

A.

First we are creating Department schema because in Employee schema there is a foreign key referencing to Dno of Department schema

-----Database and Schemas-----

```
create database EMP_DEPT;
```

```
use EMP_DEPT;
```

```
create table Department(  
    Dno int(5),  
    Dname varchar(50),  
    Location varchar(50) default("New Delhi"),  
    primary key(Dno)  
);
```

```
mysql> desc Department  
-> ;
```

Field	Type	Null	Key	Default	Extra
Dno	int	NO	PRI	NULL	
Dname	varchar(50)	YES		NULL	
Location	varchar(50)	YES		_cp850\ 'New Delhi\ '	DEFAULT_GENERATED

```
3 rows in set (0.04 sec)
```

```
create table Employee(  
    Eno char(3) not null,  
    Ename varchar(50) not null,  
    Job_type varchar(50) not null,  
    SupervisonEno char(3),  
    Hire_date date not null,  
    Dno int(5),  
    Commission decimal(10,2),  
    Salary decimal(7,2) not null,
```

```

primary key(Eno),

constraint FK_EmpSupervision foreign key(SupervisionEno) references Employee(Eno),

constraint FK_DepartmentEmp foreign key(Dno) references Department(Dno)

);

```

```

mysql> desc Employee;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Eno            | char(3)       | NO   | PRI | NULL    |       |
| Ename          | varchar(50)   | NO   |     | NULL    |       |
| Job_type       | varchar(50)   | NO   |     | NULL    |       |
| SupervisionEno | char(3)       | YES  | MUL | NULL    |       |
| Hire_date      | date          | NO   |     | NULL    |       |
| Dno            | int           | YES  | MUL | NULL    |       |
| Commission     | decimal(10,2) | YES  |     | NULL    |       |
| Salary         | decimal(7,2)  | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.01 sec)

```

Dummy data is entered into both tables

Department Table data

insert into department(Dno, Dname, Location)

```

values(1,"Creative","UK"),

(10,"Accounting","New York"),

(20,"Research","Bengaluru"),

(30,"Sales","Chicago"),

(40,"Operation","Boston"),

(50,"Marketing","New Delhi");

```

Employee Table data

insert into employee(Eno, Ename, Job_type, SupervisionEno, Hire_date, Dno, Commission, Salary)

```

values('783','King','President',NULL,'1981-11-17',10,0.00,2950.00),

('756','Jones','Manager','783','1981-04-02',20,0.00,2300.00),

('769','Blake','Manager','783','1981-05-01',30,0.00,2870.00),

```

('778','Clark','Manager','783','1981-06-09',10,0.00,2900.00),
 ('788','Scott','Analyst','756','1982-12-09',20,0.00,2850.00),
 ('792','Ford','Analyst','756','1981-12-03',20,0.00,2600.00),
 ('749','Allan','Sales_man','769','1981-02-20',30,300.00,2000.00),
 ('752','Ward','Sales_man','769','1981-02-22',30,500.00,1300.00),
 ('784','Turner','Sales_man','769','1981-09-08',30,0.00,1450.00),
 ('790','James','Clerk','769','1981-12-03',30,0.00,950.00),
 ('787','Adams','Clerk','778','1983-01-12',20,0.00,1150.00),
 ('793','Miller','Clerk','788','1982-01-23',40,0.00,1300.00),
 ('765','Martin','Sales_man','784','1981-04-22',30,1400.00,1250.00),
 ('736','Smith','Clerk','790','1981-12-17',20,0.00,1000.00);

---Queries----

1. select Eno,Ename,Job_type,Hire_date from employee;

```
mysql> select Eno,Ename,Job_type,Hire_date from employee;
```

