

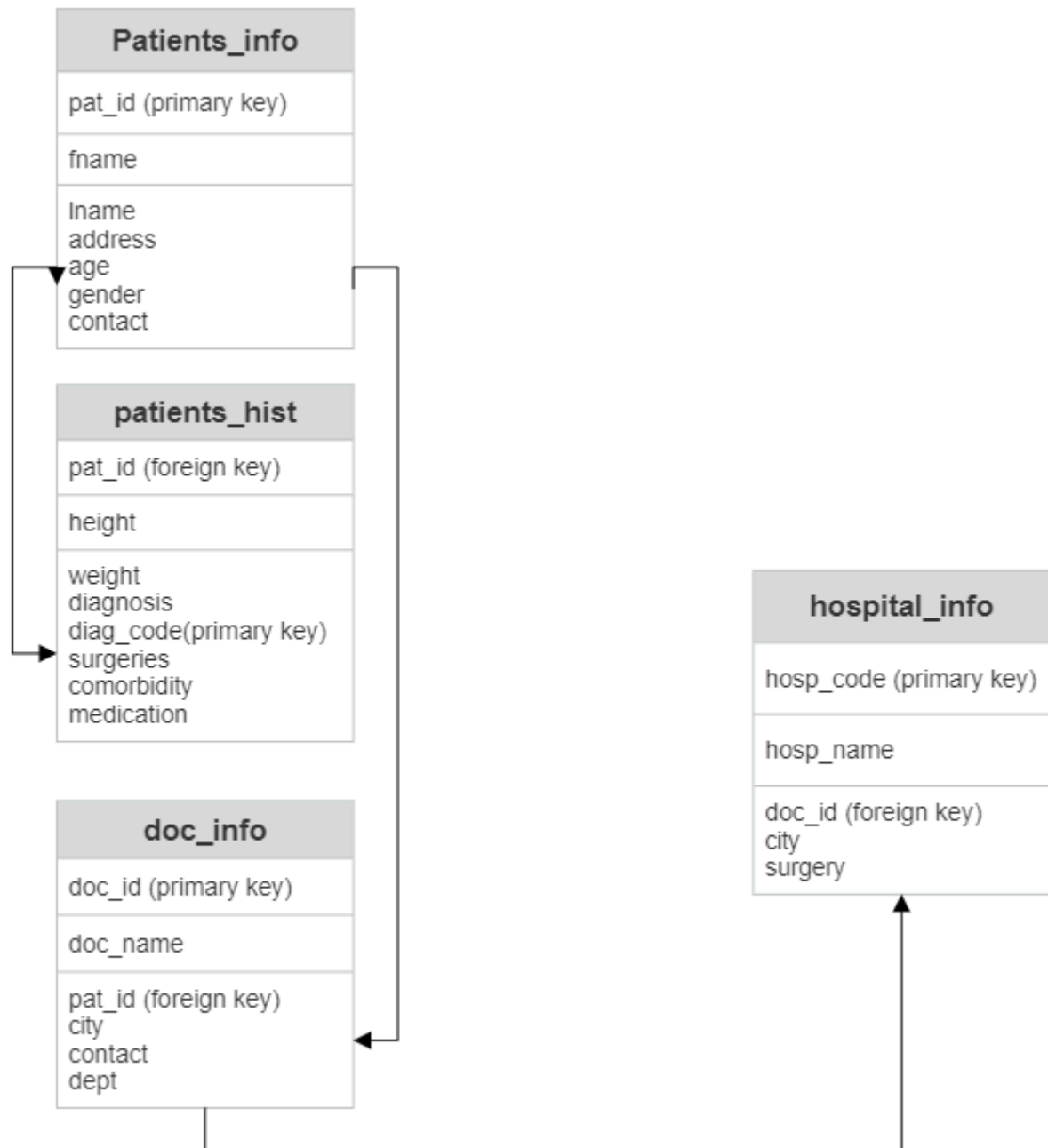
Case study by Sneha Bavakar

PATIENTS' RECORD BOOK

Introduction

- The patient record is the principal repository for information concerning a patient's health care.
- This system maintains the details and history of patients including their doctors as well as hospitals.
- This helps in easy access of full information of a specific patient.
- This system helps to keep a follow up of a patient if required so that any patient does not suffer as patient health care is most important.

