y');
95
96 -- Indexes for dumped tables
97 -- Indexes for table `admin`
98 ALTER TABLE `admin`
99     ADD PRIMARY KEY (`admin_id`);
100
101 -- Indexes for table `appt`
102 ALTER TABLE `appt`
103     ADD PRIMARY KEY (`ano`);
104
105 -- Indexes for table `doct`
106 ALTER TABLE `doct`
107     ADD PRIMARY KEY (`dno`);
108
109 -- Indexes for table `patient`
110 ALTER TABLE `patient`
111     ADD PRIMARY KEY (`pno`);
112 -----
113 -- AUTO_INCREMENT for dumped tables
114 -- AUTO_INCREMENT for table `admin`
115 ALTER TABLE `admin`
116     MODIFY `admin_id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=2;
117
118 -- AUTO_INCREMENT for table `appt`
119 ALTER TABLE `appt`
120     MODIFY `ano` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=7;
121
122 -- AUTO_INCREMENT for table `doct`
123 ALTER TABLE `doct`
124     MODIFY `dno` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=12;
125
126 -- AUTO_INCREMENT for table `patient`
127 ALTER TABLE `patient`
128     MODIFY `pno` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=12;
129
130 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 :



A login form titled "Please sign in". It features a text input field containing the email "yaswanth@gmail.com", a password input field with masked characters ".....", and a blue "Sign in" button.

Figure 4: Admin has login credentials to access

2. DOCTOR :

HOSPITAL MANAGEMENT SYSTEM

Doctors

Patients

Appointments

Doctors List

Add New Record

S No	Doctor Name	Specialization	Options
1	Doctor 1	Heart	Modify Delete
2	Doctor 4	Cold	Modify Delete
3	Doctor 5	Eyes	Modify Delete
4	Doctor 6	Food Poisoning	Modify Delete
5	Doctor 7	COVID	Modify Delete
6	Doctor 8	Fungal Infection	Modify Delete

Deleted Records

S No	Doctor Name	Specialization	Options
1	Doctor 10	Swelling	Undelete
2	Doctor 2	Lungs	Undelete
3	Doctor 3	Kidney	Undelete
4	Doctor 9	Knee Pains	Undelete

Figure 5: Physical View of Doctor

HOSPITAL MANAGEMENT SYSTEM

[Doctors](#)
[Patients](#)
[Appointments](#)

Save Doctor

Name can't empty

Specilization can't empty

Doctor Name

Specilization

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

HOSPITAL MANAGEMENT SYSTEM

[Doctors](#)
[Patients](#)
[Appointments](#)

Save Doctor

Successfully Records Inserted

[Continue...](#)

Figure 7: Doctor Services and Operations

3. PATIENT :

HOSPITAL MANAGEMENT SYSTEM

[Doctors](#)
[Patients](#)
[Appointments](#)

Patient List

[Add New Record](#)

S No	Patient Name	Address	sex	Options
1	Patient 1	Hyderabad	M	Modify Delete
2	Patient 2	Warangal	F	Modify Delete
3	Patient 3	Delhi	M	Modify Delete
4	Patient 4	Noida	M	Modify Delete
5	Patient 5	Amaravati	F	Modify Delete
6	Patient 6	Guntur	F	Modify Delete

Deleted Records

S No	patient Name	Address	Options
1	Patient 10	Vizag	Undelete
2	Patient 7	Rajahmundry	Undelete
3	Patient 8	Ongole	Undelete
4	Patient 8	Khammam	Undelete

Figure 8: Physical View of Patient

HOSPITAL MANAGEMENT SYSTEM

[Doctors](#)
[Patients](#)
[Appointments](#)

New Patient

patient Name	Y Naidu
Sex	M
Address	VITAP

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

HOSPITAL MANAGEMENT SYSTEM

[Doctors](#)
[Patients](#)
[Appointments](#)

Save Patient

Successfully Records Inserted

[Continue...](#)

Figure 10: Patient Services and Operations

4. APPOINTMENT :

HOSPITAL MANAGEMENT SYSTEM

[Doctors](#)
[Patients](#)
[Appointments](#)

Appointments List

[Add New Appointments](#)

S No	Patient Name	Doctor Name	Time	Date	Options
1	Patient 1	Doctor 1	12:12	2021-12-12	Delete
2	Patient 3	Doctor 4	12:10	2019-12-05	Delete
3	Patient 4	Doctor 6	10:10	2021-05-19	Delete

Deleted Records

S No	Patient Name	Doctor Name	Time	Date	Options
1	Patient 4	Doctor 6	12:40	2020-10-22	Undelete
2	Patient 4	Doctor 6	12:10	2021-04-20	Undelete

Figure 11: Appointments can be fixed by patient

HOSPITAL MANAGEMENT SYSTEM

Doctors
Patients
Appointments

Add Appointments

Patient Id

11 : Y Naidu

v

Doctor Id

11 : Dr.Yaswanth

v

Time

11:15

Date

2021/05/21

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

HOSPITAL MANAGEMENT SYSTEM

Doctors
Patients
Appointments

Save Appointments

Successfully Records Inserted

[Continue...](#)

Figure 13: Appointment Services and Operations

5. DATABASE - phpMyAdmin :

The screenshot shows the phpMyAdmin interface for a database named 'hospital'. The left sidebar shows the database structure with 'hospital' selected. The main area displays the 'Structure' tab for the 'hospital' database. It lists four tables: 'admin', 'appt', 'doct', and 'patient'. Each table has a 'Rows' column, a 'Type' column (all are InnoDB), a 'Collation' column (all are latin1_swedish_ci), and a 'Size' column (all are 16.0 KiB). The 'Sum' row shows 4 table(s) with a total of 29 rows and a size of 64 KiB.