Eno	Ename	Job_type	Hire_date
736	Smith	Clerk	1981-12-17
749	Allan	Sales_man	1981-02-20
752	Ward	Sales_man	1981-02-22
756	Jones	Manager	1981-04-02
765	Martin	Sales_man	1981-04-22
769	Blake	Manager	1981-05-01
778	Clark	Manager	1981-06-09
783	King	President	1981-11-17
784	Turner	Sales_man	1981-09-08
787	Adams	Clerk	1983-01-12
788	Scott	Analyst	1982-12-09
790	James	Clerk	1981-12-03
792	Ford	Analyst	1981-12-03
793	Miller	Clerk	1982-01-23

14 rows in set (0.00 sec)

2. select distinct Job_type form employee

```
mysql> select distinct Job_type from employee
-> ;
+-----+
| Job_type |
+-----+
| Clerk    |
| Sales_man|
| Manager  |
| President|
| Analyst  |
+-----+
5 rows in set (0.03 sec)
```

3. select concat(Ename,"",Job_type) as Name_Job from Employee;

```
mysql> select concat(Ename,"",Job_type) as Name_Job from Employee;
+-----+
| Name_Job |
+-----+
| Smith,Clerk |
| Allan,Sales_man |
| Ward,Sales_man |
| Jones,Manager |
| Martin,Sales_man |
| Blake,Manager |
| Clark,Manager |
| King,President |
| Turner,Sales_man |
| Adams,Clerk |
| Scott,Analyst |
| James,Clerk |
| Ford,Analyst |
| Miller,Clerk |
+-----+
14 rows in set (0.01 sec)
```

4. select
concat(Eno,"",Ename,"",Job_type,"",SupervisonEno,"",Hire_date,"",Dno,"",Commission,"",Salary) as The_Output from employee;

```
mysql> select concat(Eno," ",Ename," ",Job_type," ",SupervisonEno," ",Hire_date," ",Dno," ",Commission," ",Salary) as The_Output from employee;
```

The_Output									
736	Smith	Clerk	790	1981-12-17	20	0.00	1000.00		
749	Allan	Sales_man	769	1981-02-20	30	300.00	2000.00		
752	Ward	Sales_man	769	1981-02-22	30	500.00	1300.00		
756	Jones	Manager	783	1981-04-02	20	0.00	2300.00		
765	Martin	Sales_man	784	1981-04-22	30	1400.00	1250.00		
769	Blake	Manager	783	1981-05-01	30	0.00	2870.00		
778	Clark	Manager	783	1981-06-09	10	0.00	2900.00		
NULL									
784	Turner	Sales_man	769	1981-09-08	30	0.00	1450.00		
787	Adams	Clerk	778	1983-01-12	20	0.00	1150.00		
788	Scott	Analyst	756	1982-12-09	20	0.00	2850.00		
790	James	Clerk	769	1981-12-03	30	0.00	950.00		
792	Ford	Analyst	756	1981-12-03	20	0.00	2600.00		
793	Miller	Clerk	788	1982-01-23	40	0.00	1300.00		

14 rows in set (0.00 sec)

5. select Ename,Salary from employee where (Salary+Commission)>2850;

```
mysql> select Ename,Salary from employee where (Salary+Commission)>2850;
```

Ename	Salary
Blake	2870.00
Clark	2900.00
King	2950.00

3 rows in set (0.00 sec)

6. select Ename,Dno from employee where Eno=79;

```
mysql> select Ename,Dno from employee where Eno=79;
```

Empty set (0.03 sec)

7. select Ename,Salary from employee where salary not between 1500 and 2850;

```
mysql> select Ename,Salary from employee where salary not between 1500 and 2850;
```

Ename	Salary
Smith	1000.00
Ward	1300.00
Martin	1250.00
Blake	2870.00
Clark	2900.00
King	2950.00
Turner	1450.00
Adams	1150.00
James	950.00
Miller	1300.00

10 rows in set (0.00 sec)

8. select Ename,Dno from employee where Dno=10 or Dno=30 order by Ename;

```
mysql> select Ename,Dno from employee where Dno=10 or Dno=30 order by Ename;
+-----+-----+
| Ename | Dno |
+-----+-----+
| Allan | 30 |
| Blake | 30 |
| Clark | 10 |
| James | 30 |
| King  | 10 |
| Martin| 30 |
| Turner| 30 |
| Ward  | 30 |
+-----+-----+
8 rows in set (0.00 sec)
```