ER Diagram



Describing all tables

1. Patients information

```
MariaDB [(none)]> use patients_information;
Database changed
MariaDB [patients_information]> create table patients_info(Pat_id int primary key,fname varchar(40),lname varchar(40),address varchar(20),age int,gender varchar(20),contact int);
Query OK, 0 rows affected (0.447 sec)

MariaDB [patients_information]> desc patients_info;
+-----+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Pat_id | int(11) | NO   | PRI | NULL    |       |
| fname  | varchar(40) | YES |     | NULL    |       |
| lname  | varchar(40) | YES |     | NULL    |       |
| address | varchar(20) | YES |     | NULL    |       |
| age    | int(11)   | YES |     | NULL    |       |
| gender | varchar(20) | YES |     | NULL    |       |
| contact | int(11)   | YES |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.041 sec)
```

2. Patient's history

```
MariaDB [patients_information]> create table patients_hist(Pat_id int,height float,weight float,diagnosis varchar(40),diag_code int primary key,surgeries varchar(40),comorbidity varchar(20),medication varchar(20), constraint y foreign key x(pat_id) references patients_info(pat_id));
Query OK, 0 rows affected (0.528 sec)

MariaDB [patients_information]> desc patients_hist;
+-----+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Pat_id | int(11) | YES  | MUL | NULL    |       |
| height | float   | YES  |     | NULL    |       |
| weight | float   | YES  |     | NULL    |       |
| diagnosis | varchar(40) | YES |     | NULL    |       |
| diag_code | int(11) | NO   | PRI | NULL    |       |
| surgeries | varchar(40) | YES |     | NULL    |       |
| comorbidity | varchar(20) | YES |     | NULL    |       |
| medication | varchar(20) | YES |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.070 sec)
```

3. Doctors information

```
MariaDB [patients_information]> create table doc_info(doc_id int primary key,doc_name varchar(40),Pat_id int,city varchar(20),contact int,dept varchar(20), constraint r
foreign key d(pat_id) references patients_info(pat_id));
Query OK, 0 rows affected (0.718 sec)
```

```
MariaDB [patients_information]> desc doc_info;
```

Field	Type	Null	Key	Default	Extra
doc_id	int(11)	NO	PRI	NULL	
doc_name	varchar(40)	YES		NULL	
Pat_id	int(11)	YES	MUL	NULL	
city	varchar(20)	YES		NULL	
contact	int(11)	YES		NULL	
dept	varchar(20)	YES		NULL	

```
6 rows in set (0.134 sec)
```

4. Hospital information

```
hospital_info | CREATE TABLE `hospital_info` (
  `hosp_code` int(11) NOT NULL,
  `Hosp_name` varchar(20) DEFAULT NULL,
  `doc_id` int(11) DEFAULT NULL,
  `city` varchar(20) DEFAULT NULL,
  `surgery` varchar(40) DEFAULT NULL,
  PRIMARY KEY (`hosp_code`),
  KEY `f` (`doc_id`),
  CONSTRAINT `f` FOREIGN KEY (`doc_id`) REFERENCES `doc_info` (`doc_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 |
```

```
1 row in set (0.052 sec)
```

```
MariaDB [patients_information]> desc hospital_info;
```

Field	Type	Null	Key	Default	Extra
hosp_code	int(11)	NO	PRI	NULL	
Hosp_name	varchar(20)	YES		NULL	
doc_id	int(11)	YES	MUL	NULL	
city	varchar(20)	YES		NULL	
surgery	varchar(40)	YES		NULL	

```
5 rows in set (0.021 sec)
```

```
MariaDB [patients_information]>
```

