PROGRAM 10: COLLEGE DATABASE

Consider the schema for College Database:

STUDENT(USN, SName, Address, Phone, Gender)

SEMSEC(SSID, Sem, Sec)

CLASS(USN, SSID)

SUBJECT(Subcode, Title, Sem, Credits)

IAMARKS(USN, Subcode, SSID, Test1, Test2, Test3, FinalIA)

Write SQL queries to

i. List all the student details studying in the fourth semester 'C' section.

ii. Compute the total number of male and female students in each semester

and in each section.

iii. Create a view of Test1 marks of student USN '1BI15CS101' in all subjects.

iv. Calculate the FinalIA (average of best two test marks) and update the

corresponding table for all students.

v. Calculate the FinalIA (average of best two test marks) and update the corresponding

table for all students. v. Categorize students based on the following criterion:

If FinalIA = 17 to 20 then CAT = 'Outstanding'

If FinalIA = 12 to 16 then CAT = 'Average'

If FinalIA< 12 then CAT = 'Weak'

Give these details only for 8th semester A, B, and C section students.

```
create database college;
use college;

CREATE TABLE STUDENT(USN INT,S_NAME VARCHAR(10),ADDRESS
VARCHAR(20),PHONE INT,GENDER VARCHAR(10),PRIMARY KEY(USN));
CREATE TABLE SEM_SEC(SSID INT,SEM INT,SEC VARCHAR(5),PRIMARY
KEY(SSID));
CREATE TABLE CLASS(USN INT,SSID INT,FOREIGN KEY(USN) REFERENCES
STUDENT(USN),FOREIGN KEY(SSID) REFERENCES SEM_SEC(SSID));
CREATE TABLE SUBJECTS(SUBCODE INT,TITLE VARCHAR(20),SEM INT,CREDITS
INT,PRIMARY KEY(SUBCODE));
```

```sql
CREATE TABLE MARKS(USN INT,SUBCODE INT,SSID INT,TEST1 INT,TEST2
INT,TEST3 INT,FOREIGN KEY(USN) REFERENCES STUDENT(USN),FOREIGN
KEY(SSID) REFERENCES SEM_SEC(SSID),FOREIGN KEY(SUBCODE)
REFERENCES SUBJECTS(SUBCODE));
```

i. List all the student details studying in the fourth semester 'C' section.

```sql
SELECT * FROM STUDENT S WHERE S.USN IN (SELECT C.USN FROM CLASS
C,SEM_SEC S WHERE S.SSID=C.SSID AND S.SEM=4 AND S.SEC='C');
```

ii. Compute the total number of male and female students in each semester and in each section.

```sql
SELECT S.GENDER,SS.SEM,SS.SEC,COUNT(*) FROM STUDENT
S,SEM_SEC SS,CLASS C WHERE C.USN=S.USN AND C.SSID=SS.SSID
GROUP BY SS.SSID;
```

iii. Create a view of Test1 marks of student USN '1BI15CS101' in all subjects.

```sql
CREATE VIEW USN_01(USN,SUB,MARKS) AS SELECT
M.USN,S.TITLE,M.TEST1 FROM MARKS M,SUBJECTS S WHERE
M.SUBCODE=S.SUBCODE AND M.USN=01;
SELECT * FROM USN_01;
```

iv. Calculate the FinalIA (average of best two test marks) and update the corresponding table for all students.

```sql
ALTER TABLE MARKS ADD COLUMN FINAL_ALL FLOAT;
UPDATE MARKS SET
FINAL_ALL=((TEST1+TEST2+TEST3)-LEAST(TEST1,TEST2,TEST3))/2;
SELECT * FROM MARKS;
```

v. Calculate the FinalIA (average of best two test marks) and update the corresponding table for all students. v. Categorize students based on the following criterion:

If FinalIA = 17 to 20 then CAT = 'Outstanding'

If FinalIA = 12 to 16 then CAT = 'Average'

If FinalIA< 12 then CAT = 'Weak'

Give these details only for 8th semester A, B, and C section students.

```sql
ALTER TABLE MARKS ADD COLUMN CATEGORY VARCHAR(20);
UPDATE MARKS SET CATEGORY=
CASE
        WHEN FINAL_ALL>=17 AND FINAL_ALL<=20 THEN 'OUTSTANDING'
        WHEN FINAL_ALL>=12 AND FINAL_ALL<17 THEN 'AVERAGE'
        WHEN FINAL_ALL<12 THEN 'WEAK'
END;
SELECT * FROM MARKS;
```