

## **Assignment No. 01**

This is a group assignment where each group comprises maximum 3 students.

**Deadline: Tuesday February 6, 2018**

The administration at FAST-NUCES Lahore campus needs a database system to manage the time table of classes. In the start of each semester, following three types of activities are performed in each department.

- Courses Offering - in this process, the dept. coordinator uploads the list of courses offered
- Courses allotment - in this process, each faculty member is allocated courses that he/she will teach in the current semester
- Courses registration - in this process, each student makes registration in his/her choice courses

<b>Course Allotment List</b>			
<b>Faculty</b>	<b>Course</b>	<b>Class</b>	<b>Semester</b>
Amjad	Database	BCS-3D	Fall 2016
Saqib	Database	BSE-3A	Fall 2016
Amjad	SE-1	BCS-4A	Fall 2016
Amjad	SE-1	BCS-4B	Fall-2016

**Faculty is identified through Faculty Id**

**Course is identified through course code**

**Student is identified through regno**

**Class is identified through classId**

When course registration is closed then department coordinator generates time table for the registered courses. The timetable contains

information about faculty, course, class, day, starting and ending time. The example time table is shown below.

<b>Semester</b>	<b>Class</b>	<b>Course</b>	<b>Faculty</b>	<b>Day</b>	<b>Start Time</b>	<b>Finish Time</b>	<b>Room</b>
Fall 2016	BCS-3D	Databas e	Amjad	Monday	11:40	13:10	404
Fall 2016	BCS-3D	OOPs	Zahid	Friday	08:30	10:00	202
Fall 2016	MCS-1	Databas e	Saqib	Friday	10:05	11:35	201
Fall 2016	BCS-4A	SE-1	Amjad	Thursda y	10:05	11:35	108
Fall 2016	BCS-4B	SE-1	Amjad	Thursda y	08:30	10:00	106
Fall 2016	BCS-4B	SE-1	Amjad	Monday	08:30	10:00	106

Note that each faculty member belongs to a specific department where as one department has many faculty members. Each faculty member can teach many courses while one course can be taught by many faculty members. Similarly one course may be registered by many students or it may not be registered by any student. On the other hand, one student must register at least one course. Each course generates one or many classes where one class belongs to only one course.

A class is conducted in a room while one room may be used to conduct many classes. But in each room, only one class is conducted at a given time.

Draw Relational Model for time table management system in such a way that it can answer the questions like

- Which courses are offered in current semester i.e. Fall 2016?
- Who is teaching database course to BCS-3D?
- How many faculty members are teaching database course?
- How many classes are scheduled on Monday?
- What is the timing of database course that is scheduled on Monday?
- When database class of Mr. Amjad is scheduled on Monday?
- Who is taking class in room 202 on Monday?
- How many classes are scheduled in room 202?
- Which classes are scheduled in room 202?