DBMS PROJECT

NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL

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DATABASE MANAGEMENT SYSTEM PROJECT

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PROBLEM STATEMENT

In this project, we aim to create a database management system to store the data of medical treatments going all over the world. We aim to store the data of patients, doctors and hospitals along with all the reports and prescriptions.

We have created this database with the aim to store the medical information of the people so that it could help the doctors to create a more effective way to treat the patients and to also to corelate the various diseases and symptoms.

This will help doctors in detecting various dangerous diseases like cancer, tumer, etc which are difficult to detect initially and whose symptoms are generally ignored in beginning.

It would be more useful in developing nations which lack good medical infrastructure.

It will help the government, world health organization and many other organizations in devising more precise health programmes.

CONTENTS

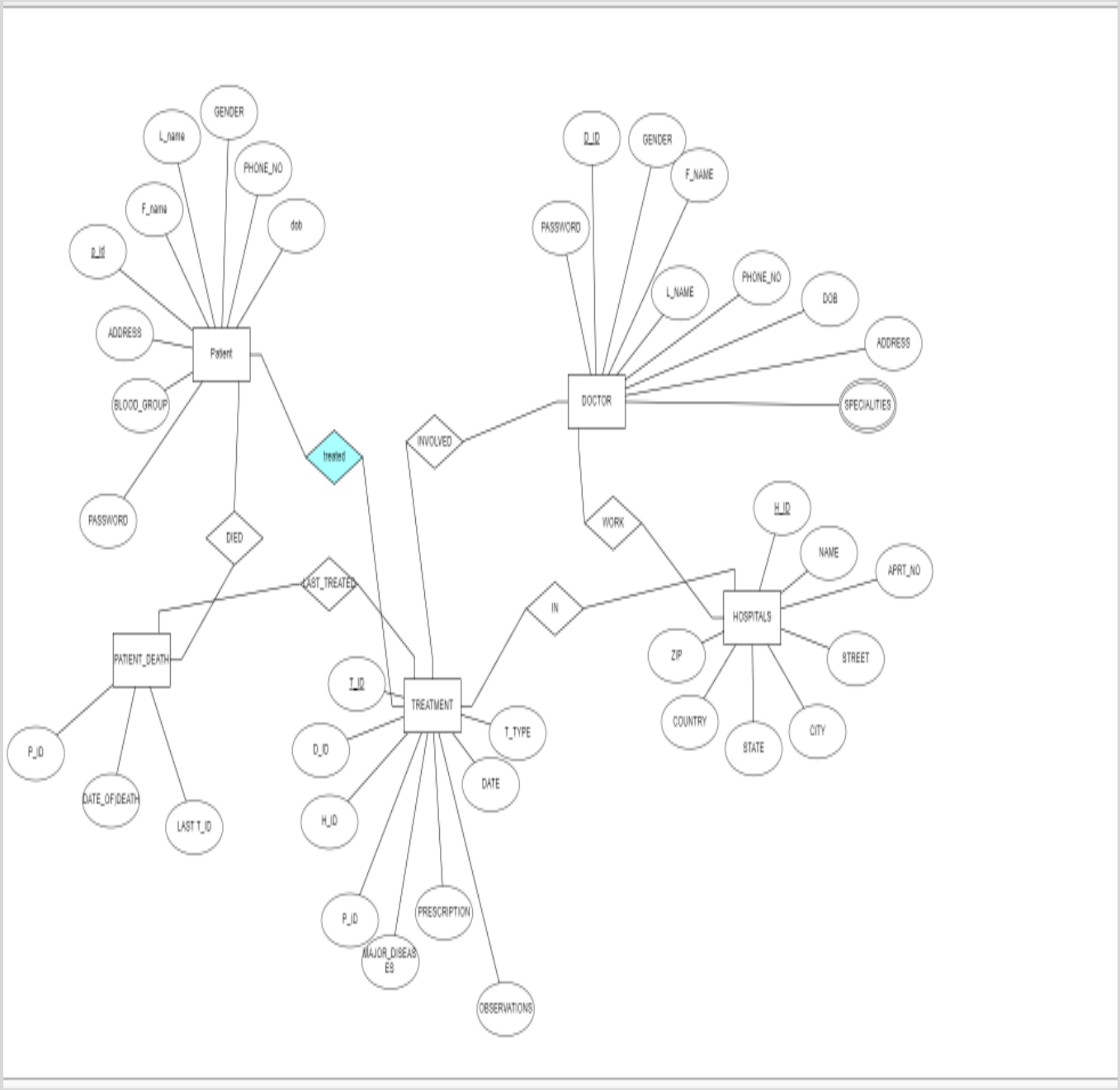
INTRODUCTION

This medical database management system aims to maintain the records of medical background of people so that it can be used in later treatment. It stores the information of patients, doctors and hospitals along with the data of prescriptions and diseases.

Advantages of this system:

- Can be used to make census
- It gives various information regarding health of population in a region. So, it can be used by government agencies to create a precise health plan.
- It provides various vital information like birth rate, death rate, infant mortality rate. So it can be used to rank nations, states and a region on the basis of medical facility.
- Most important thing it can be used by doctors and researchers over the globe in analyzing the diseases as it provides the data of spread of diseases.
- It can be used to warn the world regarding some new diseses.
- It can be used to treat the people more precisely on the basis of his/her medical backgound.

ER DIAGRAM


GENDER
L_name
PHONE_NO
F_name
dob
P_Id
ADDRESS
Patient
BLOOD_GROUP
PASSWORD
DIED
treated
D_ID
GENDER
F_NAME
PASSWORD
L_NAME
PHONE_NO
DOB
ADDRESS
DOCTOR
SPECIALITIES
INVOLVED
WORK
H_ID
NAME
