LAB CYCLE 3

QUESTION SET 1

Create a table STUDENT with fields sid, name, dob (date of birth) and marks of 3 subjects (physics, chemistry and maths). Add the details of 5 students. Perform the following queries:

Query

create table STUDENT(sidnumber(3),sname varchar(60),dob DATE,physics number(5,2),chemistry number(5,2),maths number(5,2),PRIMARY KEY (sid));

Table created.

desc STUDENT;

Name	Null?	Type
SID	NOT NULL	NUMBER(3)
SNAME		VARCHAR2(60)
DOB		DATE
PHYSICS		NUMBER(5,2)
CHEMISTRY		NUMBER(5,2)
MATHS		NUMBER(5,2)

insert into STUDENT values(01,'Abin','12-Jan-1996',65,70,75);

insert into STUDENT values(02,'Alfin','23-Jun-1996',75,60,65);

insert into STUDENT values(03,'Amala','01-Oct-1997',75,68,85);

insert into STUDENT values(04,'Christy','04-May-1996',35,58,65);

insert into STUDENT values(05,'Jincy','13-Oct-1995',65,70,34);

select * from STUDENT;

SID	NAME	DOB	PHYSICS	CHEMISTRY	MATHS

1	Abin	12-JAN-96	65	70	75
2	Alfin	23-JUN-96	75	60	65
3	Amala	01-OCT-97	75	68	85
4	Christy	04-MAY-96	35	58	65
5	Jincy	13-OCT-95	65	70	34

Aim-1

Display the id and name of youngest student.

Query

```
select sid , name from STUDENT where dob=(select MAX(dob) from STUDENT);
```

Output

SID	NAME
3	Amala

Aim-2

Display the details of students who have passed in maths and either in physics or chemistry.(pass mark = 40 marks and above)

Query

```
select * from STUDENT1 where maths>=40 AND(physics>=40 OR chemistry >=40);
```

Output

SID	NAME	DOB	PHYSICS	CHEMISTRY	MATHS
1	Abin	12-JAN-96	65	70	75
2	Alfin	23-JUN-96	75	60	65
3	Amala	01-OCT-97	75	68	85
4	Christy	04-MAY-96	35	58	65

Aim-3

Add two more columns total and average.

Query

alter table STUDENT add(total number(5,2),average number(5,2));

Table altered.

Aim-4

Display the name of student who scored highest marks in maths.

Query

select name from STUDENT where maths=(select MAX(maths)from STUDENT);

Output

NAME

Amala

Aim-5

Display the name of student who scored least marks in chemistry.

Query

select name from STUDENT where chemistry=(select MIN(chemistry)from STUDENT);

Output

NAME

Christy

Aim-6

Update column total with total marks.

Query

update STUDENT set total=maths+chemistry+chemistry;

5 rows updated.

Output

select * from STUDENT;

SID	NAME	DOB	PHYSICS	CHEMISTRY	MATHS	TOTAL	AVERAGE
1	Abin	12-JAN-96	65	70	75	210	
2	Alfin	23-JUN-96	75	60	65	200	
3	Amala	01-OCT-97	75	68	85	228	
4	Christy	04-MAY-96	35	58	65	158	
5	Jincy	13-OCT-95	65	70	34	169	

Aim-7

Display details of students in order of total merit.

Query

select * from STUDENT ORDER BY total desc;

Output

SID	NAME	DOB	PHYSICS	CHEMISTRY	MATHS	TOTAL	AVERAGE
3	Amala	01-OCT-97	75	68	85	228	
1	Abin	12-JAN-96	65	70	75	210	
2	Alfin	23-JUN-96	75	60	65	200	
5	Jincy	13-OCT-95	65	70	34	169	
4	Christy	04-MAY-96	35	58	65	158	

Aim-8

Rename the column average with avg_mark

Query

alter table STUDENT RENAME column average to avg_mark;

Table altered.

Aim-9

Find out the overall average of class.

Query

update STUDENT set avg_mark=(maths+physics+chemistry)/3;

5 rows updated.

select AVG(avg_mark) "Average Class Mark" from STUDENT;

Output

Average Class Mark

64.334

Aim-10

Display details of students whose average is greater than overall average.

Query

select * from STUDENT where avg_mark>(select AVG(avg_mark)from STUDENT);

Output

SID NAME DOB PHYSICS CHEMISTRY MATHS TOTAL AVG_MARK

1	Abin	12-JAN-96	65	70	75	210	70
2	Alfin	23-JUN-96	75	60	65	200	66.67
3	Amala	01-OCT-97	75	68	85	228	76

Aim-11

Find the total no: of students whose average is greater than overall average.

Query

```
select count(*)  from STUDENT where avg_mark>(select AVG(avg_mark)from STUDENT);
```

Output

```
COUNT(*)
----------
       3
```

QUESTION SET 2

Create the Table LOAN_ACCOUNTS with the structure given below

Field Name	Data Type	Length
Accno	CHAR	4
Cust_name	VARCHAR2	15
Loan_Amount	NUMBER	7 digits and 2 decimal places
Installments	NUMBER	
int_rate	NUMBER	2 digits and 2 decimal places
Start_date	DATE	
Interest	NUMBER	7 digits and 2 decimal places

Add another column ‘category’ of type varchar2(1) in the Loan Table.

Insert the following details into the table

Accno	Cust_name	Loan_Amount	Installments	int_rate	Start_date	Interest
1001	R.K Gupta	300,000.00	36	12.00	July 19, 2009	
1002	S.P Sharma	500,000.00	48	10.00	March 22, 2008	
1003	K.P Jain	300,000.00	36	NULL	August 3, 2007	
1004	M.P Yadav	800,000.00	60	10.00	June 12, 2008	
1005	S.P Sinha	200,000.00	36	12.50	March 1, 2010	
1006	P. Sharma	700,000.00	60	12.50	May 6, 2008	
1007	K.S Dhall	500,000.00	48	NULL	May 3, 2008	

Query

Create table Loan_accounts(accno char(4), cust_name varchar(15),loan_amount number(9,2), installments number(3), int_rate number(5,2), start_date DATE, interest number(9,2),PRIMARY KEY(accno));

