Virtual Study Group Platform

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Login Scene

Login Flow:

- Users can input their **Username** and **Password** to log in.
- If the user doesn't have an account, they can click the **"Create New Account"** button to navigate to the registration scene.
- The **Login Button** triggers the handleLogin() function to verify the credentials.

JavaFX Components:

- **TextField** for username and password fields.
- **Button** for login action and switching to the registration scene.
- **VBox** for vertical layout, including padding and spacing.

```java
loginUsername = new TextField();

loginPassword = new PasswordField();

Button loginButton = new Button("Login");

Button goToRegisterButton = new Button("Create New Account");
```

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Password

Login

Create New Account

Register Scene:

User Registration:

- The registration form collects **Username**, **Password**, **Full Name**, **Email**, and **Course**.
- On clicking **Register**, the handleRegistration() method is triggered to process and store the user's details.
- **Back Button** allows the user to return to the login scene.

JavaFX Components:

- **TextField** for user information.
- **PasswordField** for password input.
- **Button** for registration and navigation.
- **VBox** used to organize form elements.

```java
regUsername = new TextField();

regPassword = new PasswordField();

Button registerButton = new Button("Register");

Button backButton = new Button("Back to Login");
```

Create New Account

Password

Full Name

Email

Course

Register

Back to Login

On successful login

Client side (chat window):

ChatWindow Class:

- **UI Components**: Displays messages and facilitates input.
- **Key Features**:
  - **TextField** for typing messages.
  - **ScrollPane** for scrolling through long conversations.
  - **TextFlow** to format and display messages with sender information.
- **Real-time Updates**:
  - Messages are automatically appended to the chat window.
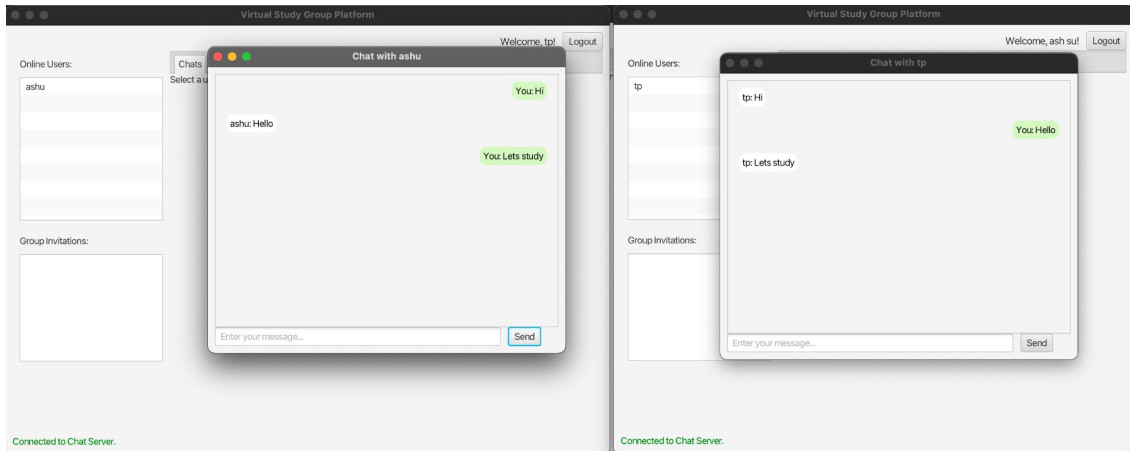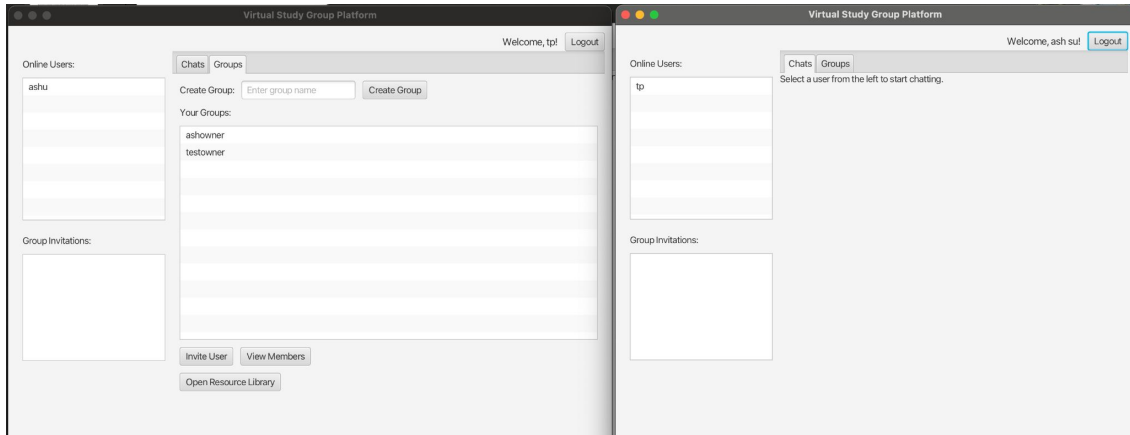 - **Auto-scroll** to the latest message for a smooth user experience.

