DBMS - Mini Project

COVID BED SLOT MANAGEMENT

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Short Description and Scope of the Project

- Main aim of the project is for covid patients to be able book beds in hospitals.
- The project consists of 5 tables. User login table, Staff Login table, User table, Booking patient table and the Hospital Data Table.
- Each table has Operations, such as Add, View, Update and Delete.

Scope:

A Covid bed allotment database management system is a computerized system that helps manage the allocation of hospital beds for patients with Covid-19.
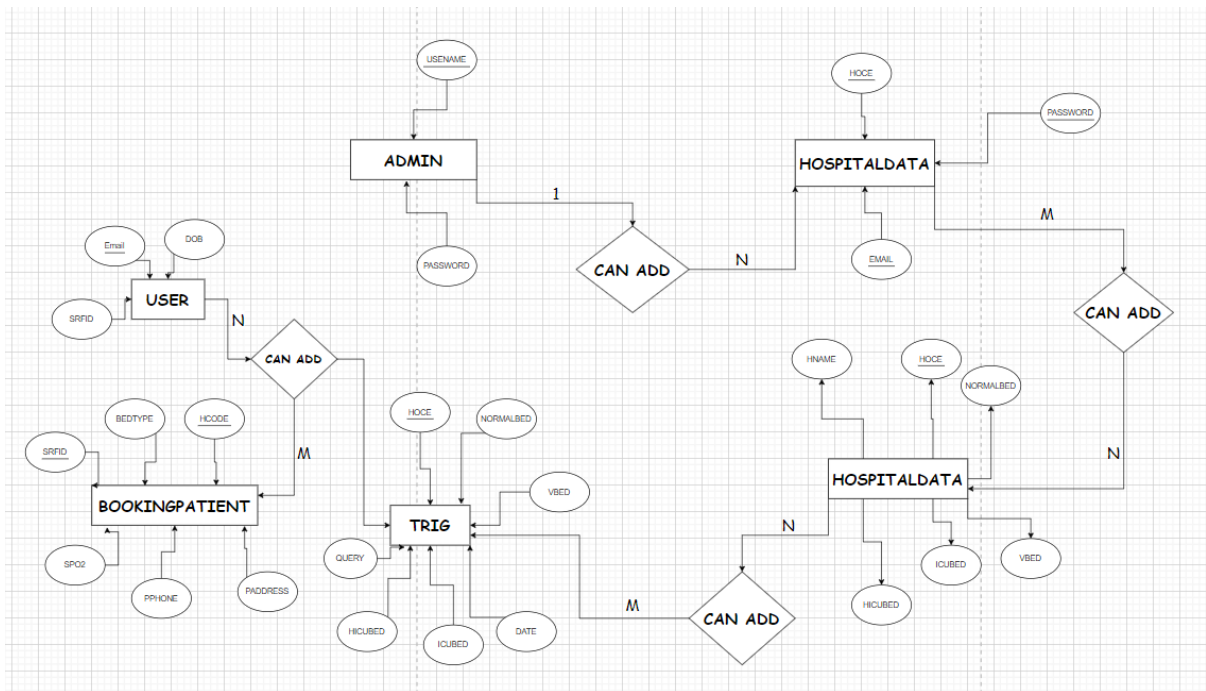It is designed to ensure that hospitals have enough beds available to accommodate all incoming patients, as well as provide an efficient way to track and monitor patient occupancy rates.
The system can also be used to identify potential areas of overcrowding or underutilization in order to better allocate resources.
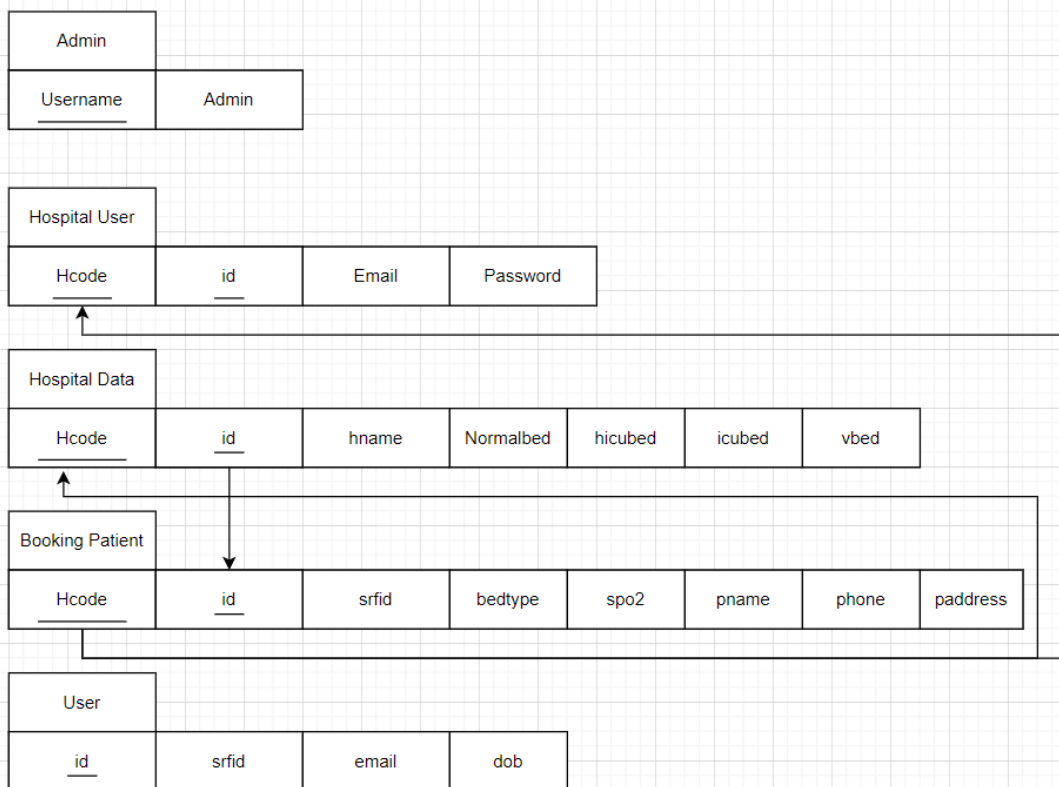The main features of this type of system include an automated bed allocation algorithm which takes into account the availability of beds, patient history and current medical condition when assigning a bed.
Real-time tracking capabilities so administrators can view up-to-date information on who has been admitted and which beds are currently occupied.

