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)

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

Write SQL queries to

i. List all the student details studying in 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 '22' in all subjects.

iv. 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)
   );

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)
);
```

```
INSERT INTO STUDENT VALUES(44,'DEVANG','RR NAGAR',231213,'MALE');
INSERT INTO STUDENT VALUES(22,'AYMAN','INDIRANAGAR',231232,'MALE');
INSERT INTO STUDENT VALUES(11,'SAM','INDIRANAGAR',231432,'FEMALE');
INSERT INTO STUDENT VALUES(55,'SHAAN','MG ROAD',212543,'MALE');
INSERT INTO STUDENT VALUES(33,'TANYA','WHITE FIELD',231443,'FEMALE');
```

	USN	S_NAME	ADDRESS	PHONE	GENDER
Edit Copy Delete	11	SAM	INDIRANAGAR	231432	FEMALE
Edit Copy Delete	22	AYMAN	INDIRANAGAR	231232	MALE
Edit Copy Delete	33	TANYA	WHITE FIELD	231443	FEMALE
Edit Copy Delete	44	DEVANG	RR NAGAR	231213	MALE
Edit Copy Delete	55	SHAAN	MG ROAD	212543	MALE

```
SELECT * FROM STUDENT;
```

```
INSERT INTO SEM_SEC VALUES(2,6,'B');
INSERT INTO SEM_SEC VALUES(4,4,'C');
INSERT INTO SEM_SEC VALUES(5,4,'B');
INSERT INTO SEM_SEC VALUES(3,4,'A');
INSERT INTO SEM_SEC VALUES(1,2,'B');
```

	SSID	SEM	SEC
Edit Copy Delete	1	2	B
Edit Copy Delete	2	6	B
Edit Copy Delete	3	4	A
Edit Copy Delete	4	4	C
Edit Copy Delete	5	4	B

```
SELECT * FROM SEM_SEC;
```

INSERT INTO CLASS VALUES(33,5);

INSERT INTO CLASS VALUES(11,4);

INSERT INTO CLASS VALUES(55,2);

INSERT INTO CLASS VALUES(22,4);

INSERT INTO CLASS VALUES(44,4);

USN	SSID
33	5
11	4
55	2
22	4
44	4

SELECT * FROM CLASS;

INSERT INTO SUBJECTS VALUES(20,'DBMS',2,4);

INSERT INTO SUBJECTS VALUES(10,'MP',4,4);

INSERT INTO SUBJECTS VALUES(40,'ADA',1,4);

INSERT INTO SUBJECTS VALUES(30,'LD',5,3);

INSERT INTO SUBJECTS VALUES(50,'COA',3,3);

←T→	SUBCODE	TITLE	SEM	CREDITS
Edit Copy Delete	10	MP	4	4
Edit Copy Delete	20	DBMS	2	4
Edit Copy Delete	30	LD	5	3
Edit Copy Delete	40	ADA	1	4
Edit Copy Delete	50	COA	3	3

SELECT * FROM SUBJECTS;

INSERT INTO MARKS VALUES(33,10,5,19,19,20);

INSERT INTO MARKS VALUES(22,50,4,16,15,12);

INSERT INTO MARKS VALUES(55,30,2,19,19,19);

INSERT INTO MARKS VALUES(22,40,4,12,18,16);

INSERT INTO MARKS VALUES(44,10,4,10,12,11);

INSERT INTO MARKS VALUES(11,20,4,15,14,13);

USN	SUBCODE	SSID	TEST1	TEST2	TEST3
33	10	5	19	19	20
22	50	4	16	15	12
55	30	2	19	19	19
22	40	4	12	18	16
44	10	4	10	12	11
11	20	4	15	14	13

SELECT * FROM MARKS;

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'); #1

	USN	S_NAME	ADDRESS	PHONE	GENDER
Edit Copy Delete	11	SAM	INDIRANAGAR	231432	FEMALE
Edit Copy Delete	22	AYMAN	INDIRANAGAR	231232	MALE
Edit Copy Delete	44	DEVANG	RR NAGAR	231213	MALE

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; #2

GENDER	SEM	SEC	COUNT(*)
MALE	6	B	1
FEMALE	4	C	3
FEMALE	4	B	1

CREATE VIEW USN_22(USN,SUB,MARKS) AS SELECT M.USN,S.TITLE,M.TEST1 FROM MARKS M,SUBJECTS S WHERE M.SUBCODE=S.SUBCODE AND M.USN=22;

SELECT * FROM USN_22; #3

USN	SUB	MARKS
22	COA	16
22	ADA	12

ALTER TABLE MARKS ADD COLUMN FINAL_ALL FLOAT;

UPDATE MARKS SET FINAL_ALL=((TEST1+TEST2+TEST3)-LEAST(TEST1,TEST2,TEST3))/2;

SELECT * FROM MARKS; #4

USN	SUBCODE	SSID	TEST1	TEST2	TEST3	FINAL_ALL
33	10	5	19	19	20	19.5
22	50	4	16	15	12	15.5
55	30	2	19	19	19	19
22	40	4	12	18	16	17
44	10	4	10	12	11	11.5
11	20	4	15	14	13	14.5

```
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; #5

USN	SUBCODE	SSID	TEST1	TEST2	TEST3	FINAL_ALL	CATEGORY
33	10	5	19	19	20	19.5	OUTSTANDING
22	50	4	16	15	12	15.5	AVERAGE
55	30	2	19	19	19	19	OUTSTANDING
22	40	4	12	18	16	17	OUTSTANDING
44	10	4	10	12	11	11.5	WEAK
11	20	4	15	14	13	14.5	AVERAGE