Assignment No :- 1

Assignment Statement :-

Create the following table:

Programmer(Pid varchar2(3),Name varchar2(30), Project varchar2(10), Language varchar2(10),Task_No number, Salary number).

Pid is the primary key of the above table .Also make sure that every Pid starts with 'P'.Enter the sufficient records.

Creating table “Programmer”

```
SQL> create table programmer(pid varchar2(3) primary key check(pid like 'P%'),name
varchar2(30),project varchar2(10),language varchar2(10),task_no number(2),salary number(5));

Table created.
```

Inserting rows into the table “Programmer”

```
SQL> insert into programmer values('P1','Susovan Das','MRC','Python',1,40000);

1 row created.
```

* Check condition is violated

```
SQL> insert into programmer values('r2','Rounak Bag','MRC','Python',1,40000);
insert into programmer values('r2','Rounak Bag','MRC','Python',1,40000)
*
ERROR at line 1:
ORA-02290: check constraint (SUSOVAN.SYS_C004312) violated
```

* Primary Key condition is violated

```
SQL> insert into programmer values('P1','Rounak Bag','MRC','Python',1,40000);
insert into programmer values('P1','Rounak Bag','MRC','Python',1,40000)
```

*
ERROR at line 1:
ORA-00001: unique constraint (SUSOVAN.SYS_C004313) violated

SQL> insert into programmer values('P2','Rounak Bag','MRC','Python',1,40000);

1 row created.

SQL> insert into programmer values('P3','Tirtharaj Majumdar','MRC','Python',1,40000);

1 row created.

SQL> insert into programmer values('P4','Sananda Dey','DBA','SQL',2,35000);

1 row created.

SQL> insert into programmer values('P5','Priya Singh','DBA','MySQL',2,35000);

1 row created.

SQL> insert into programmer values('P6','Kanisha Bose','DBA','SQL',2,35000);

1 row created.

SQL> insert into programmer values('P7','Shuvendu Patra','DMS','SQL',3,30000);

1 row created.

SQL> insert into programmer values('P8','Bikram Mukharji','DMS','PHP',4,33000);

1 row created.

SQL> insert into programmer values('P9','Sourav Saha','DMS','MySQL',5,31000);

1 row created.

SQL> insert into programmer values('P10','Apurba Sarkar','MIS','VC++',6,34000);

1 row created.

SQL> insert into programmer values('P11','Suvojit Das','MIS','VC++',7,32500);

1 row created.

```
SQL> insert into programmer values('P12','Moynak Jana','MIS','JavaScript',8,33500);

1 row created.

SQL> insert into programmer values('P13','Nandita Das','MIS','PHP',9,33500);

1 row created.

SQL> insert into programmer values('P14','Puja Pal','MIS','VC++',10,34500);

1 row created.

SQL> insert into programmer values('P15','Sanju Jana','MIS','VC++',10,33000);

1 row created.

SQL> insert into programmer values('P16','Samriddha Pal','EPR','Puyhon',11,27000);

1 row created.

SQL> insert into programmer values('P17','Tushar Saha','EPR','Ruby',11,26500);

1 row created.

SQL> insert into programmer values('P18','Souvik Ghosh','EPR','C#',11,27500);

1 row created.

SQL> insert into programmer values('P19','Barnisha Saha','FIN','VB',12,27500);

1 row created.

SQL> insert into programmer values('P20','Priyanka Das','FIN','C++',13,28500);

1 row created.

SQL> insert into programmer values('P21','Biswajit Ghosh','FIN','C++',13,29500);

1 row created.

SQL> insert into programmer values('P22','Sourav Das','FIN','Python',13,30500);

1 row created.
```

SQL> insert into programmer values('P23','Tina Bose','FIN','VB',12,25500);

1 row created.

All Records of the table “Programmer”

SQL> select * from programmer;

PID	NAME	PROJECT	LANGUAGE	TASK_NO	SALARY
P1	Susovan Das	MRC	Python	1	40000
P2	Rounak Bag	MRC	Python	1	40000
P3	Tirtharaj Majumdar	MRC	Python	1	40000
P4	Sananda Dey	DBA	SQL	2	35000
P5	Priya Singh	DBA	MySQL	2	35000
P6	Kanisha Bose	DBA	SQL	2	35000
P7	Shuvendu Patra	DMS	SQL	3	30000
P8	Bikram Mukharji	DMS	PHP	4	33000
P9	Sourav Saha	DMS	MySQL	5	31000
P10	Apurba Sarkar	MIS	VC++	6	34000
P11	Suvojit Das	MIS	VC++	7	32500
P12	Moynak Jana	MIS	JavaScript	8	33500
P13	Nandita Das	MIS	PHP	9	33500
P14	Puja Pal	MIS	VC++	10	34500
P15	Sanju Jana	MIS	VC++	10	33000
P16	Samriddha Pal	EPR	Python	11	27000
P17	Tushar Saha	EPR	Ruby	11	26500
P18	Souvik Ghosh	EPR	C#	11	27500
P19	Barnisha Saha	FIN	VB	12	27500
P20	Priyanka Das	FIN	C++	13	28500
P21	Biswajit Ghosh	FIN	C++	13	29500
P22	Sourav Das	FIN	Python	13	30500
P23	Tina Bose	FIN	VB	12	25500

23 rows selected.

The Queries:-

Q1 :- Make sure that your table is properly created.

"Programmer" Table Structure

SQL> desc programmer;

Name	Null?	Type
PID	NOT NULL	VARCHAR2(3)
NAME		VARCHAR2(30)
PROJECT		VARCHAR2(10)
LANGUAGE		VARCHAR2(10)
TASK_NO		NUMBER(2)
SALARY		NUMBER(5)

"Programmer" Table Integrity Constraints

SQL> select constraint_name,constraint_type,search_condition from user_constraints where table_name='PROGRAMMER';

CONSTRAINT_NAME	C	SEARCH_CONDITION
SYS_C004312	C	pid like 'P%'
SYS_C004313	P	

Q2 :- Select all programmers who work for 'MIS' project using 'VC++' language.

SQL> select * from programmer where project='MIS' and language='VC++';

PID	NAME	PROJECT	LANGUAGE	TASK_NO	SALARY
P10	Apurba Sarkar	MIS	VC++	6	34000
P11	Suvojit Das	MIS	VC++	7	32500
P14	Puja Pal	MIS	VC++	10	34500
P15	Sanju Jana	MIS	VC++	10	33000

Q3 :- Make the salaries of all the programmers working for ‘EPR’ project higher by 5%.

SQL> update programmer set salary=(salary*105/100) where project='EPR';

3 rows updated.

SQL> select * from programmer where project='EPR';

PID	NAME	PROJECT	LANGUAGE	TASK_NO	SALARY
P16	Samriddha Pal	EPR	Python	11	28350
P17	Tushar Saha	EPR	Ruby	11	27825
P18	Souvik Ghosh	EPR	C#	11	28875

Q4 :- Display the list of all programmers in decreasing order of the task number assigned to them.

SQL> select * from programmer order by task_no desc;

PID	NAME	PROJECT	LANGUAGE	TASK_NO	SALARY
P21	Biswajit Ghosh	FIN	C++	13	29500
P20	Priyanka Das	FIN	C++	13	28500
P22	Sourav Das	FIN	Python	13	30500
P23	Tina Bose	FIN	VB	12	25500
P19	Barnisha Saha	FIN	VB	12	27500
P16	Samriddha Pal	EPR	Python	11	28350
P18	Souvik Ghosh	EPR	C#	11	28875
P17	Tushar Saha	EPR	Ruby	11	27825
P14	Puja Pal	MIS	VC++	10	34500
P15	Sanju Jana	MIS	VC++	10	33000
P13	Nandita Das	MIS	PHP	9	33500
P12	Moynak Jana	MIS	JavaScript	8	33500
P11	Suvojit Das	MIS	VC++	7	32500
P10	Apurba Sarkar	MIS	VC++	6	34000
P9	Sourav Saha	DMS	MySQL	5	31000
P8	Bikram Mukharji	DMS	PHP	4	33000
P7	Shuvendu Patra	DMS	SQL	3	30000
P4	Sananda Dey	DBA	SQL	2	35000
P6	Kanisha Bose	DBA	SQL	2	35000

PID	NAME	PROJECT	LANGUAGE	TASK_NO	SALARY
P5	Priya Singh	DBA	MySQL	2	35000
P2	Rounak Bag	MRC	Python	1	40000
P1	Susovan Das	MRC	Python	1	40000
P3	Tirtharaj Majumdar	MRC	Python	1	40000

23 rows selected.

Q5 :- Select all the programmers who work for the 'FIN' project module where 'VB' is not been used as the software tool.

SQL> select * from programmer where project='FIN' and language<>'VB';

PID	NAME	PROJECT	LANGUAGE	TASK_NO	SALARY
P20	Priyanka Das	FIN	C++	13	28500
P21	Biswajit Ghosh	FIN	C++	13	29500
P22	Sourav Das	FIN	Python	13	30500

Q6 :- List all the programmers whose name starts with 'S' in the decreasing order of their salary.

