1) Group Members:

Muhammad Ehtasham Shahid (F2020065091)
Aimen Sajid(F2020065095)

Project Title:

ChatterBox

Problem Statement:

In our interconnected world, effective communication through chatting is essential. With the absence of communication, daily life becomes challenging. ChatterBox seeks to enhance this communication through a modern, high-performance, and customizable application supporting text, audio, and video interactions.

Requirements/Features of the Project

Functional Requirements:

User Authentication

FR_1.1: Ability for users to register new accounts.
FR_1.2: Provision for users to sign in using a valid email and password.
FR_1.3: Functionality for users to reset forgotten passwords.

Messaging System

FR_2.1: Capability for users to exchange text messages.
FR_2.2: Function for sending multimedia content like images and videos.
FR_2.3: Feature to send voice recordings.
FR_2.4: Option to use stickers and emojis in conversations.

Media Exchange

FR_3.1: Ability to share high-resolution images.
FR_3.2: Feature to share videos, supporting up to 4k resolution.
FR_3.3: Function to share geographical location.

User Profile Management

FR_4.1: Users can create and modify their personal profiles.
FR_4.2: Users can configure their privacy settings.

Group Chat Functionality

FR_5.1: Facility to initiate group conversations.
FR_5.2: Options to manage group members.
FR_5.3: Ability for users to exit group chats.

Notification Services

FR_6.1: Real-time alerts for incoming messages.

FR_6.2: Customization options for notification preferences.

Security and Confidentiality

FR_7.1: Ensuring end-to-end encryption for all messages.
FR_7.2: Option for users to activate two-factor authentication.

Search and Connection Tools

FR_8.1: Feature to search for other app users.
FR_8.2: Tools to find new contacts based on common connections or interests.

Account Deactivation Feature

FR_9.1: Option for users to temporarily or permanently deactivate their account.

Multi-Platform Accessibility

FR_10.1: The app shall be usable across various platforms including iOS, Android, and Web.

Non-Functional Requirements:

Application Performance

NFR_1.1: Ensuring swift message delivery with minimal latency.
NFR_1.2: Efficient upload and download times for media files.

Scalability

NFR_2.1: Ability to accommodate a growing number of users simultaneously.

Reliability

NFR_3.1: Continuous, uninterrupted app availability.
NFR_3.2: Effective data backup strategies to minimize data loss.

User Interface and Experience

NFR_4.1: Intuitive and user-friendly application interface.
NFR_4.2: Easy and straightforward navigation within the app.

Compatibility and Integration

NFR_5.1: Interoperability with other prevalent chatting applications.
NFR_5.2: Support for standard file formats in media sharing.

Data Security

NFR_6.1: Robust encryption for securing user data.
NFR_6.2: Systems to identify and prevent unauthorized intrusions.

Accessibility Standards

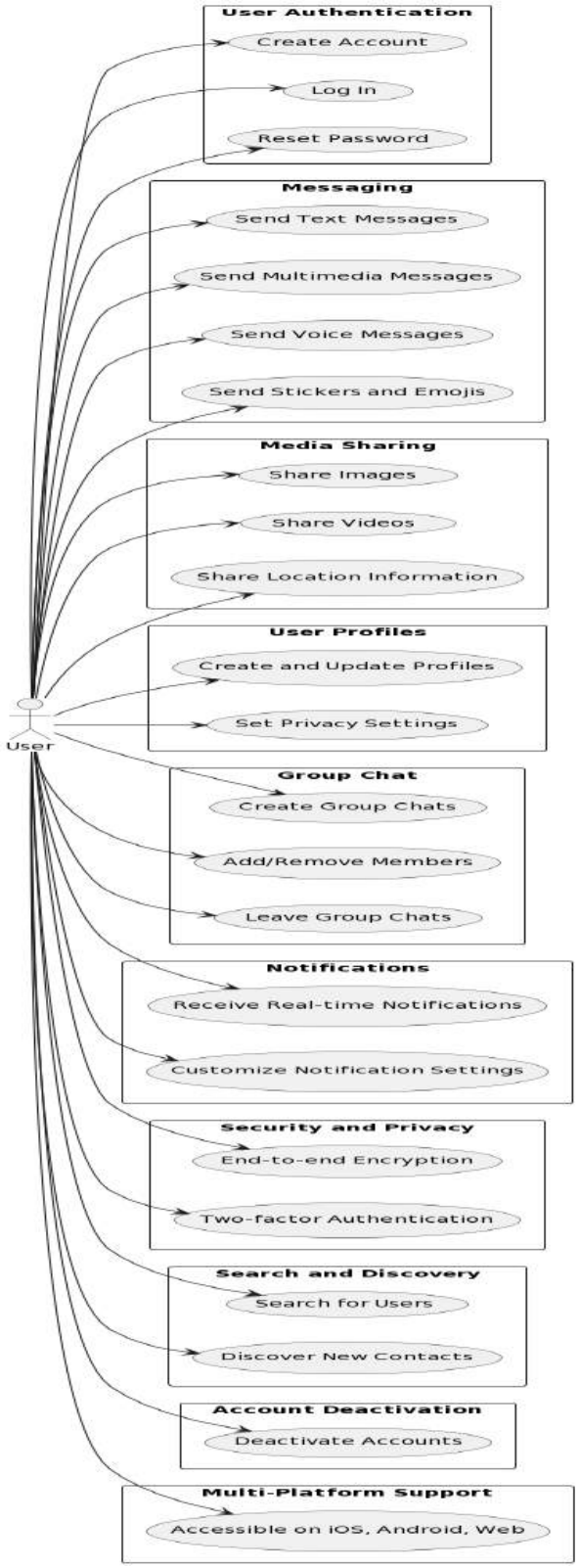
NFR_7.1: Compliance with accessibility norms for users with disabilities.5) Related Project

