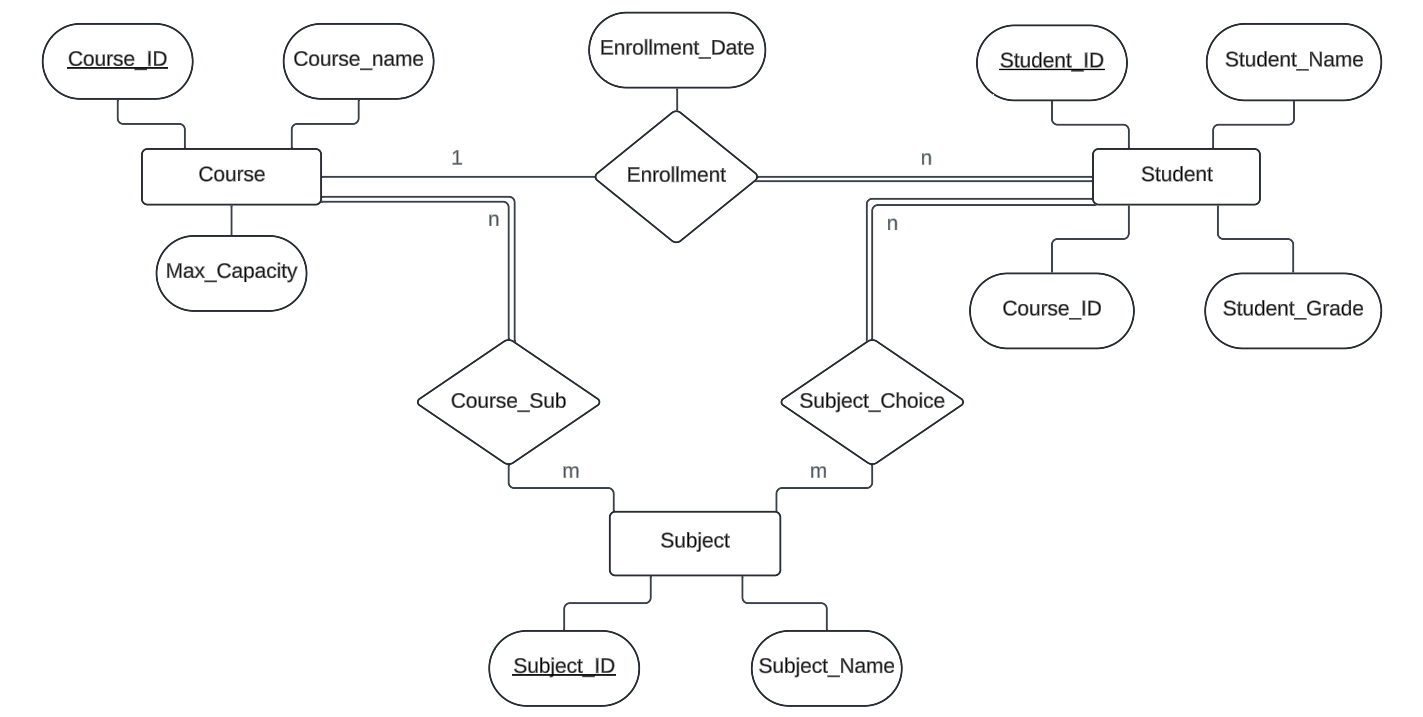
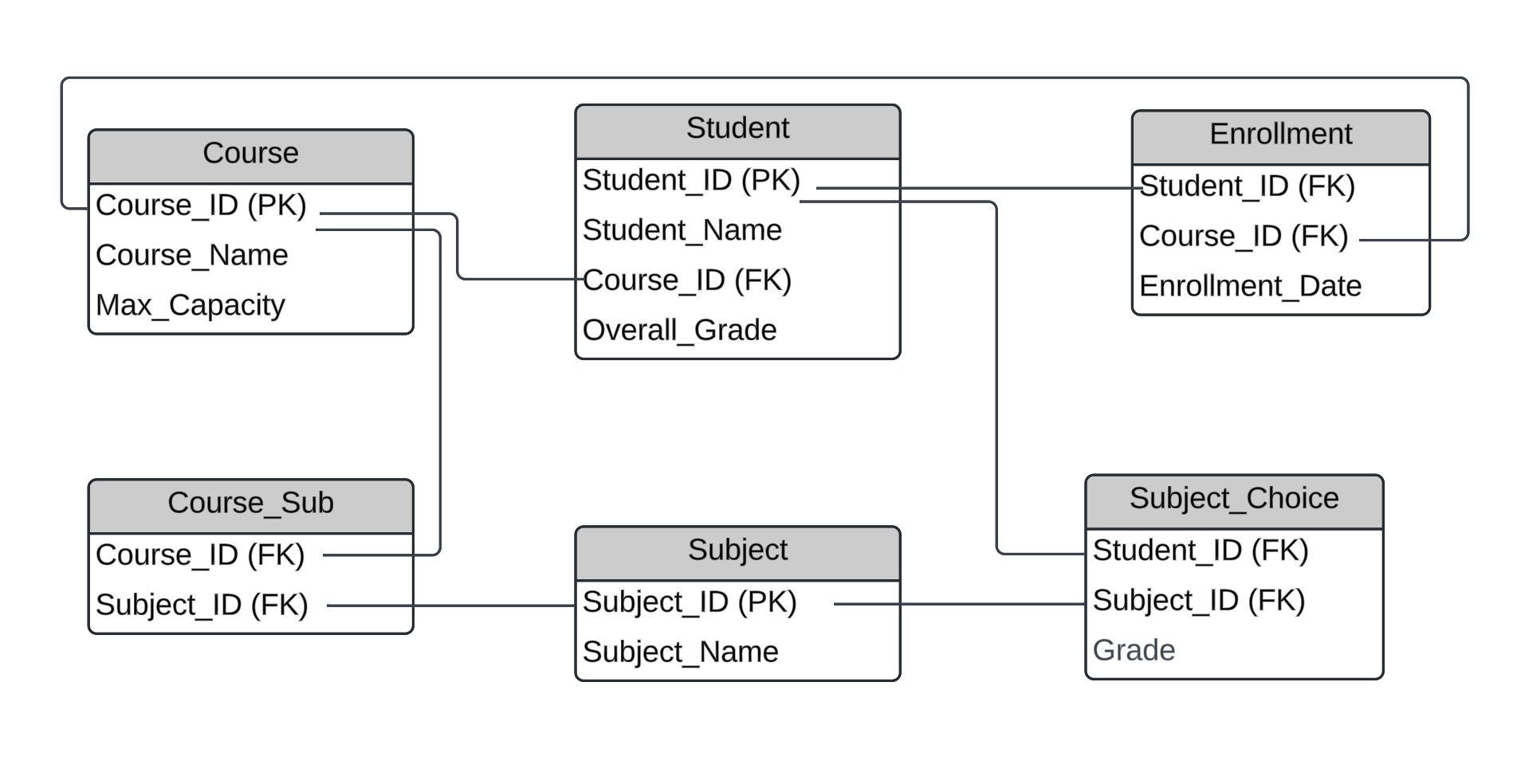
**Question: In an educational institute, various numbers of courses are offered. In each course, 7 numbers of subjects are taught. One student can select minimum 5 and maximum 6 numbers of subjects for that course. Each course has maximum intake capacity. The same subject may be taught in various courses. The system must be able to handle course, subject, student, marks grade and enrollment 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 in MS Word.**