ER Diagram:

Relational Schema:

Admin

Username	Admin

Hospital User

Hcode	id	Email	Password

Hospital Data

Hcode	id	hname	Normalbed	hicubed	icubed	vbed

Booking Patient

Hcode	id	srfid	bedtype	spo2	pname	phone	paddress

User

id	srfid	email	dob

DLL Statements – Building the Database

```python
def create_bookingpatient_table():
    c.execute('CREATE TABLE IF NOT EXISTS `bookingpatient` ( `id` int(11)
    NOT NULL,srfid varchar(50) NOT NULL,bedtype varchar(50) NOT NULL,hcode
    varchar(50) NOT NULL,spo2 int(11) NOT NULL,pname varchar(50) NOT
    NULL,pphone varchar(12) NOT NULL,paddress text NOT NULL);')
```

```python
def create_hospitaldata_table():
    c.execute('CREATE TABLE IF NOT EXISTS `hospitaldata` (`id` int(11) NOT
    NULL,`hcode` varchar(200) NOT NULL,`hname` varchar(200) NOT
    NULL,`normalbed` int(11) NOT NULL,`hicubed` int(11) NOT NULL,`icubed`
    int(11) NOT NULL,`vbed` int(11) NOT NULL);')
```

```python
def create_hospitaluser_table():
    c.execute('CREATE TABLE IF NOT EXISTS `hospitaluser` (`id` int(11) NOT
    NULL,`hcode` varchar(20) NOT NULL,`email` varchar(100) NOT NULL,`password`
    varchar(1000) NOT NULL);')
```

```python
def create_test_table():
    c.execute('CREATE TABLE IF NOT EXISTS `test` (`id` int(11) NOT NULL,`name`
    varchar(50) NOT NULL);')
```

```python
def create_user_table():
    c.execute('CREATE TABLE IF NOT EXISTS `user` (`id` int(11) NOT
    NULL,`srfid` varchar(20) NOT NULL,`email` varchar(100) NOT NULL,`dob`
    varchar(1000) NOT NULL);')
```