9. select Ename,Hire_date from Employee where Hire_date like "1981%";

```
mysql> select Ename,Hire_date from Employee where Hire_date like "1981%";
+-----+-----+
| Ename | Hire_date |
+-----+-----+
| Smith | 1981-12-17 |
| Allan | 1981-02-20 |
| Ward  | 1981-02-22 |
| Jones | 1981-04-02 |
| Martin| 1981-04-22 |
| Blake | 1981-05-01 |
| Clark | 1981-06-09 |
| King  | 1981-11-17 |
| Turner| 1981-09-08 |
| James | 1981-12-03 |
| Ford  | 1981-12-03 |
+-----+-----+
11 rows in set (0.00 sec)
```

10. select Ename,Job_type from Employee where SupervisonEno is NULL;

```
mysql> select Ename,Job_type from Employee where SupervisonEno is NULL;
+-----+-----+
| Ename | Job_type |
+-----+-----+
| King  | President |
+-----+-----+
1 row in set (0.00 sec)
```

11&12. select Ename,Salary,Commission from employee where Commission>0.0 order by salary desc, commission desc;

```
mysql> select Ename,Salary,Commission from employee where Commission>0.0 order by salary desc, commission desc;
+-----+-----+-----+
| Ename | Salary | Commission |
+-----+-----+-----+
| Allan | 2000.00 | 300.00 |
| Ward  | 1300.00 | 500.00 |
| Martin| 1250.00 | 1400.00 |
+-----+-----+-----+
3 rows in set (0.00 sec)
```

13. select Ename from employee where Ename like "__a%";

```
mysql> select Ename from employee where Ename like "__a%";
+-----+
| Ename |
+-----+
| Blake |
| Clark |
| Adams |
+-----+
3 rows in set (0.00 sec)
```

14. select Ename from employee where Ename like "%r%r%" or Ename like "%a%a%" and Dno=30 or SupervisonEno=7788;

```
mysql> select Ename from employee where Ename like "%r%r%" or Ename like "%a%a%" and Dno=30 or SupervisonEno=7788;
+-----+
| Ename |
+-----+
| Allan |
| Turner |
+-----+
2 rows in set (0.00 sec)
```

15. select Ename,Salary,Commission from employee where Commission > (Salary*1.05);

```
mysql> select Ename,Salary,Commission from employee where Commission > (Salary*1.05);
+-----+-----+-----+
| Ename | Salary | Commission |
+-----+-----+-----+
| Martin| 1250.00 | 1400.00 |
+-----+-----+-----+
1 row in set (0.00 sec)
```

16. select curdate(),dayname(curdate());

```
mysql> select curdate(),dayname(curdate());
+-----+-----+
| curdate() | dayname(curdate()) |
+-----+-----+
| 2023-05-06 | Saturday           |
+-----+-----+
1 row in set (0.02 sec)
```

17. select Ename,Hire_date,date_add(date_add(Hire_date,interval 6 month),interval(7-weekday(date_add(Hire_date,interval 6 month)))day) as Salary_Review_Date from employee;

```
mysql> select Ename,Hire_date,date_add(date_add(Hire_date,interval 6 month),interval(7-weekday(date_add(Hire_date,interval 6 month)))day) as Salary_Review_Date from employee;
+-----+-----+-----+
| Ename | Hire_date | Salary_Review_Date |
+-----+-----+-----+
| Smith | 1981-12-17 | 1982-05-21         |
| Allen | 1981-02-20 | 1981-08-24         |
| Ward | 1981-02-22 | 1981-08-26         |
| Jones | 1981-04-02 | 1981-10-05         |
| Martin | 1981-04-22 | 1981-10-26         |
| Blake | 1981-05-01 | 1981-11-02         |
| Clark | 1981-06-09 | 1981-12-14         |
| King | 1981-11-17 | 1982-05-24         |
| Turner | 1981-09-08 | 1982-03-15         |
| Adams | 1981-01-12 | 1981-07-18         |
| Scott | 1982-12-09 | 1983-06-13         |
| James | 1981-12-01 | 1982-06-07         |
| Ford | 1981-12-03 | 1982-06-07         |
| Miller | 1982-01-23 | 1982-07-26         |
+-----+-----+-----+
14 rows in set (0.00 sec)
```

