Global Academy of Technology
Growing Ahead Of Time....
Autonomous Institute, Affiliated To VTU

Department of
Artificial Intelligence & Machine Learning

22AML43

Database Management System Laboratory

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Exercise-4

Consider the schema for College Database:

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

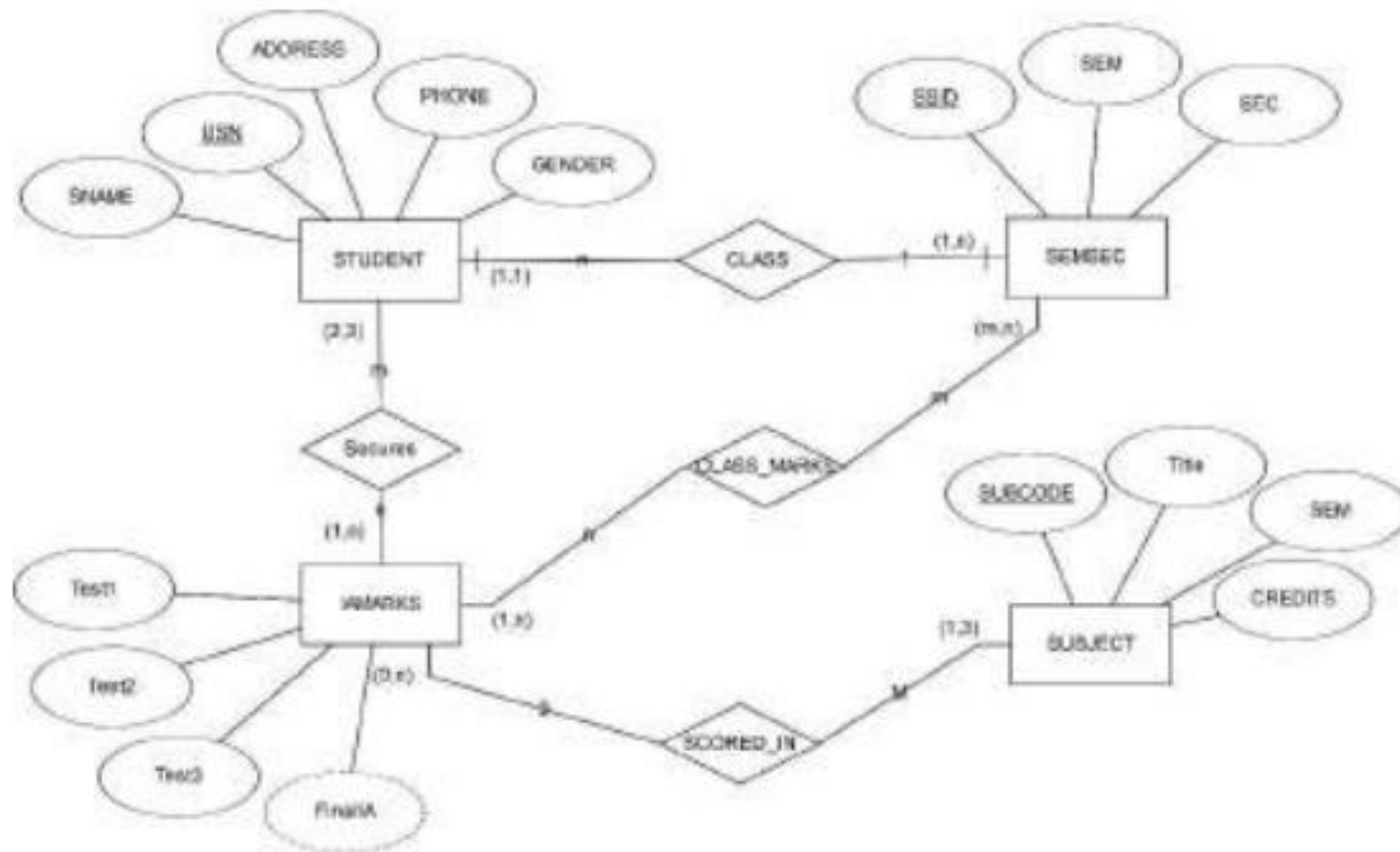**SEMSEC (SSID, Sem, Sec)**

CLASS (USN, SSID)

SUBJECT (Subcode, Title, Sem, Credits)

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

Write SQL queries to

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

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

3. Create a view of Test1 marks of student USN '1GA22AI101' in all subjects.

4. Categorize students based on the following criterion:
   1. If FinalIA = 17 to 20 then CAT = 'Outstanding'
   2. If FinalIA = 12 to 16 then CAT = 'Average'
   3. If FinalIA< 12 then CAT = 'Weak' Give these details only for 8th semester A, B, and C section students.