desc Loan_accounts;

```
 Name                 Null?            Type
 ---------            --------         ----------
 ACCNO                NOT NULL CHAR(4)
 CUST_NAME                             VARCHAR2(15)
 LOAN_AMOUNT                           NUMBER(9,2)
 INSTALLMENTS                          NUMBER(3)
 INT_RATE                              NUMBER(5,2)
 START_DATE                            DATE
 INTEREST                        NUMBER(9,2)
```

```
insert into
Loan_accounts(accno,cust_name,loan_amount,installments,int_rate,start_date)values(&no,'&na
me','&amount',&installment,&rate,'&start_date');
Enter value for no: 1001
Enter value for name: R.K.Gupta
Enter value for amount: 300000.00
Enter value for installment: 36
Enter value for rate: 12.00
Enter value for start_date: 19-JUN-2009
1 row created.

insert into
Loan_accounts(accno,cust_name,loan_amount,installments,int_rate,start_date)values(&no,'&na
me','&amount',&installment,&rate,'&start_date');
Enter value for no: 1002
Enter value for name: S.P Sharma
Enter value for amount: 500000.00
Enter value for installment: 48
Enter value for rate: 10.00
Enter value for start_date: 22-MAR-2008
1 row created.

insert into
Loan_accounts(accno,cust_name,loan_amount,installments,int_rate,start_date)values(&no,'&na
me','&amount',&installment,&rate,'&start_date');
Enter value for no: 1003
Enter value for name: K.P Jain
Enter value for amount: 300000.00
Enter value for installment: 36
Enter value for rate: NULL
Enter value for start_date: 31-AUG-2007
1 row created.

insert into
Loan_accounts(accno,cust_name,loan_amount,installments,int_rate,start_date)values(&no,'&na
me','&amount',&installment,&rate,'&start_date');
Enter value for no: 1004
Enter value for name: M.P Yadhav
Enter value for amount: 800000.00
```

```
Enter value for installment: 60
Enter value for rate: 10.00
Enter value for start_date: 12-JUN-2008
1 row created.

insert into
Loan_accounts(accno,cust_name,loan_amount,installments,int_rate,start_date)values(&no,'&na
me','&amount',&installment,&rate,'&start_date');
Enter value for no: 1005
Enter value for name: S.P Sinha
Enter value for amount: 200000.00
Enter value for installment: 36
Enter value for rate: 12.50
Enter value for start_date: 1-MAR-2010
1 row created.

insert into
Loan_accounts(accno,cust_name,loan_amount,installments,int_rate,start_date)values(&no,'&na
me','&amount',&installment,&rate,'&start_date');
Enter value for no: 1006
Enter value for name: P. Sharma
Enter value for amount: 700000.00
Enter value for installment: 60
Enter value for rate: 12.50
Enter value for start_date: 6-MAY-2008
1 row created.

insert into
Loan_accounts(accno,cust_name,loan_amount,installments,int_rate,start_date)values(&no,'&na
me','&amount',&installment,&rate,'&start_date');
Enter value for no: 1007
Enter value for name: K.S Dhall
Enter value for amount: 500000.00
Enter value for installment: 48
Enter value for rate: NULL
Enter value for start_date: 3-MAY-2008
1 row created.

select * from Loan_accounts;
```

ACCN	CUST_ NAME	LOAN_ AMOUNT	INSTALL MENTS	INT_ RATE	START_ DATE	INTEREST
1001	R.K.Gupta	300000	36	12	19-JUN-09	
1002	S.P Sharma	500000	48	10	2-MAR-08	
1003	K.P Jain	300000	36		31-AUG-07	
1004	M.P Yadhav	800000	60	10	12-JUN-08	
1005	S.P Sinha	200000	36	12.5	01-MAR-10	
1006	P. Sharma	700000	60	12.5	06-MAY-08	
1007	K.S Dhall	500000	48		03-MAY-08	

7 rows selected.

```
alter table Loan_accounts add ( category varchar(1));
```

Table altered.

Aim-1

Put the interest rate 11.50% for all the loans for which the interest rate is NULL

Query

```
update Loan_accounts set int_rate= 11.50 where int_rate is NULL;
```

Output

```
select * from Loan_accounts;
```

ACCN	CUST_ NAME	LOAN_ AMOUNT	INSTALL MENTS	INT_ RATE	START_ DATE	INTEREST
1001	R.K.Gupta	300000	36	12	19-JUN-09	
1002	S.P Sharma	500000	48	10	22-MAR-08	
1003	K.P Jain	300000	36	11.5	31-AUG-07	
1004	M.P Yadhav	800000	60	10	12-JUN-08	
1005	S.P Sinha	200000	36	12.5	01-MAR-10	
1006	P. Sharma	700000	60	12.5	06-MAY-08	
1007	K.S Dhall	500000	48	11.5	03-MAY-08	

7 rows selected.

Aim-2

Increase the interest rate by 0.5% for all the Loans for which the Loan amount is more than 400000.

Query

update Loan_accounts set int_rate=0.5+int_rate where loan_amount>400000.00;

Output

select * from Loan_accounts;

ACCN	CUST_ NAME	LOAN_ AMOUNT	INSTALL MENTS	INT_ RATE	START_ DATE	INTEREST
1001	R.K.Gupta	300000	36	12	19-JUN-09	
1002	S.P Sharma	500000	48	10	22-MAR-08	
1003	K.P Jain	300000	36	11.5	31-AUG-07	
1004	M.P Yadhav	800000	60	10	12-JUN-08	
1005	S.P Sinha	200000	36	12.5	01-MAR-10	
1006	P. Sharma	700000	60	12.5	06-MAY-08	
1007	K.S Dhall	500000	48	11.5	03-MAY-08	

7 rows selected.

Aim-3

For each Loan replace Interest with (Loan_amount * Int_rate* installments)/(12*100).

Query

update Loan_accountsset interest=loan_amount*int_rate*installments/(12*100);

Output

Select * from Loan_accounts;

ACCN	CUST_ NAME	LOAN_ AMOUNT	INSTALL MENTS	INT_ RATE	START_ DATE	INTEREST
1001	R.K.Gupta	300000	36	12	19-JUN-09	108000
1002	S.P Sharma	500000	48	10	22-MAR-08	210000

1003	K.P Jain	300000	36	11.5	31-AUG-07	103500
1004	M.P Yadhav	800000	60	10	12-JUN-08	420000
1005	S.P Sinha	200000	36	12.5	01-MAR-10	75000
1006	P. Sharma	700000	60	12.5	06-MAY-08	455000
1007	K.S Dhall	500000	48	11.5	03-MAY-08	240000

7 rows selected.

Aim-4

Delete the records of all the Loans whose start date is before 2008.

Query

delete fromLoan_accountswherestart_date<to_date('01-Jan-2008');

Output

select * from Loan_accounts;

ACCN	CUST_NAME	LOAN_AMOUNT	INSTALLMENTS	INT_RATE	START_DATE	INTEREST
1001	R.K.Gupta	300000	36	12	19-JUN-09	108000
1002	S.P Sharma	500000	48	10	22-MAR-08	210000
1004	M.P Yadhav	800000	60	10	12-JUN-08	420000
1005	S.P Sinha	200000	36	12.5	01-MAR-10	75000
1006	P. Sharma	700000	60	12.5	06-MAY-08	455000
1007	K.S Dhall	500000	48	11.5	03-MAY-08	240000

6 rows selected.

Aim-5

Delete the records of all the Loans whose name starts with ‘K’

Query

delete from Loan_accounts where cust_name LIKE 'K%';

Output

select * from Loan_accounts;

ACCN	CUST_	LOAN_	INSTALL	INT_	START_	INTEREST

	NAME	AMOUNT	MENTS	RATE	DATE	
1001	R.K.Gupta	300000	36	12	19-JUN-09	108000
1002	S.P Sharma	500000	48	10	22-MAR-08	210000
1004	M.P Yadhav	800000	60	10	12-JUN-08	420000
1005	S.P Sinha	200000	36	12.5	01-MAR-10	75000
1006	P. Sharma	700000	60	12.5	06-MAY-08	455000

5 rows selected.

