

Project On Blood Donation Management



BY:

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TO:

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Creating initial tables with data:

```
create table person(  
    pid int,  
    p_name varchar(10),  
    p_dob date,  
    p_phone long,  
    p_address varchar(100),  
    p_bloodgroup varchar(5),  
    p_gender varchar(10),  
    p_medissues varchar(50),  
    primary key(pid));
```

```
describe person;
```

FieldType	Null	Key	Default	Extra
Pid	int	NO	PRI	NULL
p_name	varchar(10)	YES	NULL	
p_dob	date	YES	NULL	
p_phone	mediumtext	YES	NULL	
p_address	varchar(100)	YES	NULL	
p_bloodgroup	varchar(5)	YES	NULL	
p_gender	varchar(10)	YES	NULL	
p_medissues	varchar(50)	YES	NULL	

```
[Execution complete with exit code 0]
```

insert into person

(pid,p_name,p_dob,p_phone,p_address,p_bloodgroup,p_gender,p_medissues)

values

(1,'shiva','1982-11-09', 9567235103, 'hno-21,sai baba nagar colony,hyd','a+','M','none'),
 (2,'guna','2001-02-23', 8562947294,'hno-76,suraram colony,hyd','ab+','M','none'),
 (3,'mahina','2000-03-01', 7946385839,'hno-45,chandanagar, hyd','o-','F','none'),
 (4,'pradeep','1985-04-28', 8877452577,'plot no-1,kphb coloy,hyd','b+','M','none'),
 (5,'sri nalini','1992-07-03', 9769837769,'hno-9,ramana colony,hyd','o-','F','none'),
 (6,'prasad','1987-01-17', 8077452577,'hno-81,deepthinagar,hyd','o+','M','BP');

select * from person;

Pid	p_name	p_dob	p_phone	p_address	p_bloodgroup	p_gender	p_medissues
1	shiva	1982-11-09	9567235103	hno-21,sai baba nagar colony,hyd	a+	M	none
2	guna	2001-02-23	8562947294	hno-76,suraram colony,hyd	ab+	M	none
3	mahina	2000-03-01	7946385839	hno-45, chandanagar, hyd	o-	F	none
4	pradeep	1985-04-28	8877452577	plot no-1, kphb coloy,hyd	b+	M	none
5	sri nalini	1992-07-03	9769837769	hno-9,ramana Colony,hyd	o-	F	none
6	prasad	1987-01-17	8077452577	hno-81, Deepthinagar,hyd	o+	M	BP

[Execution complete with exit code 0]

```

create table receiver(
  r_id int,
  r_DateTime timestamp,
  quantity float,
  hospitalid int,
  h_name varchar(20),
  h_address varchar(100),
  h_phoneno long,
  primary key(r_id),
  foreign key(r_id) references person(pid));

```

```

describe receiver;

```

Field	Type	Null	Key	Default	Extra
r_id	int	NO	PRI	NULL	
r_DateTime	timestamp	YES	NULL		
quantity	float	YES	NULL		
hospitalid	int	YES	NULL		
h_name	varchar(20)	YES	NULL		
h_address	varchar(100)	YES	NULL		
h_phoneno	mediumtext	YES	NULL		

```

[Execution complete with exit code 0]

```

```

insert into
receiver(r_id,r_DateTime,quantity,hospitalid,h_name,h_address,h_phoneno)
values
(2,'2022-10-02 10:12:30',1,53626,'care','lingampalli',9364826484),
(5,'2022-09-10 20:54:12',1.8,75528,'padma','madinaguda',6394528463),
(1,'2022-01-01 18:51:01',1.5,75528,'padma','madinaguda',6394528463);