SQL> select * from programmer where name like 'S%' order by salary desc;

PID	NAME	PROJECT	LANGUAGE	TASK_NO	SALARY
P1	Susovan Das	MRC	Python	1	40000
P4	Sananda Dey	DBA	SQL	2	35000
P15	Sanju Jana	MIS	VC++	10	33000
P11	Suvojit Das	MIS	VC++	7	32500
P9	Sourav Saha	DMS	MySQL	5	31000
P22	Sourav Das	FIN	Python	13	30500
P7	Shuvendu Patra	DMS	SQL	3	30000
P18	Souvik Ghosh	EPR	C#	11	28875
P16	Samriddha Pal	EPR	Python	11	28350

9 rows selected.

Q7 :- Display the names of all projects going on.

SQL> select project from programmer group by project;

PROJECT

EPR
MRC
DBA
MIS
DMS
FIN

6 rows selected.

Assignment No :- 2

Assignment Statement :-

Create the following table:

Employee (ID number, Name varchar2(30),Mid number, Title varchar2(15),DepId varchar2(7),Salary number).

ID is the primary key of the above table. The salary of an employee should not be less than RS 5000/-.Enter the sufficient records.

Creating table "Employee"

SQL> create table employee(id number(2) primary key,name varchar2(30),mid number(2),title varchar2(15),department varchar2(15),salary number(5) check(salary>=5000));

Table created.

"Employee" Table Structure

SQL> desc employee;

Name	Null?	Type
ID	NOT NULL	NUMBER(2)
NAME		VARCHAR2(30)
MID		NUMBER(2)
TITLE		VARCHAR2(15)
DEPARTMENT		VARCHAR2(15)
SALARY		NUMBER(5)

"Employee" Table Integrity Constraints

SQL> select constraint_name,constraint_type,search_condition from user_constraints where table_name='EMPLOYEE';

```
CONSTRAINT_NAME              C       SEARCH_CONDITION
------------------------------ -       --------------------------------------------------------------------------------
SYS_C004320                  C       salary>=5000
SYS_C004321                  P
```

Inserting rows into the table “Employee”

```
SQL> insert into employee values(1,'Susovan Das',11,'Consultant','HR',55000);

1 row created.
```

* Primary Key condition is violated

```
SQL> insert into employee values(1,'Shuvendu Patra',11,'Manager','HR',57000);
insert into employee values(1,'Shuvendu Patra',11,'Manager','HR',57000)
*
ERROR at line 1:
ORA-00001: unique constraint (SUSOVAN.SYS_C004321) violated


SQL> insert into employee values(2,'Shuvendu Patra',11,'Manager','HR',57000);

1 row created.
```

* Check condition is violated

```
SQL> insert into employee values(3,'Apurbo Debnath',11,'Opt Head','HR',900);
insert into employee values(3,'Apurbo Debnath',11,'Opt Head','HR',900)
*
ERROR at line 1:
ORA-02290: check constraint (SUSOVAN.SYS_C004320) violated


SQL> insert into employee values(3,'Apurbo Debnath',11,'Opt Head','HR',58000);

1 row created.

SQL> insert into employee values(4,'Ananda Debnath',12,'Worker','Sales',38000);

1 row created.

SQL> insert into employee values(5,'Susmita Pal',12,'Manager','Sales',39000);
```

1 row created.

SQL> insert into employee values(6,'Sunita Das',12,'Opt Head','Sales',39500);

1 row created.

SQL> insert into employee values(7,'Sananda Dey',13,'Opt Head','R and D',59000);

1 row created.

SQL> insert into employee values(8,'Priya Singh',13,'Manager','R and D',58000);

1 row created.

SQL> insert into employee values(9,'Kanisha Bose',13,'Worker','R and D',57000);

1 row created.

SQL> insert into employee values(10,'Sourav Saha',14,'Worker','Accounts',29000);

1 row created.

SQL> insert into employee values(11,'Bibhu Das',14,'Manager','Accounts',35000);

1 row created.

SQL> insert into employee values(12,'Bikram Mukharji',14,'Opt Head','Accounts',44000);

1 row created.

SQL> insert into employee values(13,'Bikas Sen',14,'Worker','Accounts',24000);

1 row created.

SQL> insert into employee values(14,'Anita Dey',14,'Worker','Accounts',29500);

1 row created.

SQL> insert into employee values(15,'Anindita Dey',15,'Worker','Marketing',29500);

1 row created.

SQL> insert into employee values(16,'Anisa Kundu',15,'Manager','Marketing',39500);

1 row created.

SQL> insert into employee values(17,'Atrisa Dey',15,'Opt Head','Marketing',47000);

1 row created.

SQL> insert into employee values(18,'Sanju Jana',15,'Worker','Marketing',27000);

1 row created.

All Records of the table “Employee”

SQL> select * from employee;

ID	NAME	MID	TITLE	DEPARTMENT	SALARY
1	Susovan Das	11	Consultant	HR	55000
2	Shuvendu Patra	11	Manager	HR	57000
3	Apurbo Debnath	11	Opt Head	HR	58000
4	Ananda Debnath	12	Worker	Sales	38000
5	Susmita Pal	12	Manager	Sales	39000
6	Sunita Das	12	Opt Head	Sales	39500
7	Sananda Dey	13	Opt Head	R and D	59000
8	Priya Singh	13	Manager	R and D	58000
9	Kanisha Bose	13	Worker	R and D	57000
10	Sourav Saha	14	Worker	Accounts	29000
11	Bibhu Das	14	Manager	Accounts	35000
12	Bikram Mukharji	14	Opt Head	Accounts	44000
13	Bikas Sen	14	Worker	Accounts	24000
14	Anita Dey	14	Worker	Accounts	29500
15	Anindita Dey	15	Worker	Marketing	29500
16	Anisa Kundu	15	Manager	Marketing	39500
17	Atrisa Dey	15	Opt Head	Marketing	47000
18	Sanju Jana	15	Worker	Marketing	27000

18 rows selected.

The Queries:-

Q1 :- Find the name of the employee having 'De' as their surname and beginning with 'A'.

SQL> select name from employee where name like 'A% De%';

NAME

Apurbo Debnath
Ananda Debnath
Anita Dey
Anindita Dey
Atrisa Dey

Q2 :- List the details of the employee who working for the department HP,Sales and R&D.

SQL> select * from employee where department in ('HR','Sales','R and D');

ID	NAME	MID	TITLE	DEPARTMENT	SALARY
1	Susovan Das	11	Consultant	HR	55000
2	Shuvendu Patra	11	Manager	HR	57000
3	Apurbo Debnath	11	Opt Head	HR	58000
4	Ananda Debnath	12	Worker	Sales	38000
5	Susmita Pal	12	Manager	Sales	39000
6	Sunita Das	12	Opt Head	Sales	39500
7	Sananda Dey	13	Opt Head	R and D	59000
8	Priya Singh	13	Manager	R and D	58000
9	Kanisha Bose	13	Worker	R and D	57000

9 rows selected.

Q3 :- Display the name of the Manager and Operational head of the department Accounts.

SQL> select name,title from employee where title in ('Manager','Opt Head') and department='Accounts';

NAME	TITLE
Bibhu Das	Manager
Bikram Mukharji	Opt Head

Q4 :- Find the designation and name of the employees who are not manager , yet are earning more than Rs. 30000/-.

SQL> select name,title from employee where title<>'Manager' and salary>=30000;

NAME	TITLE
Susovan Das	Consultant
Apurbo Debnath	Opt Head
Ananda Debnath	Worker
Sunita Das	Opt Head
Bikram Mukharji	Opt Head
Sananda Dey	Opt Head
Kanisha Bose	Worker
Atrisa Dey	Opt Head

8 rows selected.

Q5 :- List the details of the employees of the HR department in the decreasing order of their salaries.

SQL> select * from employee where department='HR' order by salary desc;

ID	NAME	MID	TITLE	DEPARTMENT	SALARY
3	Apurbo Debnath	11	Opt Head	HR	58000
2	Shuvendu Patra	11	Manager	HR	57000
1	Susovan Das	11	Consultant	HR	55000

Q6 :- Find Out the number of employees working for the Market department.

SQL> select count(*) from employee where department='Marketing';

```
 COUNT(*)
----------
         4
```

Q7 :- Display the names of the employees along with their respective manager names.

SQL> select employee.name,a.name as manager from employee,(select id,name,department from employee where title='Manager') a where a.id<>employee.id and a.department=employee.department;

NAME	MANAGER
Susovan Das	Shuvendu Patra
Apurbo Debnath	Shuvendu Patra
Ananda Debnath	Susmita Pal
Sunita Das	Susmita Pal
Sourav Saha	Bibhu Das
Bikram Mukharji	Bibhu Das
Sananda Dey	Priya Singh
Kanisha Bose	Priya Singh
Bikas Sen	Bibhu Das
Anita Dey	Bibhu Das
Anindita Dey	Anisa Kundu
Atrisa Dey	Anisa Kundu
Sanju Jana	Anisa Kundu

13 rows selected.

Assignment No :- 3

Assignment Statement :-

Create the following table:

Employee (ID number, Name varchar2(30),Mid number, Title varchar2(15),DepId varchar2(7),Salary number).

ID is the primary key of the above table. Enter sufficient records.

Creating table "Employee"

SQL> create table employee(id number(2) primary key,name varchar2(30),mid number(2),title varchar2(15),depid varchar2(7),salary number(5));

Table created.

