**Program 1**

Draw E-R diagram and convert entities and relationship to relation table for a given scenario.

*Solution*

Cons*i*der College and Company Database

1.College Database:

**Student(usn,sname,address,phone,gender)**

**Semsec(ssid,sem,sec)**

**Class(usn,ssid)**

**Subject(subcode,title,sem,credits)**

**Iamarks(usn,subcode,ssid,text,test2,test3,finalla)**

**2.Company Database**

**Empolyee (ssn,name,address,sex,salary,superssn,dno)**

**Department(dno,dname,mgrssn,mgrstartdate)**

**Dlocation(dno,dloc)**

**Project(pno,pname,plocation,dno)**

**Works\_on(ssn,pno,hours)**

**Program 2**:

Viewing all databases, creating a database Viewing all tables in a database, creating tables (with and without constraints), Inserting/updating /deleting records in a table, saving (commit)and undoing (rollback)

Steps:

1: create tables product and purchase with and without constraint.

2: Insert tuples into each relation

3: display all the tuples in the product and purchase table

4: update the product name for the PID =40 as Camera

5: Delete information about the product is PID = 50

6: Perform Saving and Undoing.

**Step 1: create tables product and purchase with and without constraint.**

SQL> create table Product(PID Number(10)Primary Key, Name varchar2(20) Not Null, Price Number(8)/decimal(8,2));

Table created.

SQL> create table Purchase1(PO Number(10) Primary Key, Product Id Number(10) references Product(PID), Qty Number(5));

Table created.

SQL> desc Product;

Name Null? Type

---------- --------------- -------------

PID NOT NULL NUMBER(10)

NAME NOT NULL VARCHAR2(20)

PRICE NUMBER(8,2)

SQL> desc Purchase;

Name Null? Type

--------------- ---------------- -------------

PO NOT NULL NUMBER(10)

PRODUCT\_ID NUMBER(10)

QTY NUMBER(5)

**Step 2: Insert tuples into each relation**

SQL> Insert into Product(PID,Name,Price)values(40,'TABLE',25000);

1 row created.

SQL> Insert into Product(PID,Name,Price)values(50,'SCANNER',14000);

1 row created.

SQL> Insert into Purchase(PO,Product\_Id,Qty)values(101,10,25);

1 row created.

SQL> Insert into Purchase(PO,Product\_Id,Qty)values(102,40,20);

1 row created.

SQL> Insert into Purchase(PO,Product\_Id,Qty)values(107,30,40);

1 row created.

SQL> Insert into Purchase(PO,Product\_Id,Qty)values(104,40,50);

1 row created.

SQL> Insert into Purchase(PO,Product\_Id,Qty)values(105,40,10);

1 row created.

**Step 3: display all the tuples in the product and purchase table**

SQL> select\*from Product;

PID NAME PRICE

--------- ------------------- ----------

10 PRINTER 200000

20 KEYBOARD 200000

30 MONITOR 150000

40 TABLE 25000

SQL> select\*from Purchase;

PO PRODUCT\_ID QTY

---------- ------------------- -----------

101 10 25

102 40 20

107 30 40

104 40 50

105 40 10

**Step 4: update the product name for the PID =40 as Camera**

SQL> Update Product set Name='CAMERA' where PID=40;

1 row updated.

SQL> Update Product set Price=30000 where PID=40;

SQL> select\*from Product;

PID NAME PRICE

------ -------------- -----------

10 PRINTER 200000

20 KEYBOARD 200000

30 MONITOR 150000

40 CAMERA 25000

50 SCANNER 14000

**Step 5: Delete information about the product is PID = 50**

SQL> DELETE from Product where PID=50;

1 row deleted.

SQL> select\*from Product;

PID NAME PRICE

-------- ------------ -------------

10 PRINTER 200000

20 KEYBOARD 200000

30 MONITOR 150000

40 CAMERA 25000

**Step 6: Perform Saving and Udoing.**

SQL> insert into Product(PID,Name,Price)values(50,'MOBILE',35000);

1 row created.

SQL> insert into Product(PID,Name,Price)values(60,'LAPTOP',70000);

1 row created.

SQL> commit;

Commit complete.

SQL> select\*from Product;

PID NAME PRICE

------- ----------- ------------

10 PRINTER 200000

20 KEYBOARD 200000

30 MONITOR 150000

40 CAMERA 25000

50 MOBILE 35000

60 LAPTOP 70000

6 rows selected.

SQL> Savepoint S1;

Savepoint created.

SQL> insert into Product(PID,Name,Price)values(70,'TABLE',500000);

1 row created.

SQL> insert into Product(PID,Name,Price)values(80,'CHAR',25000);

1 row created.

SQL> Rollback to S1;

Rollback complete.

SQL> select\*from Product;

PID NAME PRICE

------- ------------ --------------

10 PRINTER 200000

20 KEYBOARD 200000

30 MONITOR 150000

40 CAMERA 25000

50 MOBILE 35000

60 LAPTOP 70000

6 rows selected.

**PROGRAM:3**

**Altering Database a Table, Dropping/Truncating/Renaming a table, Backing up/Restoring a Database**

**Solution:**Consider the Library Database with the following data and execute the queries

Lib (BID: Number: Title:Text:Autor:Text:Publication:Text; Year Of Publication:Text)

Steps:

1. Create Lib table by properly specifying the constraint.

2. Rename the LIB as LIBRARY

3. Add a new column Price with Not Null constraint to the existing table Library

4. All the constraints and views that reference the column are dropped automatically along with the column.

5. Rename the BID to BOOKID in the Library table.

6. Change the data type of the column Year Of Publication as Text with size 15

7. Insert data into Library table

8. Truncate table to delete the records

9.Drop table.

**Step 1: Create Lib table by properly specifying the constraint.**

sql>create table lib(bid varchar2(8) primary key,title varchar2(20) not null, author varchar2(20),publication varchar2(20),year\_of\_publication number(4));

Table created.

SQL> DESC LIB;

Name Null? Type

----------------------------------------- -------- ----------------------------

BID NOT NULL VARCHAR2(8)

TITLE NOT NULL VARCHAR2(20)

AUTHOR VARCHAR2(20)

PUBLICATON VARCHAR2(20)

YEAR\_OF\_PUBLICATION NUMBER(4)

**Step 2: Rename the LIB as LIBRARY**

SQL> ALTER TABLE LIB RENAME TO LIBRARY;

Table altered.

SQL>DESC LIBRARY;

Name Null? Type

----------------------------------------- -------- ----------------------------

BID NOT NULL VARCHAR2(8)

TITLE NOT NULL VARCHAR2(20)

AUTHOR VARCHAR2(20)

PUBLICATON VARCHAR2(20)

YEAR\_OF\_PUBLICATION NUMBER(4)

**Step 3: Add a new column Price with Not Null constraint to the existing table Library**

SQL>ALTER TABLE LIBRARAY ADD PRICE NUMBER(8,2)

NOT NULL

Table altered.