```

```
select * from receiver;
```

r_id	r_DateTime	quantity	hospitalid	h_name	h_address	h_phoneno
1	2022-01-01 18:51:01	1.5	75528	padma	madinaguda	6394528463
2	2022-10-02 10:12:30	1	53626	care	lingampalli	9364826484
5	2022-09-10 20:54:12	1.8	75528	padma	madinaguda	6394528463

```
[Execution complete with exit code 0]
```

```
create table donar(
  did int,
  d_DateTime timestamp,
  d_quantity int,
  bloodbank_id int,
  bb_name varchar(20),
  bb_address varchar(100),
  bb_phoneno long,
  primary key(did),
  foreign key(did) references person(pid));
```

```
describe donar;
```

Field	Type	Null	Key	Default	Extra
did	int	NO	PRI	NULL	
d_DateTime	timestamp	YES	NULL		
d_quantity	int	YES	NULL		
Bloodbank_id	int	YES	NULL		
bb_name	varchar(20)	YES	NULL		
bb_address	varchar(100)	YES	NULL		
bb_phoneno	mediumtext	YES	NULL		

```
[Execution complete with exit code 0]
```

insert into

```
donar(did,d_DateTime,d_quantity,bloodbank_id,bb_name,bb_address,bb_phoneno
)
```

values

```
(3,'2022-02-04 12:09:23',1,424,'sayam','hayatnagar',9572659262),
(4,'2022-03-17 11:30:01',0.5,181,'hiran','nampally',8309572193),
(6,'2022-10-12 16:11:17',1,181,'hiran','nampally',8309572193);
```

select * from donar;

did	d_DateTime	d_quantity	bloodbank_id	bb_name	bb_address	bb_phoneno
3	2022-02-04 12:09:23	1	424	sayam	hayatnagar	9572659262
4	2022-03-17 11:30:01	1	181	hiran	nampally	8309572193
6	2022-10-12 16:11:17	1	181	hiran	nampally	8309572193

[Execution complete with exit code 0]

```
create table stock(
  bloodbank_id int,
  s_bloodgroup varchar(10),
  s_quantity float,
  primary key(bloodbank_id,s_bloodgroup));
```

describe stock;

Field	Type	Null	Key	Default	Extra
bloodbank_id	int	NO	PRI	NULL	
s_bloodgroup	varchar(10)	NO	PRI	NULL	
s_quantity	float	YES	NULL	NULL	

[Execution complete with exit code 0]

```
insert into stock(bloodbank_id,s_bloodgroup,s_quantity)
values
(424,'o-',1.8),
(424,'ab+',2),
(424,'o+',1),
(181,'o+',3),
(181,'b+',2),
(213,'a+',2),
(213,'a-',1.5);
```

```
select * from stock;
```

bloodbank_id	s_bloodgroup	s_quantity
181	b+	2
181	o+	3
213	a-	1.5
213	a+	2
424	ab+	2
424	o-	1.8
424	o+	1

```
[Execution complete with exit code 0]
```

We need to ensure that each attribute contains only atomic values and there are no repeating groups. As we can see that receiver and donar tables are not having scalar values. Also in these tables partial dependency exists which violates Second Normal Form.

Therefore the database is not in First Normal Form(1NF). To make it into 1NF we split the tables into new schema as:

receiver-> (r_id int, r_DateTime timestamp, quantity float, hospitalid int)

hospital->(hospitalid int, h_name varchar(20), h_address varchar(100),
h_phoneno long)

donar->(did int, d_DateTime timestamp, d_quantity int, bloodbankid int)

bloodbank->(bloodbankid int, bb_name varchar(20), bb_address varchar(100),
bb_phoneno long)

New DataBase is:

```
create table person(  
    pid int,  
    p_name varchar(10),  
    p_dob date,  
    p_phone long,  
    p_address varchar(100),  
    p_bloodgroup varchar(5),  
    p_gender varchar(10),  
    p_medissues varchar(50),  
    primary key(pid));
```

describe person;

FieldType	Null	Key	Default	Extra
Pid	int	NO	PRI	NULL
p_name	varchar(10)	YES	NULL	
p_dob	date	YES	NULL	
p_phone	mediumtext	YES	NULL	
p_address	varchar(100)	YES	NULL	
p_bloodgroup	varchar(5)	YES	NULL	
p_gender	varchar(10)	YES	NULL	
p_medissues	varchar(50)	YES	NULL	