"Employee" Table Structure

SQL> desc employee;

Name	Null?	Type
ID	NOT NULL	NUMBER(2)
NAME		VARCHAR2(30)
MID		NUMBER(2)
TITLE		VARCHAR2(15)
DEPID		VARCHAR2(7)
SALARY		NUMBER(5)

Inserting rows into the table "Employee"

SQL> insert into employee values(1,'Priya Singh',10,'Opt Head','R and D',80000)

1 row created.

```
SQL>insert into employee values(2,'Sananda Dey',10,'Programmer','R and D',60000)

1 row created.

SQL>insert into employee values(3,'Kanisha Bosh',10,'Worker','R and D',40000)

1 row created.

SQL>insert into employee values(4,'Sumitra Patra',10,'Manager','R and D',65000)

1 row created.

SQL>insert into employee values(5,'Susovan Das',11,'Worker','HR',50000)

1 row created.
```

* Primary Key condition is violated

```
SQL>insert into employee values(5,'Shuvendu Patra',11,'Worker','11',45000)
insert into employee values(5,'Shuvendu Patra',11,'Worker','11',45000)
*
ERROR at line 1:
ORA-00001: unique constraint (SUSOVAN.SYS_C004357) violated

SQL>insert into employee values(6,'Shuvendu Patra',11,'Worker','HR',45000)

1 row created.

SQL>insert into employee values(7,'Bikram Majumdar',11,'Manager','HR',55000)

1 row created.

SQL>insert into employee values(8,'Subrata Ghosh',12,'Manager','Sales',45000)

1 row created.

SQL>insert into employee values(9,'Souvik Ghosh',12,'Worker','Sales',30000)

1 row created.

SQL>insert into employee values(10,'Trisha Das',12,'Worker','Sales',32000)

1 row created.
```

```
SQL>insert into employee values(11,'Suporna Gupta',12,'Opt Head','Sales',50000)

1 row created.

SQL>insert into employee values(12,'Sourav Das',13,'Manager','Market',56000)

1 row created.

SQL>insert into employee values(13,'Shuvam Kundu',13,'Worker','Market',43000)

1 row created.

SQL>insert into employee values(14,'Tushar Shaha',13,'President','Market',58000)

1 row created.

SQL>insert into employee values(15,'Priyanka Bosh',13,'Worker','Market',40000)

1 row created.

SQL>insert into employee values(16,'Aloknath Pradhan',13,'President','Sales',55000)

1 row created.

SQL>insert into employee values(17,'Bikas Sen',15,'Manager','Account',60000)

1 row created.

SQL>insert into employee values(18,'Sanju Jana',15,'Worker','Account',45000)

1 row created.

SQL> insert into employee values(19,'Pranab Das',19,'President','Delivary',45000);

1 row created.

SQL> insert into employee values(20,'Akhil Sen',19,'Manager','Delivary',44000);

1 row created.

SQL> insert into employee values(21,'Susanto Pal',19,'Worker','Delivary',30000);

1 row created.
```

SQL> insert into employee values(22,'Kuntal Ghosh',19,'Worker','Delivary',30000);

1 row created.

All Records of the table “Employee”

SQL> select * from employee;

ID	NAME	MID	TITLE	DEPID	SALARY
1	Priya Singh	10	Opt Head	R and D	80000
2	Sananda Dey	10	Programmer	R and D	60000
3	Kanisha Bosh	10	Worker	R and D	40000
4	Sumitra Patra	10	Manager	R and D	65000
5	Susovan Das	11	Worker	HR	50000
6	Shuvendu Patra	11	Worker	HR	45000
7	Bikram Majumdar	11	Manager	HR	55000
8	Subrata Ghosh	12	Manager	Sales	45000
9	Souvik Ghosh	12	Worker	Sales	30000
10	Trisha Das	12	Worker	Sales	32000
11	Suporna Gupta	12	Opt Head	Sales	50000
12	Sourav Das	13	Manager	Market	56000
13	Shuvam Kundu	13	Worker	Market	43000
14	Tushar Shaha	13	President	Market	58000
15	Priyanka Bosh	13	Worker	Market	40000
16	Aloknath Pradhan	12	President	Sales	55000
17	Bikas Sen	15	Manager	Account	60000
18	Sanju Jana	15	Worker	Account	45000
19	Pranab Das	19	President	Delivery	45000
20	Akhil Sen	19	Manager	Delivery	44000
21	Susanto Pal	19	Worker	Delivery	30000
22	Kuntal Ghosh	19	Worker	Delivery	30000

22 rows selected.

The Queries:-

Q1 :-Display the average salary of each job title except the president in the alphabetical order of the title.

SQL> select title,avg(salary) as average from employee group by title having title<>'President' order by title;

TITLE	average
Manager	54166.6667
Opt Head	65000
Programmer	60000
Worker	38500

Q2 :- Display the average salary of each manager where more then two persons work under that manager.

SQL> select avg(salary) from (select salary,title from employee where depid in (select depid from employee group by depid having count(*)>3)) where title='Manager';

AVG(SALARY)
52500

Q3 :- Find the maximum and mini mum salaries for each department where there are more than two employees. Result is to be displayed in the order of department.

SQL> select depid,max(salary),min(salary) from (select salary,depid from employee where depid in (select depid from employee group by depid having count(*)>3)) group by depid order by depid;

DEPID	MAX(SALARY)	MIN(SALARY)
Delivery	45000	30000
Market	58000	40000
R and D	80000	40000
Sales	55000	30000

Q4 :- List the number of different manager ids present in the table.

```
SQL> select count(*) from employee where title='Manager';

  COUNT(*)
----------
         6
```

Q5 :- Display the details of all the employees whose salary is greater than the average salary.

```
SQL> select * from employee where salary>(select avg(salary) from employee);
```

ID	NAME	MID	TITLE	DEPID	SALARY
1	Priya Singh	10	Opt Head	R and D	80000
2	Sananda Dey	10	Programmer	R and D	60000
4	Sumitra Patra	10	Manager	R and D	65000
5	Susovan Das	11	Worker	HR	50000
7	Bikram Majumdar	11	Manager	HR	55000
11	Suporna Gupta	12	Opt Head	Sales	50000
12	Sourav Das	13	Manager	Market	56000
14	Tushar Shaha	13	President	Market	58000
16	Aloknath Pradhan	12	President	Sales	55000
17	Bikas Sen	15	Manager	Account	60000

Q6 :- Find the employees with lowest salary without using any aggregate function.

```
SQL> select * from employee where id in (select id from employee minus ( select employee.id
from employee,employee a where employee.salary>a.salary));
```

ID	NAME	MID	TITLE	DEPID	SALARY
9	Souvik Ghosh	12	Worker	Sales	30000
21	Susanto Pal	19	Worker	Delivery	30000
22	Kuntal Ghosh	19	Worker	Delivery	30000

Q7 :- Display the number of employees working under the supervision of the managers in the descending of the manager ids.

SQL> select a.depid,a.count from employee,(select depid,count(*) as count from (select depid from employee where title<>'Manager') group by depid) a where a.depid=employee.depid and employee.title='Manager' order by employee.id desc;

DEPID	COUNT
Delivery	3
Account	1
Market	3
Sales	4
HR	2
R and D	3

6 rows selected.

Assignment No :- 4

Assignment Statement :-

Create the following tables:

Employee(emp_id varchar2(6) , name varchar2(20), address varchar2(20) ,dep_id varchar2(6) ,salary number(5))
Department(dep_id varchar2(6) ,name varchar2(20) ,reg_id varchar2(6))
Region(reg_id varchar2(6) ,name varchar2(20))

In the above tables ,Id is the primary key. In the Employee table,Dep_Id is the foreign key referencing the Department table where Reg_Id is the foreign key referencing the Region table. Enter sufficient records in each of the above tables.

Creating table "Region"

SQL> create table region(reg_id varchar2(6) primary key,name varchar2(20));

Table created.

"Region" Table Structure

SQL> desc region;

Name	Null?	Type
REG_ID	NOT NULL	VARCHAR2(6)
NAME		VARCHAR2(20)

Creating table "Department"

SQL> create table department(dep_id varchar2(6) primary key,name varchar2(20),reg_id varchar2(6) references region(reg_id));

Table created.

“Department” Table Structure

SQL> desc department;

Name	Null?	Type
DEP_ID	NOT NULL	VARCHAR2(6)
NAME		VARCHAR2(20)
REG_ID		VARCHAR2(6)

Creating table “Employee”

SQL> create table employee(emp_id varchar2(6) primary key,name varchar2(20),address varchar2(20),dep_id varchar2(6) references department(dep_id),salary number(5));

Table created.

“Employee” Table Structure

SQL> desc employee;

Name	Null?	Type
EMP_ID	NOT NULL	VARCHAR2(6)
NAME		VARCHAR2(20)
ADDRESS		VARCHAR2(20)
DEP_ID		VARCHAR2(6)
SALARY		NUMBER(5)

Inserting rows into the table “Region”

SQL> insert into region values('R1','Kolkata');

1 row created.

SQL> insert into region values('R2','Mumbai');

1 row created.