SQL>DESC LIBRARY;

Name Null? Type

----------------------------------------- -------- ----------------------------

BID NOT NULL VARCHAR2(8)

TITLE NOT NULL VARCHAR2(20)

AUTHOR VARCHAR2(20)

PUBLICATON VARCHAR2(20)

YEAR\_OF\_PUBLICATION NUMBER(4)

PRICE NOT NULL NUMBER(8,4)

**Step 4: All the constraints and views that reference the column are dropped automatically along with the column.**

SQL>ALTER TABLE LIBRARY DROP COLUMN

AUTHOR CASCADE CONTRAINTS;

Table altered.

SQL>DESC LIBRARY;

Name Null? Type

----------------------------------------- -------- ----------------------------

BID NOT NULL VARCHAR2(8)

TITLE NOT NULL VARCHAR2(20)

PUBLICATON VARCHAR2(20)

YEAR\_OF\_PUBLICATION NUMBER(4)

**Step 5: Rename the BID to BOOKID in the Library table.**

SQL>ALTER TABLE LIBRARY RENAME COLUMN BID TO BOOKID;

Table altered.

SQL>DESC LIBRARY;

Name Null? Type

----------------------------------------- -------- ----------------------------

BOOKID NOT NULL VARCHAR2(8)

TITLE NOT NULL VARCHAR2(20)

PUBLICATON VARCHAR2(20)

YEAR\_OF\_PUBLICATION NUMBER(4)

PRICE NOT NULL NUMBER(8,2)

**Step 6: Change the data type of the column Year Of Publication as Text with size 15**

SQL> ALTER TABLE LIBRARY MODIFY YEAR\_OF\_PUBLICATION VARCHAR2(15);

Table altered.

SQL>DESC LIBRARY;

Name Null? Type

----------------------------------------- -------- ----------------------------

BOOKID NOT NULL VARCHAR2(8)

TITLE NOT NULL VARCHAR2(20)

PUBLICATON VARCHAR2(20)

YEAR\_OF\_PUBLICATION VARCHAR2(15)

PRICE NOT NULL NUMBER(8,2)

Step 7: **Insert data into Library table**

SQL>insert into LIBRARY values(‘SP001’, ‘DMBS’, ‘SKYWARD PUBLISHERS’, ‘2022’, ‘300’);

1 row inserted.

SQL>DESC LIBRARY;

Name Null? Type

----------------------------------------- -------- ----------------------------

BOOKID NOT NULL VARCHAR2(8)

TITLE NOT NULL VARCHAR2(20)

PUBLICATON VARCHAR2(20)

YEAR\_OF\_PUBLICATION VARCHAR2(15)

PRICE NOT NULL NUMBER(8,4)

**Step 8:Truncate table to delete the record**

SQL>TRUNCATE TABLE LIBRARY;

Table LIBRARY truncated.

***FOR VERIFICATION***

SQL>DESC LIBRARY;

Name Null? Type

----------------------------------------- -------- ----------------------------

BOOKID NOT NULL VARCHAR2(8)

TITLE NOT NULL VARCHAR2(20)

PUBLICATON VARCHAR2(20)

YEAR\_OF\_PUBLICATION VARCHAR2(15)

PRICE NOT NULL NUMBER(8,4)

Step 9:**Drop table**

SQL>DROP TABLE LIBRARY;

Table dropped.

***FOR VERIFICATION***

SQL>DESC LIBRARY;

ERROR;

ORA-04043:object LIBRARY does not exist

**Program 4**

**For a given set of relation schemes, create tables and perform the following simple queries, simple queries with aggregate functions, queries with aggregate functions (group by using clause)**

**Solution**

**Consider the Salary database and execute the following simple queries SALARYDB(EID: String NAME Text DEPT String DO) Date SALARY: Number)**

**Steps:**

**1. Create table Salary.**

**2. Enter five tuples into the table.**

**3. Display Employee Number and their Salary**

**4. Find the sum of salaries of all the employees.**

**5. Find the sum and average salaries of employees of a particular department.**

**6. Find the number of employees working for each department.**

**7. Display Employee information in ascending and descending order of their date of joining**

**8. Find the highest salary that an Employee draws.**

**9. Find the least salary that an Employee draws.**

**10. Display the details of employee whose name is Rushank and salary is greater than 50,000.**

**Step 1: create table salary**

SQL> CREATE TABLE SALARYDB1 (ENO VARCHAR(8) PRIMARY KEY,NAME VARCHAR2(15) NOT NULL,DEPT VARCHAR2(10),DOB DATE,SALARY NUMBER(10,2));

Table created.

SQL> DESC SALARYDB1

Name Null? Type

----------------------------------------- ------- ---------------------

ENO NOT NULL VARCHAR2(8)

NAME NOT NULL VARCHAR2(15)

DEPT VARCHAR2(10)

DOB DATE

SALARY NUMBER(10,2)

**Step 2: Enter five tuples into the table**

SQL> INSERT INTO SALARYDB1 VALUES(&ENO,&NAME,&DEPT,&DOB,&SALARY);

Enter value for Eno: 'SC1010'

Enter value for name: 'AHANA'

Enter value for dept: 'HR'

Enter value for dob: '15-FEB-2010'

Enter value for salary: 60000

old 1: INSERT INTO SALARYDB1 VALUES(&ENO,&NAME,&DEPT,&DOB,&SALARY)

new 1: INSERT INTO SALARYDB1 VALUES('SC1010','AHANA','HR','15-FEB-2010',60000)

1 row created.

SQL> /

Enter value for eno: 'SC1011'

Enter value for name: 'RAMESH'

Enter value for dept: 'FINANCE'

Enter value for dob: '10-MAR-2012'

Enter value for salary: 45000

old 1: INSERT INTO SALARYDB1 VALUES(&ENO,&NAME,&DEPT,&DOB,&SALARY)

new 1: INSERT INTO SALARYDB1 VALUES('SC1011','RAMESH','FINANCE','10-MAR-2012',45000)

1 row created.

SQL> /

Enter value for eno: 'SC1013'

Enter value for name: 'NAVEEN'

Enter value for dept: 'MARKETING'

Enter value for dob: '8-JAN-2009'

Enter value for salary: 55000

old 1: INSERT INTO SALARYDB1 VALUES(&ENO,&NAME,&DEPT,&DOB,&SALARY)

new 1: INSERT INTO SALARYDB1 VALUES('SC1013','NAVEEN','MARKETING','8-JAN-2009',55000)

1 row created.

SQL> /

Enter value for eno: 'SC1014'

Enter value for name: 'ANAGHA'

Enter value for dept: 'HR'

Enter value for dob: '14-APR-2012'

Enter value for salary: 35000

old 1: INSERT INTO SALARYDB1 VALUES(&ENO,&NAME,&DEPT,&DOB,&SALARY)

new 1: INSERT INTO SALARYDB1 VALUES('SC1014','ANAGHA','HR','14-APR-2012',35000)

1 row created.

