

Calendar system final report

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# Introduction

## Problem Statement

A simple calendar system is needed for personal use.

## Proposal

We propose a software system to provide basic calendar services to users.

# System Description

The calendar system will provide basic operations to users including adding an event to the calendar, deleting an event from the calendar, editing an event in the calendar, viewing an event in the calendar, and viewing a monthly-based event list. In addition, the system will allow a manager to create team meeting events. Effectiveness and efficiency are the primary requirements.

# System Requirements

## Functional Requirements

1. The system shall allow the user to login.
   1. The system shall display a login menu that prompts the user to enter their username and password.  
      Chart

      Description automatically generated
   2. The user shall input their username and password and press the login button.  
      Graphical user interface, text

      Description automatically generated with medium confidence
   3. The system shall check the database for the user credentials.
      1. If the user inputs the wrong username or password, an error message shall appear.  
         Graphical user interface, text

         Description automatically generated
      2. If credentials match, the system shall proceed to Step 1.4.
   4. The system shall retrieve customer information and event teaser information (name and date) of current month events from the database.
   5. The system shall determine if the user is a manager.
   6. The system shall display a user interface to the user.  
      Graphical user interface, application

      Description automatically generated
2. The system shall allow the user to add an event to the calendar.
   1. The system shall display a user interface to the user.  
      Graphical user interface, application

      Description automatically generated
   2. The user shall select a date from the calendar.
   3. The system shall populate a list of event teaser information for that day.  
      Graphical user interface, application

      Description automatically generated
   4. The user shall press the “Add event” button.
   5. The system shall display a form for entering the event information.  
      Graphical user interface

      Description automatically generated
   6. The user shall enter the information and select the save button.  
      Graphical user interface, application

      Description automatically generated
   7. The system shall implement a conflict check between events.
      1. If the new event conflicts with the date and time of an existing event, an error message shall display.  
         Graphical user interface, application

         Description automatically generated
         1. If the user chooses to cancel, the system shall return to Step 2.2.
         2. If the user chooses to continue, the system shall proceed to Step 2.8.
      2. If there are no conflicts with date and time, then the system shall proceed to Step 2.8.
   8. The system shall update the information in the database.
   9. The system shall update the event list with the new event teaser information.  
      Graphical user interface, application

      Description automatically generated
   10. The system shall display a user interface to the user.  
       Graphical user interface, application

       Description automatically generated
3. The system shall allow the user to delete an event from the calendar.
   1. The system shall display a user interface to the user.  
      Graphical user interface, application

      Description automatically generated
   2. The user shall select a date from the calendar.
   3. The system shall populate a list of event teaser information for that day.  
      Graphical user interface, application

      Description automatically generated
   4. The user shall select the event from the list.  
      Graphical user interface, application

      Description automatically generated
   5. The user shall press the “Delete Event” button.
      1. If the event is a team event, the system will display an error message.  
         Graphical user interface, application

         Description automatically generated
         1. If the user chooses to cancel, the system shall return to Step 3.2.
         2. If the user chooses to continue, the system shall return to Step 3.4.
   6. The system shall display a prompt to confirm the event deletion.  
      Graphical user interface, application

      Description automatically generated
      1. If the user cancels the deletion, the system shall return to Step 3.2.
      2. If the user confirms, the system shall proceed to Step 3.6.
   7. The system shall update the information in the database.
   8. The system shall update the event list with the new information.  
      Graphical user interface, application

      Description automatically generated
   9. The system shall display a user interface to the user.  
      Graphical user interface, application

      Description automatically generated
4. The system shall allow the user to edit events on the calendar.
   1. The system shall display a user interface to the user.  
      Graphical user interface, application

      Description automatically generated
   2. The user shall select a date from the calendar.
   3. The system shall populate a list of event teaser information for that day.  
      Graphical user interface, application

      Description automatically generated
   4. The user shall select the event from the list.  
      Graphical user interface, application

      Description automatically generated
   5. The user shall press the “Edit Event” button.
      1. If the event is a team event, the system will display an error message.  
         Graphical user interface, application

         Description automatically generated
         1. If the user chooses to cancel, the system shall return to Step 4.2.
         2. If the user chooses to continue, the system shall return to Step 4.4.
   6. The system shall retrieve the event information from the database.
   7. The system shall display a form populated with event information.  
      Graphical user interface, application

