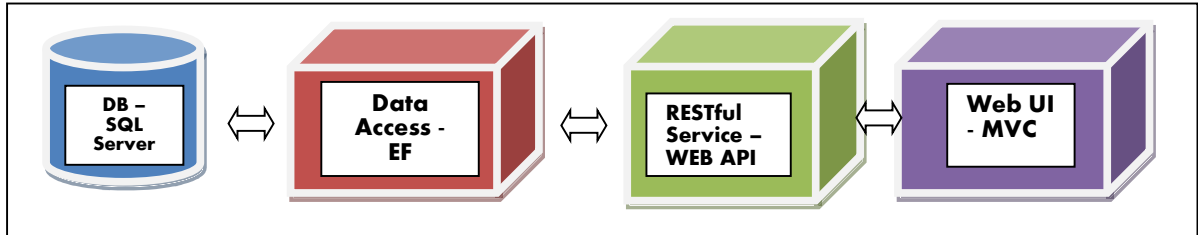


**Duration: 6 Hours**  
**Total Marks: 70**

## Quiz Team Management System

Develop a web-based application to add members to quiz team. Each quiz team can have maximum of three members. Once the member is added to a team, he/she should not be available for selection until that member is removed from a team.

The application will have three parts:



### Part 1: Data Access Layer Implementation using Entity Framework (20 Marks)

- 1.1 (2 Marks)** Create a Data Access Layer using Entity Framework Code First approach as a re-usable library in a separate project.
- 1.2 (5 Marks)** Identify and create the Entity Classes, Properties and its relationships as required for Quiz Team Management. (Keep the re-usability in mind)
- 1.3 (10 Marks)** Create a suitable Repository with interface and implement for managing the quiz teams without exposing the DbContext to the clients directly
- 1.4 (3 Marks)** Seed the sample member details into the database

### Part 2: RESTful Service Layer Implementation using Web API (20 Marks)

- 2.1 (5 Marks)** Create a RESTful Service Layer using Web API in a separate project.
- 2.2 (15 Marks)** Identify and create the Service End Points (API Controllers and Action Methods) as required for Quiz Team Management using Data Access Layer.

### Part 3: Presentation Layer Implementation using ASP.Net MVC 5.0 (30 Marks)

Create a Separate MVC Project and implement the following

- 3.1 (10 Marks)** Fetch members from RESTful Service and populate the drop-down with the necessary views as shown in Figure 1 and Figure 2

Application to add members to a Quiz team.  
[Add members to a quiz team](#)

**Figure 1: Home page**

When a user clicks on hyperlink “Add members to a quiz team”, he/she is redirected to a page as shown below.

Application to add members to a quiz team.

Select Member: Abraham	Select Team: <input type="radio"/> Team 1 <input type="radio"/> Team 2 <input type="radio"/> Team 3
<input type="button" value="Add to team"/>	

Team 1	Team 2	Team 3
<input type="button" value="Remove From Team1"/>	<input type="button" value="Remove From Team2"/>	<input type="button" value="Remove From Team2"/>

Figure 2: Page to add member to team

The members should be fetched from “RESTful Service” and populated in drop-down box “Select Member”. The page should consist of three radio buttons for selecting a team and submit button “Add to team”.

### Part 3.2: (10 Marks) Add members to a quiz team

Application to add members to a quiz team.

Select Member: Abraham	Select Team: <input type="radio"/> Team 1 <input type="radio"/> Team 2 <input type="radio"/> Team 3
<input type="button" value="Add to team"/>	

Team 1	Team 2	Team 3
	Karthik	
<input type="button" value="Remove From Team1"/>	<input type="button" value="Remove From Team2"/>	<input type="button" value="Remove From Team2"/>

Figure 3: Add member to a quiz team

#### 3.2.1

7 Marks

User selects a member from drop-down and team from radio button, on clicking the “Add to team” button, the member should be added to the appropriate team as listed above. Example: Select “Venkat” from select Member drop-down and “Team 2” radio button and on clicking “Add to team”, “Venkat” is added to “Team 2” list box and persisted to the database

#### 3.2.2

3 Marks

Once the member is added to a team, he/she should not be available for further selection. That members name should not be listed in the drop-down “Select Member”. Example: “Venkat” is removed from “Select member” drop-down once he is added to a team.

### Part 3.3: (5 Marks) Restricting team size

Application should not allow adding more than 3 members to a team. Trying to add the fourth member an error message “Team size cannot exceed 3 members” should be displayed and the same member should be available for further selection.

Application to add members to a quiz team.

Select Member:		Select Team:
Abraham	<input type="radio"/> Team 1	<input type="radio"/> Team 2
	<input type="radio"/> Team 3	
<input type="button" value="Add to team"/>		

Team 1	Team 2	Team 3
Manjunath	Dileep Priya Swathi	Tushar
<input type="button" value="Remove From Team1"/>	<input type="button" value="Remove From Team2"/>	<input type="button" value="Remove From Team2"/>

Team size cannot exceed 3 members

Figure 4: Restricting team size

#### Part 3.4: (5 Marks) Remove a member from team

On selecting a member from team list box and clicking on “Remove From Teamx” button the member should be removed from the list box and the same member should be added to “Select Member” drop-down enabling him/her for further selection. The suitable changes should be made to the database.