Fetching all the data

1. Patients information

```
MariaDB [patients_information]> select * from patients_info;
```

Pat_id	fname	lname	address	age	gender	contact
1	anvarhusain	malek	mumbai	58	male	45665
2	ishar	malek	mumbai	30	male	68653
3	saiyad	sefuddin	mumbai	17	male	53163
4	safiya	saiyad	mumbai	45	female	34614
5	hasim	gajiyawala	mumbai	23	male	57651
6	sarfaraj	sheikh	pune	40	male	53643
7	sabera	hamid	punjab	30	female	65485
8	ashmaben	chibuwala	punjab	33	male	16516
9	aarif	sheikh	kerela	35	male	34315
10	akhtarjaha	sheikh	delhi	45	female	68665
11	jafarhusain	sheikh	kerela	47	male	46545
12	abbas	shindi	delhi	12	male	46435
13	farzana	pathan	nagpur	48	female	57535
14	sanawaz	pathan	nagpur	65	male	35475
15	ashok	patni	nagpur	55	male	37615
16	abdul	shaikh	nagpur	56	male	87155
17	kubrabanu	shaikh	nagpur	35	female	56156
18	nasirhusain	sheikh	delhi	19	female	37684
19	abdul	pathan	delhi	54	male	86151
20	nasimbhai	sodagar	delhi	22	male	24652

20 rows in set (0.206 sec)

2. Patient's history

```
MariaDB [patients_information]> select * from patients_hist order by pat_id;
```

Pat_id	height	weight	diagnosis	diag_code	surgeries	comorbidity	medication
1	151.76	47.82	acute_kidney_failure	1	kidney_transplant	bp	vasocor
2	139.7	46.48	cad	5	bypass	bp	vasocor
3	178.8	98.3	liver_cirohsis	7	liver_transplant	null	ursodiol
4	181.4	74.4	heart_diseases	8	heart_transplant	diabetes	metformin
5	162.1	62.6	incompetent_valves	2	varicose_vein	diabetes	metformin
6	143.3	50.1	diabetes	3	null	bp	vasocor
7	162.4	58.2	heart_diseases	9	heart_transplant	bp	tiazac
8	184	104.4	acute_kidney_failure	10	kidney_transplant	bp	tiazac
9	153.8	53.8	cad	11	bypass	null	vasocor
10	154.6	68.7	incompetent_valves	12	varicose_vein	bp	tiazac
11	152.9	48.6	liver_cirohsis	13	liver_transplant	bp	vasocor
12	185.1	99.8	heart_diseases	14	heart_transplant	bp	vasocor
13	168.6	64.8	diabetes	15	null	bp	tiazac
14	150.8	50.1	cad	16	bypass	bp	tiazac
15	166.5	61.8	acute_kidney_failure	17	kidney_transplant	bp	tiazac
16	180.8	106.7	liver_cirohsis	18	liver_transplant	bp	vasocor
17	156.1	57	incompetent_valves	19	varicose_vein	null	null
18	152.7	63.2	cad	20	bypass	diabetes	metformin
19	161	64.3	incompetent_valves	21	varicose_vein	bp	vasocor
20	178.8	98.3	cad	22	bypass	diabetes	metformin

20 rows in set (0.073 sec)

3. Doctors information

```
MariaDB [patients_information]> select * from doc_info;
```

doc_id	doc_name	Pat_id	city	contact	dept
1010	robbie	1	mumbai	16483	kidney_transplant
1011	joseph	2	mumbai	35456	bypass
1012	susan	3	mumbai	54654	liver_transplant
1013	tierra	4	mumbai	65484	heart_transplant
1014	ben	5	mumbai	54611	varicose_vein
1015	tobey	6	pune	35461	neurology
1016	isaiah	7	punjab	35484	heart_transplant
1017	latisha	8	punjab	35498	kidney_transplant
1018	andre	9	kerela	64648	bypass
1019	tammy	10	delhi	54984	varicose_vein
1020	srinivas	11	kerela	35461	liver_transplant
1021	jagjit	12	delhi	35484	heart_transplant
1022	rajesh	13	nagpur	49843	neurology
1023	prashanna	14	nagpur	56498	bypass
1024	kailash	15	nagpur	32168	kidney_transplant
1025	rodney	16	nagpur	24648	liver_transplant
1026	francis	17	nagpur	46846	varicose_vein
1027	jesal	18	delhi	65498	bypass
1028	hazel	19	delhi	54986	varicose_vein
1029	nancy	20	delhi	35151	bypass

20 rows in set (0.054 sec)