* Primary Key condition is violated

SQL> insert into region values('R2','Bangalore');

```
insert into region values('R2','Bangalore')
*
ERROR at line 1:
ORA-00001: unique constraint (SUSOVAN.SYS_C004530) violated


SQL> insert into region values('R3','Bangalore');

1 row created.

SQL> insert into region values('R4','Chennai');

1 row created.
```

Inserting rows into the table “Department”

```
SQL> insert into department values('D1','R and D','R1');

1 row created.

SQL> insert into department values('D2','R and D','R2');

1 row created.
```

* Primary Key condition is violated

```
SQL> insert into department values('D2','HR','R3');
insert into department values('D2','HR','R3')
*
ERROR at line 1:
ORA-00001: unique constraint (SUSOVAN.SYS_C004531) violated

SQL> insert into department values('D3','HR','R3');

1 row created.

SQL> insert into department values('D4','Sales','R1');

1 row created.

SQL> insert into department values('D5','Marketing','R4');

1 row created.
```

```
SQL> insert into department values('D6','Management','R3');

1 row created.
```

Inserting rows into the table “Employee”

```
SQL> insert into employee values('E1','Sananda Dey','Kolkata','D1',80000);

1 row created.

SQL> insert into employee values('E2','Priya Singh','Uttar Pradesh','D2',70000);

1 row created.

SQL> insert into employee values('E3','Susovan Das','Kolkata','D1',50000);

1 row created.

SQL> insert into employee values('E4','Raunak Bag','Mumbai','D2',60000);

1 row created.
```

* Primary Key condition is violated

```
SQL> insert into employee values('E4','Tirtharaj Majumdar','Mumbai','D3',60000);
insert into employee values('E4','Tirtharaj Majumdar','Mumbai','D3',60000)
*
ERROR at line 1:
ORA-00001: unique constraint (SUSOVAN.SYS_C004533) violated

SQL> insert into employee values('E5','Tirtharaj Majumdar','Mumbai','D3',60000);

1 row created.

SQL> insert into employee values('E6','Anis Jha','Bagalore','D3',58000);

1 row created.

SQL> insert into employee values('E7','Anket Parui','Bagalore','D3',50000);

1 row created.
```

```
SQL> insert into employee values('E8','Ankita Das','Bagalore','D4',60000);

1 row created.
```

* Foreign Key condition is violated

```
SQL> insert into employee values('E9','Susmita Pal','Kolkata','D8',60000);
insert into employee values('E9','Susmita Pal','Kolkata','D8',60000)
*
ERROR at line 1:
ORA-02291: integrity constraint (SUSOVAN.SYS_C004534) violated - parent key not
found

SQL> insert into employee values('E9','Susmita Pal','Kolkata','D4',50000);

1 row created.

SQL> insert into employee values('E10','Sandip Ghosh','Kolkata','D4',55000);

1 row created.

SQL> insert into employee values('E11','Diptesh Acharya','Mumbai','D4',65000);

1 row created.

SQL> insert into employee values('E12','Kousik Sen','Delhi','D4',45000);

1 row created.

SQL> insert into employee values('E13','Arup Guptta','Chennai','D5',55000);

1 row created.

SQL> insert into employee values('E14','Upen Sen','Chennai','D5',57000);

1 row created.

SQL> insert into employee values('E15','Surja Das','Chennai','D5',50000);

1 row created.

SQL> insert into employee values('E16','Kanisha Bose','Kolkata','D6',50000);

1 row created.
```

```
SQL> insert into employee values('E17','Shuvendu Patra','Bengalore','D6',45000);

1 row created.

SQL> insert into employee values('E18','Sourav Saha','Bengalore','D6',55000);

1 row created.
```

All Records of the table “Region”

```
SQL> select * from region;

REG_ID     NAME
---------- --------------------
R1         Kolkata
R2         Mumbai
R3         Bangalore
R4         Chennai
```

All Records of the table “Department”

```
SQL> select * from department;

DEP_ID     NAME               REG_ID
---------- -------------------- ----------
D1         R and D            R1
D2         R and D            R2
D3         HR                 R3
D4         Sales              R1
D5         Marketing          R4
D6         Management         R3

6 rows selected.
```

All Records of the table “Employee”

```
SQL> select * from employee;
```

EMP_ID	NAME	ADDRESS	DEP_ID	SALARY
E1	Sananda Dey	Kolkata	D1	80000
E2	Priya Singh	Uttar Pradesh	D2	70000
E3	Susovan Das	Kolkata	D1	50000
E4	Raunak Bag	Mumbai	D2	60000
E5	Tirtharaj Majumdar	Mumbai	D3	60000
E6	Anish Jha	Bangalore	D3	58000
E7	Anket Parui	Bangalore	D3	50000
E8	Ankita Das	Bangalore	D4	60000
E9	Susmita Pal	Kolkata	D4	50000
E10	Sandip Ghosh	Kolkata	D4	55000
E11	Diptesh Acharya	Mumbai	D4	65000
E12	Kousik Sen	Delhi	D4	45000
E13	Arup Guptta	Chennai	D5	55000
E14	Upen Sen	Chennai	D5	57000
E15	Surja Das	Chennai	D5	50000
E16	Kanisha Bose	Kolkata	D6	50000
E17	Shuvendu Patra	Bangalore	D6	45000
E18	Sourav Saha	Bangalore	D6	55000

18 rows selected.

The Queries:-

Q1 :-Display the details of all who work in the same department as Diptesh Acharya .

SQL> select * from employee where dep_id=(select dep_id from employee where name='Diptesh Acharya');

EMP_ID	NAME	ADDRESS	DEP_ID	SALARY
E8	Ankita Das	Bangalore	D4	60000
E9	Susmita Pal	Kolkata	D4	50000
E10	Sandip Ghosh	Kolkata	D4	55000
E11	Diptesh Acharya	Mumbai	D4	65000
E12	Kousik Sen	Delhi	D4	45000

Q2 :-Find all employees who work in HR department .

```
SQL> select * from employee where dep_id=(select dep_id from department where
name='HR');

EMP_ID      NAME                ADDRESS             DEP_ID      SALARY
----------- ------------------- ------------------- ---------- ----------
E5          Tirtharaj Majumdar  Mumbai              D3          60000
E6          Anish Jha           Bangalore           D3          58000
E7          Anket Parui         Bangalore           D3          50000
```

Q3 :-Find total number of employees working in the Kolkata region .

```
SQL> select count(*) from employee,department where employee.dep_id = department.dep_id
and department.reg_id=(select reg_id from region where name='Kolkata');

  COUNT(*)
----------
         7
```

Q4 :-Display the name of the departments situated in Bangalore .

```
SQL> select name from department where reg_id in (select reg_id from region where
name='Bangalore');

NAME
--------------------
HR
Management
```

Q5 :-Find the number of employees who work in the department where Anish works .

```
SQL> select count(*) from employee where dep_id=(select dep_id from employee where name
like 'Anish %');

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

Q6 :-Find the department where more than 4 employees working .

```
SQL> select name from department where dep_id in (select dep_id from employee group by
dep_id having count(*)>4);

NAME
--------------------
Sales
```

Q7 :- Find the department where maximum employees working .

```
SQL> select name from department where dep_id in (select dep_id from employee group by
dep_id having count(*)=(select max(count(*)) from employee group by dep_id));

NAME
--------------------
Sales
```

Assignment No :- 5

Assignment Statement :-

Create the following tables:

Customer(id varchar2(3) , name varchar2(20) , address varchar2(25),it_id varchar2(5)),
Item(it_id varchar2(5) ,name varchar2(15),price number(6,2),qty number(2)),

In each of the above tables ,Id is the primary key. In the Customer table,It_Idisthe foreign key referencing the Item table. The default initial value of the quantity of each item is 5. Enter the sufficient records in each of the above tables.

Creating table “Item”

SQL> create table item(it_id varchar2(5) primary key,name varchar2(15),price number(6,2),qty number(2) default 5);

Table created.

“Item” Table Structure

SQL> desc item;

Name	Null?	Type
IT_ID	NOT NULL	VARCHAR2(5)
NAME		VARCHAR2(15)
PRICE		NUMBER(6,2)
QTY		NUMBER(2)

Creating table “Customer”

SQL> create table customer(id varchar2(3) primary key , name varchar2(20) , address varchar2(25),it_id varchar2(5) references item(it_id));

Table created.

“Customer” Table Structure

```
SQL> desc customer;

 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ID                                        NOT NULL VARCHAR2(3)
 NAME                                               VARCHAR2(20)
 ADDRESS                                            VARCHAR2(25)
 IT_ID                                              VARCHAR2(5)
```

Inserting rows into the table “Item”

```
SQL> insert into item values('i1','Scanner',6500.30,6);

1 row created.
```

* Primary Key condition is violated

```
SQL> insert into item values('i1','Printer',4900.58,7);
insert into item values('i1','Printer',4900.58,7)
*
ERROR at line 1:
ORA-00001: unique constraint (PRIYA.SYS_C003994) violated


SQL> insert into item values('i2','Printer',4900.58,7);

1 row created.

SQL> insert into item values('i3','DVD',75,45);

1 row created.

SQL> insert into item values('i4','Joystick',1200.65,8);

1 row created.

SQL> insert into item values('i5','Pendrive',675.00,17);

1 row created.

SQL> insert into item values('i6','Hard disk',4500.00,6);
```

1 row created.

Inserting rows into the table “Customer”

```
SQL> insert into customer values('c1','Priya Singh','Kolkata','i4');

1 row created.
```

* Primary Key condition is violated

```
SQL> insert into customer values('c1','Puja Singh','Kolkata','i4');
insert into customer values('c1','Puja Singh','Kolkata','i4')
*
ERROR at line 1:
ORA-00001: unique constraint (PRIYA.SYS_C003995) violated


SQL> insert into customer values('c2','Puja Singh','Kolkata','i4');

1 row created.

