

Labcycle-1

I. DDL commands

Question:1

Create the database named HR and the above tables in the HR database; include the Primary Key Constraint, Referential Integrity Constraints as shown in the schema diagram

```
create database HR;
use HR;
create table regions(region_id int(3) primary key,region_name varchar(25));
create table countries(country_id varchar(5) primary key,country_name varchar(40),region_id
int(3),foreign key(region_id) references regions(region_id));

create table locations(location_id int(10) primary key,street_address varchar(25),postal_code
varchar(12),city varchar(30),state_province varchar(12),country_id varchar(5),foreign key(country_id)
references countries(country_id));

create table departments(department_id int(10) primary key,department_name
varchar(30),manager_id int(10),location_id int(10),foreign key(location_id) references
locations(location_id));
create table jobs(job_id varchar(10) primary key,job_title varchar(35),min_salary int(10),max_salary
int(10));
create table employees(employee_id int(10) primary key,first_name varchar(20),last_name
varchar(25),email varchar(25),phone_number varchar(20),hire_date date,job_id varchar(10),salary
int(10),commission_pct int(10),manager_id int(10),department_id int(10),foreign key(job_id) references
jobs(job_id),foreign key(department_id) references departments(department_id));
create table job_history(employee_id int(10),start_date date primary key,end_date date,job_id
varchar(10),department_id int(10),foreign key(job_id) references jobs(job_id),foreign
key(department_id) references departments(department_id),foreign key(employee_id) references
employees(employee_id));
create table job_grades(grade_level varchar(2) primary key,lowest_sal int(10),highest_sal int(10));
```

Question:2

Add a field Circle to the table regions with the default value set to 'East' and display its modified schema.

```
alter table regions add circle varchar(3);
alter table regions modify circle varchar(5) default 'East';
desc regions;
```

```
mysql> desc regions;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| region_id  | int           | NO   | PRI | NULL    |       |
| region_name | varchar(25)   | YES  |     | NULL    |       |
| circle     | varchar(5)    | YES  |     | East    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.82 sec)
```

Question:3

Set a constraint to the SALARY field in the employees table that accepts only amount greater than zero.

```
alter table employees modify salary number(10) check(salary>0);  
desc employees;
```

```
mysql> desc employees;  
+-----+-----+-----+-----+-----+-----+  
| Field          | Type          | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| employee_id    | int           | NO   | PRI | NULL    |       |  
| first_name     | varchar(20)   | YES  |     | NULL    |       |  
| last_name      | varchar(25)   | YES  |     | NULL    |       |  
| email          | varchar(25)   | YES  |     | NULL    |       |  
| phone_number   | varchar(20)   | YES  |     | NULL    |       |  
| hire_date      | date          | YES  |     | NULL    |       |  
| job_id         | varchar(10)   | YES  | MUL | NULL    |       |  
| salary         | int           | YES  |     | NULL    |       |  
| commission_pct | int           | YES  |     | NULL    |       |  
| manager_id     | int           | YES  |     | NULL    |       |  
| department_id  | int           | YES  | MUL | NULL    |       |  
+-----+-----+-----+-----+-----+-----+  
11 rows in set (0.13 sec)
```

Question:4

Modify the table countries by changing the width of the field COUNTRY_NAME to 30

```
alter table countries modify country_name varchar(30);  
desc countries;
```

```
mysql> desc countries;  
+-----+-----+-----+-----+-----+-----+  
| Field          | Type          | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| country_id     | varchar(5)    | NO   | PRI | NULL    |       |  
| country_name   | varchar(30)   | YES  |     | NULL    |       |  
| region_id     | int           | YES  | MUL | NULL    |       |  
+-----+-----+-----+-----+-----+-----+  
3 rows in set (0.11 sec)
```

Question:5

Make the PHONE_NUMBER field in employees unique and check the EMAIL is a valid gmail account

```
alter table employees modify email varchar(25) check(email like '_%@%.%');  
alter table employees modify phone_number varchar(20) unique;
```

Question :6

Drop the column Circle from the regions table.

alter table regions drop column circle;
desc regions;

```
mysql> desc regions;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| region_id  | int           | NO   | PRI | NULL    |      |
| region_name | varchar(25)   | YES  |     | NULL    |      |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.42 sec)
```

Question:7

Create a view for employees who get commission by hiding salary information. Display the contents of created view.

create view view_name as select
employee_id,first_name,last_name,email,phone_number,hire_date,job_id,commission_pct,manager_id
,department_id from employees where commission_pct!=0;
view created.

```
mysql> create view view_name as select employee_id,first_name,last_name,email,phone_number,hire_date,job_id,commission_pct,manager_id,department_id from employees where commission_pct!=0;
Query OK, 0 rows affected (0.40 sec)
```