Populating the Database

Booking Patient:

id	srfid	bedtype	hcode	spo2	pname	pphone	paddress
3	KA20210011	Normal Bed	MAT123	85	ARK	9986786453	bangalore
4	KA20210022	ICU Bed	BBH01	92	kartik	8088131784	bangalore
5	KA20210033	Normal Bed	MAT123	81	amogh	8088828292	Mangalore
6	KA20210044	ICU Bed	BBH01	95	chinmay	9987728913	bangalore
7	KA20210055	ICU Bed	BBH01	88	Rida	7348991204	mangalore
8	KA20210066	Normal Bed	MAT123	87	Anuj	7348993574	bangalore

Hospital data:

id	hcode	hname	normalbed	hicubed	icubed	vbed	add_date
4	BBH01	Apollo Hospital	30	3	3	1	*NULL*
5	MAT123	Matha Hospital	50	2	4	1	*NULL*
6	BBH01	Apollo Hospital	60	4	3	1	*NULL*
7	MAT123	Matha Hospital	20	5	4	2	*NULL*
3	MAT123	Matha Hospital	40	4	4	1	2022-11-23 00:02:28

Hospital User:

id	hcode	email	password
3	MAT123	aryanpuranik@gmail.com	abcd
4	BBH01	arkprocoder@gmail.com	mnop
5	MAT123	bdbdbb@gmail.com	qwerty
6	BBH01	dbmsdbms@gmail.com	asdfg
7	MAT123	aryanpuar@gmail.com	zxcvc
20	MAT123	abc@gmail.com	abc

Test:

id	name
3	ARK
4	kartik
5	amogh
6	chinmay
7	Rida

User:

id	srfid	email	dob
4	KA20210022	arkprocoder@gmail.com	2021-10-23
5	KA20210033	bdbdbb@gmail.com	2021-10-12
6	KA20210044	dbmsdbms@gmail.com	2021-09-18
7	KA20210055	aryanpuar@gmail.com	2021-11-12
3	KA20210011	aryanpuranik@gmail.com	2021-11-26

Join Queries:

Write the query in English Language, Show the equivalent SQL statement and also a screenshot of the query and the results

1) <u>To display booking patient details with hospital data details</u>

select * from bookingpatient inner join hospitaldata on
bookingpatient.id=hospitaldata.id;

id	srfid	bedtype	hcode	spo2	pname	pphone	paddress	id	hcode	hname	normalbed	hicubed	icubed	vbed	add_date
3	KA20210011	Normal Bed	MAT123	85	ARK	9986786453	bangalore	3	MAT123	Matha Hospital	40	4	4	1	2022-11-23 00:02:28
4	KA20210022	ICU Bed	BBH01	92	kartik	8088131784	bangalore	4	BBH01	Apollo Hospital	30	3	3	1	NULL
5	KA20210033	Normal Bed	MAT123	81	amogh	8088828292	Mangalore	5	MAT123	Matha Hospital	50	2	4	1	NULL
6	KA20210044	ICU Bed	BBH01	95	chinmay	9987728913	bangalore	6	BBH01	Apollo Hospital	60	4	3	1	NULL
7	KA20210055	ICU Bed	BBH01	88	Rida	7348991204	mangalore	7	MAT123	Matha Hospital	20	5	4	2	NULL

