

ADVANCED DATA BASE MANAGEMENT SYSTEM LAB CYCLE-I

I. DDL Commands:

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 table regions(REGION_ID NUMBER PRIMARY  
KEY,REGION_NAME VARCHAR(25));
```

```
create table countries(COUNTRY_ID CHAR(2) PRIMARY  
KEY,COUNTRY_NAME VARCHAR2(40),REGION_ID  
NUMBER,FOREIGN KEY (REGION_ID) REFERENCES  
regions(REGION_ID));
```

```
create table locations(LOCATION_ID NUMBER PRIMARY  
KEY,STREET_ADDRESS VARCHAR2(25),POSTAL_CODE  
VARCHAR2(12),CITY VARCHAR2(30),STATE_PROVINCE  
VARCHAR2(12),COUNTRY_ID CHAR(2),FOREIGN KEY  
(COUNTRY_ID) REFERENCES countries(COUNTRY_ID));
```

```
create table departments(DEPARTMENT_ID NUMBER PRIMARY  
KEY,DEPARTMENT_NAME VARCHAR2(30),MANAGER_ID  
NUMBER,LOCATION_ID NUMBER,FOREIGN KEY  
(LOCATION_ID) REFERENCES locations(LOCATION_ID));
```

```
create table jobs(JOB_ID VARCHAR2(10) PRIMARY  
KEY,JOB_TITLE VARCHAR2(35),MIN_SALARY  
NUMBER,MAX_SALARY NUMBER);
```

```
create table employees(EMPLOYEE_ID NUMBER PRIMARY  
KEY,FIRST_NAME VARCHAR2(20),LAST_NAME  
VARCHAR2(25),EMAIL VARCHAR2(25),PHONE_NUMBER  
VARCHAR2(20),HIRE_DATE DATE,JOB_ID  
VARCHAR2(10),FOREIGN KEY (JOB_ID) REFERENCES  
jobs(JOB_ID),SALARY NUMBER,COMMISSION_PCT  
NUMBER,MANAGER_ID NUMBER,DEPARTMENT_ID
```

NUMBER,FOREIGN KEY (DEPARTMENT_ID) REFERENCES
departments(DEPARTMENT_ID));

create table job_grades(GRADE_LEVEL VARCHAR2(2) PRIMARY
KEY,LOWEST_SAL NUMBER,HIGHEST_SAL NUMBER);

create table job_history(EMPLOYEE_ID NUMBER,START_DATE
DATE,END_DATE DATE,JOB_ID VARCHAR2(10),FOREIGN KEY
(JOB_ID) REFERENCES jobs(JOB_ID),DEPARTMENT_ID
NUMBER,FOREIGN KEY (DEPARTMENT_ID) REFERENCES
departments(DEPARTMENT_ID),FOREIGN KEY (EMPLOYEE_ID)
REFERENCES employees(EMPLOYEE_ID),PRIMARY
KEY(EMPLOYEE_ID,START_DATE));

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(10) default 'East';

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

alter table employees add constraint salary check(salary>0);

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

alter table countries modify country_name varchar2(30);

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

alter table employees add unique(phone_number);

alter table employees add constraint email check(email like
'%_@_%._%');

6. Drop the column Circle from the regions table.

```
alter table regions drop column circle;
```

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

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

II. DML Commands:

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
```

REGION_ID	REGION_NAME
1	zone1
2	zone2
3	zone3
4	zone4

```
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
```

COUNTRY_ID	COUNTRY_NAME	REGION_ID
AU	AUSTRALIA	3
CA	CANADA	2
CN	CHINA	3
IN	INDIA	1
US	AMERICA	2
JP	JAPAN	4
IT	ITALY	1
MX	MEXICO	2
UK	UNITED KINGDOM	1

```
insert into locations values(1000,'147 BOX WOOD
ST.','15643','ROMA','NIL','IT');
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(1700,'CROWN
HILL','678','BROWNSWICK','NEW JERSEY','US');
insert into locations values(1800,'123 MARINA
RD.','123456','MUMBAI','MAHARASHTRA','IN');
```

```
alter table locations modify STATE_PROVINCE varchar2(20);
insert into locations values(1600,'MARIANO 9991','11932','MEXICO
CITY','DISTRITO FEDERAL','MX');
```

```
insert into locations values(1900,'29 SEA  
LANE','3456','SYDNEY','NEW SOUTH WALES','AU');  
insert into locations values(1100,'234 CHURCH  
RD.','23416','TOKYO','TOKYO PREFECTURE','JP');
```

```
select * from locations;
```