      Description automatically generated
   8. The user shall change the information and select the save button.  
      Graphical user interface, application

      Description automatically generated
   9. The system shall implement a conflict check between events.
      1. If the changes conflict with the date and time of an existing event, an error message shall display.  
         Graphical user interface, application

         Description automatically generated
         1. If the user chooses to cancel, the system shall return to Step 4.2.
         2. If the user chooses to continue, the system shall proceed to Step 4.10.
      2. If there are no conflicts with date and time, then the system shall proceed to Step 4.10.
   10. The system shall update the information in the database.
   11. The system shall update the event list with the new information.
   12. The system shall display a user interface to the user.  
       Graphical user interface, application

       Description automatically generated
5. The system shall allow the user to view an event.
   1. The system shall display a user interface to the user.  
      Graphical user interface, application

      Description automatically generated
   2. The user shall select a date from the calendar.
   3. The system shall populate a list of event teaser information for that day.  
      Graphical user interface, application

      Description automatically generated
   4. The user shall select an event from the list.
   5. The system shall retrieve the event information from the database.
   6. The system shall display the details of the event.  
      Graphical user interface, application

      Description automatically generated
   7. The system shall display a user interface to the user.  
      Graphical user interface, application

      Description automatically generated
6. The system shall allow the user to view a monthly-based event list.
   1. The system shall display a user interface to the user.  
      Graphical user interface, application

      Description automatically generated
   2. The user shall press the “View Monthly Events” button to view the current month’s events.  
      Graphical user interface

      Description automatically generated
   3. The user shall select an alternate month from the drop-down menu, if desired.  
      Graphical user interface

      Description automatically generated
      1. If the user selects a different month, the system shall retrieve teaser information for that month from the database, update the event list with new information, and proceed to Step 6.4.
   4. The system shall populate a list of event teaser information for the entire month.  
      Graphical user interface, application

      Description automatically generated
   5. The system shall display a user interface to the user.  
      Graphical user interface, application

      Description automatically generated
7. The system shall allow a manager to add a meeting for their teammates.
   1. The system shall display a user interface to the user.  
      Graphical user interface, application

      Description automatically generated
   2. The user shall select a date from the calendar.
   3. The system shall populate a list of event teaser information for that day.  
      Graphical user interface, application

      Description automatically generated
   4. The user shall press the “Add event” button.
   5. The system shall display a form for retrieving the event information.
      1. If the user is a manager, a button to “Set up team event” will appear on the form.  
         Graphical user interface, application

         Description automatically generated
   6. The user shall select the “Set up team event” button.
   7. The system shall display a team event form.  
      Graphical user interface, application

      Description automatically generated
   8. The user shall enter the information and select “Find Possible Time Slots”.  
      Graphical user interface, application

      Description automatically generated
   9. The system will retrieve information for all teammate events on the date from the database.
   10. The system will determine a time on the date that is available for all team members.
   11. The system will display a list of choices for the user to choose.  
       Graphical user interface, application

       Description automatically generated
   12. The user will select a time for the event and select the “Save” button.  
       Graphical user interface, application

       Description automatically generated
   13. The system shall update the information in the database.
   14. The system shall update the event list with the new information.  
       Graphical user interface, application

       Description automatically generated
   15. The system shall display a user interface to the user.  
       Graphical user interface, application

       Description automatically generated
8. The system shall allow the manager to delete a team meeting event they previously created.
   1. The system shall display a user interface to the user.  
      Graphical user interface, application

      Description automatically generated
   2. The user shall select a date from the calendar.
   3. The system shall populate a list of event teaser information for that day.  
      Graphical user interface, application

      Description automatically generated
   4. The user shall select the event from the list and press the “Delete Event” button. Graphical user interface, application

      Description automatically generated
   5. The system will verify if the user is the manager who created the team event.
      1. If the user is not the manager who created the team meeting event, then an error message will be displayed.  
         Graphical user interface, application

         Description automatically generated
         1. If the user chooses to cancel, the system shall return to Step 8.2.
         2. If the user chooses to continue, the system shall return to Step 8.4.
   6. The system shall display a prompt to confirm the event deletion.  
      Graphical user interface, text, application

      Description automatically generated
      1. If the user cancels the deletion, the system shall return to Step 8.2.
      2. If the user confirms, the system shall proceed to Step 8.6.
   7. The system will determine if it is a team meeting created by the user.
      1. If the team meeting was created by the user, the system shall update the information in the database for all users and proceed to Step 8.7.
      2. If it is not a team meeting or the team meeting was not created by the user, The system shall update the information in the database for the user only and proceed to Step 8.7.
   8. The system shall update the event list with the new information.  
      Graphical user interface, application

      Description automatically generated
   9. The system shall display a user interface to the user.  
      Graphical user interface, application

      Description automatically generated

## Non-Functional Requirements

1. The system will prevent users from creating events that conflict with existing events.

# Use Case Diagram



Figure Use Case Diagram for Calendar System

This use case diagram is to show the services that will available to calendar users.

