

CALENDAR FINAL REPORT

CSC 834 Software Engineering (Spring 2023)



May 13, 2023

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# Introduction

## Problem Statement

The project aims to design a simple calendar system for personal use.

## Proposal

We propose developing a user-friendly calendar system that fulfills the requirements outlined.

# System Description

The calendar system we develop ensures easy accessibility to the user. The system allows the user to add, delete, edit and events. It also allows the user to view the individual events and monthly events list. Managers will be able to schedule meetings by selecting meeting date, duration, and attendees. The system will then retrieve the calendars of the selected attendees and analyse their schedules to identify time slots for the meeting. The proposed calendar system aims to provide an efficient and user-friendly solution.

# System Requirements

## Functional Requirements

Functional Requirements:

1. The system shall allow an employee to add an event to their calendar.
   1. The system shall display a user menu to the employee.

A screenshot of a calendar

Description automatically generated

* 1. The employee shall select “Add Event” in the user menu.
  2. The system shall display a form to select the event title, startDate and time, endDate and time to employee.

A screenshot of a computer

Description automatically generated with medium confidence

* 1. The employee shall enter the event title, startDate and time and endDate and time.

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Description automatically generated with medium confidence

* 1. The employee shall save the event to the calendar.

1.5.1 The system shall check if the selected timeslot is occupied with another event from the central database.

1.5.2 If the selected timeslot is occupied with another event the system shall display an error message to the employee and return to Step 1.3.

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* 1. The system shall store the event in the database.
  2. The system shall display the event successfully added for the employee.

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* 1. The system shall return to the main menu.

A screenshot of a calendar

Description automatically generated

R2. The system shall allow an employee to edit an event in his/her calendar.

2.1 The system shall display a user menu to the employee.

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Description automatically generated

2.2 The employee shall select “Edit Event” in the user menu.

2.3 The system shall display the list of events to the employee.

2.3.1 The system shall retrieve the list of events from the central database system with the employee’s ID.

2.3.2 The system shall format and display the event titles.

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* 1. The employee shall select the required event to edit from the list of events.
  2. The system shall display the event title, startDate, endDate, startTime and endTime to the employee.

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Description automatically generated with medium confidence

* 1. The employee shall make the necessary changes to the selected event.
  2. The system shall update the event details in the central database system with the event’s ID.

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Description automatically generated with low confidence

* 1. The system shall store the event details in the database.
  2. The system shall return to the main menu.

A screenshot of a calendar

Description automatically generated

R3. The system shall allow an employee to delete an event from his/her calendar.

3.1 The system shall display a user menu to the employee.

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Description automatically generated

3.2 The employee shall select “Delete Event” in the user menu.

3.3 The system shall display the list of events to the employee.

3.3.1 The system shall retrieve the list of events from the central database system with the employee’s ID.

3.3.2 The system shall format and display the event titles.

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3.4 The employee shall select the required event to delete from the list of events.

3.5 The system shall delete the selected event from the central database system with the event’s ID.

3.6 The system shall display a message showing that the event is deleted successfully to the employee.

A screenshot of a computer

Description automatically generated with low confidence

* 1. The system shall return to the main menu.

A screenshot of a calendar

Description automatically generated

R4. The system shall allow an employee to view an event in his/her calendar.

4.1 The system shall display a user menu to the employee.

A screenshot of a calendar

Description automatically generated

4.2 The employee shall select “View Event” in the user menu.

4.3 The system shall display the list of events to the employee.

2.3.1 The system shall retrieve the list of events from the central database system with the employee’s ID.

2.3.2 The system shall format and display the event titles.

A screenshot of a computer

Description automatically generated with medium confidence

4.4 The employee shall select the required event to view from the list of events.

4.4.1 The system shall retrieve selected event details from the central database system with the event’s ID.

4.5 The system shall format and display the event title, startDate, endDate, startTime, endTime and event description to the employee.

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Description automatically generated

4.6 The system shall return to the main menu.

A screenshot of a calendar

Description automatically generated

R5. The system shall allow an employee to view the monthly calendar in his/her calendar.

5.1 The system shall display a user menu to the employee.

A screenshot of a calendar

Description automatically generated

5.2 The employee shall select “View Monthly Calendar” in the user menu.

5.3 The system shall display the current month in the calendar.

5.3.1 The employee shall select the required month to view the monthly calendar events.

5.3.2 The system shall retrieve the list of events of the selected month from the central database system with the Employee’s ID.

5.3.3 The system shall format and display the event title on the occupied dates in the monthly calendar.

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Description automatically generated

5.4 The system shall return to the main menu.

A screenshot of a calendar

Description automatically generated

R6. The system shall allow the manager (employee who does not have an managerID) to schedule a meeting in his/her calendar.

* 1. The system shall display a user menu to the manager.

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Description automatically generated

* 1. The manager shall select “Schedule Meeting” in the user menu.
  2. The system shall display a form to select the event title, Attendees, startDate and time, endDate, and time to the manager.

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Description automatically generated with medium confidence

* 1. The manager shall enter the event title, Description and select Attendees.