18. select Ename, 12*(year(curdate())-year(Hire_date))+month(curdate())-month(Hire_date) as Month from employee;

```
mysql> select Ename, 12*(year(curdate())-year(Hire_date))+month(curdate())-month(Hire_date) as Month from employee;
+-----+-----+
| Ename | Month |
+-----+-----+
| Smith | 497 |
| Allen | 507 |
| Ward | 507 |
| Jones | 505 |
| Martin | 505 |
| Blake | 504 |
| Clark | 503 |
| King | 498 |
| Turner | 500 |
| Adams | 484 |
| Scott | 485 |
| James | 497 |
| Ford | 497 |
| Miller | 496 |
+-----+-----+
14 rows in set (0.00 sec)
```

19. select concat(Ename," earns ",Salary," monthly but wants ",3*Salary) as Dream_Salary from employee;


```
mysql> select concat(Ename," earns ",Salary," monthly but wants ",3*Salary) as Dream_Salary from employee;
```

Dream_Salary
Smith earns 1000.00 monthly but wants 3000.00
Allan earns 2000.00 monthly but wants 6000.00
Ward earns 1300.00 monthly but wants 3900.00
Jones earns 2300.00 monthly but wants 6900.00
Martin earns 1250.00 monthly but wants 3750.00
Blake earns 2870.00 monthly but wants 8610.00
Clark earns 2900.00 monthly but wants 8700.00
King earns 2950.00 monthly but wants 8850.00
Turner earns 1450.00 monthly but wants 4350.00
Adams earns 1150.00 monthly but wants 3450.00
Scott earns 2850.00 monthly but wants 8550.00
James earns 950.00 monthly but wants 2850.00
Ford earns 2600.00 monthly but wants 7800.00
Miller earns 1300.00 monthly but wants 3900.00

```
14 rows in set (0.00 sec)
```

20. select concat(upper(substring(Ename,1,1)),Lower(substring(Ename,2,50))) as Name, length(Ename) as Length from employee where Ename like "J%" or Ename like "A%" or Ename like "M%";

```
mysql> select concat(upper(substring(Ename,1,1)),Lower(substring(Ename,2,50))) as Name, length(Ename) as Length from employee where Ename like "J%" or Ename like "A%" or Ename like "M%";
```

Name	Length
Allan	5
Jones	5
Martin	6
Adams	5
James	5
Miller	6

```
6 rows in set (0.00 sec)
```

21. select Ename,Hire_date,dayname(Hire_date) as Week_Day from employee;

```
mysql> select Ename,Hire_date,dayname(Hire_date) as Week_Day from employee;
```

Ename	Hire_date	Week_Day
Smith	1981-12-17	Thursday
Allan	1981-02-20	Friday
Ward	1981-02-22	Sunday
Jones	1981-04-02	Thursday
Martin	1981-04-22	Wednesday
Blake	1981-05-01	Friday
Clark	1981-06-09	Tuesday
King	1981-11-17	Tuesday
Turner	1981-09-08	Tuesday
Adams	1983-01-12	Wednesday
Scott	1982-12-09	Thursday
James	1981-12-03	Thursday
Ford	1981-12-03	Thursday
Miller	1982-01-23	Saturday

```
14 rows in set (0.00 sec)
```

22. select e.Ename,d.Dname,e.Dno from employee as e, department as d where e.Dno=d.Dno

```
mysql> select e.Ename,d.Dname,e.Dno from employee as e,department as d where e.Dno=d.Dno;
```