Aim-6

Display the details of all the Loans with less than 40 installments.

Query

```
select * from Loan_accounts where installments<40;
```

Output

ACCN	CUST_ NAME	LOAN_ AMOUNT	INSTALL MENTS	INT_ RATE	START_ DATE	INTEREST
1001	R.K.Gupta	300000	36	12	19-JUN-09	108000
1005	S.P Sinha	200000	36	12.5	01-MAR-10	75000

Aim-7

Display the Accno and Loan_amount of all the loans started before 01-04-2009.

Query

```
select accno,loan_amount from Loan_accounts where start_date<'01-APR-2009';\
```

Output

ACCN	LOAN_AMOUNT
1002	500000
1004	800000
1006	700000

Aim-8

Display the int_rate of all Loans started after 01-04-2009.

Query

```
select int_rate from Loan_accounts  wherestart_date> TO_DATE('1-APR-2009');
```

Output

```
  INT_RATE
----------
        12
      12.5
```

Aim-9

Display the Accno, cust_name and Loan amount for all the Loans for which the cust_name ends with‘Sharma’.

Query

```
SELECT accno,cust_name,loan_amount from Loan_accounts WHERE cust_name LIKE
'%Sharma';
```

Output

```
ACCN   CUST_NAME       LOAN_AMOUNT
---------   ---------------          ------------------
1002          S.P Sharma          500000
1006           P. Sharma          700000
```

Aim-10

Loan_Amount of all the Loans for which the Cust_name ends with ‘a’.

Query

```
select loan_amount from Loan_accounts where cust_name like '%a';
```

Output

```
LOAN_AMOUNT
------------------
     300000
     500000
     200000
```

Aim-11

Display the Accno, Cust_name and Loan_Amount for the Loans for which the Cust_name contains ‘a’.

Query

```
select accno,cust_name,loan_amount from Loan_accounts where cust_name like '%a%';
```

Output

```
ACCN   CUST_NAME       LOAN_AMOUNT
----   --------------------          ---------
1001       R.K.Gupta             300000
1002       S.P Sharma            500000
1004       M.P Yadhav            800000
1005       S.P Sinha              200000
1006       P. Sharma              700000
```

Aim-12

Dsiplay the Accno, Cust_name and Loan_Amount for all the Loans for which the Cust_name does not contain ‘P’.

Query

```
select accno,cust_name,loan_amount from Loan_accounts WHERE NOT ( cust_name LIKE
'%P%' or  cust_name LIKE '%p%') ;
```

```
no rows selected
```

Aim-13

Display the structure of table LOAN_ACCOUNTS so that you can verify that the table is created as required.

Query

```
desc Loan_accounts;
```

Output

```
Name                          Null?                Type
---------------          --------------       ----------
 ACCNO                NOT NULL             CHAR(4)
 CUST_NAME                                 VARCHAR2(15)
 LOAN_AMOUNT                               NUMBER(9,2)
```

INSTALLMENTS	NUMBER(3)
INT_RATE	NUMBER(5,2)
START_DATE	DATE
INTEREST	NUMBER(9,2)
CATEGORY	VARCHAR2(1)

Aim-14

Display the details of all the loans in the ascending order of their Loan_Amount.

Query

```
select * from Loan_accounts ORDER BY loan_amount;
```

Output

ACCN	CUST_ NAME	LOAN_ AMOUNT	INSTALL MENTS	INT_ RATE	START_ DATE	INTEREST
1005	S.P Sinha	200000	36	12.5	01-MAR-10	75000
1001	R.K.Gupta	300000	36	12	19-JUN-09	108000
1002	S.P Sharma	500000	48	10	22-MAR-08	210000
1006	P. Sharma	700000	60	12.5	06-MAY-08	455000
1004	M.P Yadhav	800000	60	10	12-JUN-08	420000

Aim-15

Display the details of all the Loans in the descending order of their Start_date.

Query

```
select * from Loan_accounts ORDER BY start_date DESC;
```

Output

ACCN	CUST_ NAME	LOAN_ AMOUNT	INSTALL MENTS	INT_ RATE	START_ DATE	INTEREST
1005	S.P Sinha	200000	36	12.5	01-MAR-10	75000
1001	R.K.Gupta	300000	36	12	19-JUN-09	108000
1004	M.P Yadhav	800000	60	10	12-JUN-08	420000
1006	P. Sharma	700000	60	12.5	06-MAY-08	455000
1002	S.P Sharma	500000	48	10	22-MAR-08	210000

Aim-16

Display the details of all the Loans in the ascending order of their Loan_amount and within Loan_amount in the descending order of their Start_date.

Query

```
select * from Loan_accounts ORDER BY loan_amount,start_date DESC;
```

Output

ACCN	CUST_ NAME	LOAN_ AMOUNT	INSTALL MENTS	INT_ RATE	START_ DATE	INTEREST
1005	S.P Sinha	200000	36	12.5	01-MAR-10	75000
1001	R.K.Gupta	300000	36	12	19-JUN-09	108000
1002	S.P Sharma	500000	48	10	22-MAR-08	210000
1006	P. Sharma	700000	60	12.5	06-MAY-08	455000
1004	M.P Yadhav	800000	60	10	12-JUN-08	420000

Aim-17

Display the Accno, Cust_name and Loan_Amount of all the Loans for which the Cust_name starts with ‘K’.

Query

```
select loan_amount from Loan_accounts where cust_name like 'K%';

no rows selected
```

Aim-18

Display the details of all the Loans whose rate of interest in NULL.

Query

```
select * from Loan_accounts where int_rate is Null;

no rows selected
```

Aim-19

Display the details of all the loans whose rate of interest is not NULL.

Query

select * from Loan_accounts where int_rate is NOT Null;

Output

ACCN	CUST_ NAME	LOAN_ AMOUNT	INSTALL MENTS	INT_ RATE	START_ DATE	INTEREST
1001	R.K.Gupta	300000	36	12	19-JUN-09	108000
1002	S.P Sharma	500000	48	10	22-MAR-08	210000
1004	M.P Yadhav	800000	60	10	12-JUN-08	420000
1005	S.P Sinha	200000	36	12.5	01-MAR-10	75000
1006	P. Sharma	700000	60	12.5	06-MAY-08	455000

Aim-20

Display the amounts of various loans from the table Loan_Accounts. A Loan_Amount should appear only once.

Query

select UNIQUE loan_amount from Loan_accounts;

Output

LOAN_AMOUNT

300000
200000
700000
800000
500000

Aim-21

Display the details of all the loans started after 31-12-2008 for which the number of installments are more than 36.

Query

select * from Loan_accounts where start_date> '31-DEC-2008' AND installments > 36;

no rows selected

Aim-22

Display the Customer_name and Loan_amount for all the Loans for which the Loan amount is less than 500000 or int_rate is more than 12.