Examples

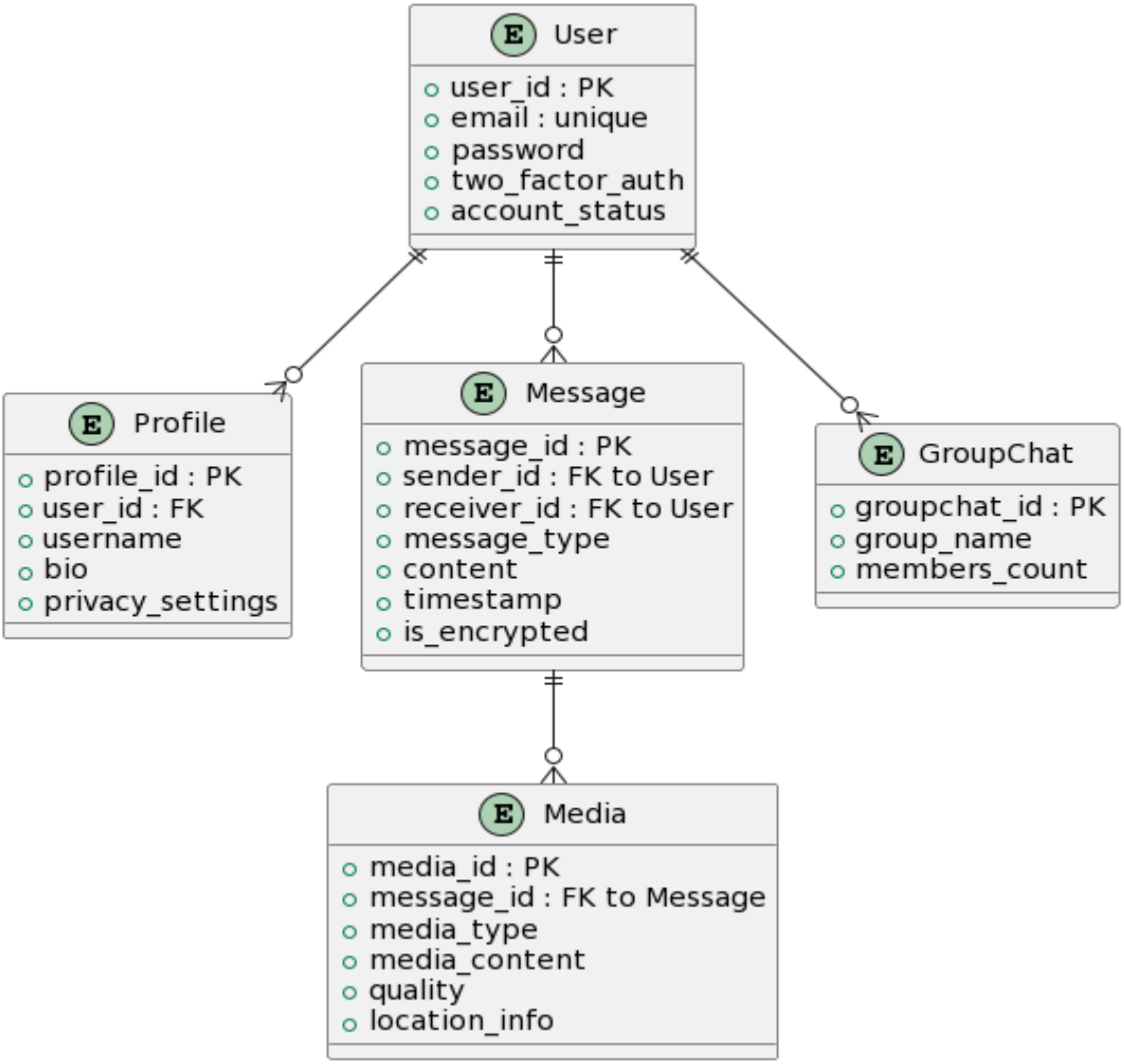
WhatsApp
Instagram
SnapChat
Facebook
Viber
WeChat