Server Side :

Private Messaging:

- **sendPrivateMessage()**: Sends messages between users.
- **Flow**:
    - **Check recipient**: The server looks up if the recipient is online (clientWriters map).
    - **Send message**: If online, sends the message to the recipient.
    - **Error handling**: If offline, sends an error message to the sender.

Chat Client:

- **connectToChatServer()**: Establishes a connection to the chat server (e.g., using a server IP and port).
- **onMessageReceived()**: Handles incoming messages from other users.
- **onOnlineUsersUpdated()**: Updates the list of online users and populates it in the chat interface.

Group Creation and Group Chat

Group Creation and Management

Key Features:

- **Group Creation**:
    - Users can create new study groups.
    - Groups are listed in the user's available group list.
- **Group Invitations**:
    - **Invitation Received**: When a user is invited to a group, an invitation is displayed.
    - **Accept/Reject**: Users can accept or reject group invitations.

Event Handlers:

- **Group List Update**:
    - Updated dynamically to reflect the user's groups.

Group Creation and Group Chat

Real-time Group Messaging:

- **Message Format**:
  - Group messages are sent with the format: `groupName sender: message`.

Group Chat Window:

- Users can open or create a new window for group chat.
- **Message History**:
  - Upon opening, previous messages are loaded from history and displayed.
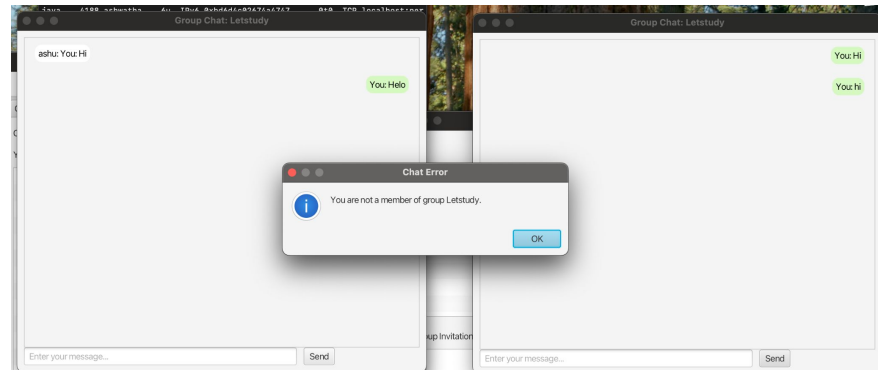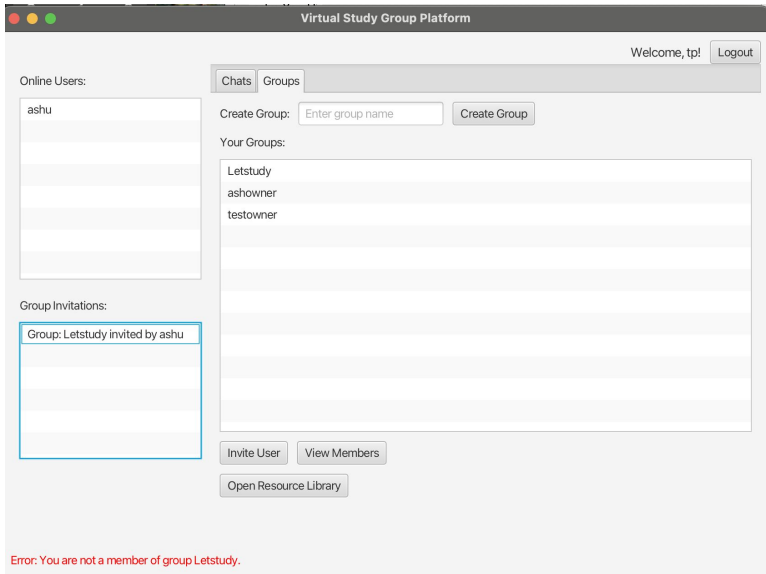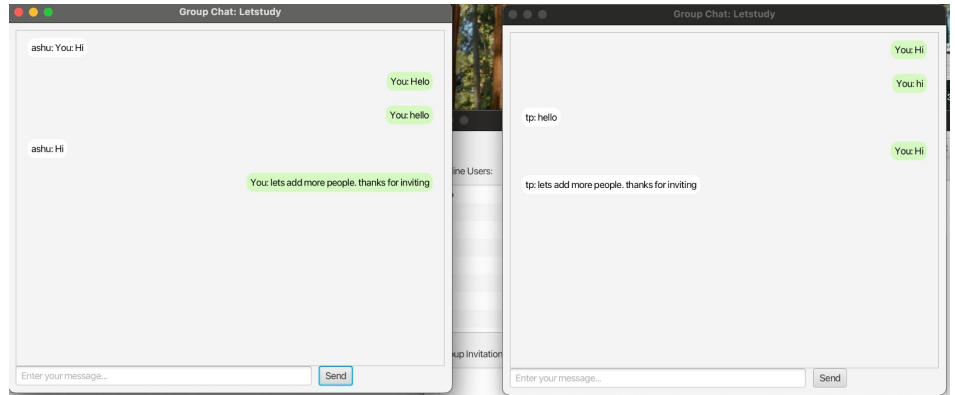
Message Receiving:

- New group messages are received and displayed in the respective group chat window.

Message History:

- Group chat history is loaded from the file storage when a group chat window is opened, allowing users to see previous messages.

Group Interaction and Notifications:

1. **Send/Receive Invitations**:
   - Invitations for group joining and group messages.
2. **Accept/Reject Group Invitations**:
   - Users can accept or reject invitations to join groups.
3. **Notification Alerts**:
   - Alert boxes notify users when invitations are sent, accepted, or rejected.
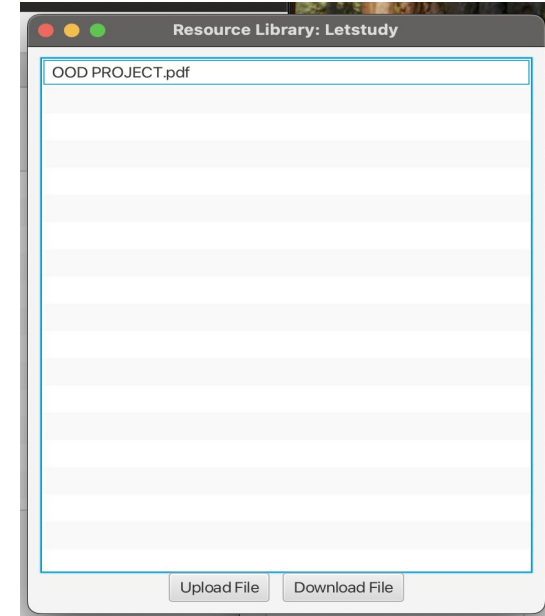
Invite User