II. DML commands

Question:8

Insert details in the above tables using the values given below.

insert into regions values(1,'zone1');
insert into regions values(2,'zone2');
insert into regions values(3,'zone3');
insert into regions values(4,'zone4');
select *from regions;

```
mysql> select *from regions;
+-----+-----+
| region_id | region_name |
+-----+-----+
|          1 | zone1       |
|          2 | zone2       |
|          3 | zone3       |
|          4 | zone4       |
+-----+-----+
4 rows in set (0.06 sec)
```

```

insert into countries values('AU','AUSTRALIA',3);
insert into countries values('CA','CANADA',2);
insert into countries values('CN','CHINA',3);
insert into countries values('IN','INDIA',1);
insert into countries values('US','AMERICA',2);
insert into countries values('JP','JAPAN',4);
insert into countries values('IT','ITALY',1);
insert into countries values('MX','MEXICO',2);
insert into countries values('UK','UNITED KINGDOM',1);
select *from countries;

```

```
mysql> select *from countries;
```

country_id	country_name	region_id
AU	AUSTRALIA	3
CA	CANADA	2
CN	CHINA	3
IN	INDIA	1
IT	ITALY	1
JP	JAPAN	4
MX	MEXICO	2
UK	UNITED KINGDOM	1
US	AMERICA	2

9 rows in set (0.00 sec)

```

insert into locations values(1000,'147 BOX WOOD ST.','15643','ROMA','NIL','IT');
insert into locations values(1100,'234 CHURCH RD.','23416','TOKYO','TOKYO PREFECTURE','JP');
insert into locations values(1100,'234 CHURCH RD.','23416','TOKYO','TOKPREFECT','JP');
insert into locations values(1200,'12/98 VICTORIA RD.','1657','TORONTO','ONTARIO','CA');
insert into locations values(1300,'820 ARTHUR RD.','NIL','LONDON','NIL','UK');
insert into locations values(1400,'2004 CAROL RD.','7645','SEATTLE','WASHINGTON','US');
insert into locations values(1500,'12 CHESTER RD.','8732','WHITEHORSE','YUKON','CA');
insert into locations values(1600,'MARIANO 9991','11932','MEXICO CITY','DISTRITO FED','MX');
insert into locations values(1700,'CROWN HILL','678','BROWNSWICK','NEW JERSEY','US');
insert into locations values(1800,'123 MARINA RD.','123456','MUMBAI','MAHARASHTRA','IN');
insert into locations values(1900,'29 SEA LANE','3456','SYDNEY','NEW S.WALES','AU');
select *from locations;

```

```
mysql> select *from locations;
```

location_id	street_address	postal_code	city	state_province	country_id
1000	147 BOX WOOD ST.	15643	ROMA	NULL	IT
1100	234 CHURCH RD.	23416	TOKYO	TOKYO PREFECTURE	JP
1200	12/98 VICTORIA RD.	1657	TORONTO	ONTARIO	CA
1300	820 ARTHUR RD.	NULL	LONDON	NULL	UK
1400	2004 CAROL RD	7645	SEATTLE	WASHINGTON	US
1500	12 CHESTER RD.	8732	WHITEHORSE	YUKON	CA
1600	MARIANO 9991	11932	MEXICO CITY	DISTRITO FEDERAL	MX
1700	CROWN HILL	678	BROWNSWICK	NEW JERSEY	US
1800	123 MARINA RD.	123456	MUMBAI	MAHARASHTRA	IN
1900	29 SEA LANE	3456	SYDNEY	NEW SOUTH WALES	AU

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

```
insert into departments values(10,'Administration',200,1700);
```

```
insert into departments values(20,'Marketing',201,1900);
```

```
insert into departments values(30,'Purchasing',114,1700);
```

```
insert into departments values(40,'Human Resource',203,1000);
```

```
insert into departments values(50,'Finance',108,1200);
```

```
insert into departments values(60,'Accounting',205,1800);
```

```
insert into departments values(70,'Shipping',121,1500);
```

```
insert into departments values(80,'Sales',145,1900);
```

```
insert into departments values(90,'Manufacturing',0,1700);
```

```
insert into departments values(100,'Construction',0,1300);
```

```
insert into departments values(110,'IT',103,1400);
```

```
insert into departments values(120,'Recruiting',0,1600);
```

```
insert into departments values(130,'Payroll',100,1800);
```

```
select *from departments;
```

```
mysql> select *from departments;
```

department_id	department_name	manager_id	location_id
10	Administration	200	1700
20	Marketing	201	1900
30	Purchasing	114	1700
40	Human Resource	203	1000
50	Finance	108	1200
60	Accounting	205	1800
70	Shipping	121	1500
80	Sales	145	1900
90	Manufacturing	0	1700
100	Construction	0	1300
110	IT	103	1400
120	Recruiting	0	1600
130	Payroll	100	1800