[Execution complete with exit code 0]

insert into person

(pid,p_name,p_dob,p_phone,p_address,p_bloodgroup,p_gender,p_medissues)
values

(1,'shiva','1982-11-09', 9567235103, 'hno-21,sai baba nagar colony,hyd','a+','M','none'),
(2,'guna','2001-02-23', 8562947294,'hno-76,suraram colony,hyd','ab+','M','none'),
(3,'mahina','2000-03-01', 7946385839,'hno-45,chandanagar, hyd','o-','F','none'),
(4,'pradeep','1985-04-28', 8877452577,'plot no-1,kphb coloy,hyd','b+','M','none'),
(5,'sri nalini','1992-07-03', 9769837769,'hno-9,ramana colony,hyd','o-','F','none'),
(6,'prasad','1987-01-17', 8077452577,'hno-81,deepthinagar,hyd','o+','M','BP');

select * from person;

Pid	p_name	p_dob	p_phone	p_address	p_bloodgroup	p_gender	p_medissues
1	shiva	1982-11-09	9567235103	hno-21,sai baba nagar colony,hyd	a+	M	none
2	guna	2001-02-23	8562947294	hno-76,suraram colony,hyd	ab+	M	none
3	mahina	2000-03-01	7946385839	hno-45, chandanagar, hyd	o-	F	none
4	pradeep	1985-04-28	8877452577	plot no-1, kphb coloy,hyd	b+	M	none
5	sri nalini	1992-07-03	9769837769	hno-9,ramana Colony,hyd	o-	F	none
6	prasad	1987-01-17	8077452577	hno-81, Deepthinagar,hyd	o+	M	BP

[Execution complete with exit code 0]

```
create table hospital(  
    hospitalid int,  
    h_name varchar(20),  
    h_address varchar(30),  
    h_phoneno long,  
    primary key(hospitalid));
```

```
describe hospital;
```

Field	Type	Null	Key	Default	Extra
hospitalid	int	NO	PRI	NULL	
h_name	varchar(20)	YES		NULL	
h_address	varchar(30)	YES		NULL	
h_phoneno	mediumtext	YES		NULL	

```
[Execution complete with exit code 0]
```

```
insert into hospital(hospitalid,h_name,h_address,h_phoneno)  
values  
(53626,'care','lingampalli',9364826484),  
(75528,'padma','madinaguda',6394528463),  
(94729,'apolo','uppal',8464927395);
```

```
select * from hospital;
```

Hospitalid	h_name	h_address	h_phoneno
53626	care	lingampalli	9364826484
75528	padma	madinaguda	6394528463
94729	apolo	uppal	8464927395

```
[Execution complete with exit code 0]
```

```

create table receiver(
  r_id int,
  r_DateTime timestamp,
  quantity float,
  hospitalid int,
  primary key(r_id),
  foreign key(r_id) references person(pid),
  foreign key(hospitalid) references hospital(hospitalid));

```

```
describe receiver;
```

Field	Type	Null	Key	Default	Extra
r_id int	NO	PRI	NULL		
r_DateTime timestamp	YES			NULL	
quantity float	YES			NULL	
hospitalid int	YES	MUL		NULL	

```
[Execution complete with exit code 0]
```

```

insert into receiver(r_id,r_DateTime,quantity,hospitalid)
values
(2,'2022-10-02 10:12:30',1,53626),
(5,'2022-09-10 20:54:12',1.8,75528),
(1,'2022-01-01 18:51:01',1.5,75528);

```

```
select * from receiver;
```

r_id	r_DateTime	quantity	hospitalid
1	2022-01-01 18:51:01	1.5	75528
2	2022-10-02 10:12:30	1	53626
5	2022-09-10 20:54:12	1.8	75528

```
create table bloodbank(  
    bloodbank_id int,  
    bb_name varchar(20),  
    bb_address varchar(30),  
    bb_phoneno long,  
    primary key(bloodbank_id));
```

```
describe bloodbank;
```

