DBMSL LAB
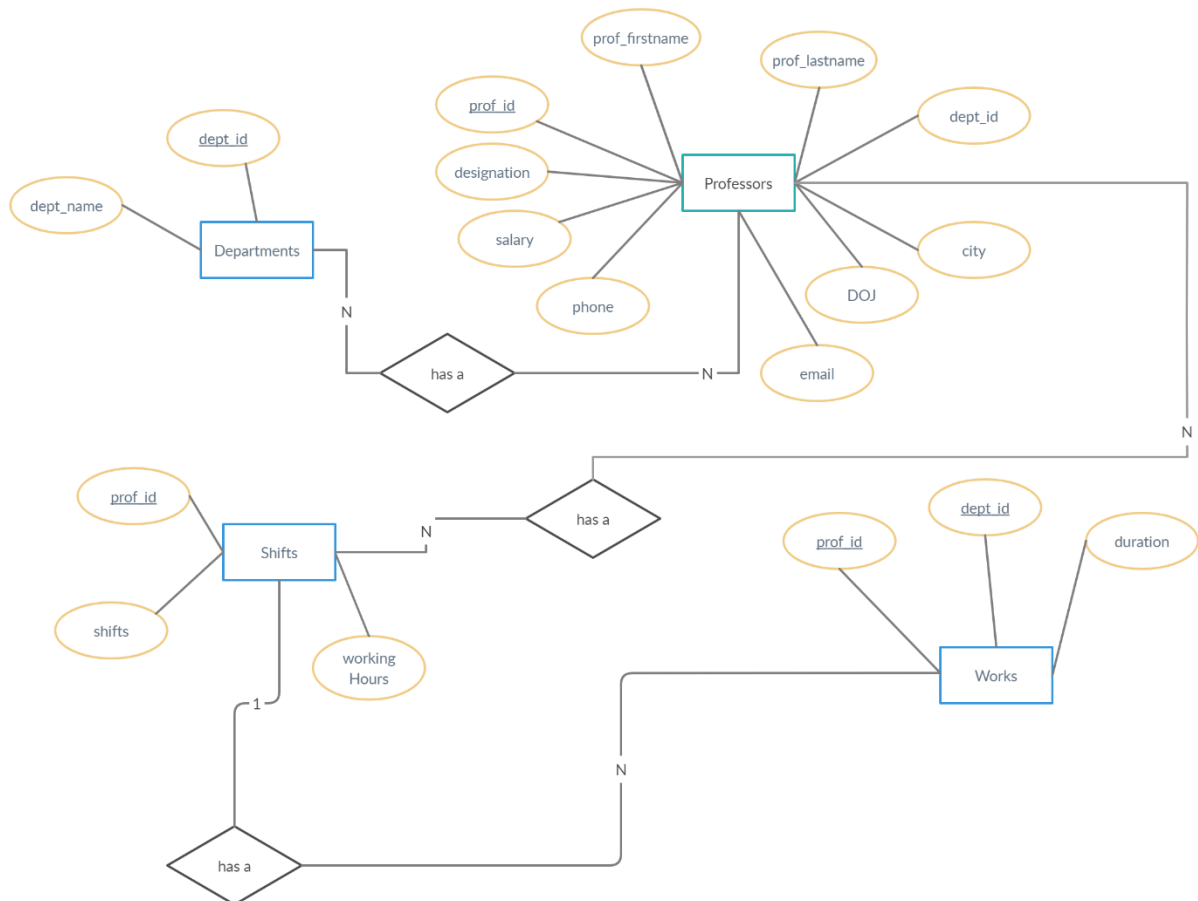
Assignment 4

Roll No :- 31384

ER-Diagram:-

Code:-

create database professor;

use professor;

create table Departments(dept_id int PRIMARY KEY not null ,dept_name varchar(230));

create table Professors(prof_id int primary KEY ,prof_fname varchar(230),prof_lname varchar(230),dept_id int,designation varchar(230),salary int,

doj date,email varchar(30),phone int(10),city varchar(30), constraint FK_order1 FOREIGN KEY (dept_id) REFERENCES Departments(dept_id) ON DELETE CASCADE ON UPDATE CASCADE