SQL> /

Enter value for eno: 'SC1015'

Enter value for name: 'RUSHANK'

Enter value for dept: 'ADMIN'

Enter value for dob: '16-MAY-2011'

Enter value for salary: 55000

old 1: INSERT INTO SALARYDB1 VALUES(&ENO,&NAME,&DEPT,&DOB,&SALARY)

new 1: INSERT INTO SALARYDB1 VALUES('SC1015','RUSHANK','ADMIN','16-MAY-2011',55000)

1 row created.

SQL> /

Enter value for eno: 'SC1016'

Enter value for name: 'RUSHANK'

Enter value for dept: 'FINANCE'

Enter value for dob: '4-JUN-2008'

Enter value for salary: 25000

old 1: INSERT INTO SALARYDB1 VALUES(&ENO,&NAME,&DEPT,&DOB,&SALARY)

new 1: INSERT INTO SALARYDB1 VALUES('SC1016','RUSHANK','FINANCE','4-JUN-2008',25000)

1 row created.

SQL> SELECT\*FROM SALARYDB1;

ENO NAME DEPT DOB SALARY

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SC1010 AHANA HR 15-FEB-10 60000

SC1011 RAMESH FINANCE 10-MAR-12 45000

SC1013 NAVEEN MARKETING 08-JAN-09 55000

SC1014 ANAGHA HR 14-APR-12 35000

SC1015 RUSHANK ADMIN 16-MAY-11 55000

SC1016 RUSHANK FINANCE 04-JUN-08 25000

6 rows selected.

**Step 3: Display Employee Number and their Salary**

SQL> SELECT ENO,SALARY FROM SALARYDB1;

ENO SALARY

-------- ----------

SC1010 60000

SC1011 45000

SC1013 55000

SC1014 35000

SC1015 55000

SC1016 25000

6 rows selected.

**Step 4: Find the sum of salaries of all the employees.**

SQL> SELECT SUM(SALARY)AS"TOTAL\_SALARY"FROM SALARYDB1;

TOTAL\_SALARY

------------

275000

**Step 5: Find the sum and average salaries of employees of employees of a particular department**

SQL> SELECT DEPT,SUM(SALARY) AS"TOTAL\_SALARY",AVG(SALARY)AS"AVERAGE\_SALARY"FROM SALARYDB1 GROUP BY DEPT;

DEPT TOTAL\_SALARY AVERAGE\_SALARY

---------- ------------ -------------

ADMIN 55000 55000

HR 95000 47500

FINANCE 70000 35000

MARKETING 55000 55000

**Step 6: Find the number of employees working for each department.**

SQL> SELECT DEPT,COUNT(\*) AS"NUMBER\_OF\_EMPLOYEES"FROM SALARYDB1 GROUP BY DEPT;

DEPT NUMBER\_OF\_EMPLOYEES

---------- -------------------

ADMIN 1

HR 2

FINANCE 2

MARKETING 1

**Step 7: Display Employee information in ascending and descending order of their date of joining**

SQL> SELECT\*FROM SALARYDB1 ORDER BY DOB ASC;

ENO NAME DEPT DOB SALARY

-------- --------------- ---------- --------- ----------

SC1016 RUSHANK FINANCE 04-JUN-08 25000

SC1013 NAVEEN MARKETING 08-JAN-09 55000

SC1010 AHANA HR 15-FEB-10 60000

SC1015 RUSHANK ADMIN 16-MAY-11 55000

SC1011 RAMESH FINANCE 10-MAR-12 45000

SC1014 ANAGHA HR 14-APR-12 35000

6 rows selected.

SQL> SELECT\*FROM SALARYDB1 ORDER BY DOB DESC;

ENO NAME DEPT DOB SALARY

------- --------------- ---------- --------- ----------

SC1014 ANAGHA HR 14-APR-12 35000

SC1011 RAMESH FINANCE 10-MAR-12 45000

SC1015 RUSHANK ADMIN 16-MAY-11 55000

SC1010 AHANA HR 15-FEB-10 60000

SC1013 NAVEEN MARKETING 08-JAN-09 55000

SC1016 RUSHANK FINANCE 04-JUN-08 25000

6 rows selected.

**Step 8: Find the highest salary that an Employee draws.**

SQL> SELECT MAX(SALARY) AS"HIGHEST\_SALARY"FROM SALARYDB1;

HIGHEST\_SALARY

--------------

60000

**Step 9: Find the least salary that an Employee draws.**

SQL> SELECT MIN(SALARY) AS"LEAST\_SALARY"FROM SALARYDB1;

LEAST\_SALARY

------------

25000

**Step 10: Display the details of employee whose name is Rushank and salary is greater than 50000**

SQL> SELECT\*FROM SALARYDB1

2 WHERE NAME='RUSHANK' AND SALARY>50000;

ENO NAME DEPT DOB SALARY

-------- --------------- ---------- --------- ----------

SC1015 RUSHANK ADMIN 16-MAY-11 55000

**To execute program 5, 6, 7, 8, 9 & 10. create the following tables**

**consider the company database with following schema**

**emp(eno,number;ename;stringebdate:date:address:text,gender:textsalary:number,deptno;number)**

**dept(dno:number;dname:string;dlocation;string)**

**project(pno:number; pname:string; dnum:number)**

**works\_on(en:number; pnum;number;hours:number)**

**CREATING TABLES BY PROPERLY SPECIFYING PRIMARY AND FOREIGN KEYS**

SQL> create table dep(dno number(4)primary key,dname varchar2(20)not null,

2 dlocation varchar2(20));

Table created.

SQL> create table empl(eno number(6)primary key,ename varchar2(20)not null,

2 ebdate date,address varchar2(20),gender char,salary number(10)not null,

3 depno number(4)references dep);

Table created.

SQL> desc dept;

Name Null? Type

----------------------------------------- -------- ----------------------------

DNO NOT NULL NUMBER(4)

DNAME NOT NULL VARCHAR2(20)

DLOCATION VARCHAR2(20)

SQL> desc empl;

Name Null? Type

----------------------------------------- -------- ----------------------------

ENO NOT NULL NUMBER(6)

ENAME NOT NULL VARCHAR2(20)

EBDATE DATE

ADDRESS VARCHAR2(20)

GENDER CHAR(1)

SALARY NOT NULL NUMBER(10)

DEPNO NUMBER(4)

SQL> create table pro(pno number(10)primary key,pname varchar2(20)not null, dnum number(4)references dep(dno));

Table created.

SQL> desc pro;

SQL> create table wor\_on(eno number(6)references empl(emp\_no) not null,pnum number(10)references pro(pno) not null,hours number(3,1)not null primary key(eno,pnum));

Table created.