2) <u>Display hospitaldata and hospitaluser data based on hospital code</u>

<u>SELECT * from hospitaldata join hospitaluser WHERE
hospitaldata.hcode=hospitaluser.hcode;</u>

id	hcode	hname	normalbed	hicubed	icubed	vbed	add_date	id	hcode	email	password
5	MAT123	Matha Hospital	50	2	4	1	NULL	3	MAT123	aryanpuranik@gmail.com	abcd
7	MAT123	Matha Hospital	20	5	4	2	NULL	3	MAT123	aryanpuranik@gmail.com	abcd
3	MAT123	Matha Hospital	40	4	4	1	2022-11-23 00:02:28	3	MAT123	aryanpuranik@gmail.com	abcd
4	BBH01	Apollo Hospital	30	3	3	1	NULL	4	BBH01	arkprocoder@gmail.com	mnop
6	BBH01	Apollo Hospital	60	4	3	1	NULL	4	BBH01	arkprocoder@gmail.com	mnop
5	MAT123	Matha Hospital	50	2	4	1	NULL	5	MAT123	bdbdbb@gmail.com	qwerty
7	MAT123	Matha Hospital	20	5	4	2	NULL	5	MAT123	bdbdbb@gmail.com	qwerty
3	MAT123	Matha Hospital	40	4	4	1	2022-11-23 00:02:28	5	MAT123	bdbdbb@gmail.com	qwerty
4	BBH01	Apollo Hospital	30	3	3	1	NULL	6	BBH01	dbmsdbms@gmail.com	asdfg
6	BBH01	Apollo Hospital	60	4	3	1	NULL	6	BBH01	dbmsdbms@gmail.com	asdfg
5	MAT123	Matha Hospital	50	2	4	1	NULL	7	MAT123	aryanpuar@gmail.com	zxcvc
7	MAT123	Matha Hospital	20	5	4	2	NULL	7	MAT123	aryanpuar@gmail.com	zxcvc
3	MAT123	Matha Hospital	40	4	4	1	2022-11-23 00:02:28	7	MAT123	aryanpuar@gmail.com	zxcvc

Aggregate Functions

Write the query in English Language, Show the equivalent SQL statement and also a screenshot of the query and the results

1) To count number of beds in each hospital :
   SELECT COUNT(*),bedtype from bookingpatient GROUP BY bedtype;

COUNT(*)	bedtype
3	ICU Bed
3	Normal Bed

2) To count number hicubeds in each hospital based on hospitalcode
SELECT hcode,COUNT(*) FROM hospitaldata GROUP BY hicubed;

hcode	COUNT(*)
MAT123	1
BBH01	1
BBH01	2
MAT123	1

3)To display the total number of NORMAL beds in hospital code MAT123
select hname,sum(normalbed) from hospitaldata where hcode = 'MAT123' group by hcode;

hname	sum(normalbed)
Matha Hospital	110

4)To display the total number of NORMAL beds in hospital code BBH01
select hname,sum(normalbed) from hospitaldata where hcode = 'BBH01' group by hcode;

hname	sum(normalbed)
Apollo Hospital	90

Set Operations

1) <u>Union – Doing union operation of bookingpatient and hospitaldata</u>

<u>SELECT * FROM hospitaldata UNION SELECT * FROM bookingpatient;</u>

id	hcode	hname	normalbed	hicubed	icubed	vbed	add_date
4	BBH01	Apollo Hospital	30	3	3	1	*NULL*
5	MAT123	Matha Hospital	50	2	4	1	*NULL*
6	BBH01	Apollo Hospital	60	4	3	1	*NULL*
7	MAT123	Matha Hospital	20	5	4	2	*NULL*
3	MAT123	Matha Hospital	40	4	4	1	2022-11-23 00:0
3	KA20210011	Normal Bed	MAT123	85	ARK	9986786453	bangalore
4	KA20210022	ICU Bed	BBH01	92	kartik	8088131784	bangalore
5	KA20210033	Normal Bed	MAT123	81	amogh	8088828292	Mangalore
6	KA20210044	ICU Bed	BBH01	95	chinmay	9987728913	bangalore
7	KA20210055	ICU Bed	BBH01	88	Rida	7348991204	mangalore
8	KA20210066	Normal Bed	MAT123	87	Anuj	7348993574	bangalore

Functions and Procedures

Create a Function and Procedure. State the objective of the function / Procedure. Run and display the results.

1) Creating a function which will takein the Hospital code and display the Number of normalbeds in that hospital.