LOCATI ON_ID	STREET_A DDRESS	POSTAL _CODE	CITY	STATE_PR OVINCE	COUNT RY_ID
1600	MARIANO 9991	11932	MEXICO CITY	DISTRITO FEDERAL	MX
1900	29 SEA LANE	3456	SYDNEY	NEW SOUTH WALES	AU
1000	147 BOX WOOD ST.	15643	ROMA	NIL	IT
1200	12/98 VICTORIA RD.	1657	TORONT O	ONTARIO	CA
1300	820 ARTHUR RD.	NIL	LONDO N	NIL	UK
1400	2004 CAROL RD	7645	SEETTL E	WASHINGT ON	US
1500	12 CHESTER RD.	8732	WHITEH ORSE	YUKON	CA
1700	CROWN HILL	678	BROWN SWICK	NEW JERSEY	US
1800	123 MARINA RD.	123456	MUMBA I	MAHARAS HTRA	IN
1100	234 CHURCH RD.	23416	TOKYO	TOKYO PREFECTU RE	JP

```
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;
```

GRADE_LEVEL	LOWEST_SAL	HIGHEST_SAL
A	1000	2999
B	3000	5999
C	6000	9999
D	10000	14999
E	15000	24999
F	25000	40000

```
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','ADMN.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;
```

JOB_ID	JOB_TITLE	MIN_SALAR Y	MAX_SALAR Y
AD_PRES	PRESIDENT	20080	40000
SA_REP	SALES REPRESENTATIVE S	6000	12008
AD_VP	ADMN.VICE PRESIDENT	15000	30000
IT_PROG	PROGRAMMER	6000	11000
SA_MAN	SALES MANAGER	10000	20080
CLERK	CLERK	2500	7000
HR_REP	HR REPRESENTATIVE	5000	10000
ACCOUNTAN T	ACCOUNTANT	4200	9000
FIN_MAN	FINANCE MANAGER	8200	16000

```

alter table departments modify location_id number(5);
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;

```

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

```

insert into employees
values(100,'STEVEN','KING','SKING@GMAIL.COM',8182345210,'17-
JUN-2003','AD_PRES',28000,0,0,90);
insert into employees
values(101,'NEENA','KOCHHAR','NKOCHHAR@GMAIL.COM',9897
561234,'21-SEP-2005','AD_VP',22000,0,100,130);
insert into employees values(102,'LEX','DE
HAAN','LDEHAAN@GMAIL.COM',9554667890,'13-JAN-
2001','AD_VP',30000,0,100,130);
insert into employees
values(103,'ALEXANDER','HUNOLD','AHUNOLD@GMAIL.COM',86
78905431,'03-JAN-2006','IT_PROG',10500,0,103,110);
insert into employees
values(105,'DIANA','LORENTZ','DLORENTZ@GMAIL.COM',987654
2310,'20-NOV-2009','IT_PROG',8000,0,103,110);

```


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	17-JUN-03	AD_PRE_S	28000	0	0	90
101	NEENA	KOCHHAR	NKOCHHAR@GMAIL.COM	9897561234	21-SEP-05	AD_VP	22000	0	100	130
102	LEX	DEHAAN	LDEHAAN@GMAIL.COM	9554667890	13-JAN-01	AD_VP	30000	0	100	130
103	ALEXANDER	HUNOLD	AHUNOLD@GMAIL.COM	8678905431	03-JAN-06	IT_PROG	10500	0	103	110
105	DIANA	LORENTZ	DLORENTZ@GMAIL.COM	9876542310	20-NOV-09	IT_PROG	8000	0	103	110
106	NANCY	GREENBERG	NGREEN@GMAIL.COM	8769054324	30-OCT-10	IT_PROG	7000	0	103	110
104	DAVID	AUSTIN	DAUSTIN@GMAIL.COM	9495235678	10-MAY-07	IT_PROG	10000	0	103	110
107	JOHN	RUSSEL	JRUSSEL@GMAIL.COM	6778653490	09-OCT-04	SA_MAN	14000	.4	201	20
108	PETER	TUKER	PTUKER@GMAIL.COM	9067865423	30-JAN-05	SA_MAN	10000	.3	201	20
109	NEIL	JOSEPH	NJOSEPH@GMAIL.COM	7689054321	31-MAR-06	SA_MAN	12000	.2	201	20
110	JANETTE	KING	JKING@GMAIL.COM	9809897645	04-MAR-06	SA_REP	10000	.35	145	80
111	WILLIAM	JOHN	WJOHN@GMAIL.COM	7682315672	23-NOV-08	CLERK	6000	0	200	10
112	ANITTA	BAKER	ABAKER@GMAIL.COM	2345678910	15-SEP-10	HR_REP	9000	0	203	40
113	NANDITA	MOHAN	NMOHAN@GMAIL.COM	94445634213	20-JUL-14	ACCOUNTANT	8000	0	205	60
114	SUSAN	VARKEY	SVARKEY@GMAIL.COM	8976054321	14-DEC-04	FIN_MAN	15000	0	108	50