SQL> insert into customer values('c3','Sananda Dey','Kolkata','i3');

1 row created.

SQL> insert into customer values('c4','Kanisha Bose','Kolkata','i3');

1 row created.
```

* Foreing condition is violated

```
SQL> insert into customer values('c5','Susovan Das','Kolkata','i8');
insert into customer values('c5','Susovan Das','Kolkata','i8')
*
ERROR at line 1:
ORA-02291: integrity constraint (PRIYA.SYS_C003996) violated - parent key not
found


SQL> insert into customer values('c5','Susovan Das','Kolkata','i6');

1 row created.
```

```
SQL> insert into customer values('c6','Saurav Saha','Delhi','i5');

1 row created.

SQL> insert into customer values('c7','Shuvendu Patra','Bangalore','i3');

1 row created.

SQL> insert into customer values('c8','Bikram Mukherjee','Ahmedabad','i2');

1 row created.

SQL> insert into customer values('c9','Rohan Bhandari','Panaji','i3');

1 row created.

SQL> insert into customer values('c10','Awadhesh Yadav','Manali','i6');

1 row created.

SQL> insert into customer values('c11','Rohit Chettri','Jammu','i5');

1 row created.

SQL> insert into customer values('c12','Nikita Agarwal','Agra','i4');

1 row created.

SQL> insert into customer values('c13','Reshma Nandi','Kolkata','i6');

1 row created.

SQL> insert into customer values('c14','Anita Das','Mumbai','i3');

1 row created.

SQL> insert into customer values('c15','Rohan Singh','Mumbai','i2');

1 row created.

SQL> insert into customer values('c16','Maya Singh','Panaji','i4');

1 row created.
```

All Records of the table “Item”

SQL> select * from item;

IT_ID	NAME	PRICE	QTY
i1	Scanner	6500.3	6
i2	Printer	4900.58	7
i3	DVD	75	45
i4	Joystick	1200.65	8
i5	Pen drive	675	17
i6	Hard disk	4500	6

6 rows selected.

All Records of the table “Customer”

SQL> select * from customer;

ID	NAME	ADDRESS	IT_ID
c1	Priya Singh	Kolkata	i4
c2	Puja Singh	Kolkata	i4
c3	Sananda Dey	Kolkata	i3
c4	Kanisha Bose	Kolkata	i3
c5	Susovan Das	Kolkata	i6
c6	Saurav Saha	Delhi	i5
c7	Shuvendu Patra	Bangalore	i3
c8	Bikram Mukherjee	Ahmedabad	i2
c9	Rohan Bhandari	Panaji	i3
c10	Awadhesh Yadav	Manali	i6
c11	Rohit Chettri	Jammu	i5
c12	Nikita Agarwal	Agra	i4
c13	Reshma Nandi	Kolkata	i6
c14	Anita Das	Mumbai	i3
c15	Rohan Singh	Mumbai	i2
c16	Maya Singh	Panaji	i4

16 rows selected.

The Queries:-

Q1 :- Delete the items which have not been order by any customer.

SQL> delete item where it_id in(select it_id from item minus (select it_id from customer));

1 row deleted.

SQL> select * from item;

IT_ID	NAME	PRICE	QTY
i2	Printer	4900.58	7
i3	DVD	75	45
i4	Joystick	1200.65	8
i5	Pen drive	675	17
i6	Hard disk	4500	6

Q2 :- Find all the different items ordered by all the customer.

SQL> select customer.name,item.name as item_name from customer,item where customer.it_id=item.it_id;

NAME	ITEM_NAME
Priya Singh	Joystick
Puja Singh	Joystick
Sananda Dey	DVD
Kanisha Bose	DVD
Susovan Das	Hard disk
Saurav Saha	Pen drive
Shuvendu Patra	DVD
Bikram Mukherjee	Printer
Rohan Bhandari	DVD
Awadhesh Yadav	Hard disk
Rohit Chettri	Pen drive
Nikita Agarwal	Joystick
Reshma Nandi	Hard disk
Anita Das	DVD
Rohan Singh	Printer
Maya Singh	Joystick

Q3 :- Reduce the price of the most demanding items by 10%.

SQL> update item set price=(price-(price*10)/100) where it_id in(select it_id from customer group by it_id having count(*)=(select max(count(*)) from customer group by it_id));

1 row updated.

SQL> select * from item;

IT_ID	NAME	PRICE	QTY
i2	Printer	4900.58	7
i3	DVD	67.5	45
i4	Joystick	1200.65	8
i5	Pen drive	675	17
i6	Hard disk	4500	6

Q4 :- Display the items along with their available quantities in the ascending order by the price list.

SQL> select name,qty from item order by price;

NAME	QTY
DVD	45
Pen drive	17
Joystick	8
Hard disk	6
Printer	7

Q5 :- Find the name of all the customers who have bought ‘DVD’.

SQL> select * from customer where it_id=(select it_id from item where name='DVD');

ID	NAME	ADDRESS	IT_ID
c3	Sananda Dey	Kolkata	i3
c4	Kanisha Bose	Kolkata	i3
c7	Shuvendu Patra	Bangalore	i3
c9	Rohan Bhandari	Panaji	i3
c14	Anita Das	Mumbai	i3

Q6 :- Display all the customers from Kolkata who have bought at least one Joystick.

SQL> select * from customer where address='Kolkata' and it_id=(select it_id from item where name='Joystick');

ID	NAME	ADDRESS	IT_ID
c1	Priya Singh	Kolkata	i4
c2	Puja Singh	Kolkata	i4

Assignment No :- 6

Assignment Statement :-

Design the Student- attendance System that automates the attendance system of the College. The system maintains the following database:

Students(Roll,SName,Course,Year)
Teacher(Tid,TName,Code)
Attends(Roll,Tid, Subject, DT_class)

Create the tables using SQL such that if the student record is deleted, all corresponding records in the Attends table also gets deleted. Insert at least six topless in each table so that queries yield some results. 'SName' can start with letters A to D.

Creating table "Student"

SQL> create table student(roll varchar2(4) primary key,sname varchar2(20) check(sname between 'A' and 'E'),course varchar2(10),year varchar2(5));

Table created.

"Student" Table Structure

SQL> desc student;

Name	Null?	Type
ROLL	NOT NULL	VARCHAR2(4)
SNAME		VARCHAR2(20)
COURSE		VARCHAR2(10)
YEAR		VARCHAR2(5)

"Student" Table Integrity Constraints

SQL> select constraint_name,constraint_type,search_condition from user_constraints where table_name='STUDENT';

CONSTRAINT_NAME	C	SEARCH_CONDITION
SYS_C004635	C	sname between 'A' and 'E'
SYS_C004636	P	

Creating table “Teacher”

```
SQL> create table teacher(tid varchar2(4) primary key,tname varchar2(20),code varchar2(10));

Table created.
```

“Teacher” Table Structure

```
SQL> desc teacher;
```

Name	Null?	Type
TID	NOT NULL	VARCHAR2(4)
TNAME		VARCHAR2(20)
CODE		VARCHAR2(10)

Creating table “Attends”

```
SQL> create table attends(roll varchar2(4) references student(roll) on delete cascade,tid
varchar2(4) references teacher(tid),subject varchar2(10),dt_class date);

Table created.
```

“Attends” Table Structure

```
SQL> desc attends;
```

Name	Null?	Type
ROLL		VARCHAR2(4)
TID		VARCHAR2(4)
SUBJECT		VARCHAR2(10)
DT_CLASS		DATE

“Attends” Table Integrity Constraints

SQL> select constraint_name,constraint_type,search_condition from user_constraints where table_name='ATTENDS';

CONSTRAINT_NAME	C	SEARCH_CONDITION
SYS_C004638	R	
SYS_C004639	R	

Inserting rows into the table “Student”

SQL> insert into student values('1','Anita Das','B.sc','1st');

1 row created.

* Primary Key condition is violated

SQL> insert into student values('1','Aniket Das','B.sc','1st');
insert into student values('1','Aniket Das','B.sc','1st')
*
ERROR at line 1:
ORA-00001: unique constraint (SUSOVAN.SYS_C004636) violated

SQL> insert into student values('2','Aniket Das','B.sc','1st');

1 row created.

SQL> insert into student values('3','Bishal Jana','B.sc','2nd');

1 row created.

* Check condition is violated

SQL> insert into student values('4','Kuntal Pal','B.sc','3rd');
insert into student values('4','Kuntal Pal','B.sc','3rd')
*
ERROR at line 1:
ORA-02290: check constraint (SUSOVAN.SYS_C004635) violated

```
SQL> insert into student values('4','Dipak Pal','B.sc','3rd');

1 row created.

SQL> insert into student values('5','Dipali Bose','B.com','3rd');

1 row created.

SQL> insert into student values('6','Arun Prodhan','B.com','1st');

1 row created.

SQL> insert into student values('7','Choitali Das','B.com','2nd');

1 row created.
```

Inserting rows into the table “Teacher”

```
SQL> insert into teacher values('T1','Mridul Banerjee','Math');

1 row created.
```

* Primary Key condition is violated

```
SQL> insert into teacher values('T1','Samir Malakar','Cmsa');
insert into teacher values('T1','Samir Malakar','Cmsa')
*
ERROR at line 1:
ORA-00001: unique constraint (SUSOVAN.SYS_C004637) violated


SQL> insert into teacher values('T2','Samir Malakar','Cmsa');

1 row created.