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6.4.1 The system shall retrieve the selected attendee’s occupied timeslots in the selected timeslot in the central database system with the attendee’s ID.

6.4.2 The system shall display the attendees’ available timeslots to the manager.

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6.5 The manager shall select the required timeslot from the list of available timeslots of attendees.

6.6 The system shall store this meeting schedule in the central database system.

6.7 The system shall add this scheduled meeting to the attendee’s calendar.

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Description automatically generated with low confidence

6.8 The system shall return to the main menu.

A screenshot of a calendar

Description automatically generated

R7. The system shall allow the user to log in as an employee.

7.1. The system shall request the user to enter the username and password.

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Description automatically generated with medium confidence

7.2. The user shall enter the username and password.

7.3. The system shall check whether the username exists in the central database system (in the

employee information section).

7.4. The system shall check whether the password matches with the password of the employee in the central database system (considering the user as an employee in this step and checks in the employee information section).

* 1. The system shall display a user menu to the employee.

A screenshot of a calendar

Description automatically generated

R8. The system shall allow the employee to log out.

8.1. The system shall display a user menu to the employee.

A screenshot of a calendar

Description automatically generated

8.2. The user shall select “Exit” from the menu.

8.3. The system shall return to the login page.

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Description automatically generated with medium confidence

Non-functional Requirements:

1. The manager can schedule meetings only for his teammates(employees).
2. The system shall not allow the creation of two events in the same timeslot in the employee’s calendar.
3. A meeting can schedule meetings between 9 AM to 5 PM in one-hour timeslots.
4. The database administrator needs to maintain the employee and manager details.
5. The database administrator needs to run housekeeping scripts to clean up outdated event details (the system is not responsible for it.)
6. The manager cannot conduct meetings with other team employees.

# Use Case Diagram



Figure 1 Use Case for Calendar

# Class Diagram

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Figure Class Diagram for Calendar

# Sequence Diagrams



Figure Sequence Diagram for Add Event



Figure Sequence Diagram for Delete Event



Figure Sequence Diagram for Edit Event



Figure Sequence Diagram for View Event



Figure Sequence Diagram for View Monthly Events



Figure Sequence Diagram for Schedule Meeting

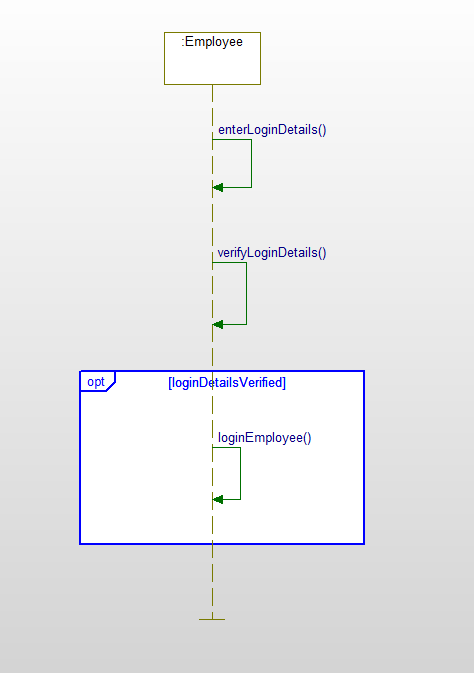
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Figure Sequence Diagram for Login

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Description automatically generated**

Figure Sequence Diagram for Logout

# Activity Diagrams



Figure Activity Diagram for Add Event



Figure Activity Diagram for Delete Event



Figure Activity Diagram for Edit Event



Figure Activity Diagram for View Event



Figure Activity Diagram for View Monthly Events



Figure Activity Diagram for Schedule Meeting



Figure Activity Diagram for Login

**A screenshot of a computer screen

Description automatically generated with low confidence**

Figure Activity Diagram for Logout

# State Diagram



Figure State Diagram for Add Event



Figure State Diagram for Delete Event



Figure State Diagram for Edit Event



Figure State Diagram for View Event



Figure State Diagram for View Monthly Events



Figure State Diagram for Schedule Meeting



Figure State Diagram for Login



Figure State Diagram for Logout

# Database Design

## ER Schema



Figure ER Schema for Calendar

## Table Schema

event

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| employeeid | eventid | title | endDate | startDateAndTime | endDateAndTime | startDate |

employee

|  |  |  |  |
| --- | --- | --- | --- |
| employeeid | managerid | role | password |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| startDate | managerid | meetingid | attendes | title | description | endDate | loaction | meetingDate |

scheduleMeeting

# Conclusion

The designed calendar system provides a user-friendly interface for efficient event management and meeting coordination. Users can easily add, delete, edit, and view individual and monthly events. The schedule meeting allows managers to select a meeting date, duration, and attendees, and the system suggests available time slots based on participants' calendars. The system provides secure login process with verification. The system prioritizes data privacy and security, ensuring the protection of user information. In the future, we can set automated reminders for upcoming events, and we can also provide event invitations. Overall, the calendar system offers an effective solution for personal event management and streamlined team collaboration.