Query

```
select * from Loan_accounts where loan_amount<500000  ANDint_rate> 12;
```

Output

ACCN	CUST_ NAME	LOAN_ AMOUNT	INSTALL MENTS	INT_ RATE	START_ DATE	INTEREST
1005	S.P Sinha	200000	36	12.5	01-MAR-10	75000

Aim-23

Display the details of all Loans which started in the year 2009.

Query

```
select * from Loan_accountswhere  extract(year from start_date)=2009;
```

Output

ACCN	CUST_ NAME	LOAN_ AMOUNT	INSTALL MENTS	INT_ RATE	START_ DATE	INTEREST
1001	R.K.Gupta	300000	36	12	19-JUN-09	108000

Aim-24

Display the details of all the Loans whose Loan amount is in the Range 400000 to 500000.

Query

```
select * from Loan_accounts where loan_amount BETWEEN 400000 AND 500000;
```

Output

ACCN	CUST_NAME	LOAN_AMOUNT	INSTALLMENTS	INT_RATE	START_DATE	INTEREST
1002	S.P Sharma	500000	48	10	22-MAR-08	210000

Aim-25

Display the Customer_name and Loan_amount of all the Loans for which the number of installments are 26, 36 and 48.

Query

```
select cust_name,loan_amount from Loan_accounts where installments in (26,36,48);
```

Output

CUST_NAME	LOAN_AMOUNT
R.K.Gupta	300000
S.P Sharma	500000
S.P Sinha	200000

Aim-26

Display the customer name, loan_amount and interest rate. If interest rate is NULL, display it as 0.

Query

```
select cust_name,loan_amount, decode(int_rate,NULL,0,int_rate) "int_rate"  from
Loan_accounts;
```

Output

CUST_NAME	LOAN_AMOUNT	INT_RATE
R.K.Gupta	300000	12
S.P Sharma	500000	10.5
M.P Yadhav	800000	10.5
S.P Sinha	200000	12.5
P. Sharma	700000	13

Aim-27

Display the customer name, loan_amount and interest rate. If interest rate is NULL, display it as "No Interest".

Query

```
select cust_name,loan_amount, decode(int_rate,NULL,'no interest',int_rate) "int_rate"  from
Loan_accounts;
```

Output

CUST_NAME	LOAN_AMOUNT	INT_RATE
R.K.Gupta	300000	12
S.P Sharma	500000	10.5
M.P Yadhav	800000	10.5
S.P Sinha	200000	12.5
P. Sharma	700000	13

QUESTION SET 3

Create the following tables.

- Primary key, SSN of EMPLOYEE should be created as a sequence starting at 1.
- There should be at least 8 employees and 5 departments
- Check salary range of employees is between 30,000 and 75,000 using check predicate.

EMPLOYEE

Column	Constraint	Data Type	Remarks
SSN	PRIMARY KEY	NUMBER	Employee Number
ENAME	NOT NULL	CHARACTER	Employee Name
DESIG	---	CHARACTER	Designation
DNO	FOREIGN KEY (DEPARTMENT)	NUMBER	Dept. Number
DOJ	---	DATE	Date of Join
SALARY	---	NUMBER	Basic Salary

DEPARTMENT

Column	Constraint	Data Type	Remarks
DNUMBER	PRIMARY KEY	NUMBER	Department Number
DNAME	NOT NULL	CHARACTER	Department Name
LOC	---	CHARACTER	Dept. Location
MGRSSN	FOREIGN KEY (EMPLOYEE)	NUMBER	Dept. Manager Number

PROJECT

Column	Constraint	Data Type	Remarks
PNUMBER	PRIMARY KEY	NUMBER	Project Number
PNAME	NOT NULL	CHARACTER	Project Name
DNUM	FOREIGN KEY (DEPARTMENT)	NUMBER	Dept. Number

WORKS_IN

Column	Constraint	Data Type	Remarks
ESSN	FOREIGN KEY (EMPLOYEE)	NUMBER	Employee Number
PNO	FOREIGN KEY (PROJECT)	NUMBER	Project Number
HOURS	FOREIGN KEY (DEPARTMENT)	NUMBER	Total Hours

Query

CREATE TABLE employee(ssnNUMBER,ename VARCHAR2(40) NOT NULL,design VARCHAR2(20),dnoNUMBER,dojDATE,salary NUMBER,PRIMARY KEY (ssn));

CREATE TABLEdepartment(dnumberNUMBER,dname VARCHAR2(20),loc VARCHAR2(40),mgrssn NUMBER REFERENCES employee(ssn),PRIMARY KEY(dnumber));

create table Proj(pnumber number(3),pname varchar(15),dnum number(3),FOREIGN KEY

(dnum) REFERENCES dept(dnumber),PRIMARY KEY(pnumber));

create table Work_in(essn number(3),pno number(3),hours number(3),FOREIGN KEY (essn) REFERENCES employe(ssn),FOREIGN KEY (pno) REFERENCES Proj(pnumber),FOREIGN KEY (hours) REFERENCES dept(dnumber));

insert into department(dnumber,dname,loc)values(&no,'&name','&loc');
Enter value for no: 1
Enter value for name: Admin
Enter value for loc: Chennai
1 row created.

insert into department(dnumber,dname,loc)values(&no,'&name','&loc');
Enter value for no: 2
Enter value for name: HR
Enter value for loc: Banglore
1 row created.

insert into department(dnumber,dname,loc)values(&no,'&name','&loc');
Enter value for no: 3
Enter value for name: Sales
Enter value for loc: Kochi
1 row created.

insert into deprtment(dnumber,dname,loc)values(&no,'&name','&loc');
Enter value for no: 4
Enter value for name: Finance
Enter value for loc: Delhi
1 row created.

insert into deprtment(dnumber,dname,loc)values(&no,'&name','&loc');
Enter value for no: 5
Enter value for name: Production
Enter value for loc: Thiruvananthapuram

select * from department;

DNUMBER	DNAME	LOC	MGRSSN
1	Admin	Chennai	
2	HR	Banglore	
3	Sales	Kochi	
4	Finance	Delhi	
5	Production	Thiruvananthapuram	

```
insert into employee (ssn,ename,design,dno,doj,salary) values
(&no,'&name','&design',&no,'&date',&amount);

Enter value for no: 1
Enter value for name: Abhi
Enter value for design: HR
Enter value for no: 2
Enter value for date: 12-APR-2009
Enter value for amount: 70000

insert into employee (ssn,ename,design,dno,doj,salary) values
(&no,'&name','&design',&no,'&date',&amount);

Enter value for no: 2
Enter value for name: Bhama
Enter value for design: Admin
Enter value for no: 1
Enter value for date:  10-MAR-2008
Enter value for amount: 75000
1 row created.

insert into employee (ssn,ename,design,dno,doj,salary) values
(&no,'&name','&design',&no,'&date',&amount);

Enter value for no: 3

Enter value for name: Chriz
Enter value for design: Sales
Enter value for no: 3
Enter value for date: 23-JUN-2011
Enter value for amount: 35000
```