);

```sql
create table Works(prof_id int PRIMARY KEY,dept_id int,duration varchar(230),constraint FK_order3 FOREIGN KEY (dept_id) REFERENCES Departments(dept_id) ON DELETE CASCADE ON UPDATE CASCADE

,constraint FK_order2 FOREIGN KEY (prof_id) REFERENCES Professors(prof_id) ON DELETE CASCADE ON UPDATE CASCADE);
```

```sql
create table Shifts(prof_id int primary key,shift varchar(20),working_hours int(2),constraint FK_order4 FOREIGN KEY (prof_id) REFERENCES Professors(prof_id) ON DELETE CASCADE ON UPDATE CASCADE);
```

```sql
insert into Departments(dept_id,dept_name) values('1','CS');
insert into Departments(dept_id,dept_name) values('2','ENTC');
insert into Departments(dept_id,dept_name) values('3','MECH');
insert into Departments(dept_id,dept_name) values('4','AUTO');
insert into Departments(dept_id,dept_name) values('5','IT');
```

```sql
insert into Professors(prof_id,prof_fname,prof_lname,dept_id,designation,salary,doj,email,phone,city)

 values('121','Rajnikant','Palwe','1','Software Engineer','50000',STR_TO_DATE("August 10 2017", "%M %d %Y"),'rmpalwe@gmail.com','624563522','Pune');
```

```sql
insert into Professors(prof_id,prof_fname,prof_lname,dept_id,designation,salary,doj,email,phone,city)
 values('122','Rupali','Shelke','1','professor','30000',STR_TO_DATE("August 10 2015", "%M %d %Y"),'rupalipohakar@gmail.com','243434223','mumbai');


insert into Professors(prof_id,prof_fname,prof_lname,dept_id,designation,salary,doj,email,phone,city)
 values('123','Ramjeet','Gundla','4','Professor','40000',STR_TO_DATE("August 29 2016", "%M %d %Y"),'gundla@gmailcom','434242312','Satara');


insert into Professors(prof_id,prof_fname,prof_lname,dept_id,designation,salary,doj,email,phone,city)
 values('124','Arati','Deshmukh','1','Software Engineer','60000',STR_TO_DATE("May 10 2011", "%M %d %Y"),'Arati@gmail.com','53534334','Pune');


insert into Professors(prof_id,prof_fname,prof_lname,dept_id,designation,salary,doj,email,phone,city)
 values('125','Malini','Sable','2','Professor','40000',STR_TO_DATE("August 10 2016", "%M %d %Y"),'Malini@gmail.com','35342345','Sangli');


insert into Professors(prof_id,prof_fname,prof_lname,dept_id,designation,salary,doj,email,phone,city)
 values('126','Vikas','Patil','3','Senior Professor','70000',STR_TO_DATE("June 10 2010", "%M %d %Y"),'VikasPatil@gmail.com','43234535','Latur');

 insert into Professors(prof_id,prof_fname,prof_lname,dept_id,designation,salary,doj,email,phone,city)
 values('127','Sayali','Kshirsagar','5','Lab Asistant','25000',STR_TO_DATE("June 6 2016", "%M %d %Y"),'SayaliKshirsagar@gmail.com','34353555','Pune');


 insert into Professors(prof_id,prof_fname,prof_lname,dept_id,designation,salary,doj,email,phone,city)
 values('128','Pragti','Chavan','5','Lab Asistant','25000',STR_TO_DATE("June 6 2016", "%M %d %Y"),'Pragtichavan@gmail.com','5343435','Satara');

insert into Works(prof_id,dept_id,duration) values('121','1','3 years');
insert into Works(prof_id,dept_id,duration) values('122','1','5 years');
insert into Works(prof_id,dept_id,duration) values('123','4','4 years');
insert into Works(prof_id,dept_id,duration) values('124','1','9 years');
```

```sql
insert into Works(prof_id,dept_id,duration) values('125','2','4 years');

insert into Works(prof_id,dept_id,duration) values('126','3','10 years');

insert into Works(prof_id,dept_id,duration) values('127','5','4 years');

insert into Works(prof_id,dept_id,duration) values('128','5','4 years');




insert into Shifts(prof_id,shift,working_hours) values('121','Day','7');

insert into Shifts(prof_id,shift,working_hours) values('122','Day','6');

insert into Shifts(prof_id,shift,working_hours) values('123','Night','7');

insert into Shifts(prof_id,shift,working_hours) values('124','Day','8');

insert into Shifts(prof_id,shift,working_hours) values('125','Night','7');

insert into Shifts(prof_id,shift,working_hours) values('126','Day','8');

insert into Shifts(prof_id,shift,working_hours) values('127','Night','5');

insert into Shifts(prof_id,shift,working_hours) values('128','Day','5');




/* Assignment 4 */


select * from Departments natural join Professors;

select Professors.prof_id , Professors.prof_fname,Professors.prof_lname, Shifts.shift from Professors left join Shifts on Professors.prof_id = Shifts.prof_id;

select Departments.*, Professors.prof_fname,Professors.prof_lname from Departments left join Professors on Departments.dept_id = professors.dept_id;

select Professors.prof_fname,Professors.prof_lname,Departments.dept_name from Professors left join Departments on Professors.dept_id=Departments.dept_id;

select Professors.prof_fname , Professors.prof_lname,Shifts.shift, Professors.salary from Professors left join Shifts on Professors.prof_id = Shifts.prof_id;

select Departments.dept_name,count(professors.prof_id) AS Departments_Professors from professors left join Departments on professors.dept_id = departments.dept_id

group by Departments.dept_id;


select Professors.prof_id,Departments.dept_name ,Departments.dept_id from Professors left join Departments on Professors.dept_id = Departments.dept_id where dept_name='CS';
```