SQL> insert into teacher values('T3','Bhudeb Das','Acccont');

1 row created.

SQL> insert into teacher values('T4','Akash Sen','Acccont');

1 row created.
```

SQL> insert into teacher values('T5','Arijit Jana','Math');

1 row created.

Inserting rows into the table “Attends”

SQL> insert into attends values('1','T1','Math','12-JUN-18');

1 row created.

SQL> insert into attends values('2','T1','Math','13-JUN-18');

1 row created.

SQL> insert into attends values('1','T1','Math','13-JUN-18');

1 row created.

SQL> insert into attends values('3','T1','Math','13-JUN-18');

1 row created.

SQL> insert into attends values('1','T1','Math','14-JUN-18');

1 row created.

SQL> insert into attends values('3','T1','Math','14-JUN-18');

1 row created.

SQL> insert into attends values('1','T2','Comp.Sc','12-JUN-18');

1 row created.

SQL> insert into attends values('4','T2','Comp.Sc','12-JUN-18');

1 row created.

SQL> insert into attends values('1','T2','Comp.Sc','14-JUN-18');

1 row created.

SQL> insert into attends values('2','T2','Comp.Sc','14-JUN-18');

1 row created.

SQL> insert into attends values('3','T2','Comp.Sc','14-JUN-18');

1 row created.

SQL> insert into attends values('4','T2','Comp.Sc','14-JUN-18');

1 row created.

SQL> insert into attends values('4','T2','Comp.Sc','13-JUN-18');

1 row created.

SQL> insert into attends values('4','T5','Data St','14-JUN-18');

1 row created.

* Foreing Key condition is violated

SQL> insert into attends values('10','T3','Acc','12-JUN-18');
insert into attends values('10','T3','Acc','12-JUN-18')
*
ERROR at line 1:
ORA-02291: integrity constraint (SUSOVAN.SYS_C004638) violated - parent key not found

SQL> insert into attends values('7','T7','Acc','12-JUN-18');
insert into attends values('7','T7','Acc','12-JUN-18')
*
ERROR at line 1:
ORA-02291: integrity constraint (SUSOVAN.SYS_C004639) violated - parent key not found

SQL> insert into attends values('4','T2','Data St','13-JUN-18');

1 row created.

SQL> insert into attends values('5','T3','Acc','12-JUN-18');

1 row created.

```
SQL> insert into attends values('6','T3','Acc','12-JUN-18');

1 row created.

SQL> insert into attends values('7','T4','Acc','13-JUN-18');

1 row created.

SQL> insert into attends values('5','T4','Acc','13-JUN-18');

1 row created.

SQL> insert into attends values('6','T3','Acc','13-JUN-18');

1 row created.

SQL> insert into attends values('7','T4','Acc','12-JUN-18');

1 row created.
```

All Records of the table "Student"

```
SQL> select * from student;
```

ROLL	SNAME	COURSE	YEAR
1	Anita Das	B.sc	1st
2	Aniket Das	B.sc	1st
3	Bishal Jana	B.sc	2nd
4	Dipak Pal	B.sc	3rd
5	Dipali Bose	B.com	3rd
6	Arun Prodhan	B.com	1st
7	Choitali Das	B.com	2nd

7 rows selected.

All Records of the table "Teacher"

```
SQL> select * from teacher;
```

TID	TNAME	CODE
T1	Mridul Banerjee	Math
T2	Samir Malakar	Cmsa
T3	Bhudeb Das	Acccont
T4	Akash Sen	Acccont
T5	Arijit Jana	Math

5 rows selected.

All Records of the table “Attends”

SQL> select * from attends;

ROLL	TID	SUBJECT	DT_CLASS
1	T1	Math	12-JUN-18
2	T1	Math	13-JUN-18
1	T1	Math	13-JUN-18
3	T1	Math	13-JUN-18
1	T1	Math	14-JUN-18
3	T1	Math	14-JUN-18
1	T2	Comp.Sc	12-JUN-18
4	T2	Comp.Sc	12-JUN-18
1	T2	Math	14-JUN-18
2	T2	Math	14-JUN-18
3	T2	Math	14-JUN-18
4	T2	Math	14-JUN-18
4	T5	Comp.Sc	13-JUN-18
4	T5	Data St	14-JUN-18
4	T2	Data St	13-JUN-18
5	T3	Acc	12-JUN-18
6	T3	Acc	12-JUN-18
7	T4	Acc	13-JUN-18
5	T4	Acc	13-JUN-18
6	T3	Acc	13-JUN-18
7	T4	Acc	12-JUN-18

21 rows selected.

The Queries:-

Q1 :- Find students with maximum attendance.

SQL> select sname from student where roll in(select roll from attends group by roll having count(*) = (select max(count(*)) from attends group by roll));

SNAME

Anita Das
Dipak Pal

Q2 :- Find all students whose name start with ‘A’ in B.sc course who have attend at least one class taken by Prof M.Banerjee .

SQL> select * from student where sname like 'A%' and course='B.sc' and roll in(select roll from attends where tid in(select tid from teacher where tname like 'M% Banerjee'));

ROLL	SNAME	COURSE	YEAR
1	Anita Das	B.sc	1st
2	Aniket Das	B.sc	1st

Q3 :- Find teaches who have taught classes on Data St.

SQL> select tname from teacher where tid in(select tid from attends where subject='Data St');

TNAME

Samir Malakar
Arijit Jana

Q4 :- Find teaches who have taught classes on Math & Comp.Sc.

SQL> select tname from teacher where tid in(select tid from attends where subject='Comp.Sc' intersect(select tid from attends where subject='Math'));

TNAME

Samir Malakar

User Interface:-

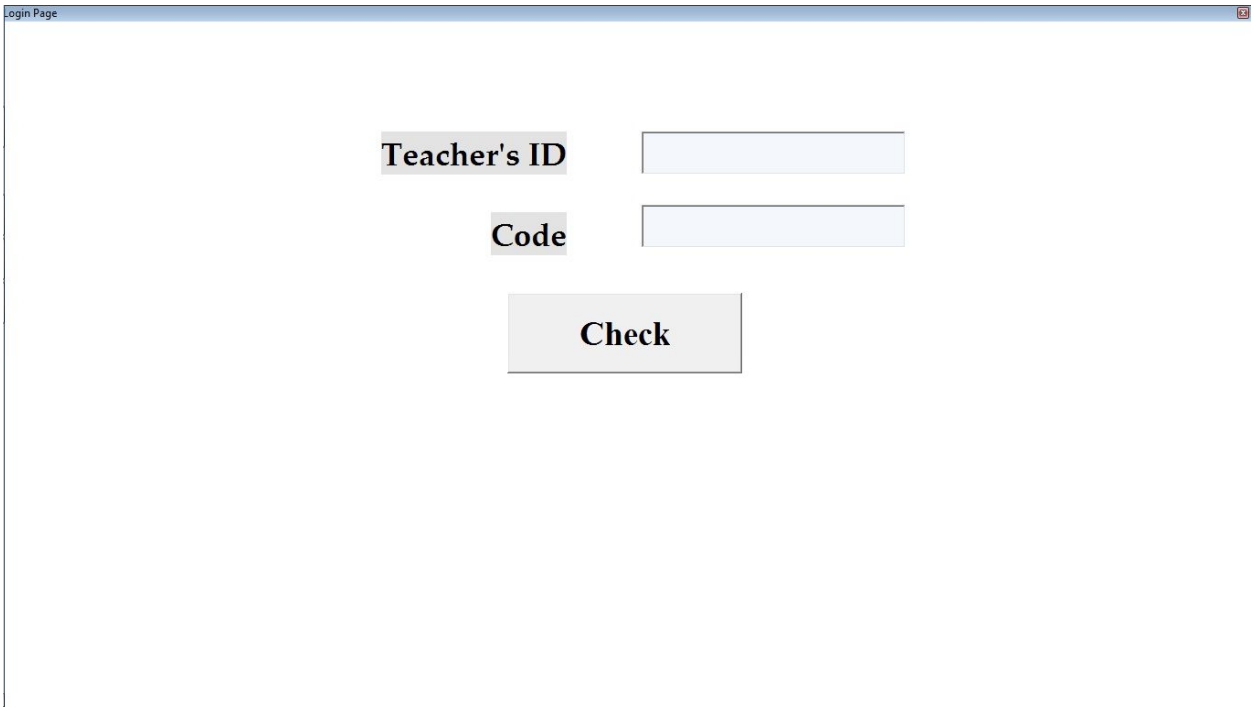
- **Login to the system. Only a teacher with a valid 'tid' and 'code' can login.**
- **Design a separate form to change code. Make sure that only a valid user can change code.**
- **Insert, view, update and delete 'Attends' data in a form.**
- **In the 'Attends' form, include three horizontal scrollbar, labeled as 'Red', 'Blue' and 'Green' whose values range from 0 to 255. An user may choose from these scrollbars to change the background color of the form.**

Form1 (Login page) User Interface:-

Form1's Source Code :-