1 row created.

```
insert into employee (ssn,ename,design,dno,doj,salary) values
(&no,'&name','&design',&no,'&date',&amount);

Enter value for no: 4
Enter value for name: Diya
Enter value for design: Production
Enter value for no: 5
Enter value for date: 21-AUG-2015
Enter value for amount: 32000
1 row created.

insert into employee (ssn,ename,design,dno,doj,salary) values
(&no,'&name','&design',&no,'&date',&amount);

Enter value for no: 5
Enter value for name: Govind
Enter value for design: Production
Enter value for no: 5
Enter value for date: 12-OCT-2011
Enter value for amount: 35000
1 row created.

insert into employee (ssn,ename,design,dno,doj,salary) values
(&no,'&name','&design',&no,'&date',&amount);

Enter value for no: 6
Enter value for name: Hima
Enter value for design: Finance
Enter value for no: 4
Enter value for date: 19-JAN-2013
Enter value for amount: 51000
1 row created.

insert into employee (ssn,ename,design,dno,doj,salary) values
(&no,'&name','&design',&no,'&date',&amount);

Enter value for no: 7
Enter value for name: Ira
Enter value for design: HR
Enter value for no: 2
Enter value for date: 15-MAR-2010
```

```
Enter value for amount: 45000
1 row created.

insert into employee (ssn,ename,design,dno,doj,salary) values
(&no,'&name','&design',&no,'&date',&amount);

Enter value for no: 8
Enter value for name: Sandeep
Enter value for design: Finance
Enter value for no: 4
Enter value for date: 26-JUL-2010
Enter value for amount: 49000
1 row created.


select * from employee;

SSN    ENAME          DESIGN           DNO    DOJ          SALARY
------ -------------- ------------ ---------- ------------ --------------
  1      Abhi           HR              2        12-APR-09      70000
  2      Bhama          Admin           1        10-MAR-08      75000
  3      Chriz          Sales           3         23-JUN-11     35000
  4      Diya           Production      5         21-AUG-15     32000
  5      Govind         Production      5        12-OCT-11      35000
  6      Hima           Finance         4        19-JAN-13      51000
  7      Ira            HR              2        15-MAR-10      45000
  8      Sandeep        Finance         4         26-JUL-10     49000

8 rows selected.

UPDATE department SET mgrssn=&ssn_of_mgr_Of_Admin_dpt WHERE dnumber=1;
Enter value for ssn_of_mgr_of_admin_dpt: 2
1 row updated.

UPDATE department SET mgrssn=&ssn_of_mgr_Of_HR_dpt WHERE dnumber=2;
Enter value for ssn_of_mgr_of_hr_dpt: 1
1 row updated.

UPDATE department SET mgrssn=&ssn_of_mgr_Of_Sales_dpt WHERE dnumber=3;
Enter value for ssn_of_mgr_of_sales_dpt: 3
1 row updated.
```

```
UPDATE department SET mgrssn=&ssn_of_mgr_Of_Finance_dpt WHERE dnumber=4;
Enter value for ssn_of_mgr_of_finance_dpt: 6
1 row updated.

UPDATE department SET mgrssn=&ssn_of_mgr_Of_HR_dpt WHERE dnumber=2;
Enter value for ssn_of_mgr_of_hr_dpt: 7
1 row updated.


UPDATE departmentSETmgrssn=&ssn_of_mgr_Of_Production_dpt WHERE dnumber=5;
Enter value for ssn_of_mgr_of_production_dpt: 4
1 row updated.

UPDATE department SET mgrssn=&ssn_of_mgr_Of_Production_dpt WHERE dnumber=5;
Enter value for ssn_of_mgr_of_production_dpt: 5
1 row updated.


select * from department;

DNUMBER    DNAME              LOC                  MGRSSN
---------- ---------- -------------------- ----------
     1              Admin              Chennai                    2
     2              HR                    Banglore                  7
     3              Sales               Kochi                      3
     4              Finance            Delhi                      6
     5              Production       Thiruvananthapuram         5

insert into project(pnumber,pname,dnum)values(&no,'&name',&dno);
Enter value for no: 11
Enter value for name: Bancs Trsry
Enter value for dno: 3
1 row created.

insert into project(pnumber,pname,dnum)values(&no,'&name',&dno);
Enter value for no: 12
Enter value for name: Nielesan
Enter value for dno: 5
1 row created.
```

```
insert into project(pnumber,pname,dnum)values(&no,'&name',&dno);
Enter value for no: 13
Enter value for name: World Bnk
Enter value for dno: 1
1 row created.

insert into project(pnumber,pname,dnum)values(&no,'&name',&dno);
Enter value for no: 14
Enter value for name: Airlines
Enter value for dno: 2
1 row created.

insert into project(pnumber,pname,dnum)values(&no,'&name',&dno);
Enter value for no: 15
Enter value for name: Amex
Enter value for dno: 4
1 row created.

select * from project;

PNUMBER   PNAME             DNUM
----------       -------------           ----------
   11               Bancs Trsry           3
   12              Nielesan               5
   13               World Bnk             1
   14              Airlines                2
   15               Amex                  4


insert into Work_in(essn,pno,hours)values(&essn,&no,&hrs);
Enter value for essn: 1
Enter value for no: 14
Enter value for hrs: null
1 row created.

insert into Work_in(essn,pno,hours)values(&essn,&no,&hrs);
Enter value for essn: 4
Enter value for no: 13
Enter value for hrs: null
```

1 row created.

```
insert into Work_in(essn,pno,hours)values(&essn,&no,&hrs);
Enter value for essn: 8
Enter value for no: 12
Enter value for hrs: null
1 row created.

insert into Work_in(essn,pno,hours)values(&essn,&no,&hrs);
Enter value for essn: 6
Enter value for no: 15
Enter value for hrs: null
1 row created.

insert into Work_in(essn,pno,hours)values(&essn,&no,&hrs);
Enter value for essn: 2
Enter value for no: 11
Enter value for hrs: null
1 row created.

insert into Work_in(essn,pno,hours)values(&essn,&no,&hrs);
Enter value for essn: 3
Enter value for no: 13
Enter value for hrs: null
1 row created.

select * from Work_in;

ESSN       PNO      HOURS
-------    ---------- ----------
   1       14
   4       13
   8       12
   6       15
   2       11
   3       13

6 rows selected.
```

Aim-1

Retrieve all employees in department 5 whose salary is between Rs 30,000 and Rs 40,000.

Query

SELECT e.ename FROM employee e LEFT OUTER JOIN department d on d.dnumber=e.dno WHERE e.salary BETWEEN 30000 AND 40000 AND d.dnumber=5;

Output

ENAME

Diya
Govind

Aim-2

Retrieve a list of employees and the projects they are working on, where the departments and the employees within the department are alphabetically by name.

Query

SELECT e.ename,d.dname FROM employe e LEFT OUTER JOIN dept d on e.dno=d.dnumber ORDER BY d.dnameASC,e.ename ASC;

Output

ENAME	DNAME
Bhama	Admin
Hima	Finance
Sandeep	Finance
Abhi	HR
Ira	HR
Diya	Production
Govind	Production
Chriz	Sales

Aim-3

Retrieve the project number, the project name, and the number of employees who work in each project.