SQL> desc wor\_on;

Name Null? Type

----------------------------------------- -------- ----------------------------

ENO NOT NULL NUMBER(6)

PNUM NOT NULL NUMBER(10)

HOURS NOT NULL NUMBER(3,1)

SQL> insert into dep(dno,dname,dlocation)values(2,'accounts','Jayanagar');

1 row created.

SQL> insert into dep(dno,dname,dlocation)values(4,'research','kengari');

1 row created.

SQL> insert into dep(dno,dname,dlocation)values(5,'admin','southend');

1 row created.

SQL> insert into empl(eno,ename,ebdate,address,gender,salary,depno)values(1001,'Anirudh','4-jan-1990','^Bangalore','M',45000,4);

1 row created.

SQL> insert into empl(eno,ename,ebdate,address,gender,salary,depno)values(1004,'Lakshmi','4-Mar-1998','Mysore','F',55000,4);

1 row created.

SQL> insert into empl(eno,ename,ebdate,address,gender,salary,depno)values(1002,'Sinchana','22-Dec-1990','Mangalore','F',55000,2);

1 row created.

SQL> insert into empl(eno,ename,ebdate,address,gender,salary,depno)values(1007,'Prashant','26-jan-1989','Dharwad','M',20000,4);

1 row created.

SQL> insert into empl(eno,ename,ebdate,address,gender,salary,depno)values(1003,'Vinay','26-jan-1990','Hubli','M',30000,2);

1 row created.

SQL> insert into empl(eno,ename,ebdate,address,gender,salary,depno)values(1005,'Viday','26-Nov-1978','Hubli','F',35000,4);

1 row created.

SQL> insert into empl(eno,ename,ebdate,address,gender,salary,depno)values(1006,'Prajwal','2-Feb-2010','Banagalore','M',65000,5);

1 row created.

SQL> insert into empl(eno,ename,ebdate,address,gender,salary,depno)values(1008,'Rajesh','2-Feb-1974','Banagalore','M',25000,2);

1 row created.

SQL> select\*from empl;

ENO ENAME EBDATE ADDRESS G SALARY DEPNO

------- ----------- ---------------- ----------------- ------- ------------- ------------

1001 Anirudh 04-JAN-90 Bangalore M 4500 4

1004 Lakshmi 04-MAR-98 Mysore F 5500 4

1002 Sinchana 22-DEC-90 Mangalore F 55000 2

ENO ENAME EBDATE ADDRESS G SALARY DEPNO

------- ---------- ------------ -------------- ------- -------------- -----------

1007 Prashant 26-JAN-89 Dharwad M 2000 4

1003 Vinay 26-JAN-90 Hubli M 30000 2

1005 Viday 26-NOV-78 Hubli F 35000 4

ENO ENAME EBDATE ADDRESS G SALARY DEPNO

-------- ----------- -------------- -------------- ------ ------------- -----------

1006 Prajwal 02-FEB-10 Banagalore M 65000 5

1008 Rajesh 02-FEB-74 Banagalore M 25000 2

8 rows selected.

SQL> select\*from dep;

DNO DNAME DLOCATION

---------- -------------------- --------------------

2 accounts Jayanagar

4 research kengari

5 admin southend

SQL> insert into pro(pno,pname,dnum)values(10,'erp',5);

1 row created.

SQL> insert into pro(pno,pname,dnum)values(20,'banking',2);

1 row created.

SQL> insert into pro(pno,pname,dnum)values(30,'connect\_tech',4);

1 row created.

SQL> insert into pro(pno,pname,dnum)values(40,'smart\_seek',5);

1 row created.

SQL> insert into pro(pno,pname,dnum)values(50,'finance',2);

1 row created.

SQL> insert into pro(pno,pname,dnum)values(60,'analytica',4);

1 row created.

SQL> insert into pro(pno,pname,dnum)values(70,'market\_reserach',4);

1 row created.

SQL> insert into pro(pno,pname,dnum)values(80,'smart\_reserach',4);

1 row created.

SQL> select\*from pro;

PNO PNAME DNUM

-------- ---------- ------------

10 erp 5

20 banking 2

30 connect\_tech 4

40 smart\_seek 5

50 finance 2

60 analytica 4

70 market\_reserach 4

80 smart\_reserach 4

8 rows selected.

SQL> insert into wor\_on(eno,pnum,hours)values(1001,10,4.5);

1 row created.

SQL> insert into wor\_on(eno,pnum,hours)values(1002,10,6);

1 row created.

SQL> insert into wor\_on(eno,pnum,hours)values(1008,10,4);

1 row created.

SQL> insert into wor\_on(eno,pnum,hours)values(1006,20,4);

1 row created.

SQL> insert into wor\_on(eno,pnum,hours)values(1004,20,8);

1 row created.

SQL> insert into wor\_on(eno,pnum,hours)values(1005,40,8);

1 row created.

SQL> insert into wor\_on(eno,pnum,hours)values(1003,50,8);

1 row created.

SQL> insert into wor\_on(eno,pnum,hours)values(1007,60,5);

1 row created.

SQL> select\*from wor\_on;

ENO PNUM HOURS

---------- ---------- ----------

1001 10 4.5

1002 10 6

1008 10 4

1006 20 4

1004 20 8

1005 40 8

1003 50 8

1007 60 5

8 rows selected.

**Program 5:**

**Execute the following queries**

1. **How the resulting salaries if every employee working on the ‘Research’ Departments is given a 10% raise.**
2. **Find the sum of the salaries of all employees of the ‘Accounts’ department, as well as the maximum salary, the minimum salary, and the average salary in this department.**

**a.)How the resulting salaries if every employee working on the ‘Research’ Departments is given a 10% raise.**

SQL> select e.eno,e.ename,d.dname,1.1\*e.salary as"inc\_salary"from empl e,dept d

2 where e.depno=d.dno and d.dname='accounts';

ENO ENAME DNAME inc\_salary

---------- -------------------- -------------------- ----------

1002 Sinchana accounts 60500

1003 Vinay accounts 33000

1008 Rajesh accounts 27500

**b.)Find the sum of the salaries of all employees of the ‘Accounts’ department, as well as the maximum salary, the minimum salary, and the average salary in this department.**

SQL> select max(e.salary),min(e.salary),sum(e.salary),avg(e.salary)from empl e,dep d

2 where e.depno=d.dno and d.dname='accounts';

MAX(E.SALARY) MIN(E.SALARY) SUM(E.SALARY) AVG(E.SALARY)

-------------------- ----------------- -------------------- ------------------

55000 25000 110000 36666.6667

**Program 6:**

**Execute the following queries**

1. **Retrieve the name of the each employee controlled by department number 5(Use EXISTS operator).**
2. **Retrieve the name of each dept and number of employees working in each department which has atleast 2 employees.**

a**.)Retrieve the name of the each employee controlled by department number 5(Use EXISTS operator).**