4. Hospital information

```
MariaDB [patients_information]> select * from hospital_info;
```

hosp_code	Hosp_name	doc_id	city	surgery
1921	apex_multispeciality	1010	mumbai	kidney_transplant
1922	holy_family	1011	mumbai	bypass
1923	apex_multispeciality	1012	mumbai	liver_transplant
1924	zen_multispeciality	1013	mumbai	heart_transplant
1925	beams_multispecialit	1014	mumbai	varicose_vein
1926	lifepoint	1015	pune	neurology
1927	asian	1016	punjab	heart_transplant
1928	dhanwantari	1017	punjab	kidney_transplant
1929	guardian	1018	kerela	bypass
1930	new_life	1019	delhi	varicose_vein
1931	kims	1020	kerela	liver_transplant
1932	max_super	1021	delhi	heart_transplant
1933	alexis_multispeciali	1022	nagpur	neurology
1934	abhinav	1023	nagpur	bypass
1935	wockhardt	1024	nagpur	kidnet_transplant
1936	gb_multicare	1025	nagpur	liver_transplant
1937	suryodaya	1026	nagpur	varicose_vein
1938	uk_nursing	1027	delhi	bypass
1939	shradha_multispecial	1028	delhi	varicose_vein
1940	blk_max_super	1029	delhi	bypass

20 rows in set (0.001 sec)

Sub queries

1. select doc_name,dept,pat_id from doc_info where dept=(select dept from doc_info where pat_id=5);

```
MariaDB [patients_information]> select doc_name,dept,pat_id from doc_info where dept=(select dept from doc_info where pat_id=5);
```

doc_name	dept	pat_id
ben	varicose_vein	5
tammy	varicose_vein	10
francis	varicose_vein	17
hazel	varicose_vein	19

```
4 rows in set (0.001 sec)
```

2. select hosp_name,city from hospital_info where city in (select city from doc_info where city in('mumbai','pune'));

```
MariaDB [patients_information]> select hosp_name,city from hospital_info where city in (select city from doc_info where city in('mumbai','pune'));
```

hosp_name	city
apex_multispeciality	mumbai
holy_family	mumbai
apex_multispeciality	mumbai
zen_multispeciality	mumbai
beams_multispecialit	mumbai
lifepoint	pune

```
6 rows in set (0.591 sec)
```

3. select fname,lname,address from patients_info where address <all(select address from patients_info where age between 56 and 60);

```
MariaDB [patients_information]> select fname,lname,address from patients_info where address <all(select address from patients_info where age between 56 and 60);
```

fname	lname	address
aarif	sheikh	kerela
akhtarjaha	sheikh	delhi
jafarhusain	sheikh	kerela
abbas	shindi	delhi
nasirhusain	sheikh	delhi
abdul	pathan	delhi
nasimbhai	sodagar	delhi

```
7 rows in set (0.001 sec)
```

4. select Pat_id,diagnosis,medication from patients_hist where(pat_id,diagnosis) in(select pat_id,diagnosis from patients_hist where pat_id between 5 and 15 and diagnosis='cad');

```
MariaDB [patients_information]> select Pat_id,diagnosis,medication from patients_hist where(pat_id,diagnosis) in(select pat_id,diagnosis from patients_hist where pat_id between 5 and 15 and diagnosis='cad');
```

Pat_id	diagnosis	medication
9	cad	vasocor
14	cad	tiazac

2 rows in set (0.220 sec)

Joins

1. Inner join

Select

patients_info.pat_id,patients_info.fname,patients_info.lname,patients_info.age,patients_hist.height,patients_hist.weight,patients_hist.diagnosis from patients_info inner join patients_hist on patients_info.pat_id=patients_hist.pat_id;

```
MariaDB [patients_information]> select patients_info.pat_id,patients_info.fname,patients_info.lname,patients_info.age,patients_hist.height,patients_hist.weight,patients_hist.diagnosis from patients_info inner join patients_hist on patients_info.pat_id=patients_hist.pat_id;
```