create view Professor_Shift_view as select Professors.prof_fname,Professors.prof_id ,Shifts.shift,Shifts.working_hours from professors left join Shifts on Professors.prof_id=Shifts.prof_id;

select * from Professor_Shift_view;

Departments

	dept_id	dept_name
▶	1	CS
	2	ENTC
	3	MECH
	4	AUTO
	5	IT
*	NULL	NULL

Works

	prof_id	dept_id	duration
▶	121	1	3 years
	122	1	5 years
	123	4	4 years
	124	1	9 years
	125	2	4 years
	126	3	10 years
	127	5	4 years
	128	5	4 years
*	NULL	NULL	NULL

Shifts

	prof_id	dept_id	duration
▶	121	1	3 years
	122	1	5 years
	123	4	4 years
	124	1	9 years
	125	2	4 years
	126	3	10 years
	127	5	4 years
	128	5	4 years
*	NULL	NULL	NULL

select * from Departments natural join Professors;

dept_id	dept_name	prof_id	prof_fname	prof_lname	designation	salary	doj	email	phone	city
1	CS	121	Rajnikant	Palwe	Software Engineer	50000	2017-08-10	rmpalwe@gmail.com	624563522	Pune
1	CS	122	Rupali	Shelke	professor	30000	2015-08-10	rupalipohakar@g rupalipohakar@gmail.com	mbai
4	AUTO	123	Ramjeet	Gundla	Professor	40000	2016-08-29	gundla@gmailcom	434242312	Satara
1	CS	124	Arati	Deshmukh	Software Engineer	60000	2011-05-10	Arati@gmail.com	53534334	Pune
2	ENTC	125	Malini	Sable	Professor	40000	2016-08-10	Malini@gmail.com	35342345	Sangli
3	MECH	126	Vikas	Patil	Senior Professor	70000	2010-06-10	VikasPatil@gmail.com	43234535	Latur
5	IT	127	Sayali	Kshirsagar	Lab Asistant	25000	2016-06-06	SayaliKshirsagar@gmail.com	34353555	Pune
5	IT	128	Pragti	Chavan	Lab Asistant	25000	2016-06-06	Pragtichavan@gmail.com	5343435	Satara

select Professors.prof_id , Professors.prof_fname,Professors.prof_lname, Shifts.shift from Professors left join Shifts on Professors.prof_id = Shifts.prof_id;

prof_id	prof_fname	prof_lname	shift
121	Rajnikant	Palwe	Day
122	Rupali	Shelke	Day
123	Ramjeet	Gundla	Night
124	Arati	Deshmukh	Day
125	Malini	Sable	Night
126	Vikas	Patil	Day
127	Sayali	Kshirsagar	Night
128	Pragti	Chavan	Day