SQL> select e.ename from empl e

2 where exists(select d.dno from dep d where e.depno=d.dno and e.depno=5);

ENAME

------------

Prajwal

**b.) Retrieve the name of each dept and number of employees working in each department which has atleast 2 employees.**

SQL> select d.dname,count(\*)from empl e,dep d

2 where e.depno=d.dno group by d.dname having count(\*)>=2;

DNAME COUNT(\*)

------------------ ----------

accounts 3

research 4

**Program 7:**

**Execute the following queries.**

**a.)For each project,Retrieve the project number,The project name,and the Number of employee who work on that project(Use GROUP BY).**

**b)Retrieve the Name of the employees who born in the year 1990’s.**

**a.)For each project,Retrieve the project number,The project name,and the Number of employee who work on that project(Use GROUP BY).**

SQL> select p.pno,p.pname,count(\*)as"no\_of\_empl"from pro p,wor\_on w where

2 p.pno=w.pnum group by p.pno,p.pname;

PNO PNAME no\_of\_empl

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20 banking 2

60 analytica 1

50 finance 1

10 erp 3

40 smart\_seek 1

b)Retrieve the Name of the employees who born in the year 1990’s.

SQL> select ename,ebdate from empl where ebdate like '%-%-90';

ENAME EBDATE

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Anirudh 04-JAN-90

Sinchana 22-DEC-90

Vinay 26-JAN-90

**Program 8**:

Execute the following queries.

For each department that has more than 5 employees,Retrieve the department number and Number of employees who are making salary more than 40000

SQL> select d.dname,d.dno,count(\*)as"no\_of\_empl"from empl e,dep d

2 where e.depno=d.dno and e.salary>40000 and

3 d.dno in(select depno from empl group by depno having count(\*)>=5)

4 group by d.dno,d.dname;

no rows selected

For each department that has more than 5 employees,Retrieve the department number and Number of employees who are making salary more than 40000

SQL> select d.dname,d.dno,count(\*)from empl e,dep d

2 where e.depno=d.dno and e.salary>40000 and

3 d.dno in(select depno from empl group by depno having count(\*)>2)

4 group by d.dno,d.dname;

DNAME DNO COUNT(\*)

------------ ---------- ----------

research 4 2

accounts 2 1

**program 9:**

**For each project on which more than 2 employees work,Retrieve the project number,Project name and the number of employees who work on the project.**

SQL> select p.pno,p.pname,count(\*)as"no\_of\_empl\_working"from pro p,wor\_on w

2 where p.pno=w.pnum group by p.pno,p.pname having count(\*)>2;

PNO PNAME no\_of\_empl\_working

------ ---------- ------------------

10 erp 3

**Program 10:**

**For a given set of relation tables perform the following: Creating views (with and without check options), Dropping views,selecting from a view.**

**What is a view?**

In Oracle, view is a virtual table that does not physically exist. It is stored in Oracle data dictionary and do not store any data. It can be executed when called. A view is created by a query joining one or more tables.Views are used for security purposes because they provide encapsulation of the name ofthe table. Data is in the virtual table, not stored permanently. Views display only selected data. We can also use joins in the Select statement in deriving the data for the view.

***NOTE: Let us consider the tables Emp And Dept table Created For Program Number 5, 6, 7, 8, and 9. We will******create the view on both Emp and Dept table.***

**1)Without check option**

**Step 1.Create view**

SQL> create view empl\_dep as(select e.eno,e.ename,e.salary,e.depno,d.dname

2 from empl e,dep d where e.depno=d.dno);

View created.

**Step 2.**Display all the rows of a view.

SQL> select\*from empl\_dep;

ENO ENAME SALARY DEPNO DNAME

---------- -------------------- ---------- ---------- --------------------

1001 Anirudh 45000 4 research

1004 Lakshmi 55000 4 research

1002 Sinchana 55000 2 accounts

1007 Prashant 20000 4 research

1003 Vinay 30000 2 accounts

1005 Viday 35000 4 research

1006 Prajwal 65000 5 admin

1008 Rajesh 25000 2 accounts

8 rows selected.

**Step 3.** Insert records into a view.

SQL> insert into empl\_dep(eno,ename,salary,depno) values(1009,'srikanth',90000,5);

1 row created.

Step 4. Display all the rows of a view.

SQL> select\*from empl\_dep;

ENO ENAME SALARY DEPNO DNAME

---------- -------------------- ---------- ---------- --------------------

1001 Anirudh 45000 4 research

1004 Lakshmi 55000 4 research

1002 Sinchana 55000 2 accounts

1007 Prashant 20000 4 research

1003 Vinay 30000 2 accounts

1005 Viday 35000 4 research

1006 Prajwal 65000 5 admin

1008 Rajesh 25000 2 accounts

1009 srikanth 90000 5 admin

9 rows selected.

Step 5.Drop view.

SQL> drop view empl\_dep;

View dropped.

**2.)With check option**

**The WITH CHECK OPTION clause in SQL is a very useful clause for views. It is applicable to a updatable view. If the view is not updatable, then there is no meaning of including this clause in the CREATE VIEW statement.The WITH CHECK OPTION clause is used to prevent the insertion of rows in the view where the condition in the WHERE clause in CREATE VIEW statement is not satisfied.If we have used the WITH CHECK OPTION clause in the CREATE VIEW statement, and if the UPDATE or INSERT clause does not satisfy the conditions then they will return an error.**

**Step1.Let us create simple view on EMP table with check option of salary less than 50000 in where condition.**

SQL> create view empl\_view as

2 (select eno,ename,salary from empl where salary<=50000)with check option;

View EMPL\_VIEW created.

**Step 2.Display all the rows of a view**

SQL> select\*from empl\_view;

ENO ENAME SALARY

------ -------- ----------

1001 Anirudh 45000

1007 Prashant 20000

1003 Vinay 30000

1005 Viday 35000

1008 Rajesh 25000

**Step 3. Insert a row where employee salary is less than 50000.**

SQL> insert into empl\_view(eno,ename,salary) values(1011,'snigdha',39000);

1 row created.

**Step 4.Display all the rows of a view**

SQL> select\*from empl\_view;

ENO ENAME SALARY

------- ------------------- ----------

1001 Anirudh 45000

1007 Prashant 20000

1003 Vinay 30000

1005 Viday 35000

1008 Rajesh 25000

1011 snigdha 39000

6 rows selected.

**Step 5. Insert a row where employee salary is greater than 50000.This will give an error.**

SQL> insert into empl\_view(eno,ename,salary) values(1012,'smayan',99999);

ORA-01402: view WITH CHECK OPTION where-clause violation

Step 6.Drop view

SQL> drop view empl\_view;

View dropped.