# Class Diagram



Figure Class Diagram of Calendar System

The class diagram is to show the relationships between the user, an event, and modifications to the event when using the calendar system.

# Sequence Diagrams



Figure Sequence Diagram for Login System

This diagram is to show the functions needed for the login system use case.



Figure Sequence Diagram for Viewing an Event

This diagram is to show the functions needed for the view event use case.



Figure Sequence Diagram for Adding an Event

This diagram is to show the functions needed for the add event use case.



Figure Sequence Diagram for Deleting an Event

This diagram is to show the functions needed for the delete event use case.



Figure Sequence Diagram for Editing an Event

This diagram is to show the functions needed for the edit event use case.



Figure Sequence Diagram for Viewing Monthly Events

This diagram is to show the functions needed for the view monthly events use case.



Figure Sequence Diagram for Adding a Team Event

This diagram is to show the functions needed for the add team event use case.



Figure Sequence Diagram for Deleting a Team Event

This diagram is to show the functions needed for the delete team event use case.

# Activity Diagrams



Figure Activity Diagram for Login System

This diagram is to show the flow of activity in the algorithm design for the login system use case.



Figure Activity Diagram for Viewing an Event

This diagram is to show the flow of activity in the algorithm design for the view event use case.



Figure Activity Diagram for Adding an Event

This diagram is to show the flow of activity in the algorithm design for the add event use case.



Figure Activity Diagram for Deleting an Event

This diagram is to show the flow of activity in the algorithm design for the delete event use case.



Figure Activity Diagram for Editing an Event

This diagram is to show the flow of activity in the algorithm design for the delete event use case.



Figure Activity Diagram for Viewing Monthly Events

This diagram is to show the flow of activity in the algorithm design for the view monthly events use case.



Figure Activity Diagram for Adding a Team Event

This diagram is to show the flow of activity in the algorithm design for the add team event use case.



Figure Activity Diagram for Deleting a Team Event

This diagram is to show the flow of activity in the algorithm design for the delete team event use case.

# State Diagrams



Figure State Diagram for Login System

This diagram is to show the flow of actions and activities in the login system use case.



Figure State Diagram for Viewing an Event

This diagram is to show the flow of actions and activities in the view event use case.



Figure State Diagram for Adding an Event

This diagram is to show the flow of actions and activities in the add event use case.



Figure State Diagram for Deleting an Event

This diagram is to show the flow of actions and activities in the delete event use case.



Figure State Diagram for Editing an Event

This diagram is to show the flow of actions and activities in the edit event use case.



Figure State Diagram for Viewing Monthly Events

This diagram is to show the flow of actions and activities in the view monthly events use case.



Figure State Diagram for Adding a Team Event

This diagram is to show the flow of actions and activities in the add team event use case.



Figure State Diagram for Deleting a Team Event

This diagram is to show the flow of actions and activities in the delete team event use case.

# Database Design

## ER Schema



Figure ER Diagram of Calendar System

This diagram shows the relationships between the attributes and classes in the databases for the Calendar system.

## Table Schema

Client

|  |  |  |  |
| --- | --- | --- | --- |
| clientID | firstName | lastName | isManager |

Event

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| eventID | eventCreator | eventDate | eventTime | eventNote | duration | isTeamMeeting |

Modify

|  |  |
| --- | --- |
| modifyType | eventInfo |

There are three tables to create for the system including the client table, event table, and modify table. The key attribute for the client table is the clientID. The key attribute for the event table is the eventID. The key attribute for the modify table is modifyType.

# Conclusion

The proposed calendar system will help users to organize their schedules by allowing them to add events, delete events, edit events, view events, and view monthly events. In addition, this system will allow managers to create team meeting events. Users of this system will benefit from being able to organize and review their calendar-based events.