pat_id	fname	lname	age	height	weight	diagnosis
1	anvarhusain	malek	58	151.76	47.82	acute_kidney_failure
5	hasim	gajiyawala	23	162.1	62.6	incompetent_valves
6	sarfaraj	sheikh	40	143.3	50.1	diabetes
2	ishar	malek	30	139.7	46.48	cad
3	saiyad	sefuddin	17	178.8	98.3	liver_cirrhosis
4	safiya	saiyad	45	181.4	74.4	heart_diseases
7	sabera	hamid	30	162.4	58.2	heart_diseases
8	ashmaben	chibuwala	33	184	104.4	acute_kidney_failure
9	aarif	sheikh	35	153.8	53.8	cad
10	akhtarjaha	sheikh	45	154.6	68.7	incompetent_valves
11	jafarhusain	sheikh	47	152.9	48.6	liver_cirrhosis
12	abbas	shindi	12	185.1	99.8	heart_diseases
13	farzana	pathan	48	168.6	64.8	diabetes
14	sananaawaz	pathan	65	150.8	50.1	cad
15	ashok	patni	55	166.5	61.8	acute_kidney_failure
16	abdul	shaikh	56	180.8	106.7	liver_cirrhosis
17	kubrabanu	shaikh	35	156.1	57	incompetent_valves
18	nasirhusain	sheikh	19	152.7	63.2	cad
19	abdul	pathan	54	161	64.3	incompetent_valves
20	nasimbhai	sodagar	22	178.8	98.3	cad

20 rows in set (0.001 sec)

2. Right join

select

doc_info.doc_id,doc_info.doc_name,hospital_info.hosp_name,hospital_info.surgery from doc_info right join hospital_info on doc_info.doc_id=hospital_info.doc_id;

```
MariaDB [patients_information]> select doc_info.doc_id,doc_info.doc_name,hospital_info.hosp_name,hospital_info.surgery from doc_info right join hospital_info on doc_info.doc_id=hospital_info.doc_id;
```

doc_id	doc_name	hosp_name	surgery
1010	robbie	apex_multispeciality	kidney_transplant
1011	joseph	holy_family	bypass
1012	susan	apex_multispeciality	liver_transplant
1013	tierra	zen_multispeciality	heart_transplant
1014	ben	beams_multispecialit	varicose_vein
1015	tobey	lifepoint	neurology
1016	isaiah	asian	heart_transplant
1017	latisha	dhanwantari	kidney_transplant
1018	andre	guardian	bypass
1019	tammy	new_life	varicose_vein
1020	srinivas	kims	liver_transplant
1021	jagjit	max_super	heart_transplant
1022	rajesh	alexis_multispeciali	neurology
1023	prashanna	abhinav	bypass
1024	kailash	wockhardt	kidnet_transplant
1025	rodney	gb_multicare	liver_transplant
1026	francis	suryodaya	varicose_vein
1027	jesal	uk_nursing	bypass
1028	hazel	shradha_multispecial	varicose_vein
1029	nancy	blk_max_super	bypass

20 rows in set (0.016 sec)

3. Left join

select

patients_info.pat_id,patients_info.fname,patients_info.lname,doc_info.doc_name,doc_info.dept from patients_info left join doc_info on patients_info.pat_id=doc_info.pat_id;

```
MariaDB [patients_information]> select patients_info.pat_id,patients_info.fname,patients_info.lname,doc_info.doc_name,doc_info.dept from patients_info left join doc_info on patients_info.pat_id=doc_info.pat_id;
```

pat_id	fname	lname	doc_name	dept
1	anvarhusain	malek	robbie	kidney_transplant
2	ishar	malek	joseph	bypass
3	salyad	sefuddin	susan	liver_transplant
4	safiya	salyad	tierra	heart_transplant
5	hasim	gajiyawala	ben	varicose_vein
6	sarfaraaj	sheikh	tobey	neurology
7	sabera	hamid	isaiah	heart_transplant
8	ashmaben	chibuwala	latisha	kidney_transplant
9	aarif	sheikh	andre	bypass
10	akhtarjaha	sheikh	tammy	varicose_vein
11	jafarhusain	sheikh	srinivas	liver_transplant
12	abbas	shindi	jagjit	heart_transplant
13	farzana	pathan	rajesh	neurology
14	sananaawaz	pathan	prashanna	bypass
15	ashok	patni	kailash	kidney_transplant
16	abdul	shaikh	rodney	liver_transplant
17	kubrabanu	shaikh	francis	varicose_vein
18	nasirhusain	sheikh	jesal	bypass
19	abdul	pathan	hazel	varicose_vein
20	nasimbhai	sodagar	nancy	bypass

20 rows in set (0.001 sec)