**Part B**

**Create The Following Tables With Properly Specifying Primary Keys, Foreign Keys And Execute Thefollowing Queries.**

**Branch (Branchid, Branchname, Hod)**

**Student (Usn, Name, Address, Branchid, Sem)**

**Book (Bookid, Bookname, Authorld, Publisher, Branchid)**

**Author (Authorid, Authorname, Country, Age)**

**Borrow (Usn, Bookid, Borrowed\_Date)**

**Step 1:Create College database**

SQL> conn

Enter user-name: system Enter password:tiger

Connected.

Connected to:

Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production Version 19.3.0.0.0

SQL> alter session set" ORACLE\_SCRIPT"=true; Session altered.

SQL> create user COLLEGEDB identified by tiger;

User created.

SQL> grant system to COLLEGEDB;

Grant succeeded.

SQL> GRANT ALL PRIVILEGES TO COLLEGEDB;

Grant succeeded.

SQL> conn

Enter user-name: COLLEGEDB

Enter password:tiger

Connected.

**Step 2: Create all the tables by properly specifying key constraints.**

SQL> create table branch(brid number(5)primary key,brname varchar2(20) not null, hod varchar2(20));

table created.

SQL> desc branch;

name null? type

----------------------- ------- ------------------

brid not null number(5)

brname not null varchar2(20)

hod varchar2(20)

SQL> create table student(usn varchar2(15) primary key,name varchar2(20)not null,address varchar2(15),brid number(5)references branch,sem varchar2(10));

table created.

SQL> desc student;

name null? type

---------------------------- -------- -----------------

usn not null varchar2(15)

name not null varchar2(20)

address varchar2(15)

brid number(5)

sem varchar2(10)

SQL> create table author(aid varchar2(10)primary key,aname varchar2(15)not null,country varchar2(15),age number(4));

table created.

SQL> desc author;

name null? type

---------------------- -------- -------------------

aid not null varchar2(10)

aname not null varchar2(15)

country varchar2(15)

age number(4)

SQL> create table book(bkid varchar2(10)primary key,bkname varchar2(15)not null,aid varchar2(10)references author,publisher varchar2(20)not null,brid number(5)references branch);

table created.

SQL> desc book;

name null? type

-------------------- -------- ----------------------------

bkid not null varchar2(10)

bkname not null varchar2(15)

aid varchar2(10)

publisher not null varchar2(20)

brid number(5)

SQL> create table borrow(usn varchar2(15)references student,bkid varchar2(10)references book,borrow\_date date,primary key(usn,bkid));

table created.

SQL> desc borrow;

name null? type

-------------------------- -------- ----------------------------

usn not null varchar2(15)

bkid not null varchar2(10)

borrow\_date date

**PROGRAM 1**

**Step 2:Inserting Records into a Table.**

SQL> insert into branch(brid,brname,hod)values(10,'bca','santosh s');

1 row created.

SQL> insert into branch(brid,brname,hod)values(20,'bba','rashmi e');

1 row created.

SQL> insert into branch(brid,brname,hod)values(30,'bcom','ramesh a');

1 row created.

SQL> insert into branch(brid,brname,hod)values(40,'bsc','aditya p');

1 row created.

SQL> insert into branch(brid,brname,hod)values(50,'ba','asha p');

1 row created.

SQL> SELECT\*FROM BRANCH;

brid brname hod

------- -------------------- --------------

10 bca santosh s

20 bba rashmi e

30 bcom ramesh a

40 bsc aditya p

50 ba asha p

SQL>insertintostudent(usn,name,address,brid,sem)values('scas202201','anuradha','jayanagar',10,'2 sem');

1 row created.

SQL> insert into student(usn,name,address,brid,sem)values('scas202202','manul a','basvanagudi',10,'2 sem');

1 row created.

SQL>insertintostudent(usn,name,address,brid,sem)values('sca202204','arun','girinagar','40','2 sem');

1 row created.

sql>insertintostudent(usn,name,address,brid,sem)values('scaa202201','deepthi','girinagar','50','4 sem');

1 row created.

SQL> select\*from student;

usn name address brid sem

--------------- -------------------- --------------- ---------- ---------

scas202201 anuradha jayanagar 10 2 sem

scas202202 manul a basvanagudi 10 2 sem

scas202204 arun basavanagudi 30 2 sem

scac202204 arun jpnagar 30 2 sem

sca202204 arun girinagar 40 2 sem

scaa202201 deepthi girinagar 50 4 sem

7 rows selected.

SQL> insert into author(aid,aname,country,age)values('nepcompo1','aruna','india',36);

1 row created

SQl> insert into author(aid,aname,country,age)values('nepcompo2','suma','india',38);

1 row created.

sql> insert into author(aid,aname,country,age)values('nepcommo2','sangeetha','india',42);

1 row created.

SQL> insert into author(aid,aname,country,age)values('nepcommo1','dilip','india',39);

1 row created.

SQL> insert into author(aid,aname,country,age)values('nepsc101','shekar','india',44);

1 row created.

SQL> select\*from author;

aid aname country age

---------- --------------- ------------ ----------

nepcompo1 aruna india 36

nepcompo2 suma india 38

nepcommo2 sangeetha india 42

nepcommo1 dilip india 39

nepsc101 shekar india 44

5 rows selected.

SQL> insert into book(bkid,bkname,aid,publisher,brid)values('nepdbms','dbms','nepcompo2','skyward',10);

1 row created.

SQL> insert into book(bkid,bkname,aid,publisher,brid)values('nepse','se','nepcompo2','skyward',10);

1 row created.

SQl> insert into book(bkid,bkname,aid,publisher,brid)values('nepjava','java','nepcompo2','oxford',20);

1 row created.

SQL> insert into book(bkid,bkname,aid,publisher,brid)values('nepmaths','maths','nepsc101','oxford',30);

1 row created.

SQL> insert into book(bkid,bkname,aid,publisher,brid)values('nepphysics','physics','nepcommo1','shree',40);

1 row created.

SQL> select\*from book;

bkid bkname aid publisher brid

---------- ----------- ---------- ------------------ ----------

nepdbms dbms nepcompo2 skyward 10

nepse se nepcompo2 skyward 10

nepjava java nepcompo2 oxford 20

nepmaths maths nepsc101 oxford 30

nepphysics physics nepcommo1 shree 40

SQL> insert into borrow(usn,bkid,borrow\_date)values('scas202201','nepdbms','20-may-2022');

1 row created.

SQL> insert into borrow(usn,bkid,borrow\_date)values('scas202201','nepse','28-may-2022');

1 row created.

SQL> insert into borrow(usn,bkid,borrow\_date)values('scac202204','nepmaths','06-jun-2022');

1 row created.

SQL> insert into borrow(usn,bkid,borrow\_date)values('scaa202201','nepphysics','12-jun-2022');

1 row created.

SQL> insert into borrow(usn,bkid,borrow\_date)values('scac202204','nepphysics','18-jan-2022');

1 row created.