APRT_NO
HOSPITALS
ZIP
STREET
COUNTRY
STATE
CITY
IN
LAST_TREATED
PATIENT_DEATH
P_ID
DATE_OF_DEATH
LAST T_ID
T_ID
TREATMENT
D_ID
T_TYPE
DATE
H_ID
P_ID
PRESCRIPTION
MAJOR_DISEASES
OBSERVATIONS

Entities and functional dependency:

1. PATIENT

It contains information regarding patients

(p_id, f_ name, L_name, dob, gender, phone_no, password, Blood_group, Address)

p_id is unique.

Relational dependency:

p_id -> (f_ name, L_name, dob, gender, phone_no, password, Blood_group)

It is normalized. It is in BCNF.

p_id	number	pk
f_name	varchar	
L_name	varchar	
dob	date	
Phone_no	number	
password	varchar	
Blood_group	varchar	
address	varchar	
gender	varchar	

2. DOCTOR

It contains information of doctors.

(d_id, f_name, L_name, phone_no, dob, address,specialities,password,gender)

d_id is unique

As we know that a doctor may have more than one specialities. So, it is not in 1NF.

Normalizing it, we get two tables:-

- Doctor

  (d_id, f_name, L_name, phone_no, dob, address,password,gender)

d_id	number	pk
f_name	varchar	
L_name	varchar	
phone	number	
dob	date	
address	varchar	
password	varchar	
gender	varchar	

- Doctor_specialities

  (d_id,specialities)

d_id	number	fk
specialities	varchar	

d_id is foreign key refering to doctor table.

Tables are in normal form upto BCNF.

3. Hospitals

It contains information regarding hospitals.

(h_id, name, apartment_no, street, city,state, country, zip)

h_id ->(name, apartment_no, street, city, country, zip)

h_id is unique.

It is in normal formal upto BCNF.

h_id	number	pk
name	varchar	
Apartment_no	varchar	
state	varchar	
city	varchar	
country	varchar	
zip	number	

4. Treatment

It contains information regarding treatment of person.

(t_id,treatment_type,date, observation, major_disease, p_id,h_id,d_id,prescription)

There are chances that more than one doctors are involved in a particular treatment. So, it is not in 1NF

Normalizing it:

- Treatment

(t_id,treatment_type,date, observation, major_disease ,p_id,h_id,prescription)

t_id	number	pk
Treatment_type	Varchar	
disease		
date	date	
observation	Varchar	
P_id	number	fk
H_id	number	fk
prescription	varchar	

- Doctor_treatment

  (t_id,d_id)

T_id	fk
D_id	fk

5.work

Relation between doctor an d hospital)

(d_id,h_d)

D_id	fk
H_id	fk

6. Patient_death

It contains the data of patients died.