Details

Routine name	number_of_beds
Type	FUNCTION

	Name	Type	Length/Values	Options	
Parameters	hcode_1	VARCHAR	25	Charset	🔴 Drop

Add parameter

Return type	INT
Return length/values	11
Return options	

```
1  BEGIN
2  DECLARE temp int;
3  select sum(normalbed) into temp from hospitaldata where hcode = hcode_1 group by hcode;
4  return temp;
5  END
```

Result:

Execution results of routine `number_of_beds`

number_of_beds

110

2) Creating a Procedure which will take in the Hospital ID and give the name of the hospital.

Details

Routine name	hospital_name
Type	PROCEDURE ∨

	Direction	Name	Type	Length/Values	Options	
Parameters	IN ∨	userid	INT ∨	25	∨	🔴 Drop

Add parameter

```
1  select hospitaldata.hname, user.id from hospitaldata inner join user on hospitaldata.id = user.id where user.id=userid
```

RESULT

Execution results of routine `hospital_name`

hname	id
Matha Hospital	3

Triggers and Cursors

Create a Trigger and a Cursor. State the objective. Run and display the results.

A trigger t1 was created on the entry table in which as soon as the details are entered there will be no manual entry of datetime but a automatic one due to this trigger

```
MariaDB [pes1ug20cs081_lab10]> DELIMITER $$
MariaDB [pes1ug20cs081_lab10]> create trigger t1
    -> before INSERT on hospitaldata for each row
    -> begin
    -> declare dt datetime;
    -> select now() into dt;
    -> set new.add_date=dt;
    -> end
    -> $$
Query OK, 0 rows affected (0.788 sec)
```

Result:

id	hcode	hname	normalbed	hicubed	icubed	vbed	add_date
4	BBH01	Apollo Hospital	30	3	3	1	NULL
5	MAT123	Matha Hospital	50	2	4	1	NULL
6	BBH01	Apollo Hospital	60	4	3	1	NULL
7	MAT123	Matha Hospital	20	5	4	2	NULL
3	MAT123	Matha Hospital	40	4	4	1	2022-11-23 00:02:28

The curent date and time is automatically added in the column add_date.

A cursor is normally used in the python scripting which is needed to handle all the CRUD operations:

```python
import mysql.connector

mydb = mysql.connector.connect(
    host="localhost",
    user="root",
    database="pes1ug20cs081_lab10"
)
c = mydb.cursor()
```

Developing a Frontend

The frontend should support
  1. Addition, Modification and Deletion of records from any chosen table
  2. There should be an window to accept and run any SQL statement and display the result

CRUD Operations shown are done on the BookingPatient table

Add:

Shown 3 tables for example

Booking Patient:

Covid Bed Slot Management

Patient Details:

View all Bookings

	id	srfid	bedtype	hcode	spo2	pname	pphone	paddress
0	3	KA20210011	Normal Bed	MAT123	85	ARK	9986786453	bangalore
1	4	KA20210022	ICU Bed	BBH01	92	kartik	8088131784	bangalore
2	5	KA20210033	Normal Bed	MAT123	81	amogh	8088828292	Mangalore
3	6	KA20210044	ICU Bed	BBH01	95	chinmay	9987728913	bangalore
4	7	KA20210055	ICU Bed	BBH01	88	Rida	7348991204	mangalore
5	8	KA20210066	Normal Bed	MAT123	87	Anuj	7348993574	bangalore
6	8	KA129031	Normal Bed	MAT123	88	Ram	83942239481	STREET 1234

Hospital Data:

Covid Bed Slot Management

Hospital Data:

View Hospital User data

	id	hcode	hname	normalbed	hicubed	icubed	vbed	add_date
0	4	BBH01	Apollo Hospital	30	3	3	1	<NA>
1	5	MAT123	Matha Hospital	50	2	4	1	<NA>
2	6	BBH01	Apollo Hospital	60	4	3	1	<NA>
3	7	MAT123	Matha Hospital	20	5	4	2	<NA>
4	3	MAT123	Matha Hospital	40	4	4	1	2022-11-23T00:02:28