insert into employees

values(106,'NANCY','GREENBERG','NGREEN@GMAIL.COM',8769054324,'30-OCT-2010','IT_PROG',7000,0,103,110);

insert into employees

values(104,'DAVID','AUSTIN','DAUSTIN@GMAIL.COM',9495235678,'10-MAY-2007','IT_PROG',10000,0,103,110);

```
insert into employees
values(107,'JOHN','RUSSEL','JRUSSEL@GMAIL.COM',6778653490,'0
9-OCT-2004','SA_MAN',14000,0.4,201,20);
insert into employees
values(108,'PETER','TUKER','PTUKER@GMAIL.COM',9067865423,'3
0-JAN-2005','SA_MAN',10000,0.3,201,20);
insert into employees
values(109,'NEIL','JOSEPH','NJOSEPH@GMAIL.COM',7689054321,'3
1-MAR-2006','SA_MAN',12000,0.2,201,20);
insert into employees
values(110,'JANETTE','KING','JKING@GMAIL.COM',9809897645,'04-
MAR-2006','SA_REP',10000,0.35,145,80);
insert into employees
values(111,'WILLIAM','JOHN','WJOHN@GMAIL.COM',7682315672,'2
3-NOV-2008','CLERK',6000,0,200,10);
insert into employees
values(112,'ANITTA','BAKER','ABAKER@GMAIL.COM',2345678910
,'15-SEP-2010','HR_REP',9000,0,203,40);
insert into employees
values(113,'NANDITA','MOHAN','NMOHAN@GMAIL.COM',9444563
4213,'20-JUL-2014','ACCOUNTANT',8000,0,205,60);
insert into employees
values(114,'SUSAN','VARKEY','SVARKEY@GMAIL.COM',89760543
21,'14-DEC-2004','FIN_MAN',15000,0,108,50);
```

```
select * from employees;
```

```
insert into job_history values(102,'13-Jan-2001','24-Jul-
2006','IT_PROG',110);
```

```
insert into job_history values(101,'21-Sep-1997','27-Oct-
2001','ACCOUNTANT',60);
```

```
insert into job_history values(101,'28-Oct-2001','15-Mar-
2005','FIN_MAN',50);
```

```
insert into job_history values(102,'17-Feb-2004','19-Dec-
2007','HR_REP',40);
```

```
insert into job_history values(114,'24-Mar-2006','31-Dec-2007','CLERK',10);
```

```
insert into job_history values(101,'01-Jan-2007','31-Dec-2007','AD_VP',130);
```

```
insert into job_history values(108,'24-Mar-2006','31-Dec-2006','SA_MAN',20);
```

```
insert into job_history values(110,'01-Jul-2002','31-Dec-2005','SA_REP',80);
```

```
insert into job_history values(106,'17-Feb-2006','19-Dec-2007','IT_PROG',110);
```

```
select * from job_history;
```

EMPLOYEE_ID	START_DATE	END_DATE	JOB_ID	DEPARTMENT_ID
102	17-FEB-04	19-DEC-07	HR_REP	40
114	24-MAR-06	31-DEC-07	CLERK	10
101	01-JAN-07	31-DEC-07	AD_VP	130
108	24-MAR-06	31-DEC-06	SA_MAN	20
110	01-JUL-02	31-DEC-05	SA_REP	80
106	19-DEC-06	19-DEC-07	IT_PROG	110
102	13-JAN-01	24-JUL-06	IT_PROG	110
101	21-SEP-97	27-OCT-01	ACCOUNTANT	60
101	28-OCT-01	15-MAR-05	FIN_MAN	50