SQL> insert into borrow(usn,bkid,borrow\_date)values('scas202201','nepmaths','18-july-2022');

1 row created.

SQL> insert into borrow(usn,bkid,borrow\_date)values('scas202201','nepjava','09-dec-2022');

1 row created.

SQL> select\*from borrow;

usn bkid borrow\_da

--------------- ---------- ---------

scas202201 nepdbms 20-may-22

scas202201 nepse 28-may-22

scac202204 nepmaths 06-jun-22

scaa202201 nepphysics 12-jun-22

scac202204 nepphysics 18-jan-22

scas202201 nepmaths 18-jul-22

scas202201 nepjava 09-dec-22

7 rows selected.

**Step 3: updating records in a table.**

SQL> update book set publisher='skyward'where bkid='nepjava';

1 row updated.

SQL> select\*from book;

bkid bkname aid publisher brid

---------- --------------- ---------- ------------- ----------

nepdbms dbms nepcompo2 skyward 10

nepse se nepcompo2 skyward 10

nepjava java nepcompo2 skyward 20

nepmaths maths nepsc101 oxford 30

nepphysics physics nepcommo1 shree 40

**Step 4: deleting records from a table**

SQL> delete borrow where bkid='nepphysics';

2 rows deleted.

SQL> select\*from borrow;

usn bkid borrow\_da

--------------- ---------- ---------

scas202201 nepdbms 20-may-22

scas202201 nepse 28-may-22

scac202204 nepmaths 06-jun-22

scas202201 nepmaths 18-jul-22

scas202201 nepjava 09-dec-22

5 rows selected.

**Step 5: perform saving(commit)**

SQL> insert into branch(brid,brname,hod)values(60,'mca','bala');

1 row created.

SQL> insert into branch(brid,brname,hod)values(70,'mba','adarsh');

1 row created.

SQL> commit;

commit complete.

SQL> select\*from branch;

brid brname hod

------- ------------- -------------

10 bca santosh s

20 bba rashmi e

30 bcom ramesh a

40 bsc aditya p

50 ba asha p

60 mca bala

70 mba adarsh

7 rows selected.

**Step 6: perform undoing(roll back)**

SQL> savepoint s1;

savepoint created.

SQL> insert into branch(brid,brname,hod)values(80,'maths','veena');

1 row created.

SQL> insert into branch(brid,brname,hod)values(90,'chemistry','jalaja');

1 row created.

SQL> roll back s1;

rollback complete.

SQl> select\*from branch;

brid brname hod

------- ------------- --------------

10 bca santosh s

20 bba rashmi e

30 bcom ramesh a

40 bsc aditya p

50 ba asha p

60 mca bala

70 mba adarsh

7 rows selected.

**Program 2**

**(a) list the details of students who are all studying in 2nd sem bca.**

**(b) list the students who are not borrowed any books.**

***Solution***

**(a) list the details of students who are all studying in 2nd sem bca.**

SQL> select from student s,branch br where s.brid=br.brid and s.sem='ii sem' and br.brname='bca:

usn name address brid sem brid brname brname hod

--- ---------- ------------ ------- -------- --------------- ------------ ------------

scas202201 anuradha jayanagar 10 II sem 10 bca santosh

scas202202 manula basavangudi 10 II sem 10 bca santosh

**(b) list the students who are not borrowed any books.**

SQL> select from students

2 where s.usn not in(select b.usn from borrow b);

usn name address brid sem

---------------- --------------- -------------------- ----------- ------------

scaa202201 deepti girinagar 50 IV sem

scac202203 renuka hanumantnagar 20 II sem

scas202202 manula basavangudi 10 II sem

scas202203 lakshmi basavangudi 10 IV sem

scas202204 abhi girinagar 40 II sem

**Program 3**

**(a) Display the USN, Student name, Branch\_name, Book\_name, Author\_name, Books Borrowed Date of 2nd sem BCA Students who borrowed books.**

**(b) Display the number of books written by each Author.**

***Solution***

**(a) Display the USN, Student name, Branch\_name, Book\_name, Author\_name, Books Borrowed Date of 2nd sem BCA Students who borrowed books**.

SQL> select s.usn.s.name.s.sem.br.brname,bk.bkname,a.aname,b.borrow\_date

2 from student s,branch br,book bk,author a,borrow b

3 where s.brid=br.brid and s.brid=bk.brid and aaid=bk.aid and

4 b.usn-s.usn and bk.bkid=b.bkid and s.sem='ii sem' and br.brname='bca';

usn name sem brname bkname aname borrow\_date

------ --------- --------- ---------- ------------ ----------- -------------

scas202201 anuradha II sem bca dbms suma 20-04-22

scas202201 anuradha II sem bca se suma 28-0522

**(b) display the number of books written by each author**

sql>a.aname,count(distinct bk.bkid)as”no\_of\_books”from author a,book bk

2 where a.aid=bk.aid group by a.aname;

aname no-of-books

----------- ------------------

suma 2

shekar 1

sageetha 1

dilip 1

**Program 4**

**a) Display the student details who borrowed more than two books.**

**(b) Display the student details who borrowed books of more than one Author.**

***Solution***

**(a) Display the student details who borrowed more than two books.**

SQL> SELECT S.NAME FROM STUDENTS.BORROW B WHERE S.USN=B.USN

2 GROUP BY S.NAME HAVING COUNT (DISTINCT BBKID)>2:

NAME

------------------------

ANURADHA

**(b) Display the student details who borrowed books of more than one Author.**

SQL> SELECT S.NAME COUNT (DISTINCT BRAID) FROM STUDENTS, BOOK BK, BORROW B

2 WHERE S.USN-B.USN AND B.BKID=BK.BKID GROUP BY S.NAME

3 HAVING COUNT (DISTINCT BKAID)>1;

NAME COUNT (DISTINCTBK.AID)

---------------- ---------------------------------------

ANURADHA 3

**Program 5**

**(a) Display the Book names in descending order of their names.**

**(b) List the details of students who borrowed the books which are all published by the same publisher.**

**Solution**

**(a) Display the Book names in descending order of their names.**

SQL> select from book order by bkname desc;

BRID BKNAME AID PUBLISHER BRID

nepse se nepcomp02 skyward 10

nepphy physics nepcomm02 shree 40

nepmaths maths nepsc101 oxford 30

nepjava java nepcomm01 skyward 20

nepdbms dbms nepcomp02 skyward 10

**(b) List the details of students who borrowed the books which are all published by the same publisher.**

SQL> select s.name, count (bk.publisher) from student s, book bk, borrow b

2 where s.usn-b.usn and b.bkid=bk.bkid group by s.name

3 having count (bk.publisher)>1;

NAME COUNT (BK PUBLISHER)

----------------- ----------------------------------------

ANURADHA 4

**program 06:**

**creating tables (with and without constraints) ,inserting/updating/deleting records in table,saving(commit) and undoing(rollback)**

***solution:***

**Step1: creating table (with and without constraints)**

SQL> create table student(usn varchar2(10)primary key,name varchar2(20)not null,dob date,branch varchar2(10)not null,mark1 number(4)not null,mark2 number(4)not null,mark3 number(4)not null,total number(4),gpa number(4,2));

table created.

