

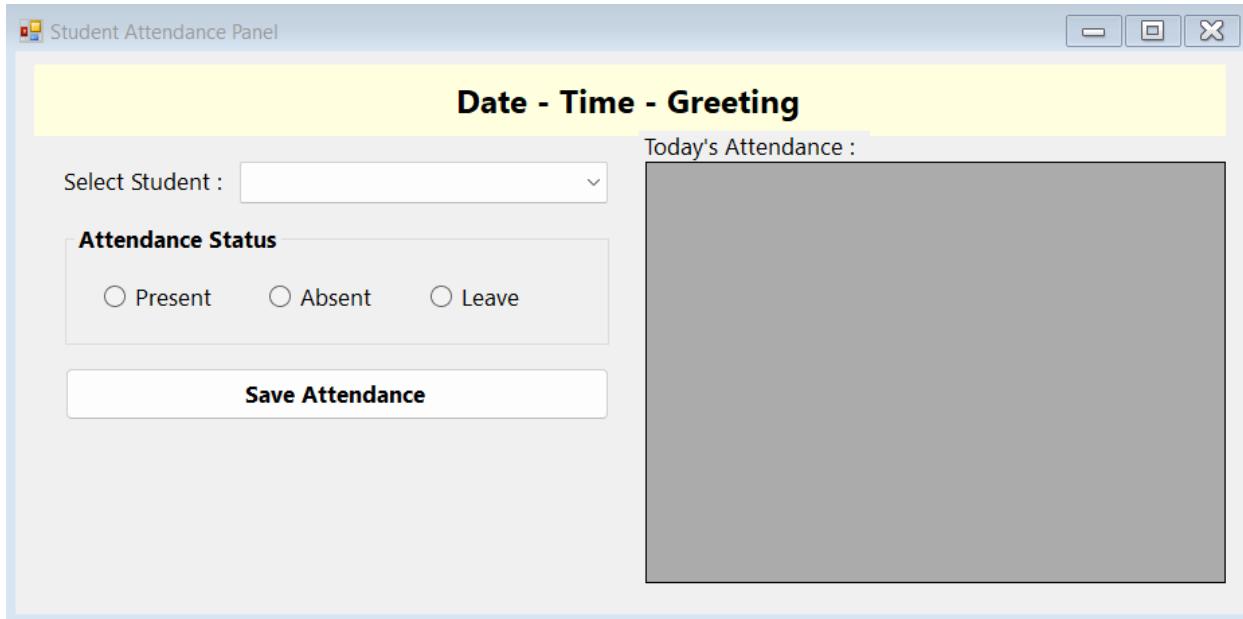
Advance Programming

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

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)

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.

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:
 - o Reload the DataGridView
 - o Apply row colors again
 - o 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.