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

```

insert into jobs values('AD_PRES','PRESIDENT',20080,40000);
insert into jobs values('SA_REP','SALES REPRESENTATIVES',6000,12008);
insert into jobs values('AD_VP','ADMIN.VICE PRESIDENT',15000,30000);
insert into jobs values('IT_PROG','PROGRAMMER',6000,11000);
insert into jobs values('SA_MAN','SALES MANAGER',10000,20080);
insert into jobs values('CLERK','CLERK',2500,7000);
insert into jobs values('HR_REP','HR REPRESENTATIVE',5000,10000);
insert into jobs values('ACCOUNTANT','ACCOUNTANT',4200,9000);
insert into jobs values('FIN_MAN','FINANCE MANAGER',8200,16000);
select *from jobs;

```

```
mysql> select *from jobs;
```

job_id	job_title	min_salary	max_salary
ACCOUNTANT	ACCOUNTANT	4200	9000
AD_PRES	PRESIDENT	20080	40000
AD_VP	ADMIN.VICE PRESIDENT	15000	30000
CLERK	CLERK	2500	7000
FIN_MAN	FINANCE MANAGER	8200	16000
HR_REP	HR REPRESENTATIVE	5000	10000
IT_PROG	PROGRAMMER	6000	11000
SA_MAN	SALES MANAGER	10000	20080
SA_REP	SALES REPRESENTATIVES	6000	12008

```

9 rows in set (0.00 sec)

```

```

insert into employees values(100,'STEVEN','KING','SKING@GMAIL.COM',8182345210,'2003-06-17','AD_PRES',28000,0,0,90);
insert into employees values(101,'NEENA','KOCHHAR','NKOCHHAR@GMAIL.COM',9897561234,'2005-09-21','AD_VP',22000,0,100,130);
insert into employees values(102,'LEX','DE HAAN','LDEHAAN@GMAIL.COM',9554667890,'2001-01-13','AD_VP',30000,0,100,130);
insert into employees values(103,'ALEXANDER','HUNOLD','AHUNOLD@GMAIL.COM',8678905431,'2006-01-03','IT_PROG',10500,0,103,110);
insert into employees values(104,'DAVID','AUSTIN','DAUSTIN@GMAIL.COM',9495235678,'2007-05-10','IT_PROG',10000,0,103,110);
insert into employees values(105,'DIANA','LORENTZ','DLORENTZ@GMAIL.COM',9876542310,'2009-11-20','IT_PROG',8000,0,103,110);
insert into employees values(106,'NANCY','GREENBERG','NGREEN@GMAIL.COM',8769054324,'2010-10-30','IT_PROG',7000,0,103,110);
insert into employees values(107,'JOHN','RUSSEL','JRUSSEL@GMAIL.COM',6778653490,'2004-10-09','SA_MAN',14000,0.4,201,20);
insert into employees values(108,'PETER','TUKER','PTUKER@GMAIL.COM',9067865423,'2005-01-30','SA_MAN',10000,0.3,201,20);
insert into employees values(109,'NEIL','JOSEPH','NJOSEPH@GMAIL.COM',7689054321,'2006-03-31','SA_MAN',12000,0.2,201,20);
insert into employees values(110,'JANETTE','KING','JKING@GMAIL.COM',9809897645,'2006-03-04','SA_REP',10000,0.35,145,80);

```

```

insert into employees values(111,'WILLIAM','JOHN','WJOHN@GMAIL.COM',7682315672,'2008-11-23','CLERK',6000,0,200,10);
insert into employees values(112,'ANITTA','BAKER','ABAKER@GMAIL.COM',2345678910,'2010-09-15','HR_REP',9000,0,203,40);
insert into employees values(113,'NANDITA','MOHAN','NMOHAN@GMAIL.COM',94445634213,'2014-07-20','ACCOUNTANT',8000,0,205,60);
insert into employees values(114,'SUSAN','VARKEY','SVARKEY@GMAIL.COM',8976054321,'2004-12-14','FIN_MAN',15000,0,108,50);
select *from employees;