SQL> desc student;

name null? type

------------------------------ -------- -------------------------

usn not null varchar2(10)

name not null varchar2(20)

dob date

branch not null varchar2(10)

mark1 not null number(4)

mark2 not null number(4)

mark3 not null number(4)

total number(4)

gpa number(4,2)

**Step2: inserting records into a table.**

SQl> insert into student(usn,name,dob,branch,mark1,mark2,mark3,total,gpa)values('sca202201','sanjana','24-aug-2004','bca',85,96,97,null,null);

1 row created.

SQL> insert into student(usn,name,dob,branch,mark1,mark2,mark3,total,gpa)values('scac202201','anirudh','10-oct-2004','bcom',75,85,65,null,null);

1 row created.

SQL> insert into student(usn,name,dob,branch,mark1,mark2,mark3,total,gpa)values('scab202201','akash','11-nov-2004','bca',75,85,83,null,null);

1 row created.

SQL> insert into student(usn,name,dob,branch,mark1,mark2,mark3,total,gpa)values('sca202202','tandra','01-dec-2004','bca',84,56,63,null,null);

1 row created.

SQL> insert into student(usn,name,dob,branch,mark1,mark2,mark3,total,gpa)values('sca202203','anusha','01-jan-2005','bca',68,72,78,null,null);

1 row created.

SQL> select\*from student;

usn name dob branch mark1 mark2 mark3 total gpa

------------

sca202201 sanjana 24-aug-04 bca 85 96 97

scac202201 anirudh 10-oct-04 bcom 75 85 65

scab202201 akash 11-nov-04 bca 75 85 83

sca202202 tandra 01-dec-04 bca 84 56 63

sca202203 anusha 01-jan-05 bca 68 72 78

**Step3: inserting records into a table and saving (commit).**

SQL> insert into student(usn,name,dob,branch,mark1,mark2,mark3,total,gpa)values('scac202203','sahana','15-jan-2005','bcom',45,65,68,null,null);

1 row created.

SQl> insert into student(usn,name,dob,branch,mark1,mark2,mark3,total,gpa)values('scac202204','yohan','15-feb-2004','bcom',55,76,78,null,null);

1 row created.

SQL> insert into student(usn,name,dob,branch,mark1,mark2,mark3,total,gpa)values('scac202205','srikanth','5-may-1977','bcom',99,89,79,null,null);

1 row created.

SQL> commit;

commit complete.

**Step 4: deleting a records into a table and saving (commit).**

SQL> delete student where usn='scac202205';

1 row deleted.

**Step5: undoing (rollback).**

SQL> savepoint s1;

savepoint created.

SQL> insert into student(usn,name,dob,branch,mark1,mark2,mark3,total,gpa)values('scab202204','satya','15-mar-2004','bba',68,77,74,null,null);

1 row created.

SQL> insert into student(usn,name,dob,branch,mark1,mark2,mark3,total,gpa)values('scab202205','dhanu','25-mar-2004','bba',68,85,90,null,null);

1 row created.

SQL> roll back;

rollback complete.

SQL> select\*from student;

usn name dob branch mark1 mark2 mark3 total gpa

------------------ --------------- --------------- ---------- ----------- --------- ---------- --------- --------

sca202201 sanjana 24-aug-04 bca 85 96 97

scac202201 anirudh 10-oct-04 bcom 75 85 65

scab202201 akash 11-nov-04 bca 75 85 83

sca202202 tandra 01-dec-04 bca 84 56 63

sca202203 anusha 01-jan-05 bca 68 72 78

scac202203 sahana 15-jan-05 bcom 45 65 68

scac202204 yohan 15-feb-04 bcom 55 76 78

7 rows selected.

**Step6: updating records in a table.**

SQL> update student set total=mark1+mark2+mark3;

7 rows updated.

SQL> select\*from student;

usn name dob branch mark1 mark2 mark3 total gpa

-------- ---------- ---------- -------- ------------ ---------- ----- -------

sca202201 sanjana 24-aug-04 bca 85 96 97 278

scac202201 anirudh 10-oct-04 bcom 75 85 65 225

scab202201 akash 11-nov-04 bca 75 85 83 243

sca202202 tandra 01-dec-04 bca 84 56 63 203

sca202203 anusha 01-jan-05 bca 68 72 78 218

scac202203 sahana 15-jan-05 bcom 45 65 68 178

scac202204 yohan 15-feb-04 bcom 55 76 78 209

**program 07:**

**execute the following queries:**

1. **find the gpa score of all the students.**
2. **find the students who born on a particular year of birth from the date\_of\_birth column.**

***solution:***

1. **find the gpa score of all the students.**

SQL> update student set gpa=((100\*total)/300)/10;

7 rows updated.

SQL> select\*from student;

usn name dob branch mark1 mark2 mark3 total gpa

------ --------- ------- -------- --------- ------ ------ --------- -----

sca202201 sanjana 24-aug-04 bca 85 96 97 278 9.27

scac202201 anirudh 10-oct-04 bcom 75 85 65 225 7.5

scab202201 akash 11-nov-04 bca 75 85 83 243 8.1

sca202202 tandra 01-dec-04 bca 84 56 63 203 6.77

sca202203 anusha 01-jan-05 bca 68 72 78 218 7.27

scac202203 sahana 15-jan-05 bcom 45 65 68 178 5.93

scac202204 yohan 15-feb-04 bcom 55 76 78 209 6.97

7 rows selected.

1. **find the students who born on a particular year of birth from the date\_of\_birth column.**

sql> select usn,name,branch,dob from student where dob like'%-%-04';

usn name branch dob

---------- ------------ ----------- --------------

sca202201 sanjana bca 24-aug-04

scac202201 anirudh bcom 10-oct-04

scab202201 akash bca 11-nov-04

sca202202 tandra bca 01-dec-04

scac202204 yohan bcom 15-feb-04

**program 08:**

1. **list the students who are studying in a particular branch of study.**
2. **find the maximum gpa score of the student branch wise.**

***solution:***

**(a)list the students who are studying in a particular branch of study.**

SQL> select usn,name,branch,dob from student where branch='bca';

usn name branch dob

--------------- -------------- ----------- -------------

sca202201 sanjana bca 24-aug-04

sca202202 tandra bca 01-dec-04

sca202203 anusha bca 01-jan-05

**(b)find the maximum gpa score of the student branch wise.**

SQL> select branch,max(gpa) from student group by branch;

branch max(gpa)

---------- -------------

bca 9.27

bcom 7.5

bba 8.1