**Reading  
• chapter 6: “Introduction to SQL” (Hoffer, Ramesh, & Topi) from page 243-261  
• chapter 5: “Data Definition Language” (Petkovic)  
• chapter 7: “Modification of a Table's Contents” (Petkovic)**

**Assignment:**

**Chapter 6 (Hoffer, Ramesh, & Topi)**

* + **Problems and Exercises 1,2,3,4,5,6,7,8**

**1. Write a database description for each of the relations shown, using SQL DDL (shorten, abbreviate, or change any data names, as needed for your SQL version). Assume the following attribute data types:**

**StudentID (integer, primary key)**

**StudentName (25 characters)**

**FacultyID (integer, primary key)**

**FacultyName (25 characters)**

**CourseID (8 characters, primary key)**

**CourseName (15 characters)**

**DateQualified (date)  
SectionNo (integer, primary key)**

**Semester (7 characters)**

A:

CREATE TABLE Student\_T

(StudentID NUMBER(10,0) NOT NULL,

StudentName VARCHAR(25) NOT NULL,

CONSTRAINT Student\_PK PRIMARY KEY (StudentID));

CREATE TABLE Faculty\_T

(FacultyID NUMBER(10,0) NOT NULL,

FacultyName VARCHAR(25) NOT NULL,

CONSTRAINT Faculty\_PK PRIMARY KEY (FacultyID));

CREATE TABLE Course\_T

(CourseID VARCHAR(8) NOT NULL,

CourseName VARCHAR(15) NOT NULL,

CONSTRAINT Course\_PK PRIMARY KEY (CourseID));

CREATE TABLE Date\_T

(FacultyID NUMBER(10,0) NOT NULL,

CourseID VARCHAR(8) NOT NULL,

Date DATE NOT NULL,

CONSTRAINT Date\_PK1 PRIMARY KEY (FacultyID)),

CONSTRAINT Date\_PK2 PRIMARY KEY (CourseID)),

CONSTRAINT Date\_FK1 FOREIGN KEY (FacultyID)) REFERENCES Faculty\_T(FacultyID),

CONSTRAINT Date\_FK2 FOREIGN KEY (CourseID)) REFERENCES Course \_T(CourseID));

CREATE TABLE Section\_T

(SectionNo NUMBER(10,0) NOT NULL,

CourseID VARCHAR(8) NOT NULL,

Semester VARCHAR(7) NOT NULL,

CONSTRAINT Section \_PK1 PRIMARY KEY (SectionNo)),

CONSTRAINT Section \_PK2 PRIMARY KEY (CourseID)),

CONSTRAINT Section \_FK FOREIGN KEY (CourseID)) REFERENCES Course \_T(CourseID));

**2. Use SQL to define the following view:**

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Description automatically generated**

A:

CREATE VIEW Student\_V

SELECT StudentID, StudentName

FROM Student\_T;

1. **Because of referential integrity, before any row can be entered into the SECTION table, the CourseID to be entered must already exist in the COURSE table. Write an SQL assertion that will enforce this constraint.**

A:

CREATE TABLE Section\_T

(SectionNo NUMBER(10,0) NOT NULL,

CourseID VARCHAR(8) NOT NULL,

CONSTRAINT Section \_PK1 PRIMARY KEY (SectionNo)),

CONSTRAINT Section \_PK2 PRIMARY KEY (CourseID)),

CONSTRAINT Section \_FK FOREIGN KEY (CourseID)) REFERENCES Course \_T(CourseID));

1. **Write SQL data definition commands for each of the following queries:**
2. **How would you add an attribute, Class, to the Student table?**

A:

ALTER TABLE Student\_T

ADD COLUMN Class;

1. **How would you remove the Registration table?**

A:

DROP TABLE Registration\_T;

1. **How would you change the FacultyName field from 25 characters to 40 characters?**

A:

ALTER TABLE Faculty\_T

ALTER COLUMN FacultyName VARCHAR(40);

1. **Write SQL commands for the following:** 
   1. **Create two different forms of the INSERT command to add a student with a student ID of 65798 and last name Lopez to the Student table.**

A:

INSERT Student\_T VALUES(65798, ` Lopez`, `Green`); (Suppose his first name is Green)

INSERT Student\_T (StudentID, StudentLastName) VALUES(65798, ` Lopez`);

* 1. **Now write a command that will remove Lopez from the Student table.**

A:

DELETE FROM Student\_T

WHERE StudentLastName=`Lopez`;

* 1. **Create an SQL command that will modify the name of course ISM 4212 from Database to Introduction to Relational Databases.**

A:

UPDATE Course\_T

SET CourseName = `Introduction to Relational Databases`

WHERE CourseID = `ISM 4212`;

1. **Write SQL queries to answer the following questions:** 
   1. **Which students have an ID number that is less than 50000?**

A:

SELECT StudentID

FROM Student\_T

WHERE StudentID < 50000;

* 1. **What is the name of the faculty member whose ID is 4756?**

A:

SELECT FacultyName

FROM Faculty\_T

WHERE FacultyID =4756;

* 1. **What is the smallest section number used in the first semester of 2008?**

A:

SELECT MIN(SectionNo)

FROM Section\_T

WHERE Semester = `I-2008`;

1. **Write SQL queries to answer the following questions:** 
   1. **How many students are enrolled in Section 2714 in the first semester of 2008?**

A:

SELECT StudentID

FROM Registration\_T

WHERE SectionNo = 2714 AND Semester = `I-2008`;

* 1. **Which faculty members have qualified to teach a course since 1993? List the faculty ID, course, and date of qualification.**

A:

SELECT FacultyID, CourseID, Date

FROM Date\_T

WHERE Date > `31-DEC-1992`;

1. **Write SQL queries to answer the following questions:** 
   1. **Which students are enrolled in Database and Networking? (Hint: Use SectionNo for each class so you can determine the answer from the Registration table by itself.)**

A:

SELECT StudentID

FROM Registration\_T

WHERE SectionNo = 2714 OR SectionNo = 2715;

* 1. **Which instructors cannot teach both Syst Analysis and Syst Design?**

A:

SELECT FacultyID

FROM Date\_T

WHERE CourseID != `ISM 3113` AND CourseID != `ISM 3113`;