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';
```

10. Give a 15% increment in salary for all employees

```
UPDATE employees SET salary=salary+salary*.15;
```

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

```
insert into employees  
values(115,'Surya','Chandran','surabhi@gmail.com','9912376655','12-Aug-2021','CLERK',35000,0.4,5,120);
```

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

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

III. TCL Commands:

13. Undo the previous delete operation.

```
rollback;
```

14. Save all the transactions to the database.

```
Commit;
```

15. Grant the privilege to read and delete from the employees table to the User U1.

```
GRANT DELETE ON employees TO U1;
```

16. Revoke the delete privilege from U1.

```
REVOKE DELETE ON employees FROM U1;
```

IV. Accessing database (SELECT, Filtering using WHERE, HAVING, GROUP BY, ORDER BY Clauses, Subquery):

17. Display countries along with their regional code.

```
SELECT country_name, region_id from countries;
```

COUNTRY_NAME	REGION_ID
AUSTRALIA	3
CANADA	2
CHINA	3
INDIA	1
AMERICA	2
JAPAN	4
ITALY	1
MEXICO	2
UNITED KINGDOM	1

18. List department ID without any repeats from employees table.

SELECT DISTINCT department_id from employees;

DEPARTMENT_ID

50
110
40
90
10
130
20
60
80

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

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 CONCAT(first_name,last_name) AS
Name,department_id,salary from employees where department_id in
(select department_id from departments where location_id in (select
location_id from locations where city='MUMBAI'));
```

NAME	DEPARTMENT_ID	SALARY
NEENAKOCHHAR	130	44249.858125
LEXDE HAAN	130	60340.715625
NANDITAMOHAN	60	16090.8575

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
60	16090.8575
10	12068.143125
50	30170.3578125
90	56318.00125
40	18102.2146875
80	20113.571875
110	71403.18015625
20	72408.85875
130	104590.57375

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

```
SELECT CONCAT(first_name,last_name) AS Name FROM employees
WHERE salary IN (SELECT salary FROM employees WHERE
department_id IN (SELECT department_id
FROM departments WHERE department_name = 'marketing')) and
salary > (SELECT max(salary) FROM employees WHERE
department_id IN
(SELECT department_id FROM departments WHERE department_name
= 'it'));
```

NAME

JOHNRUSSEL

NEILJOSEPH

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

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
Full_Name,hire_date,salary,department_id from employees where
first_name not LIKE '%S%' order by department_id asc;
```

FULL_NAME	HIRE_DATE	SALARY	DEPARTMENT_ID
WILLIAMJOHN	23-NOV-08	12068.143125	10
JOHNRUSSEL	09-OCT-04	28159.000625	20
NEILJOSEPH	31-MAR-06	24136.28625	20
PETERTUKER	30-JAN-05	20113.571875	20
ANITTABAKER	15-SEP-10	18102.2146875	40
NANDITAMOHA N	20-JUL-14	16090.8575	60
JANETTEKING	04-MAR-06	20113.571875	80
DAVIDAUSTIN	10-MAY-07	20113.571875	110
DIANALORENTZ	20-NOV-09	16090.8575	110
ALEXANDERHUN OLD	03-JAN-06	21119.25046875	110

NANCYGREENBERG	30-OCT-10	14079.5003125	110
NEENAKOCHHARR	21-SEP-05	44249.858125	130
LEXDE HAAN	13-JAN-01	60340.715625	130

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

STEVEN

ALEXANDER

DIANA

NANCY

DAVID

WILLIAM

26. Display the name (first name and last name) for those employees who gets more salary than the employee whose id is 112.

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

NAME	SALARY
STEVENKING	56318.00125
NEENAKOCHHAR	44249.858125
LEXDE HAAN	60340.715625
ALEXANDERHUNOLD	21119.25046875
DAVIDAUSTIN	20113.571875
JOHNRUSSEL	28159.000625
PETERTUKER	20113.571875
NEILJOSEPH	24136.28625
JANETTEKING	20113.571875
SUSANVARKEY	30170.3578125

V. Optimizing databases (Join, Aggregate & Set operations, Other operators like arithmetic, special etc):

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_name FROM employees INNER JOIN departments
ON employees.department_id = departments.department_id;
```