Query

SELECT p.pnumber,p.pname,count(e.ssn) FROM Work_in w LEFT OUTER JOIN project p on

w.pno=p.pnumber LEFT OUTER JOIN employee e on w.essn=e.ssn GROUP BY p.pname,p.pnumber;

Output

PNUMBER	PNAME	COUNT(E.SSN)
13	World Bnk	2
11	Bancs Trsry	1
14	Airlines	1
15	Amex	1
12	Nielesan	1

Aim-4

For the project on which more than two employees work, retrieve the project number, the project name, and the number of employees who work on the project.

Query

SELECT p.pnumber,p.pname,count(e.ssn) FROM Work_in w LEFT OUTER JOIN project p on w.pno=p.pnumber LEFT OUTER JOIN employee e on w.essn=e.ssn GROUP BY p.pname,p.pnumber HAVING count(e.ssn) > 2;

no rows selected

Aim-5

For each project, retrieve the project number, the project name, and the number of employees from department 5 who work on the project.

Query

SELECT p.pnumber,p.pname,d.dnumber,count(e.ssn) FROM project p LEFT OUTER JOIN department d on d.dnumber=p.dnum LEFT OUTER JOIN employee e on e.dno=p.dnum GROUP BY p.pname,p.pnumber,d.dnumber HAVING d.dnumber=5;

Output

PNUMBER	PNAME	DNUMBER	COUNT(E.SSN)
12	Nielesan	5	2

Aim-6

For the departments having more than five employees, display the department id and the number and details of employees earning more than Rs 40,000 per month.

Query

```
SELECT d.dname,d.dnumber,e.ssn,e.ename,e.design,e.doj,e.salary FROM department
d,employee e WHERE  (SELECT COUNT(*) FROM employee e WHERE e.dno = d.dnumber
AND e.salary> 40000) > 4 AND
e.dno=d.dnumber GROUP BY d.dname,d.dnumber,e.ssn,e.ename,e.design,e.doj,e.salary;
```

no rows selected

Aim-7

Create a synonym for the VIEW created on natural join of emp and dept tables.

Query

```
create VIEW emp_dept_view as select  * from employee NATURAL JOIN department;
```

View created.

```
create SYNONYM emp_dept for employe_dept_view;
```

Synonym created.

```
 select * from emp_dept;
```

Output

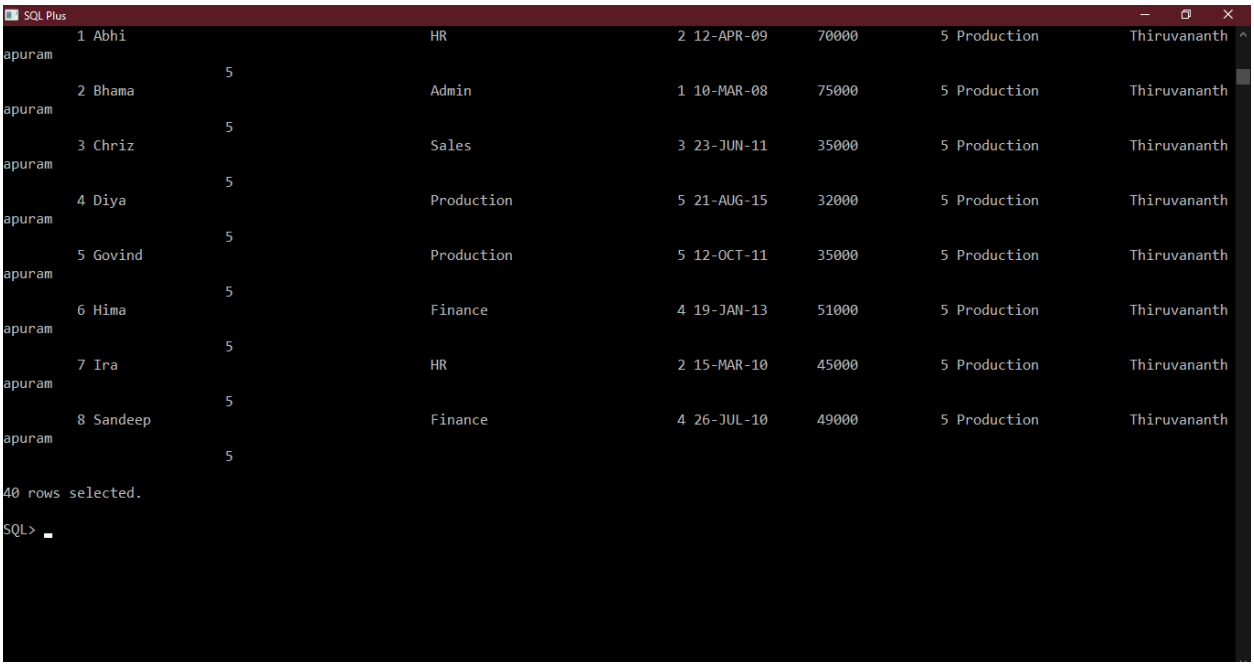
SQL Plus

```
SQL>  select * from emp_dept;

      SSN ENAME                                DESIGN                    DNO DOJ          SALARY    DNUMBER DNAME              LOC
                  MGRSSN
---------- ---------------------------------------- -------------------- ---------- --------- ---------- ---------- -------------------- ------------
-------------------------- ----------
        1 Abhi                                 HR                          2 12-APR-09      70000          1 Admin              Chennai
                     2
        2 Bhama                                Admin                       1 10-MAR-08      75000          1 Admin              Chennai
                     2
        3 Chriz                                Sales                       3 23-JUN-11      35000          1 Admin              Chennai
                     2
        4 Diya                                 Production                  5 21-AUG-15      32000          1 Admin              Chennai
                     2
        5 Govind                               Production                  5 12-OCT-11      35000          1 Admin              Chennai
                     2
        6 Hima                                 Finance                     4 19-JAN-13      51000          1 Admin              Chennai
                     2
        7 Ira                                  HR                          2 15-MAR-10      45000          1 Admin              Chennai
                     2
        8 Sandeep                              Finance                     4 26-JUL-10      49000          1 Admin              Chennai
                     2
        1 Abhi                                 HR                          2 12-APR-09      70000          2 HR                 Banglore
                     7
        2 Bhama                                Admin                       1 10-MAR-08      75000          2 HR                 Banglore
                     7
        3 Chriz                                Sales                       3 23-JUN-11      35000          2 HR                 Banglore
                     7
        4 Diya                                 Production                  5 21-AUG-15      32000          2 HR                 Banglore
                     7
        5 Govind                               Production                  5 12-OCT-11      35000          2 HR                 Banglore
                     7
        6 Hima                                 Finance                     4 19-JAN-13      51000          2 HR                 Banglore
                     7
        7 Ira                                  HR                          2 15-MAR-10      45000          2 HR                 Banglore
```