4. Full join

select

patients_info.pat_id,patients_info.fname,patients_info.lname,doc_info.doc_id,doc_info.doc_name,hospital_info.hosp_name,hospital_info.surgery from patients_info join doc_info on patients_info.pat_id=doc_info.pat_id join hospital_info on doc_info.doc_id=hospital_info.doc_id;

```
MariaDB [patients_information]> select patients_info.pat_id,patients_info.fname,patients_info.lname,doc_info.dept,doc_info.doc_id,doc_info.doc_name,hospital_info.hosp_name,hospital_info.surgery from patients_info join doc_info on patients_info.pat_id=doc_info.pat_id join hospital_info on doc_info.doc_id=hospital_info.doc_id;
```

pat_id	fname	lname	dept	doc_id	doc_name	hosp_name	surgery
1	anvarhusain	malek	kidney_transplant	1010	robbie	apex_multispeciality	kidney_transplant
2	ishar	malek	bypass	1011	joseph	holy_family	bypass
3	saiyad	sefuddin	liver_transplant	1012	susan	apex_multispeciality	liver_transplant
4	safiya	saiyad	heart_transplant	1013	tierra	zen_multispeciality	heart_transplant
5	hasim	gajiyawala	varicose_vein	1014	ben	beams_multispecialit	varicose_vein
6	sarfaraj	sheikh	neurology	1015	tobey	lifepoint	neurology
7	sabera	hamid	heart_transplant	1016	isaiah	asian	heart_transplant
8	ashmaben	chibuwala	kidney_transplant	1017	latisha	dhanwantari	kidney_transplant
9	aarif	sheikh	bypass	1018	andre	guardian	bypass
10	akhtarjaha	sheikh	varicose_vein	1019	tammy	new_life	varicose_vein
11	jafarhusain	sheikh	liver_transplant	1020	srinivas	kims	liver_transplant
12	abbas	shindi	heart_transplant	1021	jagjit	max_super	heart_transplant
13	farzana	pathan	neurology	1022	rajesh	alexis_multispeciali	neurology
14	sananawaz	pathan	bypass	1023	prashanna	abhinav	bypass
15	ashok	patni	kidney_transplant	1024	kailash	wockhardt	kidnet_transplant
16	abdul	shaikh	liver_transplant	1025	rodney	gb_multicare	liver_transplant
17	kubrabanu	shaikh	varicose_vein	1026	francis	suryodaya	varicose_vein
18	nasirhusain	sheikh	bypass	1027	jesal	uk_nursing	bypass
19	abdul	pathan	varicose_vein	1028	hazel	shradha_multispecial	varicose_vein
20	nasimbhai	sodagar	bypass	1029	nancy	blk_max_super	bypass

20 rows in set (0.001 sec)

Views

create view patients_registration as select
patients_info.fname,patients_info.lname,doc_info.doc_name,hospital_info.hosp
_name from patients_info,doc_info,hospital_info where
patients_info.pat_id=doc_info.pat_id and
doc_info.doc_id=hospital_info.doc_id;

```
MariaDB [patients information]> create view patients_registration as select patients_info.fname,patients_info.lname,doc_info.doc_name,hospital_info.hosp_name from patients_info,doc_info,hospital_info where patients_info.pat_id=doc_info.pat_id and doc_info.doc_id=hospital_info.doc_id;
Query OK, 0 rows affected (0.407 sec)

MariaDB [patients information]> select * from patients_registration;
```

fname	lname	doc_name	hosp_name
anvarhusain	malek	robbie	apex_multispeciality
ishar	malek	joseph	holy_family
saiyad	sefuddin	susan	apex_multispeciality
safiya	saiyad	tierra	zen_multispeciality
hasim	gajiyawala	ben	beams_multispecialit
sarfaraaj	sheikh	tobey	lifepoint
sabera	hamid	isaiah	asian
ashmaben	chibuwala	latisha	dhanwantari
aarif	sheikh	andre	guardian
akhtarjaha	sheikh	tammy	new_life
jafarhusain	sheikh	srinivas	kims
abbas	shindi	jagjit	max_super
farzana	pathan	rajesh	alexis_multispeciali
sananaawaz	pathan	prashanna	abhinav
ashok	patni	kailash	wockhardt
abdul	shaikh	rodney	gb_multicare
kubrabanu	shaikh	francis	suryodaya
nasirhusain	sheikh	jesal	uk_nursing
abdul	pathan	hazel	shradha_multispecial
nasimbhai	sodagar	nancy	blk_max_super

```
20 rows in set (0.206 sec)
```