DBMS LAB

ASSIGNMENT – 3

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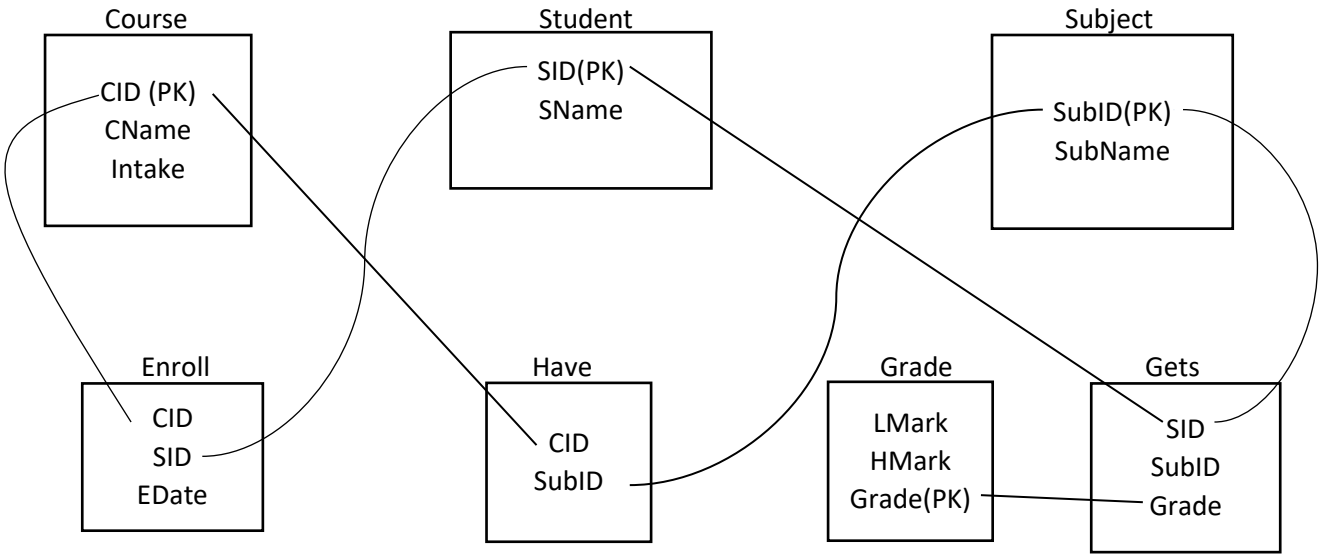
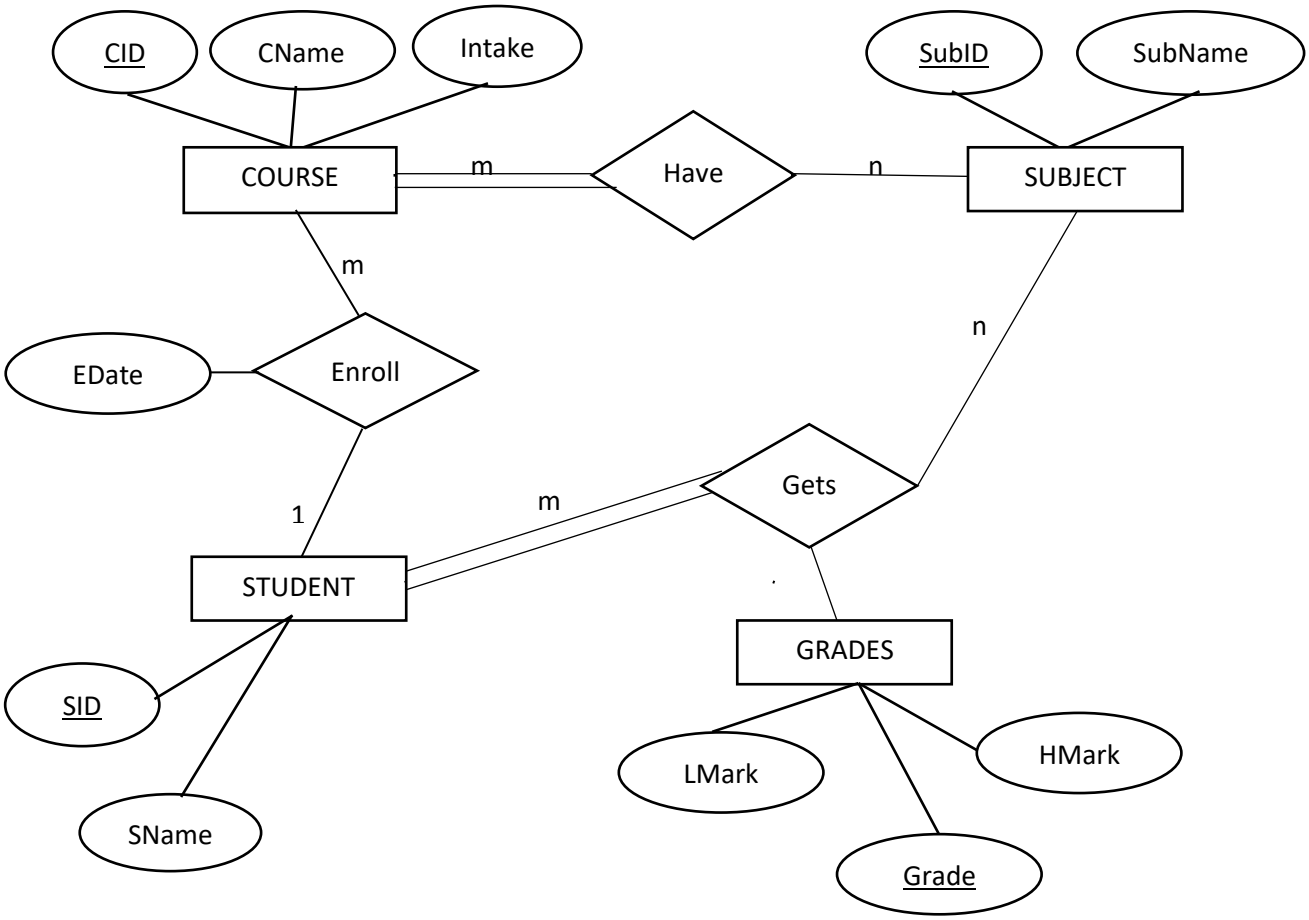
DATE : 27/9/23