Field	Type	Null	Key	Default	Extra
bloodbank_id	int	NO	PRI	NULL	
bb_name	varchar(20)	YES	NULL		
bb_address	varchar(30)	YES	NULL		
bb_phoneno	mediumtext	YES	NULL		

```
[Execution complete with exit code 0]
```

```
insert into bloodbank(bloodbank_id,bb_name,bb_address,bb_phoneno)  
values  
(424,'sayam','hayatnagar',9572659262),  
(181,'hiran','nampally',8309572193),  
(213,'kaam','uppal',9328428939);
```

```
select * from bloodbank;
```

bloodbank_id	bb_name	bb_address	bb_phoneno
181	hiran	nampally	8309572193
213	kaam	uppal	9328428939
424	sayam	hayatnagar	9572659262

```
[Execution complete with exit code 0]
```

```
create table donar(  
    did int,  
    d_DateTime timestamp,  
    d_quantity int,  
    bloodbank_id int,  
    primary key(did),  
    foreign key(did) references person(pid),  
    foreign key(bloodbank_id) references bloodbank(bloodbank_id));
```

```
describe donar;
```

Field	Type	Null	Key	Default	Extra
did	int	NO	PRI	NULL	
d_DateTime	timestamp	YES	NULL		
d_quantity	int	YES	NULL		
Bloodbank_id	int	YES	MUL	NULL	

```
[Execution complete with exit code 0]
```

```
insert into donar(did,d_DateTime,d_quantity,bloodbank_id)  
values  
(3,'2022-02-04 12:09:23',1,424),  
(4,'2022-03-17 11:30:01',0.5,181),  
(6,'2022-10-12 16:11:17',1,181);
```

```
select * from donar;
```

```
did    d_DateTime d_quantity bloodbank_id
3      2022-02-04 12:09:23  1      424
4      2022-03-17 11:30:01  1      181
6      2022-10-12 16:11:17  1      181
```

[Execution complete with exit code 0]

```
create table stock(
  bloodbank_id int,
  s_bloodgroup varchar(10),
  s_quantity float,
  primary key(bloodbank_id,s_bloodgroup),
  foreign key(bloodbank_id) references bloodbank(bloodbank_id));
```

describe stock;

Field	Type	Null	Key	Default	Extra
bloodbank_id	int	NO	PRI	NULL	
s_bloodgroup	varchar(10)	NO	PRI	NULL	
s_quantity	float	YES	NULL	NULL	

[Execution complete with exit code 0]

```
insert into stock(bloodbank_id,s_bloodgroup,s_quantity)
```

```
values
```

```
(424,'o-',1.8),
```

```
(424,'ab+',2),
```

```
(424,'o+',1),
```

```
(181,'o+',3),
```

```
(181,'b+',2),
```

```
(213,'a+',2),
```

```
(213,'a-',1.5);
```

```
select * from stock;
```

bloodbank_id	s_bloodgroup	s_quantity
181	b+	2
181	o+	3
213	a-	1.5
213	a+	2
424	ab+	2
424	o-	1.8
424	o+	1

```
[Execution complete with exit code 0]
```

Now this DataBase is in First Normal Form.

To achieve second normal form (2NF), we need to ensure that the table is in first normal form (1NF), which it is and that there are no partial dependencies.

*{pid}->{pid,p_name,p_dob,p_phone,p_address,p_bloodgroup,p_gender,p_medissues}

*{hospitalid}->{hospitalid,h_name,h_address,h_phoneno}

*{r_id}->{r_id,r_DateTime,quantity,hospitalid}

*{bloodbank_id}->{bloodbank_id,bb_name,bb_address,bb_phoneno}

*{did}->{did,d_DateTime,d_quantity,bloodbank_id}

*{bloodbank_id,s_bloodgroup}->{bloodbank_id,s_bloodgroup,s_quantity}

All these tables are free from partial dependencies. So, the database is in 2NF.

