1)create table branch(BRID NUMBER(5) primary key,BRNAME varchar(20) not null,HOD varchar(10));

2)create table student(USN varchar2(15) PRIMARY KEY ,NAME varchar2(10) not null,address varchar2(15),BRID NUMBER(5) references branch,sem varchar2(10));

3) create table author(AID varchar2(15) primary key,ANAME varchar2(15) not null,COUNTRY varchar2(15), AGE number(4));

4) create table book (BKID varchar2(15) primary key,BKNAME VARCHAR2(15) not null, AID varchar2(15) references author,publisher varchar2(15) not null,BRID NUMBER(5) references branch);

5) create table borrow (USN varchar2(15) references student ,BKID varchar2(15) references book,borrow\_date date,primary key(USN,BKID));

**BRANCH INSERTION**

INSERT INTO branch (BRID, BRNAME, HOD)VALUES (10,'MCA','sonu');

INSERT INTO branch (BRID, BRNAME, HOD)VALUES (20,'MBA','sindhu');

INSERT INTO branch (BRID, BRNAME, HOD)VALUES (30,'BBA','shalu');

INSERT INTO branch (BRID, BRNAME, HOD)VALUES (40,'BCA','revathi');

INSERT INTO branch (BRID, BRNAME, HOD)VALUES (50,'BCOM','ROOPA');

**STUDENT INSERTION**

INSERT INTO student (USN, NAME, ADDRESS, BRID, SEM)VALUES ('U1','Anura','jayanager',10,'2 sem');

INSERT INTO student (USN, NAME, ADDRESS, BRID, SEM)VALUES ('U2','AManula','nes',10,'2 sem');

INSERT INTO student (USN, NAME, ADDRESS, BRID, SEM)VALUES ('U3','abi','JP nager',30,'2 sem');

INSERT INTO student (USN, NAME, ADDRESS, BRID, SEM)VALUES ('U4','deepti','nnes',30,'4 sem');

INSERT INTO student (USN, NAME, ADDRESS, BRID, SEM)VALUES ('U5','deepa','js nager',50,'2 sem');

**AUTHOR INSERTION**

INSERT INTO author (AID, ANAME, COUNTRY, AGE)VALUES ('A1', 'arun', 'india', 58);

INSERT INTO author (AID, ANAME, COUNTRY, AGE)VALUES ('A2', 'suma', 'india', 48);

INSERT INTO author (AID, ANAME, COUNTRY, AGE)VALUES ('A3', 'sange', 'india', 38);

INSERT INTO author (AID, ANAME, COUNTRY, AGE)VALUES ('A4', 'geetha', 'india', 28);

INSERT INTO author (AID, ANAME, COUNTRY, AGE)VALUES ('A5', 'dilip', 'india', 30);

**BOOK INSERTION**

INSERT INTO book (BKID, BKNAME, AID, PUBLISHER, BRID)VALUES ('B1', 'DBMS', 'A1', 'SKYWARD', 10);

INSERT INTO book (BKID, BKNAME, AID, PUBLISHER, BRID)VALUES ('B2', 'DBMS', 'A2', 'SKYWARD', 10);

INSERT INTO book (BKID, BKNAME, AID, PUBLISHER, BRID)VALUES ('B3', 'se', 'A3', 'oxford', 20);

INSERT INTO book (BKID, BKNAME, AID, PUBLISHER, BRID)VALUES ('B4', 'java', 'A4', 'shree', 30);

INSERT INTO book (BKID, BKNAME, AID, PUBLISHER, BRID)VALUES ('B5', 'os', 'A1', 'shree', 30);

**BORROW INSEERTION**

INSERT INTO borrow (USN, BKID, BORROW\_DATE)VALUES ('U1', 'B1', '20-MAY-22');

INSERT INTO borrow (USN, BKID, BORROW\_DATE)VALUES ('U1', 'B2', '26-JUN-22');

INSERT INTO borrow (USN, BKID, BORROW\_DATE)VALUES ('U4', 'B3', '23-JUL-22');

INSERT INTO borrow (USN, BKID, BORROW\_DATE)VALUES ('U3', 'B1', '23-JUL-22');

INSERT INTO borrow (USN, BKID, BORROW\_DATE)VALUES ('U2', 'B4', '19-AUG-22');

**Updating records**

update book set publisher='skyward' where bkid='B1';

SQL> select \* from book;

BKID BKNAME AID PUBLISHER BRID

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

B1 DBMS A1 skyward 10

B2 DBMS A2 SKYWARD 10

B3 se A3 oxford 20

B4 java A4 shree 30

B5 os A1 shree 30

**Deleting record**

delete borrow where bkid='B1';

2 rows deleted.

SQL> select \* from borrow;

USN BKID BORROW\_DA

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

U1 B2 26-JUN-22

U4 B3 23-JUL-22

U2 B4 19-AUG-22

**Saving9commit)**

INSERT INTO branch (BRID, BRNAME, HOD)VALUES (60,'MCA','BALAJI');

1 row created

COMMIT;

Commit complete.