```
' This is the check button program
Private Sub Command1_Click()
 Adodc1.RecordSource = "select * from teacher where tid='" & Text1.Text & "' and code ='" &
Text2.Text & "'"
 Adodc1.CursorLocation = adUseClient
 Adodc1.Refresh
 If Adodc1.Recordset.RecordCount > 0 Then
  Form2.Show
  Unload Me
 Else
  MsgBox "Login incorrect", vbCritical, "Error"
  Text2.Text = ""
  Text1.Text = ""
  Text1.SetFocus
 End If
End Sub
```

Form1 Look:-



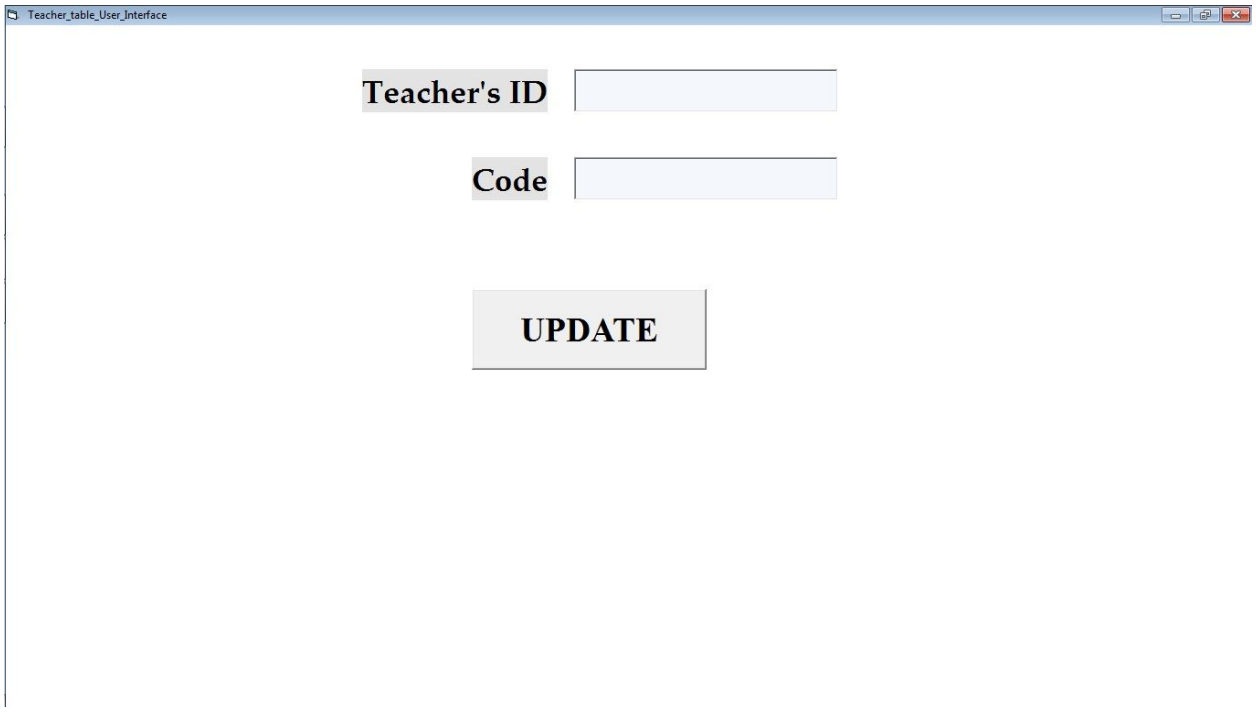
Form2 (Teacher table update page) User Interface:-

Form2's Source Code:-

```
' This is the Update button program
Private Sub Command1_Click()
 Adodc1.RecordSource = "select * from teacher where tid='" & Text1.Text & "'"
 Adodc1.CursorLocation = adUseClient
 Adodc1.Refresh
 If Adodc1.Recordset.RecordCount > 0 Then
  If MsgBox("Do You Want to Update [Y/N]", vbYesNo) = vbYes Then
   Adodc1.RecordSource = "select * from teacher"
   Adodc1.Refresh
   Adodc1.Recordset.Update "code", Text2.Text
   MsgBox "Update Successful", vbInformation, "Successful"
  End If
 Else
  MsgBox "Wrong Tid", vbCritical, "Error"
 End If
 Text1.Text = ""
```

```
 Text2.Text = ""
 Text1.SetFocus
End Sub
```

Form2 Look:-



Form3 (Attends table page) User Interface:-

Form3's Source Code:-

```
' This is the Inset button program
Private Sub Command1_Click()
 Adodc1.CursorLocation = adUseClient
 Adodc1.Refresh
 Adodc1.Recordset.AddNew
 Adodc1.Recordset.Fields("ROLL").Value = Text1.Text
 Adodc1.Recordset.Fields("tid").Value = Text2.Text
 Adodc1.Recordset.Fields("subject").Value = Text3.Text
 Adodc1.Recordset.Fields("DT_class").Value = DTPicker1.Value
 Adodc1.Recordset.Update
 MsgBox "Insert Susccessfull", vbInformation, "INSERTION"
```

```
 Text1.Text = ""
 Text2.Text = ""
 Text3.Text = ""
 Text1.SetFocus
End Sub
```

‘ This is the View button program

```
Private Sub Command2_Click()
 Adodc1.CursorLocation = adUseClient
 Adodc1.Refresh
 DataGrid1.Visible = True
 End Sub
```

‘ This is the Update button program

```
Private Sub Command3_Click()
 Adodc1.CursorLocation = adUseClient
 Adodc1.Refresh
 Adodc1.Recordset.AddNew
 Adodc1.Recordset.Fields("ROLL").Value = Text1.Text
 Adodc1.Recordset.Fields("tid").Value = Text2.Text
 Adodc1.Recordset.Fields("subject").Value = Text3.Text
 Adodc1.Recordset.Fields("DT_class").Value = DTPicker1.Value
 Adodc1.Recordset.Update
 MsgBox "Update Successfull", vbInformation, "UPDATETION"
 Text1.Text = ""
 Text2.Text = ""
 Text3.Text = ""
 Text1.SetFocus
End Sub
```

‘ This is the Delete button program

```
Private Sub Command4_Click()
 If MsgBox("Do you want to delete?", vbYesNo + vbCritical, "CONFORMATION") = vbYes Then
  Adodc1.Recordset.Delete
  MsgBox "DELETED SUCCESSFULLY"
 End If
End Sub
```

‘ This is the Form3’s load time program

```
Private Sub Form_Load()
 Form3.BackColor = RGB(HScroll1.Value, HScroll2.Value, HScroll3.Value)
 DTPicker1.Value = Date
End Sub
```

‘ This is the Red Horizontal Scroll bar program

```
Private Sub HScroll1_Change()
 Form3.BackColor = RGB(HScroll1.Value, HScroll2.Value, HScroll3.Value)
End Sub
```

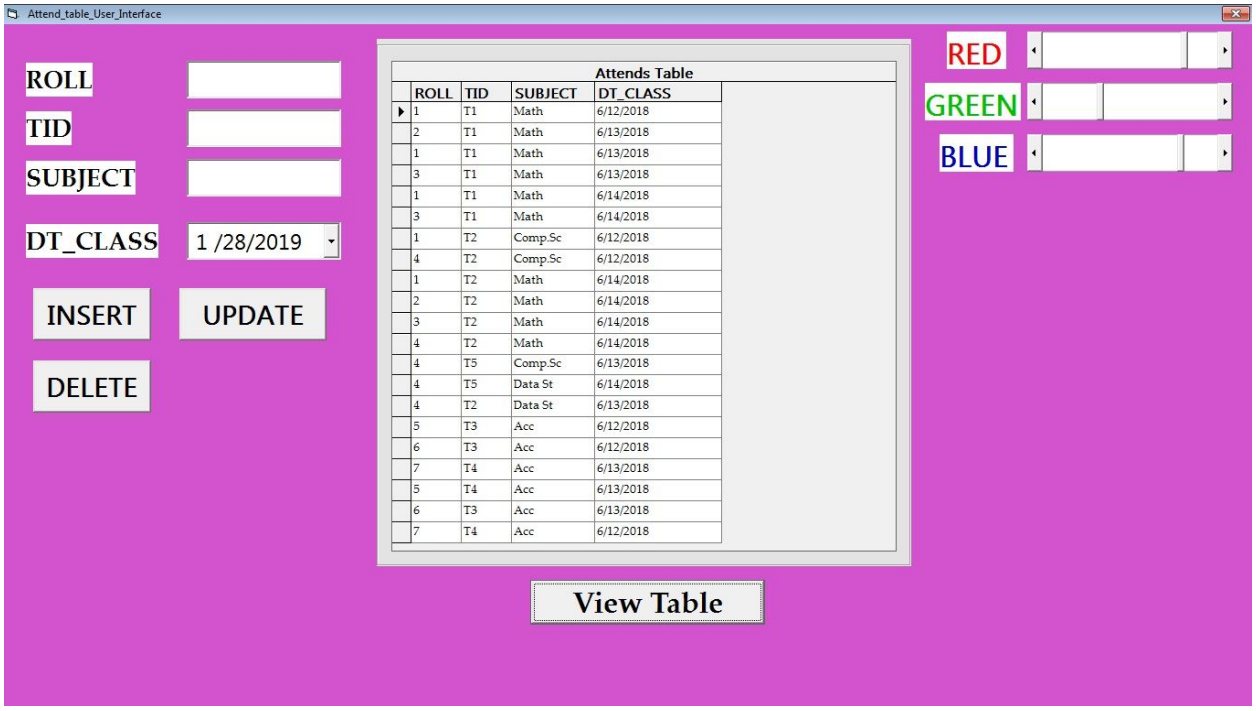
‘ This is the Green Horizontal Scroll bar program