In an educational institute, various numbers of courses are offered. In each course, 7 numbers of subjects are taught. One student can select minimum 5 and maximum 6 numbers of subjects for that course. Each course has maximum intake capacity. The same subject may be taught in various courses. The system must be able to handle course, subject, student, marks grade and enrolment information. Assumptions also can be made. Design an ER diagram and database schema for the system. Specify the primary key, foreign key and other constraints for all required tables. Draw the ER diagram.

DATABASE SCHEMA :



ER DIAGRAM :


CID
CName
Intake
SubID
SubName
COURSE
m
Have
n
SUBJECT
m
n
EDate
Enroll
1
m
Gets
STUDENT
GRADES
SID
SName
LMark
HMark
Grade

1. Insert at least five tuples in each table.

```
CREATE TABLE COURSE(
   CID NUMBER(3) primary key,
   CName VARCHAR2(10) not null,
   Intake NUMBER(3) not null
);

CREATE TABLE STUDENT (
        SID NUMBER(3) PRIMARY KEY,
        SName VARCHAR2(50) NOT NULL
);

CREATE TABLE SUBJECT (
        SubID NUMBER(3) PRIMARY KEY,
        SubName VARCHAR2(50) NOT NULL
);

CREATE TABLE Enroll (
        SID NUMBER(3),
        CID NUMBER(3),
        EDate DATE,
        PRIMARY KEY (SID, CID),
        FOREIGN KEY (SID) REFERENCES STUDENT(SID),
        FOREIGN KEY (CID) REFERENCES COURSE(CID)
);

CREATE TABLE HAVE (
        CID NUMBER(3),
        SubID NUMBER(3),
        PRIMARY KEY (CID, SubID),
        FOREIGN KEY (CID) REFERENCES COURSE(CID),
        FOREIGN KEY (SubID) REFERENCES SUBJECT(SubID)
);
```

```
CREATE TABLE GRADES (
        GRADE VARCHAR2(1) PRIMARY KEY,
        LMark NUMBER(3) not null,
   HMark NUMBER(3) not null
);
CREATE TABLE GETS (
        SID NUMBER(3),
        SubID NUMBER(3),
   Grade VARCHAR2(1),
        PRIMARY KEY (SID, SubID,Grade),
        FOREIGN KEY (SID) REFERENCES STUDENT(SID),
        FOREIGN KEY (SubID) REFERENCES SUBJECT(SubID),
        FOREIGN KEY (Grade) REFERENCES GRADES(Grade)
);

    INSERT into COURSE values (101,'IT',100);
    INSERT into COURSE values (201,'INSTRU',50);
    INSERT into COURSE values (301,'MECH',85);
    INSERT into COURSE values (401,'ELEC',50);
    INSERT into COURSE values (501,'CSE',70);

    INSERT INTO SUBJECT VALUES (001, 'DSA');
    INSERT INTO SUBJECT VALUES (002, 'OOP');
    INSERT INTO SUBJECT VALUES (003, 'DBMS');
    INSERT INTO SUBJECT VALUES (004, 'ML');
    INSERT INTO SUBJECT VALUES (005, 'ECE');
    INSERT INTO SUBJECT VALUES (006, 'COA');
    INSERT INTO SUBJECT VALUES (007, 'GRAPH THERORY');
    INSERT INTO SUBJECT VALUES (008, 'NETWORKING');
    INSERT INTO SUBJECT VALUES (009, 'MATHS');
    INSERT INTO SUBJECT VALUES (010, 'WEBDEV');
    INSERT INTO SUBJECT VALUES (011, 'AC-DC');
```

```
INSERT INTO STUDENT VALUES (166, 'MOHAN');
INSERT INTO STUDENT VALUES (167, 'RIYA');
INSERT INTO STUDENT VALUES (168, 'SOHAN');
INSERT INTO STUDENT VALUES (169, 'VIRAT');
INSERT INTO STUDENT VALUES (170, 'KAJI');
INSERT INTO STUDENT VALUES (171, 'ROHIT');
INSERT INTO STUDENT VALUES (172, 'AMAN');

INSERT INTO ENROLL VALUES (166,101,'17-DEC-22');
INSERT INTO ENROLL VALUES (167,101,'17-DEC-22');
INSERT INTO ENROLL VALUES (168,301,'10-NOV-22');
INSERT INTO ENROLL VALUES (169,501,'17-NOV-22');
INSERT INTO ENROLL VALUES (170,401,'16-DEC-22');
INSERT INTO ENROLL VALUES (171,301,'02-DEC-22');
INSERT INTO ENROLL VALUES (172,301,'17-NOV-22');

INSERT INTO HAVE VALUES (101,001);
INSERT INTO HAVE VALUES (101,002);
INSERT INTO HAVE VALUES (101,003);
INSERT INTO HAVE VALUES (501,001);
INSERT INTO HAVE VALUES (401,011);
INSERT INTO HAVE VALUES (501,004);

INSERT INTO GRADES VALUES ('A',100,91);
INSERT INTO GRADES VALUES ('B',90,81);
INSERT INTO GRADES VALUES ('C',80,71);
INSERT INTO GRADES VALUES ('D',70,61);
INSERT INTO GRADES VALUES ('E',60,51);
INSERT INTO GRADES VALUES ('F',50,0);
```

```
INSERT INTO GETS VALUES (169,001,'A');
INSERT INTO GETS VALUES (168,002,'B');
INSERT INTO GETS VALUES (170,001,'A');
INSERT INTO GETS VALUES (172,004,'C');
INSERT INTO GETS VALUES (166,011,'C');
INSERT INTO GETS VALUES (168,001,'A');
```