SQL> SELECT \* FROM BRANCH;

BRID BRNAME HOD

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

10 MCA sonu

20 MBA sindhu

30 BBA shalu

40 BCA revathi

50 BCOM ROOPA

60 MCA BALAJI

**UNDOING(ROLL BACK)**

SAVEPOINT S1;

Savepoint created.

SQL> INSERT INTO branch (BRID, BRNAME, HOD)VALUES (80,'MATHS','VEENA');

1 row created.

SQL> ROLL BACK S1;

Rollback complete.

SQL> SELECT \* FROM BRANCH;

BRID BRNAME HOD

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

10 MCA sonu

20 MBA sindhu

30 BBA shalu

40 BCA revathi

50 BCOM ROOPA

60 MCA BALAJI

**2)PROGRAM**

**a) List the details of Students studying in the 2nd sem MCA.**

SELECT \*

FROM student

WHERE SEM = '2 SEM' AND BRID = 20;

**b) List the students who have not borrowed any books.**

SELECT s.USN, s.NAME

FROM student s

LEFT JOIN borrow b ON s.USN = b.USN

WHERE b.BKID IS NULL;

USN NAME

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

U5 deepa

U6 POOJA

3) **a) Display the USN, Student name, Branch name, Book name, Author name, Borrowed Date of 2nd sem MCA students who borrowed books.**

SELECT S.USN, S.NAME, S.SEM, BR.BRNAME, BK.BKNAME, A.ANAME, B.BORROW\_DATE

FROM STUDENT S, BRANCH BR, BOOK BK, AUTHOR A, BORROW B

WHERE S.BRID = BR.BRID

AND S.BRID = BK.BRID

AND BK.AID = A.AID

AND B.USN = S.USN

AND BK.BKID = B.BKID

AND S.SEM = '2 SEM'

AND BR.BRNAME = 'MCA';

no rows selected

**b) List the students who have not borrowed any books.**

SELECT \*

FROM student

WHERE USN NOT IN (SELECT USN FROM borrow);

USN NAME ADDRESS BRID SEM

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

U5 deepa js nager 50 2 sem

U6 POOJA nnes 10 2 sem

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

SELECT S.NAME

FROM STUDENT S, BORROW B

WHERE S.USN = B.USN

GROUP BY S.NAME

HAVING COUNT(DISTINCT B.BKID) > 2;

**B) b) Display the student details who borrowed books from more than one Author.**

SELECT S.NAME

FROM STUDENT S

JOIN BORROW B ON S.USN = B.USN

GROUP BY S.NAME

HAVING COUNT(DISTINCT B.BKID) > 2;

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

SELECT BKNAME

FROM book

ORDER BY BKNAME DESC;

BKNAME

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

se

os

java

DBMS

DBMS

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

SELECT s.USN, s.NAME, s.ADDRESS, s.BRID, s.SEM

2 FROM student s

3 JOIN borrow br ON s.USN = br.USN

4 JOIN book bk ON br.BKID = bk.BKID

5 GROUP BY s.USN, s.NAME, s.ADDRESS, s.BRID, s.SEM

6 HAVING COUNT(DISTINCT bk.PUBLISHER) = 1;

USN NAME ADDRESS BRID SEM

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

U2 AManula nes 10 2 sem

U4 deepti nnes 30 4 sem

U3 abi JP nager 30 2 sem

**6)** **CREATE TABLE STUDENTSS (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));**

**CREATE TABLE NEWSTUDENT (**

**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)**

**);**

**INSERTION**

**INSERT INTO NEWSTUDENT (USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA)**

**2 VALUES ('1BI21CS001', 'John Doe', TO\_DATE('2000-03-15', 'YYYY-MM-DD'), 'CSE', 85, 90, 88, 263, 8.77);**

**1 row created.**

**SQL> INSERT INTO NEWSTUDENT (USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA) VALUES ('1BI21CS003', 'Alice Brown', TO\_DATE('2000-12-05', 'YYYY-MM-DD'), 'CSE', 92, 95, 90, 277, 9.23);**

**1 row created.**

**SQL> INSERT INTO NEWSTUDENT (USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA) VALUES ('1BI21CS004', 'Bob White', TO\_DATE('1999-08-10', 'YYYY-MM-DD'), 'CSE', 75, 80, 78, 233, 7.77);**

**1 row created.**

**SQL> INSERT INTO NEWSTUDENT (USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA) VALUES ('1BI21CS005', 'Charlie Green', TO\_DATE('2000-11-30', 'YYYY-MM-DD'), 'CSE', 88, 85, 87, 260, 8.67);**

**1 row created.**

**SQL> INSERT INTO NEWSTUDENT (USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA) VALUES ('1BI21CS006', 'David Lee', TO\_DATE('2000-01-10', 'YYYY-MM-DD'), 'CSE', 90, 91, 89, 270, 9.00);**