Ename	Dname	Dno
Clark	Accounting	10
King	Accounting	10
Smith	Research	20
Jones	Research	20
Adams	Research	20
Scott	Research	20
Ford	Research	20
Allan	Sales	30
Ward	Sales	30
Martin	Sales	30
Blake	Sales	30
Turner	Sales	30
James	Sales	30
Miller	Operation	40

```
14 rows in set (0.00 sec)
```

23. select distinct Job_type from employee where Dno=30;

```
mysql> select distinct Job_type from employee where Dno=30;
```

Job_type
Sales_man
Manager
Clerk

```
3 rows in set (0.00 sec)
```

24. select e.Ename,d.Dname from employee as e,department as d where Ename like "%a%" and e.Dno=d.Dno;

```
mysql> select e.Ename,d.Dname from employee as e,department as d where Ename like "%a%" and e.Dno=d.Dno;
```

Ename	Dname
Allan	Sales
Ward	Sales
Martin	Sales
Blake	Sales
Clark	Accounting
Adams	Research
James	Sales

```
7 rows in set (0.00 sec)
```

25. select e.Ename,e.Job_type,e.Dno,d.Dname from employee as e,department as d where

d.Location="Bengaluru" and e.Dno=d.Dno;

```
mysql> select e.Name,e.Job_type,e.Dno,d.Dname from employee as e,department as d where d.Location="Bengaluru" and e.Dno=d.Dno;
```

Name	Job_type	Dno	Dname
Smith	Clerk	20	Research
Jones	Manager	20	Research
Adams	Clerk	20	Research
Scott	Analyst	20	Research
Ford	Analyst	20	Research

5 rows in set (0.00 sec)

26. select e.Name as Sname,e.Eno as S_Eno,d.Name,d.Eno from employee as e left outer join employee as d on e.Eno=d.SupervisorEno;

```
mysql> select e.Name as Sname,e.Eno as S_Eno,d.Name,d.Eno from employee as e left outer join employee as d on e.Eno=d.SupervisorEno;
```

Sname	S_Eno	Name	Eno
Smith	736	NULL	NULL
Allan	749	NULL	NULL
Ward	752	NULL	NULL
Jones	756	Scott	788
Jones	756	Ford	792
Martin	765	NULL	NULL
Blake	769	Allan	749
Blake	769	Ward	752
Blake	769	Turner	784
Blake	769	James	790
Clark	778	Adams	787
King	783	Jones	756
King	783	Blake	769
King	783	Clark	778
Turner	784	Martin	765
Adams	787	NULL	NULL
Scott	788	Miller	793
James	790	Smith	736
Ford	792	NULL	NULL
Miller	793	NULL	NULL

20 rows in set (0.00 sec)

27. select Ename,Eno,Salary from employee where (Eno,Salary) in (select Eno,Salary from employee where commission>0);

```
mysql> select Ename,Eno,Salary from employee where (Eno,Salary) in (select Eno,Salary from employee where commission>0);
```

Ename	Eno	Salary
Allan	749	2000.00
Ward	752	1300.00
Martin	765	1250.00

3 rows in set (0.00 sec)

28. select Ename,repeat(" ",(Salary/100)) as Salary_In_Star from employee;

```
mysql> select Ename,repeat(" ",(Salary/100)) as Salary_In_Star from employee;
```

Ename	Salary_In_Star
Smith	*****
Allan	*****
Ward	*****
Jones	*****
Martin	*****
Blake	*****
Clark	*****
King	*****
Turner	*****
Adams	*****
Scott	*****
James	*****
Ford	*****
Miller	*****

```
14 rows in set (0.00 sec)
```

29. select max(Salary),min(Salary),sum(Salary),avg(Salary) from employee;

```
mysql> select max(Salary),min(Salary),sum(Salary),avg(Salary) from employee;
```

max(Salary)	min(Salary)	sum(Salary)	avg(Salary)
2950.00	950.00	26870.00	1919.285714

```
1 row in set (0.04 sec)
```