```

```

mysql> select *from employees;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| employee_id | first_name | last_name | email | phone_number | hire_date | job_id | salary | commission_pct | manager_id | department_id |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 100 | STEVEN | KING | SKING@GMAIL.COM | 8182345210 | 2003-06-17 | AD_PRES | 28000 | 0 | 0 | 90 |
| 101 | NEENA | KOCHHAR | NKOCHHAR@GMAIL.COM | 9897561234 | 2005-09-21 | AD_VP | 22000 | 0 | 100 | 130 |
| 102 | LEX | DE HAAN | LDEHAAN@GMAIL.COM | 9554667890 | 2001-01-13 | AD_VP | 30000 | 0 | 100 | 130 |
| 103 | ALEXANDER | HUNOLD | AHUNOLD@GMAIL.COM | 8678905431 | 2006-01-03 | IT_PROG | 10500 | 0 | 103 | 110 |
| 104 | DAVID | AUSTIN | DAUSTIN@GMAIL.COM | 9495235678 | 2007-05-10 | IT_PROG | 10000 | 0 | 103 | 110 |
| 105 | DIANA | LORENTZ | DLORENTZ@GMAIL.COM | 9876542310 | 2009-11-20 | IT_PROG | 8000 | 0 | 103 | 110 |
| 106 | NANCY | GREENBERG | NGREEN@GMAIL.COM | 8769054324 | 2010-10-30 | IT_PROG | 7000 | 0 | 103 | 110 |
| 107 | JOHN | RUSSEL | JRUSSEL@GMAIL.COM | 6778653490 | 2004-10-09 | SA_MAN | 14000 | 0 | 201 | 20 |
| 108 | PETER | TUKER | PTUKER@GMAIL.COM | 9067865423 | 2005-01-30 | SA_MAN | 10000 | 0 | 201 | 20 |
| 109 | NEIL | JOSEPH | NJOSEPH@GMAIL.COM | 7689054321 | 2006-03-31 | SA_MAN | 12000 | 0 | 201 | 20 |
| 110 | JANETTE | KING | JKING@GMAIL.COM | 9809897645 | 2006-03-04 | SA_REP | 10000 | 0 | 145 | 80 |
| 111 | WILLIAM | JOHN | WJOHN@GMAIL.COM | 7682315672 | 2008-11-23 | CLERK | 6000 | 0 | 200 | 10 |
| 112 | ANITTA | BAKER | ABAKER@GMAIL.COM | 2345678910 | 2010-09-15 | HR_REP | 9000 | 0 | 203 | 40 |
| 113 | NANDITA | MOHAN | NMOHAN@GMAIL.COM | 94445634213 | 2014-07-20 | ACCOUNTANT | 8000 | 0 | 205 | 60 |
| 114 | SUSAN | VARKEY | SVARKEY@GMAIL.COM | 8976054321 | 2004-12-14 | FIN_MAN | 15000 | 0 | 108 | 50 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
15 rows in set (0.00 sec)

```

```

insert into job_grades values('A',1000,2999);
insert into job_grades values('B',3000,5999);
insert into job_grades values('C',6000,9999);
insert into job_grades values('D',10000,14999);
insert into job_grades values('E',15000,24999);
insert into job_grades values('F',25000,40000);
select *from job_grades;

```

```

mysql> select *from job_grades;
+-----+-----+-----+
| grade_level | lowest_sal | highest_sal |
+-----+-----+-----+
| A | 1000 | 2999 |
| B | 3000 | 5999 |
| C | 6000 | 9999 |
| D | 10000 | 14999 |
| E | 15000 | 24999 |
| F | 25000 | 40000 |
+-----+-----+-----+
6 rows in set (0.00 sec)

```



```

insert into job_history values(102,'2001-01-13','2006-07-24','IT_PROG',110);
insert into job_history values(101,'1997-09-21','2001-10-27','ACCOUNTANT',60);
insert into job_history values(101,'2001-10-28','2005-03-15','FIN_MAN',50);
insert into job_history values(112,'2004-02-17','2007-12-19','HR_REP',40);
insert into job_history values(114,'2006-03-24','2007-12-31','CLERK',10);
insert into job_history values(112,'2007-01-01','2007-12-31','AD_VP',130);
insert into job_history values(109,'2006-03-23','2006-12-31','SA_MAN',20);
insert into job_history values(105,'2002-07-01','2005-12-31','SA_REP',110);
insert into job_history values(105,'2006-02-17','2007-12-19','IT_PROG',110);
select *from job_history;

```

```

mysql> select *from job_history;
+-----+-----+-----+-----+-----+
| employee_id | start_date | end_date | job_id | department_id |
+-----+-----+-----+-----+-----+
|          101 | 1997-09-21 | 2001-10-27 | ACCOUNTANT |          60 |
|          102 | 2001-01-13 | 2006-07-24 | IT_PROG |          110 |
|          101 | 2001-10-28 | 2005-03-15 | FIN_MAN |           50 |
|          105 | 2002-07-01 | 2005-12-31 | SA_REP |          110 |
|          112 | 2004-02-17 | 2007-12-19 | HR_REP |           40 |
|          105 | 2006-02-17 | 2007-12-19 | IT_PROG |          110 |
|          109 | 2006-03-23 | 2006-12-31 | SA_MAN |           20 |
|          114 | 2006-03-24 | 2007-12-31 | CLERK |           10 |
|          112 | 2007-01-01 | 2007-12-31 | AD_VP |          130 |
+-----+-----+-----+-----+-----+
9 rows in set (0.00 sec)