ER Diagram



Database Schema



1. **Insert at least five tuples in each table.**

-- COURSE Table

Create Table COURSE (COURSE\_ID number (2) PRIMARY KEY, COURSE\_NAME varchar2(10), MAX\_CAPACITY number (3));

Insert into COURSE values (10, 'CS', 100);

Insert into COURSE values (20, 'IT', 90);

Insert into COURSE values (30, 'ECE', 125);

Insert into COURSE values (40, 'EE', 85);

Insert into COURSE values (50, 'IEE', 90);

--SUBJECT Table

Create Table SUBJECT (

SUBJECT\_ID number (3) PRIMARY KEY, SUBJECT\_NAME varchar2(15));

Insert into SUBJECT values (101, 'DBMS');

Insert into SUBJECT values (102, 'OOP');

Insert into SUBJECT values (103, 'DSA');

Insert into SUBJECT values (104, 'MATHS');

Insert into SUBJECT values (105, 'ELECTRONICS');

Insert into SUBJECT values (106, 'COA');

Insert into SUBJECT values (107, 'PHYSICS');

Insert into SUBJECT values (108, 'CHEMISTRY');

--STUDENT Table

Create Table STUDENT (

STUDENT\_ID number (5) PRIMARY KEY, STUDENT\_NAME varchar2(25), COURSE\_ID number (2), OVERALL\_GRADE varchar2(1), FOREIGN KEY(COURSE\_ID) REFERENCES COURSE(COURSE\_ID) ON DELETE CASCADE);

Insert into STUDENT values (18050, 'DEBODIT', 10, 'B');

Insert into STUDENT values (18051, 'SOHAM', 20, 'A');

Insert into STUDENT values (18052, 'ANUSKA', 30, 'C');

Insert into STUDENT values (18053, 'PRAMA', 20, 'B');

Insert into STUDENT values (18054, 'RISHIKA', 10, 'A');

Insert into STUDENT values (18055, 'ANISH', 40, 'A');

Insert into STUDENT values (18056, 'DANIAL', 20, 'C');

Insert into STUDENT values (18057, 'PRAGYA', 30, 'B');

Insert into STUDENT values (18058, 'SARBO', 20, 'A');

Insert into STUDENT values (18069, 'AKSHAT', 20, 'A');

-- ENROLLMENT Table

Create Table ENROLLMENT (

STUDENT\_ID number (5) , COURSE\_ID number (2), FOREIGN KEY(STUDENT\_ID) REFERENCES STUDENT(STUDENT\_ID) ON DELETE CASCADE, FOREIGN KEY(COURSE\_ID) REFERENCES COURSE(COURSE\_ID) ON DELETE CASCADE);

Insert into ENROLLMENT values (18050, 10);

Insert into ENROLLMENT values (18051, 20);

Insert into ENROLLMENT values (18052, 30);

Insert into ENROLLMENT values (18053, 20);

Insert into ENROLLMENT values (18054, 10);

Insert into ENROLLMENT values (18055, 40);

Insert into ENROLLMENT values (18056, 20);

Insert into ENROLLMENT values (18057, 30);

Insert into ENROLLMENT values (18058, 20);

Insert into ENROLLMENT values (18069, 20);

-- COURSE\_SUB Table

Create Table COURSE\_SUB (COURSE\_ID number (2), SUBJECT\_ID number (3), FOREIGN KEY (COURSE\_ID) REFERENCES COURSE(COURSE\_ID) ON DELETE CASCADE, FOREIGN KEY (SUBJECT\_ID) REFERENCES SUBJECT(SUBJECT\_ID) ON DELETE CASCADE);

Insert into COURSE\_SUB values (20, 101);

Insert into COURSE\_SUB values (20, 102);

Insert into COURSE\_SUB values (20, 103);

Insert into COURSE\_SUB values (20, 104);

Insert into COURSE\_SUB values (20, 105);

Insert into COURSE\_SUB values (20, 106);

Insert into COURSE\_SUB values (20, 107);

Insert into COURSE\_SUB values (30, 102);

Insert into COURSE\_SUB values (30, 103);

Insert into COURSE\_SUB values (30, 104);

Insert into COURSE\_SUB values (30, 105);

Insert into COURSE\_SUB values (30, 106);

Insert into COURSE\_SUB values (30, 107);

Insert into COURSE\_SUB values (30, 108);