To achieve third normal form (3NF), we need to ensure that the table is in second normal form (2NF) and that there are no transitive dependencies.

The tables are also in 3NF as all the tables are free from transitive dependencies.

Therefore the final DataBase is as follows.

Structure:

Person:

FieldType	Null	Key	Default	Extra
Pid	int	NO	PRI	NULL
p_name	varchar(10)	YES	NULL	
p_dob	date	YES	NULL	
p_phone	mediumtext	YES	NULL	
p_address	varchar(100)	YES	NULL	
p_bloodgroup	varchar(5)	YES	NULL	
p_gender	varchar(10)	YES	NULL	
p_medissues	varchar(50)	YES	NULL	

Hospital:

Field	Type	Null	Key	Default	Extra
hospitalid	int	NO	PRI	NULL	
h_name	varchar(20)	YES		NULL	
h_address	varchar(30)	YES		NULL	
h_phoneno	mediumtext	YES		NULL	

Receiver:

Field	Type	Null	Key	Default	Extra
r_id	int	NO	PRI	NULL	
r_DateTime	timestamp	YES		NULL	
quantity	float	YES		NULL	
hospitalid	int	YES	MUL	NULL	

Bloodbank:

Field	Type	Null	Key	Default	Extra
bloodbank_id	int	NO	PRI	NULL	
bb_name	varchar(20)	YES		NULL	
bb_address	varchar(30)	YES		NULL	
bb_phoneno	mediumtext	YES		NULL	

Donar:

Field	Type	Null	Key	Default	Extra
did	int	NO	PRI	NULL	
d_DateTime	timestamp	YES	NULL		
d_quantity	int	YES	NULL		
Bloodbank_id	int	YES	MUL	NULL	

Stock:

Field	Type	Null	Key	Default	Extra
bloodbank_id	int	NO	PRI	NULL	
s_bloodgroup	varchar(10)	NO	PRI	NULL	
s_quantity	float	YES	NULL	NULL	

Data:**Person:**

Pid	p_name	p_dob	p_phone	p_address	p_bloodgroup	p_gender	p_medissues
1	shiva	1982-11-09	9567235103	hno-21,sai baba nagar colony,hyd	a+	M	none
2	guna	2001-02-23	8562947294	hno-76,suraram colony,hyd	ab+	M	none
3	mahina	2000-03-01	7946385839	hno-45, chandanager, hyd	o-	F	none
4	pradeep	1985-04-28	8877452577	plot no-1, kphb coloy,hyd	b+	M	none
5	sri nalini	1992-07-03	9769837769	hno-9,ramana Colony,hyd	o-	F	none
6	prasad	1987-01-17	8077452577	hno-81, Deepthinagar,hyd	o+	M	BP

Hospital:

Hospitalid	h_name	h_address	h_phoneno
53626	care	lingampalli	9364826484
75528	padma	madinaguda	6394528463
94729	apolo	uppal	8464927395

Receiver:

r_id	r_DateTime	quantity	hospitalid
1	2022-01-01 18:51:01	1.5	75528
2	2022-10-02 10:12:30	1	53626
5	2022-09-10 20:54:12	1.8	75528

Bloodbank:

bloodbank_id	bb_name	bb_address	bb_phoneno
181	hiran	nampally	8309572193
213	kaam	uppal	9328428939
424	sayam	hayatnagar	9572659262

Donar:

did	d_DateTime	d_quantity	bloodbank_id
3	2022-02-04 12:09:23	1	424
4	2022-03-17 11:30:01	1	181
6	2022-10-12 16:11:17	1	181

Stock:

bloodbank_id	s_bloodgroup	s_quantity
181	b+	2
181	o+	3
213	a-	1.5
213	a+	2
424	ab+	2
424	o-	1.8
424	o+	1

Each attribute in the above tables is functionally dependent on the whole primary key .Therefore, the above tables are free from transitive dependencies and satisfies the requirements of the third normal form (3NF).