```

Question:9

Update the street_Address of Roma city to 115 Monte Carlo Rd. in locations table.

```

update locations set street_address='115 MONTE CARLO RD.' where city='ROMA';
select *from locations;

```

```

mysql> update locations set street_address='115 MONTE CARLO RD.' where city='ROMA';
Query OK, 1 row affected (0.12 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select *from locations;
+-----+-----+-----+-----+-----+-----+
| location_id | street_address | postal_code | city | state_province | country_id |
+-----+-----+-----+-----+-----+-----+
|          1000 | 115 MONTE CARLO RD. | 15643 | ROMA | NULL | IT |
|          1100 | 234 CHURCH RD. | 23416 | TOKYO | TOKYO PREFECTURE | JP |
|          1200 | 12/98 VICTORIA RD. | 1657 | TORONTO | ONTARIO | CA |
|          1300 | 820 ARTHUR RD. | NULL | LONDON | NULL | UK |
|          1400 | 2004 CAROL RD | 7645 | SEATTLE | WASHINGTON | US |
|          1500 | 12 CHESTER RD. | 8732 | WHITEHORSE | YUKON | CA |
|          1600 | MARIANO 9991 | 11932 | MEXICO CITY | DISTRITO FEDERAL | MX |
|          1700 | CROWN HILL | 678 | BROWNSWICK | NEW JERSEY | US |
|          1800 | 123 MARINA RD. | 123456 | MUMBAI | MAHARASHTRA | IN |
|          1900 | 29 SEA LANE | 3456 | SYDNEY | NEW SOUTH WALES | AU |
+-----+-----+-----+-----+-----+-----+
10 rows in set (0.00 sec)

```


Question:10

Give a 15% increment in salary for all employees

```
update employees set salary=salary+salary*0.15;
```

```
mysql>
mysql> update employees set salary=salary+salary*0.15;
Query OK, 15 rows affected (0.15 sec)
Rows matched: 15  Changed: 15  Warnings: 0
```

Question: 11

Add a new employee in the 'Recruiting' department as clerk and set joining date as today's date.

```
insert into employees values(115,'JAIDEN','ALEX','JAI@GMAIL.COM',9496131093,'2021-08-12','CLERK',2500,0,0,120);
```

```
select *from employees;
```

```
mysql> select *from employees;
```

employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	commission_pct	manager_id	department_id
100	STEVEN	KING	SKING@GMAIL.COM	8182345210	2003-06-17	AD PRES	32200	0	0	90
101	NEENA	KOCHHAR	NKOCHHAR@GMAIL.COM	9897561234	2005-09-21	AD_VP	25300	0	100	130
102	LEX	DE HAAN	LDEHAAN@GMAIL.COM	9554667890	2001-01-13	AD_VP	34500	0	100	130
103	ALEXANDER	HUNOLD	AHUNOLD@GMAIL.COM	8678905431	2006-01-03	IT_PROG	12075	0	103	110
104	DAVID	AUSTIN	DAUSTIN@GMAIL.COM	9495235678	2007-05-10	IT_PROG	11500	0	103	110
105	DIANA	LORENTZ	DLORENTZ@GMAIL.COM	9876542310	2009-11-20	IT_PROG	9200	0	103	110
106	NANCY	GREENBERG	NGREEN@GMAIL.COM	8769054324	2010-10-30	IT_PROG	8050	0	103	110
107	JOHN	RUSSEL	JRUSSEL@GMAIL.COM	6778653490	2004-10-09	SA_MAN	16100	0	201	20
108	PETER	TUKER	PTUKER@GMAIL.COM	9067865423	2005-01-30	SA_MAN	11500	0	201	20
109	NEIL	JOSEPH	NJOSEPH@GMAIL.COM	7689054321	2006-03-31	SA_MAN	13800	0	201	20
110	JANETTE	KING	JKING@GMAIL.COM	9809897645	2006-03-04	SA_REP	11500	0	145	80
111	WILLIAM	JOHN	WJOHN@GMAIL.COM	7682315672	2008-11-23	CLERK	6900	0	200	10
112	ANITTA	BAKER	ABAKER@GMAIL.COM	2345678910	2010-09-15	HR_REP	10350	0	203	40
113	NANDITA	MOHAN	NMOHAN@GMAIL.COM	94445634213	2014-07-20	ACCOUNTANT	9200	0	205	60
114	SUSAN	VARKEY	SVARKEY@GMAIL.COM	8976054321	2004-12-14	FIN_MAN	17250	0	108	50
115	JAIDEN	ALEX	JAI@GMAIL.COM	9496131093	2021-08-12	CLERK	2500	0	0	120