**1 row created.**

INSERT INTO NEWSTUDENT (USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA) VALUES ('1BI21CS007', 'Samuel King', TO\_DATE('2000-07-12', 'YYYY-MM-DD'), 'CSE', 88, 90, 85, 263, 8.77);

**7)** a) **Find the GPA score of all students:**

SELECT USN, NAME,

(MARK1 + MARK2 + MARK3) / 30 AS GPA

FROM NEWSTUDENT;

USN NAME GPA

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

1BI21CS001 John Doe 8.76666667

1BI21CS003 Alice Brown 9.23333333

1BI21CS004 Bob White 7.76666667

1BI21CS005 Charlie Green 8.66666667

1BI21CS006 David Lee 9

**B) Find the students who born on a particular year of birth from the date of birth column.**

SELECT USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA

FROM NEWSTUDENT

WHERE EXTRACT(YEAR FROM DOB) = 2000;

USN NAME DOB BRANCH MARK1 MARK2

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

MARK3 TOTAL GPA

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

1BI21CS001 John Doe 15-MAR-00 CSE 85 90

88 263 8.77

1BI21CS003 Alice Brown 05-DEC-00 CSE 92 95

90 277 9.23

1BI21CS005 Charlie Green 30-NOV-00 CSE 88 85

87 260 8.67

USN NAME DOB BRANCH MARK1 MARK2

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

MARK3 TOTAL GPA

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

1BI21CS006 David Lee 10-JAN-00 CSE 90 91

89 270 9

**8) a. List the students who are studying in a particular branch of study**

SELECT USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA

FROM NEWSTUDENT

WHERE BRANCH = 'CSE';

USN NAME DOB BRANCH MARK1 MARK2

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

MARK3 TOTAL GPA

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

1BI21CS001 John Doe 15-MAR-00 CSE 85 90

88 263 8.77

1BI21CS003 Alice Brown 05-DEC-00 CSE 92 95

90 277 9.23

1BI21CS004 Bob White 10-AUG-99 CSE 75 80

78 233 7.77

USN NAME DOB BRANCH MARK1 MARK2

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

MARK3 TOTAL GPA

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

1BI21CS005 Charlie Green 30-NOV-00 CSE 88 85

87 260 8.67

1BI21CS006 David Lee 10-JAN-00 CSE 90 91

89 270 9

**. b. Find the maximum GPA score of the student branch-wise.**

SELECT BRANCH, MAX(GPA) AS MAX\_GPA

FROM NEWSTUDENT

GROUP BY BRANCH;

BRANCH MAX\_GPA

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

CSE 9.23

1. **Find the students whose name starts with the alphabet "S**

SELECT USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA

FROM NEWSTUDENT

WHERE NAME LIKE 'S%';

USN NAME DOB BRANCH MARK1 MARK2

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

MARK3 TOTAL GPA

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

1BI21CS007 Samuel King 12-JUL-00 CSE 88 90

85 263 8.77

1. **Update the column total by adding the columns mark 1, mark2, mark3.**

SELECT USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA

FROM NEWSTUDENT

WHERE NAME LIKE 'S%';

USN NAME DOB BRANCH MARK1 MARK2

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

MARK3 TOTAL GPA

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

1BI21CS007 Samuel King 12-JUL-00 CSE 88 90

85 263 8.77

SQL> UPDATE NEWSTUDENT

2 SET TOTAL = MARK1 + MARK2 + MARK3;

6 rows updated.

SQL> SELECT USN, NAME, MARK1, MARK2, MARK3, TOTAL

FROM NEWSTUDENT;

USN NAME MARK1 MARK2 MARK3 TOTAL

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

1BI21CS001 John Doe 85 90 88 263

1BI21CS003 Alice Brown 92 95 90 277

1BI21CS004 Bob White 75 80 78 233

1BI21CS005 Charlie Green 88 85 87 260

1BI21CS006 David Lee 90 91 89 270

1BI21CS007 Samuel King 88 90 85 263

6 rows selected.

**10. Execute the following queries:**

**a. Find the students whose name ends with the alphabets "AR".**

SELECT USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA

FROM NEWSTUDENT

WHERE NAME LIKE '%ar';

USN NAME DOB BRANCH MARK1 MARK2

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

MARK3 TOTAL GPA

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

1BI21CS008 Jafar 12-JUL-00 CSE 85 90

87 262 8.7

1BI21CS009 Jafar 12-JUL-00 CSE 85 90

87 262 8.7

1BI21CS017 Nisar 30-AUG-99 CSE 88 89

90 267 9

**b. Delete the student details whose USN is given as 1001.**

UPDATE NEWSTUDENT

SET USN = '1001'

WHERE USN = '1BI21CS005';

1 row updated.

SQL> SELECT \* FROM NEWSTUDENT

2 WHERE USN = '1001';

USN NAME DOB BRANCH MARK1 MARK2

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

MARK3 TOTAL GPA

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

1001 Charlie Green 30-NOV-00 CSE 88 85

87 260 8.67