FIRST_NAM E	LAST_NAM E	DEPARTMENT_ ID	DEPARTMENT_NA ME
----------------	---------------	-------------------	---------------------

STEVEN	KING	90	manufacturing
NEENA	KOCHHAR	130	payroll
LEX	DE HAAN	130	payroll
ALEXANDER	HUNOLD	110	it
DIANA	LORENTZ	110	it
NANCY	GREENBERG	110	it
DAVID	AUSTIN	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

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

```
SELECT DISTINCT CONCAT(first_name,last_name) AS Name
FROM employees LEFT OUTER JOIN job_history ON
employees.employee_id = job_history.employee_id;
```

NAME

PETER TUKER

JANETTE KING

JOHN RUSSEL

NEIL JOSEPH

DIANA LORENTZ
 DAVID AUSTIN
 SUSAN VARKEY
 ALEXANDER HUNOLD
 NEENA KOCHHAR
 NANDITA MOHAN
 ANITA BAKER
 LEX DE HAAN
 NANCY GREENBERG
 WILLIAM JOHN
 STEVEN KING

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

SELECT * FROM departments RIGHT OUTER JOIN employees ON
 departments.department_id = employees.employee_id;

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID	EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMISSION_PCT	MANAGER_ID	DEPARTMENT_ID
100	construction	0	1300	100	STEVEN	KING	SKING@GMAIL.COM	8182345210	17-JUN-03	AD_PRES	56318.00125	0	0	90
110	it	103	1400	110	JANETTE	KING	JKING@GMAIL.COM	9809897645	04-MAR-06	SA_REP	20113.571875	.35	145	80
-	-	-	-	107	JOHN	RUSSEL	JRUSSEL@GMAIL.COM	6778653490	09-OCT-04	SA_MAN	28159.000625	.4	201	20
-	-	-	-	113	NANDITA	MOHAN	NMOHAN@GMAIL.COM	94445634213	20-JUL-14	ACCOUNTANT	16090.8575	0	205	60
-	-	-	-	108	PETER	TUKER	PTUKER@GMAIL.COM	9067865423	30-JAN-05	SA_MAN	20113.571875	.3	201	20

-	-	-	-	109	NEIL	JOSEPH	NJOSEPH@GMAIL.COM	7689054321	31-MAR-06	SA_MAN	24136.28625	.2	201	20
-	-	-	-	105	DIANA	LORENTZ	DLORENTZ@GMAIL.COM	9876542310	20-NOV-09	IT_PROG	16090.8575	0	103	110
-	-	-	-	104	DAVID	AUSTIN	DAUSTIN@GMAIL.COM	9495235678	10-MAY-07	IT_PROG	20113.571875	0	103	110
-	-	-	-	101	NEENA	KOCHHARR	NKOOCHHARR@GMAIL.COM	9897561234	21-SEP-05	AD_VP	44249.858125	0	100	130
-	-	-	-	103	ALEXANDER	HUNOLD	AHUNOLD@GMAIL.COM	8678905431	03-JAN-06	IT_PROG	21119.25046875	0	103	110
-	-	-	-	112	ANITTA	BAKER	ABAKER@GMAIL.COM	2345678910	15-SEP-10	HR_REP	18102.2146875	0	203	40
-	-	-	-	111	WILLIAM	JOHN	WJOHN@GMAIL.COM	7682315672	23-NOV-08	CLECK	12068.143125	0	200	10
-	-	-	-	114	SUSAN	VARKEY	SVARKEY@GMAIL.COM	8976054321	14-DEC-04	FIN_MAN	30170.3578125	0	108	50
-	-	-	-	102	LEX	DEHAA	LDEHAA@GMAIL.COM	9554667890	13-JAN-01	AD_VP	60340.715625	0	100	130
-	-	-	-	106	NANCY	GREENBERG	NGREEN@GMAIL.COM	8769054324	30-OCT-10	IT_PROG	14079.5003125	0	103	110