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

Question :12

Delete grade_level value 'F' in table job_grades and conform the deletion by verifying the remaining rows of the table

```
delete from job_grades where grade_level='F';
```

```
select *from job_grades;
```

```
mysql> select *from job_grades;
```

grade_level	lowest_sal	highest_sal
A	1000	2999
B	3000	5999
C	6000	9999
D	10000	14999
E	15000	24999

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

III. TCL commands

Question:13

Undo the previous delete operation
rollback;

```
mysql> rollback;  
Query OK, 0 rows affected (0.03 sec)
```

Question: 14

Save all the transactions to the database.
commit;

```
mysql> commit;  
Query OK, 0 rows affected (0.00 sec)
```

Question: 15

Grant the privilege to read and delete from the employees table to the User U1.
GRANT UPDATE, TRIGGER ON TABLE employees TO UI;

Question:16

Revoke the delete privilege from U1.
IV. Accessing databse
REVOKE DELETE ON employees FROM UI;

Question:17

Display countries along with their regional code

SELECT country_name,region_id from countries;

```
mysql> SELECT country_name,region_id from countries;  
+-----+-----+  
| country_name | region_id |  
+-----+-----+  
| AUSTRALIA    | 3         |  
| CANADA       | 2         |  
| CHINA        | 3         |  
| INDIA        | 1         |  
| ITALY        | 1         |  
| JAPAN        | 4         |  
| MEXICO       | 2         |  
| UNITED KINGDOM | 1         |  
| AMERICA      | 2         |  
+-----+-----+  
9 rows in set (0.02 sec)
```

Question:18

List department ID without any repeats from employees table.
SELECT DISTINCT department_id from employees;

```
mysql> SELECT DISTINCT department_id from employees;
```

department_id
10
20
40
50
60
80
90
110
120
130

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

Question :19

List the official address and names of all employees in Marketing Department

SELECT first_name,last_name,street_address from employees,locations where location_id in (select location_id from departments where department_name='marketing') and department_id in (select department_id from departments where department_name='marketing');

first_name	last_name	street_address
JOHN	RUSSEL	29 SEA LANE
PETER	TUKER	29 SEA LANE
NEIL	JOSEPH	29 SEA LANE

```
3 rows in set (0.11 sec)
```

Question:20

Display first and last name in a single heading Name, salary, department ID for those employees whose department is located in the city Mumbai.

SELECT department_id,CONCAT(first_name,last_name) AS Name,salary from employees where department_id in

(select department_id from departments where location_id in (select location_id from locations where city='MUMBAI'));

department_id	Name	salary
60	NANDITAMOHAN	9200
130	NEENAKOCHHAR	25300
130	LEXDE HAAN	34500

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

Question:21

List the total salary spent for each department.

```
SELECT DISTINCT department_id,sum(salary) OVER(PARTITION BY department_id) Salary from employees;
```

department_id	Salary
10	6900
20	41400
40	10350
50	17250
60	9200
80	11500
90	32200
110	40825
120	2500
130	59800

10 rows in set (0.05 sec)

Question:22

List the names of employees in Marketing having salary greater than maximum salary of employees in IT department.

```
SELECT *
FROM employees
WHERE salary IN
(SELECT salary
FROM employees
WHERE department_id IN
(SELECT d.department_id
FROM departments d
WHERE d.department_name = 'marketing')) and salary > (SELECT max(salary)
FROM employees
WHERE department_id IN
(SELECT d.department_id
FROM departments d
WHERE d.department_name = 'it'));
```

employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	commission_pct	manager_id	department_id
107	JOHN	RUSSEL	JRUSSEL@GMAIL.COM	6778653490	2004-10-09	SA_MAN	16100	0	201	20
109	NEIL	JOSEPH	NJOSEPH@GMAIL.COM	7689054321	2006-03-31	SA_MAN	13800	0	201	20

2 rows in set (0.06 sec)

Question : 23

Display country names in upper case and in descending order along with their codes.

```
SELECT country_id,upper(country_name) from countries order by country_name desc;
```

country_id	upper(country_name)
UK	UNITED KINGDOM
MX	MEXICO
JP	JAPAN
IT	ITALY
IN	INDIA
CN	CHINA
CA	CANADA
AU	AUSTRALIA
US	AMERICA

9 rows in set (0.15 sec)

Question: 24

Display the full name (first and last), hire date, salary, and department number for those employees whose first name does not containing the letter 'S' and make the result set in ascending order by department number.

```
SELECT CONCAT(first_name,last_name) AS Name,hire_date,salary,department_id from employees where first_name not LIKE '%S%' order by department_id asc;
```

