

# **Advance Programming**

## **Assignment 2**

**Submission Date: 9 Dec 2025**

**Submission Form: Soft Form (Word File)**

**Note:** Any form of copying and use of chatGPT code is strictly not allowed.

Student Attendance Panel

**Date - Time - Greeting**

Select Student :

**Attendance Status**

☐ Present ☐ Absent ☐ Leave

**Save Attendance**

Today's Attendance :

# Student Attendance Panel

## Database Schema

Create a database using Entity Framework with the following tables:

### Table: Students

- StudentID (int, Primary Key)
- Name (nvarchar)
- Class (nvarchar)

### Table: Attendance

- AttendanceID (int, Primary Key)
  - StudentID (int, Foreign Key referencing Students.StudentID)
  - Status (nvarchar)
  - Date (date)
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# Application Requirements

Design and implement above desktop application that performs attendance marking. Entity Framework and LINQ queries must be used to load and save database data.

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## 1. Header Section (Timer Control + Label)

A Label should be placed on the top of the form to display the following:

- Current Date
- Current Time
- Greeting message (Good Morning, Good Afternoon, Good Evening)

### Task Requirements:

1. Add a Timer control to the form.
  2. Enable the Timer and update the label every second.
  3. Based on the current time:
    - Before 12 PM → Display “Good Morning”
    - From 12 PM to 5 PM → Display “Good Afternoon”
    - After 5 PM → Display “Good Evening”
  4. Change the background color of the label according to the greeting.
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## 2. Student Selection Section (ComboBox)

A ComboBox should display a list of students loaded from the Students table.

### Task Requirements:

1. Load all student names from the database when the form loads.
  2. Use a LINQ query to retrieve students:
    - Display only the Name in the ComboBox
    - Store StudentID internally for use during saving
  3. The ComboBox must be in "DropDownList" mode.
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### 3. Attendance Status (RadioButtons)

Create a GroupBox with three RadioButtons:

- Present
- Absent
- Leave

#### Task Requirements:

1. Only one RadioButton can be selected at a time.
  2. The attendance status selected will be saved to the database.
  3. Validation must be done so that a student and a status must be selected before saving.
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### 4. Attendance Display Section (DataGridView)

A DataGridView will display the attendance of the current date.

#### Task Requirements:

1. Load all attendance records for today using a LINQ query.
  2. Display student name and status.
  3. Apply row coloring:
    - Present → Light Green
    - Absent → Light Coral
    - Leave → Light Yellow
  4. Refresh the DataGridView after each save.
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### 5. Save Button (Saving Attendance Using Entity Framework)

Create a “Save Attendance” button that inserts a new attendance record into the Attendance table.

#### Task Requirements:

1. Validate that:
  - A student is selected
  - A status (Present/Absent/Leave) is selected
2. Insert a new attendance record using Entity Framework.

3. After saving:
    - Reload the DataGridView
    - Apply row colors again
    - Clear the selected RadioButton
  4. Do not insert duplicate attendance for the same student on the same date.
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## Events Required in the Assignment

Students must write event handlers for the following:

### Form Load Event

- Load students in ComboBox using LINQ.
- Load today's attendance into DataGridView.
- Apply row colors.

### Timer Tick Event

- Update the header label with current date, time, and greeting.
- Change label color based on greeting.

### Save Button Click Event

- Validate selections.
- Insert attendance using Entity Framework.
- Refresh DataGridView.
- Reapply row colors.