```
Private Sub HScroll2_Change()
 Form3.BackColor = RGB(HScroll1.Value, HScroll2.Value, HScroll3.Value)
End Sub
```

‘ This is the Blue Horizontal Scroll bar program

```
Private Sub HScroll3_Change()
 Form3.BackColor = RGB(HScroll1.Value, HScroll2.Value, HScroll3.Value)
End Sub
```

Form3 Look:-



Assignment No :- 7

Assignment Statement :-

Create a region wise Employee database system where an employee must work in a particular department and the respective department must be located in a particular region.

Here is the given entities and the given relations.

Employee (EID,Name,Address,Did,Salary)
Department (Did,DName,RId)
Region (Rid, RName)

Creating table "Region"

SQL> create table region(rid varchar2(6) primary key,rname varchar2(20));

Table created.

"Region" Table Structure

SQL> desc region;

Name	Null?	Type
RID	NOT NULL	VARCHAR2(6)
RNAME		VARCHAR2(20)

Creating table "Department"

SQL> create table department(did varchar2(6) primary key,dname varchar2(20),rid varchar2(6) references region(rid));

Table created.

“Department” Table Structure

SQL> desc department;

Name	Null?	Type
DID	NOT NULL	VARCHAR2(6)
DNAME		VARCHAR2(20)
RID		VARCHAR2(6)

Creating table “Employee”

SQL> create table employee(eid varchar2(6) primary key,name varchar2(20),address varchar2(20),did varchar2(6) references department(did),salary number(5));

Table created.

“Employee” Table Structure

SQL> desc employee;

Name	Null?	Type
EID	NOT NULL	VARCHAR2(6)
NAME		VARCHAR2(20)
ADDRESS		VARCHAR2(20)
DID		VARCHAR2(6)
SALARY		NUMBER(5)

Inserting rows into the table “Region”

SQL> insert into region values('R1','Kolkata');

1 row created.

SQL> insert into region values('R2','Mumbai');

1 row created.

* Primary Key condition is violated

SQL> insert into region values('R2','Bangalore');
insert into region values('R2','Bangalore')

*
ERROR at line 1:
ORA-00001: unique constraint (SUSOVAN.SYS_C004530) violated

SQL> insert into region values('R3','Bangalore');

1 row created.

SQL> insert into region values('R4','Chennai');

1 row created.

Inserting rows into the table “Department”

SQL> insert into department values('D1','R and D','R1');

1 row created.

SQL> insert into department values('D2','R and D','R2');

1 row created.

* Primary Key condition is violated

SQL> insert into department values('D2','HR','R3');
insert into department values('D2','HR','R3')
*
ERROR at line 1:
ORA-00001: unique constraint (SUSOVAN.SYS_C004531) violated

SQL> insert into department values('D3','HR','R3');

1 row created.

SQL> insert into department values('D4','Sales','R1');

1 row created.

SQL> insert into department values('D5','Marketing','R4');

1 row created.

```
SQL> insert into department values('D6','Management','R3');

1 row created.
```

Inserting rows into the table “Employee”

```
SQL> insert into employee values('E1','Sananda Dey','Kolkata','D1',80000);

1 row created.

SQL> insert into employee values('E2','Priya Singh','Uttar Pradesh','D2',70000);

1 row created.

SQL> insert into employee values('E3','Susovan Das','Kolkata','D1',50000);

1 row created.

SQL> insert into employee values('E4','Raunak Bag','Mumbai','D2',60000);

1 row created.
```

* Primary Key condition is violated

```
SQL> insert into employee values('E4','Tirtharaj Majumdar','Mumbai','D3',60000);
insert into employee values('E4','Tirtharaj Majumdar','Mumbai','D3',60000)
*
ERROR at line 1:
ORA-00001: unique constraint (SUSOVAN.SYS_C004533) violated

SQL> insert into employee values('E5','Tirtharaj Majumdar','Mumbai','D3',60000);

1 row created.

SQL> insert into employee values('E6','Anis Jha','Bagalore','D3',58000);

1 row created.

SQL> insert into employee values('E7','Anket Parui','Bagalore','D3',50000);

1 row created.

SQL> insert into employee values('E8','Ankita Das','Bagalore','D4',60000);
```

1 row created.

* Foreign Key condition is violated

```
SQL> insert into employee values('E9','Susmita Pal','Kolkata','D8',60000);
insert into employee values('E9','Susmita Pal','Kolkata','D8',60000)
*
ERROR at line 1:
ORA-02291: integrity constraint (SUSOVAN.SYS_C004534) violated - parent key not
found

SQL> insert into employee values('E9','Susmita Pal','Kolkata','D4',50000);

1 row created.

SQL> insert into employee values('E10','Sandip Ghosh','Kolkata','D4',55000);

1 row created.

SQL> insert into employee values('E11','Diptesh Acharya','Mumbai','D4',65000);

1 row created.

SQL> insert into employee values('E12','Kousik Sen','Delhi','D4',45000);

1 row created.

SQL> insert into employee values('E13','Arup Guptta','Chennai','D5',55000);

1 row created.

SQL> insert into employee values('E14','Upen Sen','Chennai','D5',57000);

1 row created.

SQL> insert into employee values('E15','Surja Das','Chennai','D5',50000);

1 row created.

SQL> insert into employee values('E16','Kanisha Bose','Kolkata','D6',50000);

1 row created.
```

```
SQL> insert into employee values('E17','Shuvendu Patra','Bengalore','D6',45000);

1 row created.

SQL> insert into employee values('E18','Sourav Saha','Bengalore','D6',55000);

1 row created.
```

All Records of the table “Region”

```
SQL> select * from region;

RID        RNAME
---------- --------------------
R1         Kolkata
R2         Mumbai
R3         Bangalore
R4         Chennai
```

All Records of the table “Department”

```
SQL> select * from department;

DID        DNAME              RID
---------- ------------------ ----------
D1         R and D            R1
D2         R and D            R2
D3         HR                 R3
D4         Sales              R1
D5         Marketing          R4
D6         Management         R3

6 rows selected.
```

All Records of the table “Employee”

```
SQL> select * from employee;
```

EID	NAME	ADDRESS	DID	SALARY
E1	Sananda Dey	Kolkata	D1	80000
E2	Priya Singh	Uttar Pradesh	D2	70000
E3	Susovan Das	Kolkata	D1	50000
E4	Raunak Bag	Mumbai	D2	60000
E5	Tirtharaj Majumdar	Mumbai	D3	60000
E6	Anish Jha	Bangalore	D3	58000
E7	Anket Parui	Bangalore	D3	50000
E8	Ankita Das	Bangalore	D4	60000
E9	Susmita Pal	Kolkata	D4	50000
E10	Sandip Ghosh	Kolkata	D4	55000
E11	Diptesh Acharya	Mumbai	D4	65000
E12	Kousik Sen	Delhi	D4	45000
E13	Arup Guptta	Chennai	D5	55000
E14	Upen Sen	Chennai	D5	57000
E15	Surja Das	Chennai	D5	50000
E16	Kanisha Bose	Kolkata	D6	50000
E17	Shuvendu Patra	Bangalore	D6	45000
E18	Sourav Saha	Bangalore	D6	55000

18 rows selected.

The Queries:-

Q1 :-Display the details of all who work in the same department as Diptesh Acharya .

SQL> select * from employee where did=(select did from employee where name='Diptesh Acharya');

EID	NAME	ADDRESS	DID	SALARY
E8	Ankita Das	Bangalore	D4	60000
E9	Susmita Pal	Kolkata	D4	50000
E10	Sandip Ghosh	Kolkata	D4	55000
E11	Diptesh Acharya	Mumbai	D4	65000
E12	Kousik Sen	Delhi	D4	45000

Q2 :-Find all employees who work in HR department .

```
SQL> select * from employee where did=(select did from department where dname='HR');

EID        NAME               ADDRESS            DID       SALARY
---------- ------------------ ------------------ ---------- ----------
E5         Tirtharaj Majumdar Mumbai             D3         60000
E6         Anish Jha          Bangalore          D3         58000
E7         Anket Parui        Bangalore          D3         50000
```

Q3 :-Find total number of employees working in the Kolkata region .

```
SQL> select count(*) from employee,department where employee.did = department.did and
department.rid=(select rid from region where rname='Kolkata');

  COUNT(*)
----------
         7
```

Q4 :-Display the name of the departments situated in Bangalore .

```
SQL> select dname from department where rid in (select rid from region where
rname='Bangalore');

DNAME
--------------------
HR
Management
```

Q5 :-Find the number of employees who work in the department where Anish works .

```
SQL> select count(*) from employee where did=(select did from employee where name like
'Anish %');

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

Q6 :-Find the department where more than 4 employees working .

SQL> select dname from department where did in (select did from employee group by did having count(*)>4);

NAME

Sales

Q7 :- Find the department where maximum employees working .

SQL> select dname from department where did in (select did from employee group by did having count(*)=(select max(count(*)) from employee group by did));

NAME

Sales

E-R Diagram of the above Database System