Name	hire_date	salary	department_id
WILLIAMJOHN	2008-11-23	6900	10
JOHNRUSSEL	2004-10-09	16100	20
PETERUKER	2005-01-30	11500	20
NEILJOSEPH	2006-03-31	13800	20
ANITTABAKER	2010-09-15	10350	40
NANDITAMOHAN	2014-07-20	9200	60
JANETTEKING	2006-03-04	11500	80
ALEXANDERHUNOLD	2006-01-03	12075	110
DAVIDAUSTIN	2007-05-10	11500	110
DIANALORENTZ	2009-11-20	9200	110
NANCYGREENBERG	2010-10-30	8050	110
JAIDENALEX	2021-08-12	2500	120
NEENAKOCHHAR	2005-09-21	25300	130
LEXDE HAAN	2001-01-13	34500	130

14 rows in set (0.04 sec)

Question: 25

Identify all employees who work in departments located in the United States.

```
SELECT first_name from employees where department_id in (select department_id from departments
where location_id in (select location_id from locations where country_id in (select country_id from
countries where country_name= 'AMERICA')));
```

first_name
ALEXANDER
DAVID
DIANA
NANCY
WILLIAM
STEVEN

6 rows in set (0.00 sec)

Question: 26

Identify all employees who work in departments located in the United States.

```
SELECT CONCAT(first_name,last_name) AS Name,salary from employees where salary > (select salary
from employees where employee_id='112');
```

Name	salary
STEVENKING	32200
NEENAKOCHHAR	25300
LEXDE HAAN	34500
ALEXANDERHUNOLD	12075
DAVIDAUSTIN	11500
JOHNRUSSEL	16100
PETERUKER	11500
NEILJOSEPH	13800
JANETTEKING	11500
SUSANVARKEY	17250

10 rows in set (0.02 sec)

V. Optimizing databases**Question:27**

Use inner join to display the name, department number, and department name for each employee.

```
SELECT
employees.first_name,employees.last_name,departments.department_id,departments.department_na
```

me FROM employees INNER JOIN departments ON employees.department_id =
departments.department_id;

first_name	last_name	department_id	department_name
STEVEN	KING	90	Manufacturing
NEENA	KOCHHAR	130	Payroll
LEX	DE HAAN	130	Payroll
ALEXANDER	HUNOLD	110	IT
DAVID	AUSTIN	110	IT
DIANA	LORENTZ	110	IT
NANCY	GREENBERG	110	IT
JOHN	RUSSEL	20	Marketing
PETER	TUKER	20	Marketing
NEIL	JOSEPH	20	Marketing
JANETTE	KING	80	Sales
WILLIAM	JOHN	10	Administration
ANITTA	BAKER	40	Human Resource
NANDITA	MOHAN	60	Accounting
SUSAN	VARKEY	50	Finance
JAIDEN	ALEX	120	Recruiting

16 rows in set (0.00 sec)

Question:28

List employees who have no job history details using left outer join.

Select employee_name from employees left outer join departments where employee_id is NULL
NULL

Question:29

List department details which have currently no employees using right outer join.

Select department_id,department_id from employees right outer join departments where employee_id is
NULL
NULL

Question:30

List all employees who are working in Marketing or Human Resource Department.

SELECT first_name,last_name from employees where department_id in (select department_id from
departments where department_name in ('marketing','human resource'));

first_name	last_name
JOHN	RUSSEL
PETER	TUKER
NEIL	JOSEPH
ANITTA	BAKER

4 rows in set (0.00 sec)

Question:31

List the details of employee who draw the highest salary

```
SELECT * from employees where salary = ( select max(salary) from employees);
```

```
mysql> SELECT * from employees where salary = ( select max(salary) from employees);
```

employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	commission_pct	manager_id	department_id
102	LEX	DE HAAN	LDEHAAN@GMAIL.COM	9554667890	2001-01-13	AD_VP	34500	0	100	130

```
1 row in set (0.00 sec)
```

Question:32

Find the average salary of employees who joined after 2009

```
SELECT avg(salary) FROM employees WHERE hire_date>('2009-01-01');
```

```
mysql> SELECT avg(salary) FROM employees WHERE hire_date>('2009-01-01');
+-----+
| avg(salary) |
+-----+
| 7860.0000 |
+-----+
1 row in set (0.03 sec)
```

Question: 33

Count total number of employees in department with ID 20.

```
SELECT COUNT(department_id)FROM employees WHERE department_id='20';
```

```
mysql> SELECT COUNT(department_id)FROM employees WHERE department_id='20';
+-----+
| COUNT(department_id) |
+-----+
| 3 |
+-----+
1 row in set (0.03 sec)
```