(p_id,date_of_date,t_id)

P_id	
Date_of_death	
T_id	

TABLE CREATION AND INSERTION

```
create table patient
(
   p_id number primary key,
   f_name varchar(50),
   L_name varchar(50),
   dob date,
   gender varchar(1),
   phone_no number,
   password varchar(50),
   Blood_group varchar(10),
   Address varchar(100)
```

```
);

INSERT INTO PATIENT VALUES(1,'RAMU','VANAPARTHI','12-03-
97','M',5623894178,'ADC@12','A+','1-45 EAST MUMBAI');

INSERT INTO PATIENT VALUES(2,'RAGHU','CHIMTHA','22-10-
87','M',9545294568,'RC@218','AB+','1-55 WEST CHENNAI');

INSERT INTO PATIENT VALUES(3,'RAJESHWARI','CHOUDHARY','15-07-
77','F',8956751514,'RAC@1','O+','1-5 MIYAPUR HYDERABAD');

INSERT INTO PATIENT VALUES(4,'SRINIDHI','VASUDEVA','18-09-
95','F',6319164166,'SVA@109','B-','2-2-5 NEW DEHLI');

INSERT INTO PATIENT VALUES(5,'ROSHAN','KURE','19-06-
02','M',7515486325,'RK@196','O-','1-5-6 BANGALORE');


create table doctor

(

   d_id number primary key,

   f_name varchar(50),

   L_name varchar(50),

   phone_no number,

   dob date,

   address varchar(100),

   password varchar(50),

   gender varchar(1)

);

INSERT INTO DOCTOR VALUES(101,'RANJAN','HINDHRE', 7545859513,'12-12-
96','1-7 EAST MUMBAI','RHC@719','M');
```

```
INSERT INTO DOCTOR VALUES(375,'RAMESH','MEHRA', 8956751556,'02-02-89','1-98 KPHB HYDERABAD','RMN@328','M');

INSERT INTO DOCTOR VALUES(562,'SHREYA','SHARMA', 9565294573,'15-11-86','1-7 EAST DEHLI','SSG@118','F');

INSERT INTO DOCTOR VALUES(771,'RANJANI','RAGHAVAN', 7365257841,'16-10-76','2-5 WEST CHENNAI','RRO@125','F');

INSERT INTO DOCTOR VALUES(962,'SHRAVANI','RATHOD',6545859513,'10-12-99','1-7 NORTH BANGALORE','SRWE@719','F');

create table doctor_specialities

(

   did number,

   specialities varchar(50),

   foreign key (did) references doctor(d_id)

);

INSERT INTO DOCTOR_SPECIALITIES VALUES(101, 'CARDIOLOGY');

INSERT INTO DOCTOR_SPECIALITIES VALUES(771, 'ONCOLOGY');

INSERT INTO DOCTOR_SPECIALITIES VALUES(375, 'NEUROLOGY');

INSERT INTO DOCTOR_SPECIALITIES VALUES(562, 'GYNAECOLOGY');

INSERT INTO DOCTOR_SPECIALITIES VALUES(962, 'SURGERY');

create table hospital

(

   h_id number primary key,

   name varchar(50),

   apartment_no number,

   street varchar(50),
```

```
    city varchar(50),
    state varchar(20),
    country varchar(50),
    zip number
);
INSERT INTO HOSPITAL
VALUES(112233,'YASHODA',32,'H_STREET','HYDERABAD','TELANGANA','INDIA',
500022);
INSERT INTO HOSPITAL VALUES(215635,'APOLLO',45,'D_STREET','DEHLI','NEW
