

STUDENT

Name	Student_number	Class	Major
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COURSE

Course_name	Course_number	Credit_hours	Department
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SECTION

Section_identifier	Course_number	Semester	Year	Instructor
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GRADE_REPORT

Student_number	Section_identifier	Grade
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*Grade may be: A, B, C, D or F

Q1: Depending on the above tables, use SQL Server to implement the following :

1. **CREATE** the above tables, you should define the **primary** and **foreign** keys for each table, a suitable **datatype** and **constraint** (check, unique, not Null) for each column if there is any. Then input enough **sample data** for each table (4 Marks).
2. **Alter** table **SECTION** by dropping Year column (0.5 Mark).
3. **Retrieve** Student **name** that has the **maximum** grade among all sections, and rename the column with **MAX** (1 Mark).
4. **Retrieve** how many students got grade **A** (1 Mark).
5. **Retrieve** student name, class from **Student** and Grade from **GRADE_REPORT** by **Full JOIN, ORDER BY** student name (1 Mark).
6. **Retrieve** student names that start with letter "A" (0.5 Mark).
7. **Retrieve** all **course_number** that can be found in "SECTION" and "COURSE" (1 Mark).
8. **Retrieve** the number of student for each grade, where number of student more than 2 (1 Mark).

1.

```
create database test;
use test;
Create table STUDENT(
Name varchar(50),
Student_number int primary key,
Class varchar(50),
Major varchar(50)
);
Create table COURSE(
Course_name varchar(50),
Course_number int primary key,
Credit_hours int,
Department varchar(50)
);
Create table SECTION(
Section_identifier int primary key,
Course_number int,
Semester int,
Year int,
Instructor varchar(50),
CONSTRAINT FK_Section FOREIGN KEY (Course_number) REFERENCES
COURSE(Course_number)
);
Create table GRADE_REPORT(
Student_number int,
Section_identifier int,
Grade char(1) check(Grade='A' OR Grade='B' OR Grade='C' OR Grade='D' OR Grade='F'),
```

```
CONSTRAINT FK_REPORT_1 FOREIGN KEY (Student_number) REFERENCES STUDENT
(Student_number),
CONSTRAINT FK_REPORT_2 FOREIGN KEY (Section_identifier) REFERENCES SECTION
(Section_identifier)
```

```
);
Insert into STUDENT values ('May', 1, 'Class 1', 'CS');
Insert into STUDENT values ('Rahaf', 2, 'Class 2', 'CS');
Insert into COURSE values ('DB', 1, 3, 'IT');
Insert into COURSE values ('OOP', 2, 3, 'IT');
Insert into SECTION values (1, 1, 3, 2023, 'Ghada');
Insert into SECTION values (2, 2, 3, 2023, 'Nada');
Insert into GRADE_REPORT values (1, 1, 'A');
Insert into GRADE_REPORT values (2, 2, 'B');
```

2.

```
alter table SECTION drop Year;
```

3.

```
select Name as MAX
from Student
inner join GRADE_REPORT on Student.Student_number=GRADE_REPORT.Student_number
where Grade = 'A';
```

4.

```
select count(*)
from GRADE_REPORT
where Grade = 'A';
```

5.

```
select * from GRADE_REPORT;
select Name , Class , Grade
from Student
full join GRADE_REPORT on Student.Student_number=GRADE_REPORT.Student_number
order by Name;
```

6.

```
select Name
```

```
from Student
where Name like 'A%';
```

7.

```
select COURSE.Course_number
from COURSE
inner join SECTION ON COURSE.Course_number=SECTION.Course_number;
```

Another answer:

```
select Course_number
from COURSE
```

```
intersect
```

```
select Course_number
from SECTION;
```

8.

```
select Grade,count(Student_number)
from GRADE_REPORT
group by Grade
having count(STUDENT.Student_number) > 2;
```