Invite a user to group: testowner

Enter username to invite: tp

Cancel | OK

Group Chat: Letstudy

ashu: You: Hi

You: Helo

You: hello

ashu: Hi

You: lets add more people. thanks for inviting

Enter your message... | Send

Group Chat: Letstudy

You: Hi

You: hi

tp: hello

You: Hi

tp: lets add more people. thanks for inviting

Enter your message... | Send

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Welcome, tp! | Logout

Online Users:

ashu

Chats | Groups

Create Group: Enter group name | Create Group

Your Groups:

Letstudy
ashowner
testowner

Group Invitations:

Group: Letstudy invited by ashu

Invite User | View Members

Open Resource Library

Error: You are not a member of group Letstudy.

Group Chat: Letstudy

ashu: You: Hi

You: Helo

Group Chat: Letstudy

You: Hi

You: hi

Chat Error

You are not a member of group Letstudy.

OK

Enter your message... | Send

Enter your message... | Send

Resource Library System

Key Features:

- **Group-Specific Resource Library**:

    - Each group has its own resource library where members can upload and download files.
    - The library can store various types of files, such as PDFs, images, and text files.

- **File Upload and Download**:

    - **Upload**: Users can upload files to the group library, making them accessible to all group members.
    - **Download**: Users can download files stored in the resource library.

File Upload Process:

- **Upload Button**:
    - Triggers file selection through a file chooser dialog.
    - Selected files are uploaded to the group's resource library.

- **File List Update**:
    - The uploaded files are displayed in the group's resource library list.

Resource Library System: Download Process

File Download Process:
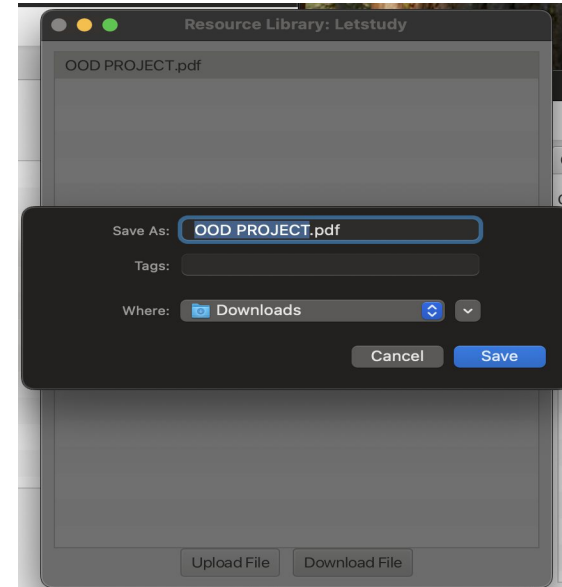
Download Button:

- Allows users to select and download files from the group's resource library.
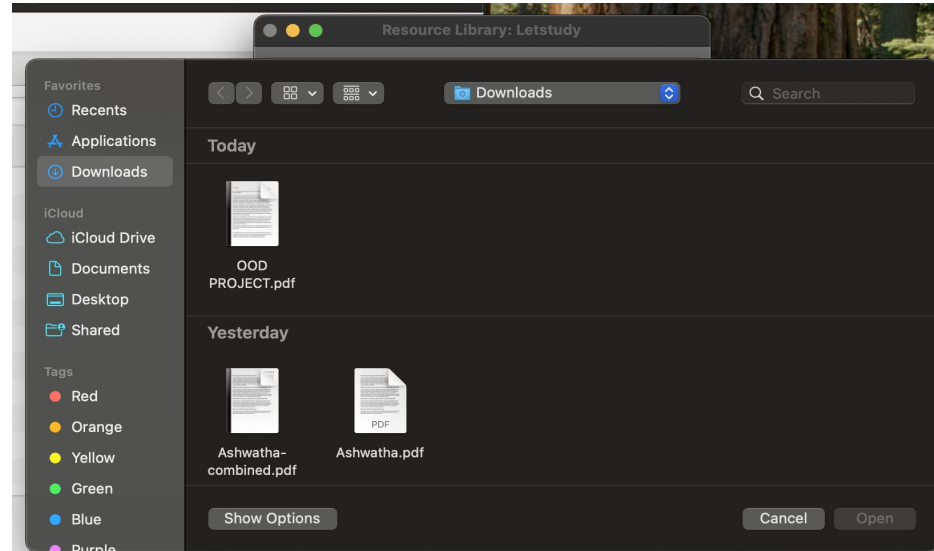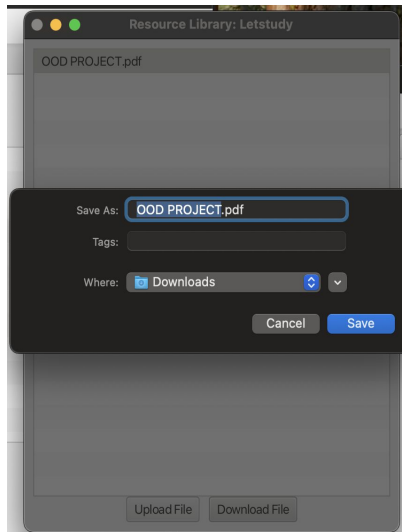
File Saving:

- The file is downloaded to a user-selected location after being decoded from Base64 format.

Resource Library Window:

- **Display Files**: Lists available files for download in the resource library.
- **File Management**: Allows users to view, upload, and download files within a dedicated window for each group.

Downloaded file:

Calendar View

Purpose

- The Calendar Tab provides users with a **visual interface** to manage group events.
- Enables users to:
    - View events for a specific **date** or **month**.
    - Add new events with **name**, **description**, and **date**.

User Interaction Workflow

1. **View Events**:
    - Click on a day in the calendar to see all events for that date.
2. **Add Event**:
    - Click "Add Event" to open a dialog.
    - Input event **name**, **description**, and **date**.
3. **Explore Monthly Events**:
    - Use the "Events This Month" section to navigate and review upcoming events.

Components and Features

Technical Details

- **JavaFX Components**:
  - GridPane for calendar grid.
  - ListView for monthly event summaries.
  - Dialog for adding and viewing events.
- **Persistence**:
  - Events are serialized and stored in a file using CalendarFileHandler.

Key Features

- **Interactive Calendar View**:
  - Displays a monthly grid with day-by-day events.
  - Highlights the current date.
- **Event Summaries**:
  - Shows a list of events per day (truncated for longer lists).
  - Allows detailed viewing of all events for a date via a popup.
- **Event Management**:
  - Simple interface to add events with a custom **date**, **name**, and **description**.
  - Events are persisted using a **file-based storage system**.

UI for the Calendar Feature

UI Components

1. **Navigation Bar**:
    - Buttons for navigating between months (<, >).
    - Month and year display.
2. **Calendar Grid**:
    - Days with event summaries (up to 3 events/day displayed).
    - VBox for each day: shows date and clickable "more events" label if necessary.
3. **Event List**:
    - Displays a list of events for the selected month.
    - Includes an "Add Event" button.

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Welcome, mk! | Logout

Online Users:

Chats | Groups | Calendar

< DECEMBER 2024 >

Mon	Tue	Wed	Thu	Fri	Sat	Sun
						1
2	3 hdfa fgsdg dfgds +4 more	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Events This Month:

Add Event

Connected to Chat Server.

Add Event

Schedule a new event with name and description.

Event Name: | Event Name

Description: | Event Description

Date: | 12/4/2024

Cancel | Add

Events o...

List of Events:

Name: hdfa
Description: sdfas

Name: fgsdg
Description: gsdfgsd

Name: dfgds
Description: sdfgsdf

Name: gsdfgdsf
Description: dfgsdfgs

Name: dfgsdfg
Description: dfgsdfg

Name: mn
Description: nbmnb

Name: sdf
Description: dsfsd

Close