DEHLI','INDIA',110022);
INSERT INTO HOSPITAL
VALUES(356625,'RAGHAVENDRA',52,'K_STREET','BANGALORE','KARNATAKA','I
NDIA',560002);
INSERT INTO HOSPITAL
VALUES(586452,'CHINNADEVARAN',75,'AK_STREET','CHENNAI','TAMILNADU','I
NDIA',600022);
INSERT INTO HOSPITAL
VALUES(785856,'LILAVATI',82,'HAG_STREET','MUMBAI','MAHARASTHRA','INDI
A',400022);
create table treatment
(
    t_id number primary key,
    treatment_type varchar(100),
    observation varchar(50),
    date_of_admission date,
    doctor_view varchar(50),
```

```
    pid number,
    hid number,
    prescription varchar(50),
    foreign key (pid) references patient(p_id),
    foreign key (hid) references hospital(h_id)
);
INSERT INTO TREATMENT VALUES(1101,'ARDIOVERSION THERAPY','ATRIAL
FIBRILLATION','12-05-17', 'DIZZINESS',1,785856,'AMIODARONE');
INSERT INTO TREATMENT VALUES(2771,'CHEMOTHERAPY','LUNG CANCER','19-
07-15','LOSS OF APPETITE',2,586452,'DOCETAXEL');
INSERT INTO TREATMENT VALUES(5962,'SURGERY','IBD','12-05-17',
'ABDOMINAL PAIN',5,356625,'MESALAMINE');
INSERT INTO TREATMENT VALUES(3375,'TABLETS','EPILEPSY','12-08-
20','ANXIETY',3,112233,'DEPAKENE');
INSERT INTO TREATMENT VALUES(4562,'HORMONE
THERAPY','ENDOMETRIOSIS','12-08-16', 'PAIN IN
ABDOMEN',4,215635,'ORILISSA');

create table treatment_doctor
(
    Tid number,
    Did number,
    foreign key (Tid) references treatment(t_id),
    foreign key (did) references doctor(d_id)
);
```

```
INSERT INTO TREATMENT_DOCTOR VALUES(1101,101);
INSERT INTO TREATMENT_DOCTOR VALUES(2771,771);
INSERT INTO TREATMENT_DOCTOR VALUES(3375,375);
INSERT INTO TREATMENT_DOCTOR VALUES(4562,562);
INSERT INTO TREATMENT_DOCTOR VALUES(5962,962);

create table patient_death
(
   pid number,
   date_of_death date,
   tid number,
   foreign key (pid) references patient(p_id),
   foreign key (tid) references treatment(t_id)
);
INSERT INTO PATIENT_DEATH VALUES(1,NULL,1101);
INSERT INTO PATIENT_DEATH VALUES(2,NULL,2771);
INSERT INTO PATIENT_DEATH VALUES(3,'14-08-20',3375);
INSERT INTO PATIENT_DEATH VALUES(4,NULL,4562);
INSERT INTO PATIENT_DEATH VALUES(5,NULL,5962);
create table work
(
   Did number,
   Hid number,
```

```
    foreign key (hid) references hospital(h_id),
    foreign key (did) references doctor(d_id)
);
INSERT INTO WORK VALUES(101,785856);
INSERT INTO WORK VALUES(375,112233);
INSERT INTO WORK VALUES(562,215635);
INSERT INTO WORK VALUES(771,586452);
INSERT INTO WORK VALUES(962,356625);
```