SQL Plus

```
                     7
        1 Abhi                                 HR                          2 12-APR-09      70000          3 Sales              Kochi
                     3
        2 Bhama                                Admin                       1 10-MAR-08      75000          3 Sales              Kochi
                     3
        3 Chriz                                Sales                       3 23-JUN-11      35000          3 Sales              Kochi
                     3
        4 Diya                                 Production                  5 21-AUG-15      32000          3 Sales              Kochi
                     3
        5 Govind                               Production                  5 12-OCT-11      35000          3 Sales              Kochi
                     3
        6 Hima                                 Finance                     4 19-JAN-13      51000          3 Sales              Kochi
                     3
        7 Ira                                  HR                          2 15-MAR-10      45000          3 Sales              Kochi
                     3
        8 Sandeep                              Finance                     4 26-JUL-10      49000          3 Sales              Kochi
                     3
        1 Abhi                                 HR                          2 12-APR-09      70000          4 Finance            Delhi
                     6
        2 Bhama                                Admin                       1 10-MAR-08      75000          4 Finance            Delhi
                     6
        3 Chriz                                Sales                       3 23-JUN-11      35000          4 Finance            Delhi
                     6
        4 Diya                                 Production                  5 21-AUG-15      32000          4 Finance            Delhi
                     6
        5 Govind                               Production                  5 12-OCT-11      35000          4 Finance            Delhi
                     6
        6 Hima                                 Finance                     4 19-JAN-13      51000          4 Finance            Delhi
                     6
        7 Ira                                  HR                          2 15-MAR-10      45000          4 Finance            Delhi
                     6
        8 Sandeep                              Finance                     4 26-JUL-10      49000          4 Finance            Delhi
                     6
        1 Abhi                                 HR                          2 12-APR-09      70000          5 Production         Thiruvananth
apuram
```



Aim-8

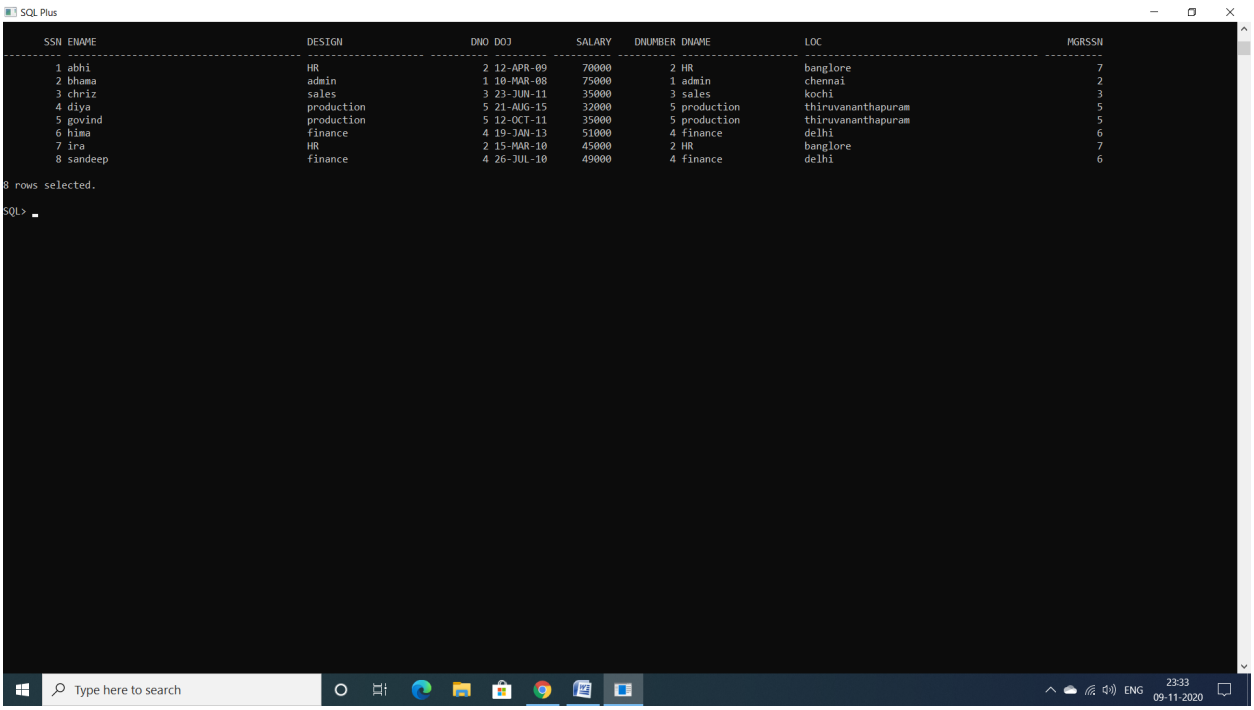
Use the tables Employee, and Department. Perform the operations as mentioned below:

(a)Display the employee details, departments that the departments are same in both the emp and dept. (Equi-join)

Query

Select * From employee e,department d WHERE e.dno=d.dnumber;

Output

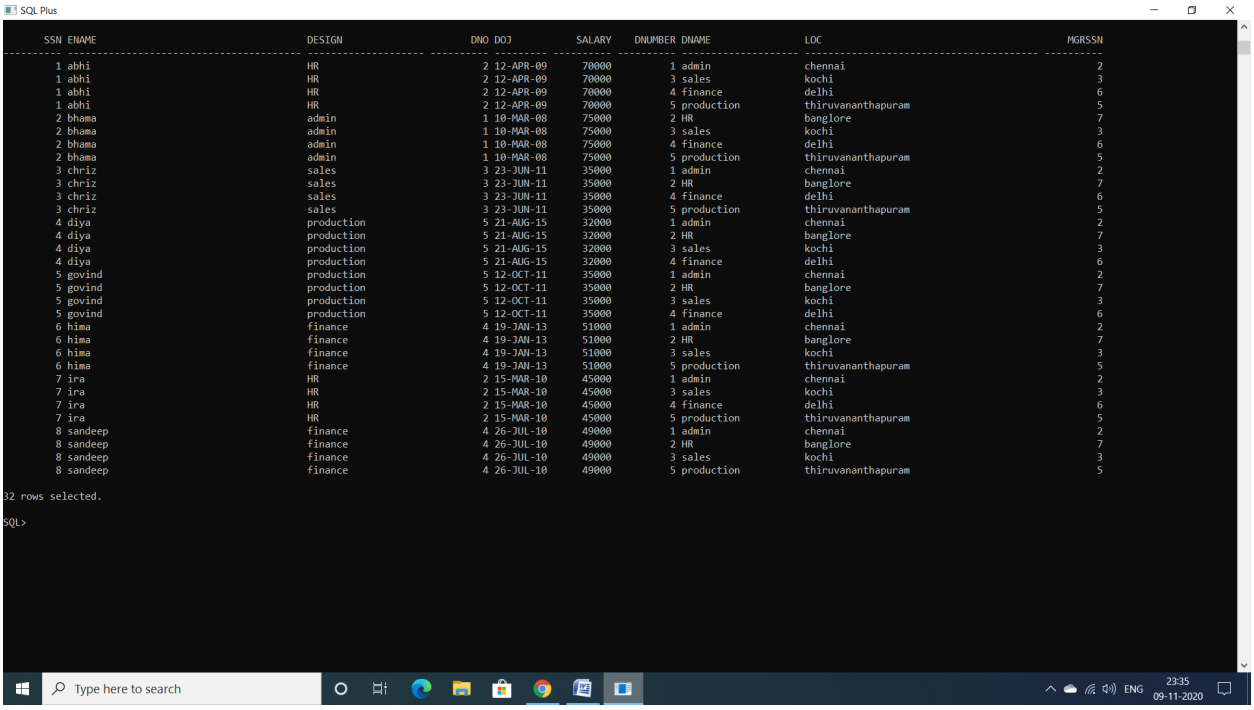


(b)Display the employee details, departments that the departments are not same in both the emp and dept. (Non Equi-join)