Entity - Relationship Diagram

Schema Diagram

Table Creation

1. CREATE TABLE STUDENT (USN VARCHAR (10) PRIMARY KEY, SNAME VARCHAR (25), ADDRESS VARCHAR (25), PHONE BIGINT,GENDER CHAR (1));

2. CREATE TABLE SEMSEC (SSID VARCHAR (5) PRIMARY KEY, SEM INTEGER, SEC CHAR (1));

3. CREATE TABLE CLASS (USN VARCHAR (10), SSID VARCHAR (5), PRIMARY KEY (USN, SSID), FOREIGN KEY (USN) REFERENCES STUDENT (USN), FOREIGN KEY (SSID) REFERENCES SEMSEC (SSID));

4. CREATE TABLE SUBJECT (SUBCODE VARCHAR (8), TITLE VARCHAR (20), SEM INTEGER, CREDITS INTEGER, PRIMARY KEY (SUBCODE));

5. CREATE TABLE IAMARKS (USN VARCHAR (10), SUBCODE VARCHAR (8), SSID VARCHAR (5), TEST1 INTEGER, TEST2 INTEGER, TEST3 INTEGER, FINALIA INTEGER, PRIMARY KEY (USN, SUBCODE, SSID), FOREIGN KEY (USN) REFERENCES STUDENT (USN), FOREIGN KEY (SUBCODE) REFERENCES SUBJECT (SUBCODE), FOREIGN KEY (SSID) REFERENCES SEMSEC (SSID));

Table Description

- DESC STUDENT;
- DESC SEMSEC;
- DESC CLASS;
- DESC SUBJECT;
- DESC IAMARKS;

- Insertion of Values to Tables –
  STUDENT
  SEMSEC
  CLASS
  SUBJECT
  IAMARKS

Query-1

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

SELECT S.*, SS.SEM, SS.SEC

FROM STUDENT S, SEMSEC SS, CLASS C

WHERE S.USN = C.USN

    AND SS.SSID = C.SSID

    AND SS.SEM = 4

    AND SS.SEC='C';

Query-2

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

SELECT SS.SEM, SS.SEC, S.GENDER, COUNT (S.GENDER) AS COUNT

FROM STUDENT S, SEMSEC SS, CLASS C

 WHERE S.USN = C.USN

   AND SS.SSID = C.SSID

  GROUP BY SS.SEM, SS.SEC, S.GENDER

  ORDER BY SEM;

Query-3

Create a view of Test1 marks of student USN '1GA22AI101' in all subjects.

CREATE VIEW STU_TEST1_MARKS_VIEW

AS

SELECT TEST1, SUBCODE

FROM IAMARKS

WHERE USN = '1GA22AI101' ;

Query-4

Categorize students based on the following criterion:
1. If FinalIA = 17 to 20 then CAT = 'Outstanding'
2. If FinalIA = 12 to 16 then CAT = 'Average'
3. If FinalIA< 12 then CAT = 'Weak'
Give these details only for 8 th semester A, B, and C section students.

```
SELECT S.USN,S.SNAME,S.ADDRESS,S.PHONE, S.GENDER,
(CASE
 WHEN IA.FINALIA BETWEEN 17 AND 20 THEN'OUTSTANDING'
WHEN IA.FINALIA BETWEEN 12 AND 16 THEN 'AVERAGE'
ELSE 'WEAK'
END) AS CAT
FROM STUDENT S, SEMSEC SS, IAMARKS IA, SUBJECT SUB
WHERE S.USN = IA.USN AND SS.SSID = IA.SSID AND SUB.SUBCODE = IA.SUBCODE AND SUB.SEM = 8;
```