Question: 34

Find out the person with lowest salary in IT department

```
SELECT * from employees where salary = ( select min(salary) from employees where department_id in
(select department_id from departments where department_name='it'));
```

```
mysql> SELECT * from employees where salary = ( select min(salary) from employees where department_id in (select department_id from departments where department_name='it'));
```

employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	commission_pct	manager_id	department_id
106	NANCY	GREENBERG	NGREEN@GMAIL.COM	8769054324	2010-10-30	IT_PROG	8050	0	103	110

1 row in set (0.03 sec)

Question: 35

List all employees who joined in the period 2003-2006 and 2009-2011.

```
SELECT first_name FROM employees WHERE hire_date BETWEEN ('2003-01-01') AND ('2011-01-01')
AND hire_date NOT IN ('2007-01-01','2008-01-01');
```

```
mysql> SELECT first_name FROM employees WHERE hire_date BETWEEN ('2003-01-01') AND ('2011-01-01') AND hire_date NOT IN ('2007-01-01','2008-01-01');
+-----+
| first_name |
+-----+
| STEVEN     |
| NEEMA      |
| ALEXANDER   |
| DAVID       |
| DIANA       |
| NANCY       |
| JOHN        |
| PETER       |
| NEIL        |
| JANETTE     |
| WILLIAM     |
| ANITTA      |
| SUSAN       |
+-----+
13 rows in set (0.00 sec)
```

Question :36

List all employees along with their salary excluding IT programmers.

```
SELECT * FROM Employees WHERE department_id not in (select department_id from departments
WHERE department_name='it');
```

```
mysql> SELECT * FROM Employees WHERE department_id not in (select department_id from departments WHERE department_name='it');
```

employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	commission_pct	manager_id	department_id
100	STEVEN	KING	SKING@GMAIL.COM	8182345210	2003-06-17	AD_PRES	32200	0	0	90
101	NEENA	KOCHHAR	NKOCHHAR@GMAIL.COM	9897561234	2005-09-21	AD_VP	25300	0	100	130
102	LEX	DE HAAN	LDEHAAN@GMAIL.COM	9554667890	2001-01-13	AD_VP	34500	0	100	130
107	JOHN	RUSSEL	JRUSSEL@GMAIL.COM	6778653490	2004-10-09	SA_MAN	16100	0	201	20
108	PETER	TUKER	PTUKER@GMAIL.COM	9067865423	2005-01-30	SA_MAN	11500	0	201	20
109	NEIL	JOSEPH	NJOSEPH@GMAIL.COM	7689054321	2006-03-31	SA_MAN	13800	0	201	20
110	JANETTE	KING	JKING@GMAIL.COM	9809897645	2006-03-04	SA_REP	11500	0	145	80
111	WILLIAM	JOHN	WJOHN@GMAIL.COM	7682315672	2008-11-23	CLERK	6900	0	200	10
112	ANITTA	BAKER	ABAKER@GMAIL.COM	2345678910	2010-09-15	HR_REP	10350	0	203	40
113	NANDITA	MOHAN	NMOHAN@GMAIL.COM	94445634213	2014-07-20	ACCOUNTANT	9200	0	205	60
114	SUSAN	VARKEY	SVARKEY@GMAIL.COM	8976054321	2004-12-14	FIN_MAN	17250	0	108	50
115	JAIDEN	ALEX	JAI@GMAIL.COM	9496131093	2021-08-12	CLERK	2500	0	0	120

```
12 rows in set (0.02 sec)
```

Question: 37

Display the name and job_id of employees with their DA amount (DA= 25% of salary).

select first_name,last_name,job_id,salary*.25 as DA from employees;

```
mysql> select first_name,last_name,job_id,salary*.25 as DA from employees;
```

first_name	last_name	job_id	DA
STEVEN	KING	AD_PRES	8050.00
NEENA	KOCHHAR	AD_VP	6325.00
LEX	DE HAAN	AD_VP	8625.00
ALEXANDER	HUNOLD	IT_PROG	3018.75
DAVID	AUSTIN	IT_PROG	2875.00
DIANA	LORENTZ	IT_PROG	2300.00
NANCY	GREENBERG	IT_PROG	2012.50
JOHN	RUSSEL	SA_MAN	4025.00
PETER	TUKER	SA_MAN	2875.00
NEIL	JOSEPH	SA_MAN	3450.00
JANETTE	KING	SA_REP	2875.00
WILLIAM	JOHN	CLERK	1725.00
ANITTA	BAKER	HR_REP	2587.50
NANDITA	MOHAN	ACCOUNTANT	2300.00
SUSAN	VARKEY	FIN_MAN	4312.50
JAIDEN	ALEX	CLERK	625.00

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