Global Academy of Technology

Growing Ahead Of Time....

Autonomous Institute, Affiliated To VTU

Department of Artificial Intelligence & Machine Learning

AML23403

Database Management System

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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)

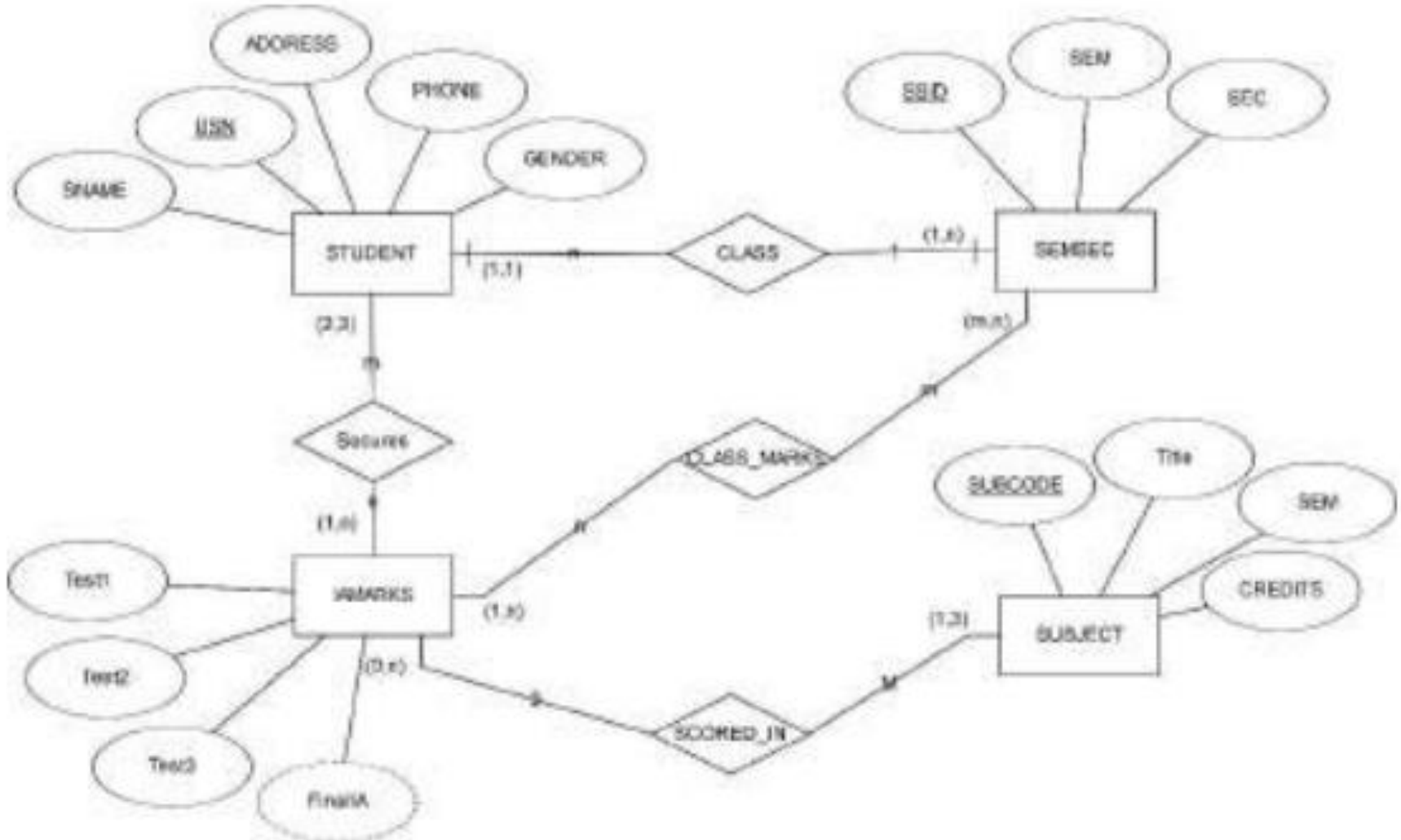
SUBJECT (Subcode, Title, Sem, Credits)

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;
```