-- SUB\_CHOICE Table

Create Table SUB\_CHOICE (STUDENT\_ID number (5), SUBJECT\_ID number (3), GRADE varchar2(1),FOREIGN KEY (STUDENT\_ID) REFERENCES STUDENT(STUDENT\_ID) ON DELETE CASCADE,FOREIGN KEY (SUBJECT\_ID) REFERENCES SUBJECT(SUBJECT\_ID) ON DELETE CASCADE);

Insert into SUB\_CHOICE values (18053, 101, 'A');

Insert into SUB\_CHOICE values (18053, 102, 'B');

Insert into SUB\_CHOICE values (18053, 103, 'A');

Insert into SUB\_CHOICE values (18053, 104, 'A');

Insert into SUB\_CHOICE values (18053, 105, 'A');

Insert into SUB\_CHOICE values (18053, 106, 'A');

Insert into SUB\_CHOICE values (18055, 104, 'C');

Insert into SUB\_CHOICE values (18055, 105, 'B');

Insert into SUB\_CHOICE values (18055, 106, 'A');

Insert into SUB\_CHOICE values (18055, 105, 'B');

Insert into SUB\_CHOICE values (18055, 107, 'A');

1. **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 ENROLLMENT Add (ENROLL\_DATE date);

Update ENROLLMENT set ENROLL\_DATE='19-NOV-21' where STUDENT\_ID=18050;

Update ENROLLMENT set ENROLL\_DATE='17-JUL-20' where STUDENT\_ID=18051;

Update ENROLLMENT set ENROLL\_DATE='14-DEC-22' where STUDENT\_ID=18052;

Update ENROLLMENT set ENROLL\_DATE='21-JUL-21' where STUDENT\_ID=18053;

Update ENROLLMENT set ENROLL\_DATE='04-JUN-21' where STUDENT\_ID=18054;

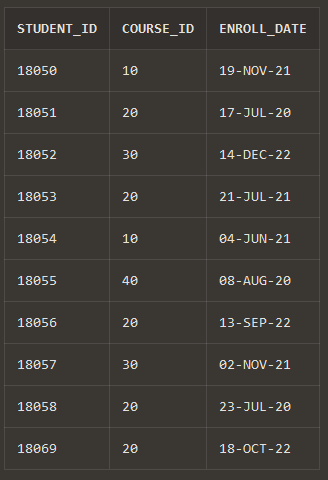
Update ENROLLMENT set ENROLL\_DATE='08-AUG-20' where STUDENT\_ID=18055;

Update ENROLLMENT set ENROLL\_DATE='13-SEP-22' where STUDENT\_ID=18056;

Update ENROLLMENT set ENROLL\_DATE='02-NOV-21' where STUDENT\_ID=18057;

Update ENROLLMENT set ENROLL\_DATE='23-JUL-20' where STUDENT\_ID=18058;

Update ENROLLMENT set ENROLL\_DATE='18-OCT-22' where STUDENT\_ID=18069;



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

Alter Table COURSE

Modify COURSE\_NAME varchar2(10) NOT NULL;

1. **Find the Course which has more than 3 students.**

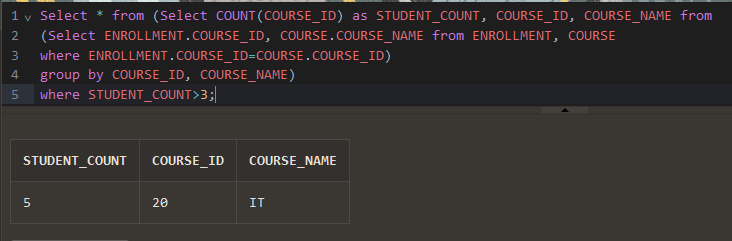
Select \* from (Select COUNT(COURSE\_ID) as STUDENT\_COUNT, COURSE\_ID, COURSE\_NAME from

(Select ENROLLMENT.COURSE\_ID, COURSE.COURSE\_NAME from ENROLLMENT, COURSE

where ENROLLMENT.COURSE\_ID=COURSE.COURSE\_ID)

group by COURSE\_ID, COURSE\_NAME)

where STUDENT\_COUNT>3;