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

31. List the details of employee who draw the highest salary.

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

EMPL OYEE _ID	FIRS T_N AME	LAS T_N AME	EMAIL	PHON E_NU MBER	HIR E_D ATE	JO B_ ID	SAL ARY	COMM SSION _PCT	MAN AGE R_ID	DEPAR TMEN T_ID
102	LEX	DE HAA N	LDEHAA N@GMAI L.COM	955466 7890	13- JAN- 01	A D_ VP	6034 0.715 625	0	100	130

32. Find the average salary of employees who joined after 2009.

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

AVG(SALARY)

16090.8575

33. Count total number of employees in department with ID 20.

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

COUNT(DEPARTMENT_ID)

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'));
```

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMISSION_PCT	MANAGER_ID	DEPARTMENT_ID
106	NA	GR	NGRE	8769	30-	IT	140			
	NC	EE	EN@G	0543	OC	_P	79.5	0	103	110
	Y	NB	MAIL.	24	T-	R	003			
		ER	COM		10	O	125			
		G				G				

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

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

FIRST_NAME

STEVEN

NEENA

ALEXANDER

DIANA

NANCY
DAVID
JOHN
PETER
NEIL
JANETTE
WILLIAM
ANITTA
SUSAN

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');

EMPL OYEE _ID	FIRS T_NA ME	LAS T_N AME	EMAIL	PHON E_NU MBER	HIR E_D ATE	JOB_I D	SAL ARY	COMMI SSION_ PCT	MAN AGE R_ID	DEPAR TMEN T_ID
114	SUSA N	VAR KEY	SVARKEY @GMAIL.C OM	8976054 321	14- DEC- 04	FIN_M AN	30170 .3578 125	0	108	50
112	ANIT TA	BAK ER	ABAKER@ GMAIL.CO M	2345678 910	15- SEP- 10	HR_R EP	18102 .2146 875	0	203	40
100	STEV EN	KING	SKING@G MAIL.COM	8182345 210	17- JUN- 03	AD_P RES	56318 .0012 5	0	0	90
111	WILL IAM	JOH N	WJOHN@G MAIL.COM	7682315 672	23- NOV -08	CLER K	12068 .1431 25	0	200	10
101	NEEN A	KOC HHA R	NKOCHHA R@GMAIL. COM	9897561 234	21- SEP- 05	AD_V P	44249 .8581 25	0	100	130
102	LEX	DE HAA N	LDEHAA N@GMAI L.COM	955466 7890	13- JAN -01	AD_V P	6034 0.715 625	0	100	130
107	JOH N	RUS SEL	JRUSSEL @GMAIL. COM	677865 3490	09- OCT -04	SA_M AN	2815 9.000 625	.4	201	20

108	PETE R	TUK ER	PTUKER @GMAIL. COM	906786 5423	30- JAN -05	SA_M AN	2011 3.571 875	.3	201	20
109	NEIL	JOSE PH	NJOSEPH @GMAIL. COM	768905 4321	31- MA R-06	SA_M AN	2413 6.286 25	.2	201	20
113	NAN DITA	MO HAN	NMOHAN @GMAIL. COM	944456 34213	20- JUL- 14	ACCO UNTA NT	1609 0.857 5	0	205	60
110	JAN ETT E	KIN G	JKING@G MAIL.CO M	980989 7645	04- MA R-06	SA_R EP	2011 3.571 875	.35		

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;
```

FIRST_NAME	LAST_NAME	JOB_ID	DA
STEVEN	KING	AD_PRES	14079.5003125
NEENA	KOCHHAR	AD_VP	11062.46453125
LEX	DE HAAN	AD_VP	15085.17890625
ALEXANDER	HUNOLD	IT_PROG	5279.8126171875
DIANA	LORENTZ	IT_PROG	4022.714375
NANCY	GREENBERG	IT_PROG	3519.875078125
DAVID	AUSTIN	IT_PROG	5028.39296875
JOHN	RUSSEL	SA_MAN	7039.75015625
PETER	TUKER	SA_MAN	5028.39296875
NEIL	JOSEPH	SA_MAN	6034.0715625
JANETTE	KING	SA_REP	5028.39296875
WILLIAM	JOHN	CLERK	3017.03578125
ANITTA	BAKER	HR_REP	4525.553671875

NANDITA	MOHAN	ACCOUNTANT	4022.714375
SUSAN	VARKEY	FIN_MAN	7542.589453125