Hospital User / Staff Login:

Edit:
Before Updating:

Enter staff Details

	id	hcode	email	password
0	3	MAT123	aryanpuranik@gmail.com	abcd
1	4	BBH01	arkprocoder@gmail.com	mnop
2	5	MAT123	bdbdbb@gmail.com	qwerty
3	6	BBH01	dbmsdbms@gmail.com	asdfg
4	7	MAT123	aryanpuar@gmail.com	zxcvc
5	20	MAT123	abc@gmail.com	abc

Current Booking Patient Table

After Updating:

Successfully updated:: 20 to ::20

Updated data

	id	hcode	email	password
0	3	MAT123	aryanpuranik@gmail.com	abcd
1	4	BBH01	arkprocoder@gmail.com	mnop
2	5	MAT123	bdbdbb@gmail.com	qwerty
3	6	BBH01	dbmsdbms@gmail.com	asdfg
4	7	MAT123	aryanpuar@gmail.com	zxcvc
5	20	BBH01	abc@gmail.com	ajkdndfa

Delete:

Before Deleting:

Current data

	id	hcode	email	password
0	3	MAT123	aryanpuranik@gmail.com	abcd
1	4	BBH01	arkprocoder@gmail.com	mnop
2	5	MAT123	bdbdbb@gmail.com	qwerty
3	6	BBH01	dbmsdbms@gmail.com	asdfg
4	7	MAT123	aryanpuar@gmail.com	zxcvc
5	20	BBH01	abc@gmail.com	ajkdndfa

After Deleting:

Delete Hospital User

Hospital User has been deleted successfully

Updated data ^

	id	hcode	email	password
0	3	MAT123	aryanpuranik@gmail.com	abcd
1	4	BBH01	arkprocoder@gmail.com	mnop
2	5	MAT123	bdbdbb@gmail.com	qwerty
3	6	BBH01	dbmsdbms@gmail.com	asdfg
4	7	MAT123	aryanpuar@gmail.com	zxcvc

Showing SQL Queries via Front-end:

1)

Type in your Query

Type your query here:

    select * from bookingpatient;

	0	1	2	3	4	5	6	7
0	3	KA20210011	Normal Bed	MAT123	85	ARK	9986786453	bangalore
1	4	KA20210022	ICU Bed	BBH01	92	kartik	8088131784	bangalore
2	5	KA20210033	Normal Bed	MAT123	81	amogh	8088828292	Mangalore
3	6	KA20210044	ICU Bed	BBH01	95	chinmay	9987728913	bangalore
4	7	KA20210055	ICU Bed	BBH01	88	Rida	7348991204	mangalore
5	8	KA20210066	Normal Bed	MAT123	87	Anuj	7348993574	bangalore
6	8	KA129031	Normal Bed	MAT123	88	Ram	83942239481	STREET 1234

2)

Type in your Query

Type your query here:

    select * from bookingpatient inner join hospitaldata;

	0	1	2	3	4	5	6	7	8	9
0	3	KA20210011	Normal Bed	MAT123	85	ARK	9986786453	bangalore	4	BBH01
1	3	KA20210011	Normal Bed	MAT123	85	ARK	9986786453	bangalore	5	MAT123
2	3	KA20210011	Normal Bed	MAT123	85	ARK	9986786453	bangalore	6	BBH01
3	3	KA20210011	Normal Bed	MAT123	85	ARK	9986786453	bangalore	7	MAT123
4	3	KA20210011	Normal Bed	MAT123	85	ARK	9986786453	bangalore	3	MAT123
5	4	KA20210022	ICU Bed	BBH01	92	kartik	8088131784	bangalore	4	BBH01
6	4	KA20210022	ICU Bed	BBH01	92	kartik	8088131784	bangalore	5	MAT123
7	4	KA20210022	ICU Bed	BBH01	92	kartik	8088131784	bangalore	6	BBH01
8	4	KA20210022	ICU Bed	BBH01	92	kartik	8088131784	bangalore	7	MAT123
9	4	KA20210022	ICU Bed	BBH01	92	kartik	8088131784	bangalore	3	MAT123