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

Select

STUDENT.STUDENT\_ID,

STUDENT.STUDENT\_NAME,

SUBJECT.SUBJECT\_ID,

SUBJECT.SUBJECT\_NAME,

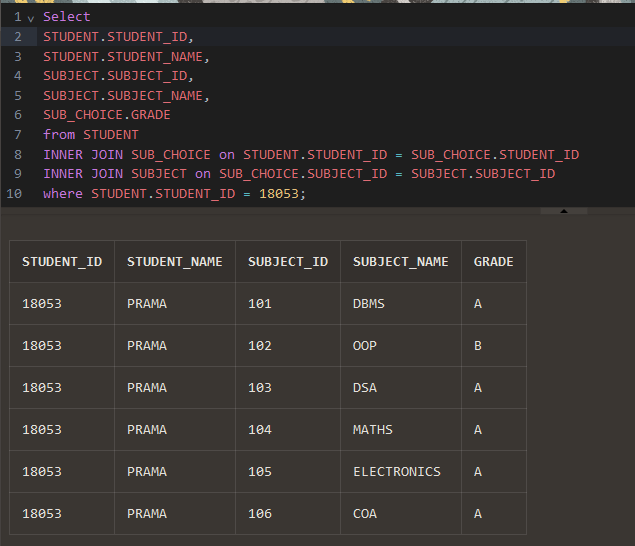
SUB\_CHOICE.GRADE

from STUDENT

INNER JOIN SUB\_CHOICE on STUDENT.STUDENT\_ID = SUB\_CHOICE.STUDENT\_ID

INNER JOIN SUBJECT on SUB\_CHOICE.SUBJECT\_ID = SUBJECT.SUBJECT\_ID

where STUDENT.STUDENT\_ID = 18053



1. **Display the course where the maximum number of students enrolls.**

Select STUDENT\_COUNT, COURSE\_NAME from (

select COUNT(COURSE\_ID) as STUDENT\_COUNT, COURSE\_ID, COURSE\_NAME

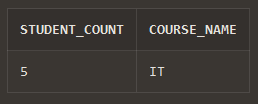
from (select ENROLLMENT.COURSE\_ID, COURSE.COURSE\_NAME

from ENROLLMENT, COURSE where ENROLLMENT.COURSE\_ID=COURSE.COURSE\_ID) group by COURSE\_ID, COURSE\_NAME)

where STUDENT\_COUNT = (select MAX(STUDENT\_COUNT) from (

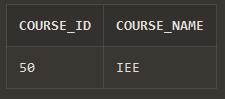
select COUNT(COURSE\_ID) as STUDENT\_COUNT, COURSE\_ID, COURSE\_NAME

from (select ENROLLMENT.COURSE\_ID, COURSE.COURSE\_NAME from ENROLLMENT, COURSE where ENROLLMENT.COURSE\_ID=COURSE.COURSE\_ID) group by COURSE\_ID, COURSE\_NAME));



1. **Find out the course where no student is enrolled.**

Select COURSE.COURSE\_ID, COURSE\_NAME from COURSE left join STUDENT on COURSE.COURSE\_ID = STUDENT.COURSE\_ID where STUDENT\_ID is NULL;



1. **Delete Course no 30 from COURSE table.**

Delete from COURSE where COURSE\_ID = 30;



1. **Rename the COURSE table as DEPARTMENT.**

Rename COURSE to DEPARTMENT;



1. **Change the Marks Grade of Student “A” to “B” who is Enroll in the subject DBMS.**

Update SUB\_CHOICE

set GRADE='B'

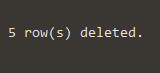
where SUBJECT\_ID =103 and GRADE='A';



1. **Delete the record of the student who is enrolled in the course ‘IT’.**

Delete from STUDENT

where COURSE\_ID = 20;



1. **Change the enroll date to ‘16-08-2018’ whose student id is 18069 (first convert the**

**date into the default format).**

Update ENROLLMENT set ENROLL\_DATE = '16-AUG-18' where STUDENT\_ID = 18069;