30. select Job_type, count(*) from employee group by Job_type;

```
mysql> select Job_type, count(*) from employee group by Job_type;
```

Job_type	count(*)
Clerk	4
Sales_man	4
Manager	3
President	1
Analyst	2

```
5 rows in set (0.00 sec)
```

31. select count(distinct SupervisorEno) from employee;

```
mysql> select count(distinct SupervisonEno) from employee;
+-----+
| count(distinct SupervisonEno) |
+-----+
| 7 |
+-----+
1 row in set (0.00 sec)
```

32. select d.Dname,d.Location,avg(e.Salary),count(*) from employee as e,department as d where e.Dno=d.Dno group by d.Dname,d.Location;

```
mysql> select d.Dname,d.Location,avg(e.Salary),count(*) from employee as e,department as d where e.Dno=d.Dno group by d.Dname,d.Location;
+-----+-----+-----+-----+
| Dname | Location | avg(e.Salary) | count(*) |
+-----+-----+-----+-----+
| Research | Bengaluru | 1980.000000 | 5 |
| Sales | Chicago | 1636.666667 | 6 |
| Accounting | New York | 2925.000000 | 2 |
| Operation | Boston | 1300.000000 | 1 |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

33. select Ename,Hire_date from Employee where Dno=(select Dno from employee where Ename="Blake");

```
mysql> select Ename,Hire_date from Employee where Dno=(select Dno from employee where Ename="Blake");
+-----+-----+
| Ename | Hire_date |
+-----+-----+
| Allan | 1981-02-20 |
| Ward | 1981-02-22 |
| Martin | 1981-04-22 |
| Blake | 1981-05-01 |
| Turner | 1981-09-08 |
| James | 1981-12-03 |
+-----+-----+
6 rows in set (0.00 sec)
```

34. select Eno, Ename from employee where Salary>(select avg(Salary) from employee);

```
mysql> select Eno, Ename from employee where Salary>(select avg(Salary) from employee);
+-----+-----+
| Eno | Ename |
+-----+-----+
| 749 | Allan |
| 756 | Jones |
| 769 | Blake |
| 778 | Clark |
| 783 | King |
| 788 | Scott |
| 792 | Ford |
+-----+-----+
7 rows in set (0.00 sec)
```

35. select e.Eno,e.Ename from employee as e, employee as d where e.SupervisonEno=d.Eno and d.Ename like "%t%";

```
mysql> select e.Eno,e.Ename from employee as e, employee as d where e.SupervisonEno=d.Eno and d.Ename like "%t%";
+-----+-----+
| Eno | Ename |
+-----+-----+
| 765 | Martin |
| 793 | Miller |
+-----+-----+
2 rows in set (0.00 sec)
```

36. select Ename,Salary from employee where SupervisonEno=(select Eno from employee where Ename="King");

```
mysql> select Ename,Salary from employee where SupervisonEno=(select Eno from employee where Ename="King");
+-----+-----+
| Ename | Salary |
+-----+-----+
| Jones | 2300.00 |
| Blake | 2870.00 |
| Clark | 2900.00 |
+-----+-----+
3 rows in set (0.00 sec)
```

37. select d.Dno,e.Ename,d.Dname,e.Job_type from employee as e,department as d where d.Dno=e.Dno and d.Dname="Sales";

```
mysql> select d.Dno,e.Ename,d.Dname,e.Job_type from employee as e,department as d where d.Dno=e.Dno and d.Dname="Sales";
+-----+-----+-----+-----+
| Dno | Ename | Dname | Job_type |
+-----+-----+-----+-----+
| 30 | Allan | Sales | Sales_man |
| 30 | Ward | Sales | Sales_man |
| 30 | Martin | Sales | Sales_man |
| 30 | Blake | Sales | Manager |
| 30 | Turner | Sales | Sales_man |
| 30 | James | Sales | Clerk |
+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```