Query

SELECT * FROM employee e,department d WHERE NOT(e.dno=d.dnumber);

Output

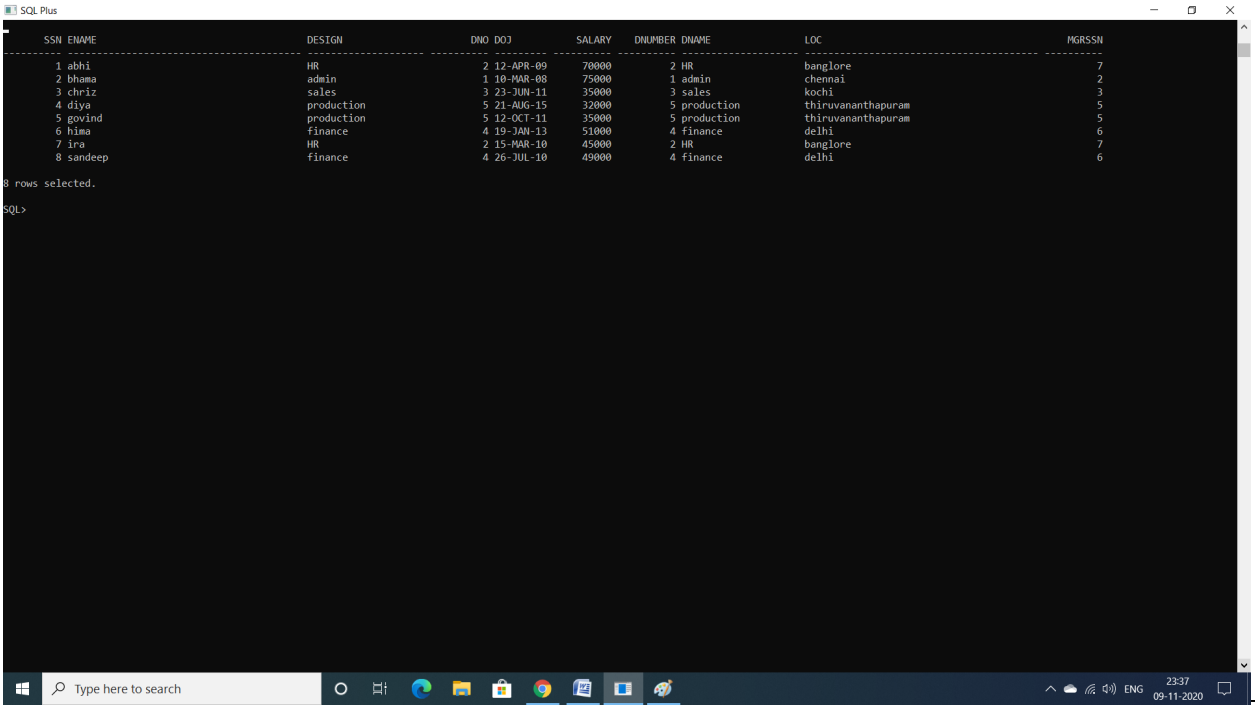


(c)Perform Left outer join on the emp and dept tables.

Query

SELECT * FROM employee e LEFT OUTER JOIN department d ON e.dno=d.dnumber;

Output

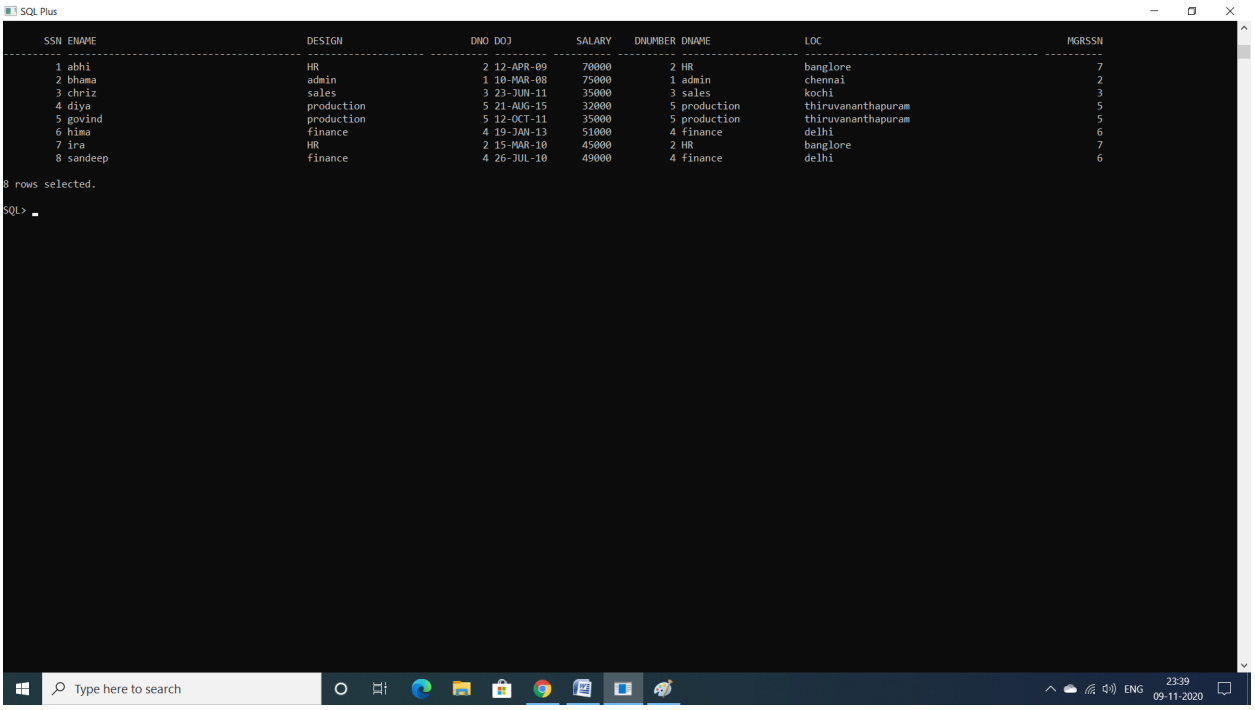


(d)Perform Right outer join on the emp and dept tables.

Query

SELECT * FROM employee e RIGHT OUTER JOIN department d ON e.dno=d.dnumber;

Output



(e) Perform inner join on the emp and dept tables.

Query

SELECT * FROM employee e INNER JOIN department d ON e.dno=d.dnumber;

Output