select Departments.*, Professors.prof_fname,Professors.prof_lname from Departments left join Professors on Departments.dept_id = professors.dept_id;

dept_id	dept_name	prof_fname	prof_lname
1	CS	Rajnikant	Palwe
1	CS	Rupali	Shelke
1	CS	Arati	Deshmukh
2	ENTC	Malini	Sable
3	MECH	Vikas	Patil
4	AUTO	Ramjeet	Gundla
5	IT	Sayali	Kshirsagar
5	IT	Pragti	Chavan

select Professors.prof_fname,Professors.prof_lname,Departments.dept_name from Professors left join Departments on Professors.dept_id=Departments.dept_id;

prof_fname	prof_lname	dept_name
Rajnikant	Palwe	CS
Rupali	Shelke	CS
Ramjeet	Gundla	AUTO
Arati	Deshmukh	CS
Malini	Sable	ENTC
Vikas	Patil	MECH
Sayali	Kshirsagar	IT
Pragti	Chavan	IT

select Professors.prof_fname , Professors.prof_lname,Shifts.shift, Professors.salary from Professors left join Shifts on Professors.prof_id = Shifts.prof_id;

prof_fname	prof_lname	shift	salary
Rajnikant	Palwe	Day	50000
Rupali	Shelke	Day	30000
Ramjeet	Gundla	Night	40000
Arati	Deshmukh	Day	60000
Malini	Sable	Night	40000
Vikas	Patil	Day	70000
Sayali	Kshirsagar	Night	25000
Pragti	Chavan	Day	25000

select Departments.dept_name,count(professors.prof_id) AS Departments_Professors from professors left join Departments on professors.dept_id = departments.dept_id

group by Departments.dept_id;

dept_name	Departments_Professors
CS	3
ENTC	1
MECH	1
AUTO	1
IT	2

select Professors.prof_id,Departments.dept_name ,Departments.dept_id from Professors left join Departments on Professors.dept_id = Departments.dept_id where dept_name='CS';

prof_id	dept_name	dept_id
121	CS	1
122	CS	1
124	CS	1

create view Professor_Shift_view as select Professors.prof_fname,Professors.prof_id ,Shifts.shift,Shifts.working_hours from professors left join Shifts on Professors.prof_id=Shifts.prof_id;

select * from Professor_Shift_view;

prof_fname	prof_id	shift	working_hours
Rajnikant	121	Day	7
Rupali	122	Day	6
Ramjeet	123	Night	7
Arati	124	Day	8
Malini	125	Night	7
Vikas	126	Day	8
Sayali	127	Night	5
Pragti	128	Day	5

Assignment No. 4

Title - Design at least 10 sql queries for suitable database application using SQL DML statement. All types of join, subquery & view.

Problem statement :- Design at least sql queries for suitable database using sql DML statements.

objective .

To understand types of joins, subquery & its types, complex views.

s/w packages - My-SQL

Learing objective :-
- The student will be able to
- Identify & implement types of join, subquery & view.

Theory :-

Join ::

SQL join used to fetch data from two or more tables which is joined to appear as single set of data

SQL join is used for combining column from two or more tables. by using value common to both tables.

Types of join:

- **Cross join:**
  This type of join returm the cartesian product of rows from the table in join.

  syntax: Select column-name-list from table1 Cross join table2;

- **Inner join:**
  This simple join in which the result is based on matched data.

  syntax:- select column from table1 Inner join table2 when table1. column = table2. column;

- **Outer join:**
  Outer join is based on both match data & unmatced Data.

- left outer join
- Right outer join
- Full outer join

- Left outer join - It returns a result table with
matched date of two tables than
remaining rows of left table

select column from table1 left outer join
table2 on tablename1. column =
tablename2. column;

- Right outer join - The Right outer join returns
a result of table with
matched data of two tables
than remaining rows of
right table.

Select column from table1 Right outer join
table2 on table1. column =
table2. column.

- Full outer join:
It return result table with m
data of two table then remain
left & right tables

Natural join :-

It is type of inner join which is column having same name & same datatype.

Select * from table1 Natural join table2,

Conclusion :-

Thus, we implemented the SQL join in MySQL.