Table	Action	Rows	Type	Collation	Size
<input type="checkbox"/> admin		1	InnoDB	latin1_swedish_ci	16.0 KiB
<input type="checkbox"/> appt		6	InnoDB	latin1_swedish_ci	16.0 KiB
<input type="checkbox"/> doct		11	InnoDB	latin1_swedish_ci	16.0 KiB
<input type="checkbox"/> patient		11	InnoDB	latin1_swedish_ci	16.0 KiB
4 table(s) Sum		29	InnoDB	utf8mb4_general_ci	64 KiB

Figure 14: hospital Database

Server: 127.0.0.1 » Database: hospital » Table: admin

Showing rows 0 - 0 (1 total, Query took 0.0005 seconds.)

```
SELECT * FROM `admin`
```

Number of rows: 25 Filter rows: Search this table

+ Options

	admin_id	user	pass
<input type="checkbox"/> Edit Copy Delete	1	yaswanth@gmail.com	yaswanth

Check all With selected: Edit Copy Delete Export

Number of rows: 25 Filter rows: Search this table

Figure 15: Admin Table (Relation)

Server: 127.0.0.1 » Database: hospital » Table: appt

Showing rows 0 - 5 (6 total, Query took 0.0005 seconds.)

```
SELECT * FROM `appt`
```

Number of rows: 25 Filter rows: Search this table

+ Options

	ano	adoctor	apatient	atime	ashow	adate
<input type="checkbox"/> Edit Copy Delete	1	1	1	12:12	Y	2021-12-12
<input type="checkbox"/> Edit Copy Delete	2	3	2	12:40	N	2020-10-22
<input type="checkbox"/> Edit Copy Delete	3	4	3	12:10	Y	2019-12-05
<input type="checkbox"/> Edit Copy Delete	4	4	4	12:10	N	2021-04-20
<input type="checkbox"/> Edit Copy Delete	5	6	4	10:10	Y	2021-05-19
<input type="checkbox"/> Edit Copy Delete	6	11	11	11:15	Y	2021-05-21

Check all With selected: Edit Copy Delete Export

Figure 16: Appointment Table (Relation)

Server: 127.0.0.1 » Database: hospital » Table: doct

Showing rows 0 - 10 (11 total, Query took 0.0006 seconds.)

SELECT * FROM `doct`

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

		dno	dname	dspec	dshow
<input type="checkbox"/>	Edit	1	Doctor 1	Heart	Y
<input type="checkbox"/>	Edit	2	Doctor 2	Lungs	N
<input type="checkbox"/>	Edit	3	Doctor 3	Kidney	N
<input type="checkbox"/>	Edit	4	Doctor 4	Cold	Y
<input type="checkbox"/>	Edit	5	Doctor 5	Eyes	Y
<input type="checkbox"/>	Edit	6	Doctor 6	Food Poisoning	Y
<input type="checkbox"/>	Edit	7	Doctor 7	COVID	Y
<input type="checkbox"/>	Edit	8	Doctor 8	Fungal Infection	Y
<input type="checkbox"/>	Edit	9	Doctor 9	Knee Pains	N
<input type="checkbox"/>	Edit	10	Doctor 10	Swelling	N
<input type="checkbox"/>	Edit	11	Dr.Yaswanth	Surgery	Y

☐ Check all | With selected: Edit Copy Delete Export

Figure 17: Doctor Table (Relation)

Server: 127.0.0.1 » Database: hospital » Table: patient

Showing rows 0 - 10 (11 total, Query took 0.0005 seconds.)

SELECT * FROM `patient`

☐ Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

		pno	pname	paddr	psex	pshow
<input type="checkbox"/>	Edit	1	Patient 1	Hyderabad	M	Y
<input type="checkbox"/>	Edit	2	Patient 2	Warangal	F	Y
<input type="checkbox"/>	Edit	3	Patient 3	Delhi	M	Y
<input type="checkbox"/>	Edit	4	Patient 4	Noida	M	Y
<input type="checkbox"/>	Edit	5	Patient 5	Amaravati	F	Y
<input type="checkbox"/>	Edit	6	Patient 6	Guntur	F	Y
<input type="checkbox"/>	Edit	7	Patient 7	Rajahmundry	F	N
<input type="checkbox"/>	Edit	8	Patient 8	Ongole	F	N
<input type="checkbox"/>	Edit	9	Patient 8	Khammam	F	N
<input type="checkbox"/>	Edit	10	Patient 10	Vizag	M	N
<input type="checkbox"/>	Edit	11	Y Naidu	VITAP	M	Y

☐ Check all | With selected: Edit Copy Delete Export

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.

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