2. At the time of creation if we forget to create a field enrollment date (ENROLL_DATE) in ENROLL table so add the field.

```
ALTER TABLE ENROLL ADD (ENROLL_DATE DATE);
```

3. Course name cannot be blank, therefore add the criteria in the specific table.

```
ALTER TABLE COURSE MODIFY CName VARCHAR2(10) NOT NULL:
```

4. Find the Course which has more than 3 students.

```
SELECT * FROM (SELECT COUNT(CID) AS STUDENT_COUNT, CID, CNAME
FROM (SELECT ENROLL.CID, COURSE.CNAME FROM ENROLL,COURSE WHERE ENROLL.CID=COURSE.CID)
GROUP BY CID,CNAME) WHERE STUDENT_COUNT>3;
```

5. Give the details of a STUDENT with all Subjects and Grade where he/she enroll (Enter the sid value as input).

```
SELECT STUDENT.SID,STUDENT.SNAME,SUBJECT.SUBID, SUBJECT.SUBNAME,GETS.GRADE
FROM student INNER JOIN GETS on STUDENT.SID = GETS.SID
INNER JOIN SUBJECT on GETS.SUBID = SUBJECT.SUBID
WHERE STUDENT.SID = 169;
```

SID	SNAME	SUBID	SUBNAME	GRADE
169	VIRAT	1	DSA	A

6. Display the course where the maximum number of students enrolls.

```
SELECT STUDENT_COUNT, CNAME FROM (SELECT COUNT(CID) AS STUDENT_COUNT ,CID, CNAME
FROM (SELECT ENROLL.CID , COURSE.CNAME FROM ENROLL,COURSE
WHERE ENROLL.CID=COURSE.CID) GROUP BY CID,CNAME)
WHERE STUDENT_COUNT = (SELECT MAX(STUDENT_COUNT) FROM (SELECT COUNT(CID)
AS STUDENT_COUNT ,CID, CNAME FROM (SELECT ENROLL.CID , COURSE.CNAME
FROM ENROLL,COURSE WHERE ENROLL.CID=COURSE.CID) GROUP BY CID,CNAME));
```

STUDENT_COUNT	CNAME
3	MECH

7. Find out the course where no student is enrolled.

```
SELECT COURSE.CID, CNAME FROM COURSE LEFT JOIN ENROLL ON
COURSE.CID = ENROLL.CID WHERE SID IS NULL;
```

CID	CNAME
201	INSTRU

8. Delete Course no 30 from COURSE table.

```
DELETE FROM COURSE WHERE CID = 30;
```

9. Rename the COURSE table as DEPARTMENT.

```
RENAME COURSE TO DEPARTMENT;
```

10. Change the Marks Grade of Student “A” to “B” who is enroll in the subject DBMS.

```
UPDATE GETS SET GRADE='B' WHERE SID =103 AND GRADE='A'
```

11. Delete the record of the student who is enrolled in the course 'IT'.

```
DELETE FROM COURSE WHERE CNAME="IT";
```

12. Change the enroll date to '16-08-2018' whose student id is 18069 (first convert the date into the default format).

```
UPDATE ENROLL SET EDATE = '16-AUG-18' WHERE SID = 18069;
```