TABLES:

PATIENT

	P_ID	F_NAME	L_NAME	DOB	GENDER	PHONE_NO	PASSWORD	BLOOD_GROUP	ADDRESS
1	1	RAMU	VANAPARTHI	12-03-97	M	5623894178	ADC@12	A+	1-45 EAST MUMBAI
2	2	RAGHU	CHIMTHA	22-10-87	M	9545294568	RC@218	AB+	1-55 WEST CHENNAI
3	3	RAJESHWARI	CHOUDHARY	15-07-77	F	8956751514	RAC@1	O+	1-5 MIYAPUR HYDERABAD
4	4	SRINIDHI	VASUDEVA	18-09-95	F	6319164166	SVA@109	B-	2-2-5 NEW DEHLI
5	5	ROSHAN	KURE	19-06-02	M	7515486325	RK@196	O-	1-5-6 BANGALORE

DOCTOR

	D_ID	F_NAME	L_NAME	PHONE_NO	DOB	ADDRESS	PASSWORD	GENDER
1	101	RANJAN	HINDHRE	7545859513	12-12-96	1-7 EAST MUMBAI	RHC@719	M
2	375	RAMESH	MEHRA	8956751556	02-02-89	1-98 KPHB HYDERABAD	RMN@328	M
3	562	SHREYA	SHARMA	9565294573	15-11-86	1-7 EAST DEHLI	SSG@118	F
4	771	RANJANI	RAGHAVAN	7365257841	16-10-76	2-5 WEST CHENNAI	RRO@125	F
5	962	SHRAVANI	RATHOD	6545859513	10-12-99	1-7 NORTH BANGALORE	SRWE@719	F

DOCTORS_SPECIALITIES

	DID	SPECIALITIES
1	101	CARDIOLOGY
2	771	ONCOLOGY
3	375	NEUROLOGY
4	562	GYNAECOLOGY
5	962	SURGERY

HOSPITALS

	H_ID	NAME	APARTMENT_NO	STREET	CITY	STATE	COUNTRY	ZIP
1	112233	YASHODA	32	H_STREET	HYDERABAD	TELANGANA	INDIA	500022
2	215635	APOLLO	45	D_STREET	DEHLI	NEW DEHLI	INDIA	110022
3	356625	RAGHAVENDRA	52	K_STREET	BANGALORE	KARNATAKA	INDIA	560002
4	586452	CHINNADEVARAN	75	AK_STREET	CHENNAI	TAMILNADU	INDIA	600022
5	785856	LILAVATI	82	HAG_STREET	MUMBAI	MAHARASTHRA	INDIA	400022

TREATMENT

	T_ID	TREATMENT_TYPE	OBSERVATION	DATE_OF_ADMISSION	DOCTOR_VIEW	PID	HID	PRESCRIPTION
1	1101	ARDIOVERSION THERAPY	ATRIAL FIBRILLATION	12-05-17	DIZZINESS	1	785856	AMIODARONE
2	2771	CHEMOTHERAPY	LUNG CANCER	19-07-15	LOSS OF APPETITE	2	586452	DOCETAXEL
3	5962	SURGERY	IBD	12-05-17	ABDOMINAL PAIN	5	356625	MESALAMINE
4	3375	TABLETS	EPILEPSY	12-08-20	ANXIETY	3	112233	DEPAKENE
5	4562	HORMONE THERAPY	ENDOMETRIOSIS	12-08-16	PAIN IN ABDOMEN	4	215635	ORILISSA

PATIENT DEATH

	PID	DATE_OF_DEATH	TID
1	1	(null)	1101
2	2	(null)	2771
3	3	14-08-20	3375
4	4	(null)	4562
5	5	(null)	5962

WORK

	DID	HID
1	101	785856
2	375	112233
3	562	215635
4	771	586452
5	962	356625

DOCTOR_TREATMENT

	TID	DID
1	1101	101
2	2771	771
3	3375	375
4	4562	562
5	5962	962

QUERIES:

1. Number of patients died in 2020

```
select p.f_name, p.l_name, d.date_of_death
from patient p, patient_death d, treatment t
where p.p_id=d.pid and
d.tid=t.t_id and
d.date_of_death between '1-1-20' and '31-12-20';
```

	F_NAME	L_NAME	DATE_OF_DEATH
1	RAJESHWARI	CHOUDHARY	14-08-20

2. Patient id of all lung cancer patients

```
select P.p_id,p.f_name, p.l_name, t.observation
from patient p, patient_death d, treatment t
where p.p_id=d.pid and
d.tid=t.t_id and
t.observation='LUNG CANCER';
```

	P_ID	F_NAME	L_NAME	OBSERVATION
1	2	RAGHU	CHIMTHA	LUNG CANCER

3. Order the hospital and total patients visited them with respect number of visits

```
select name, count(*) as no_of_visits
from Hospital
group by name
order by count(*) desc;
```

	NAME	NO_OF_VISITS
1	APOLLO	1
2	CHINNADEVARAN	1
3	YASHODA	1
4	RAGHAVENDRA	1
5	LILAVATI	1

Conclusion:

We implemented a database management system that stores the medical history of patients and help the doctors and all related organizations in keeping a track of it.