Project Iteration 2

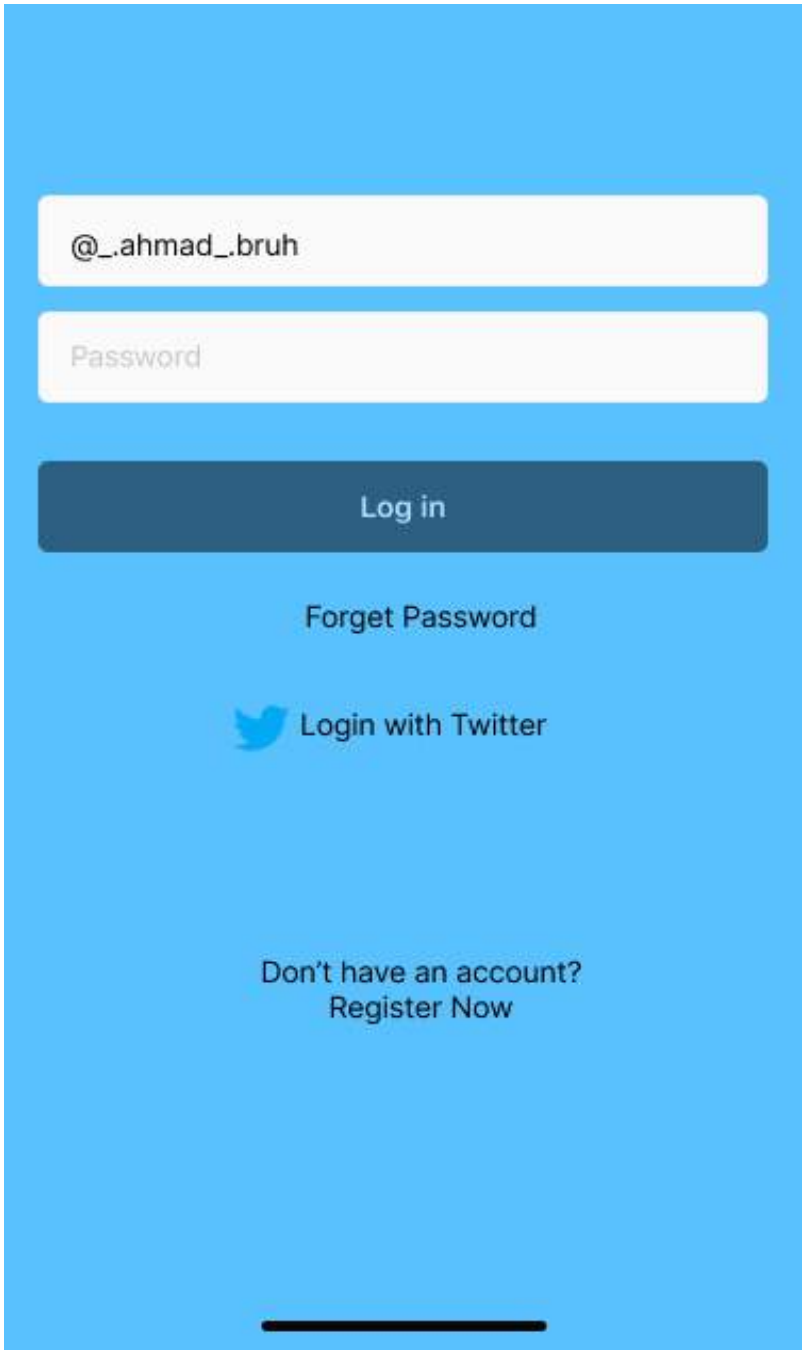
UML DIAGRAM

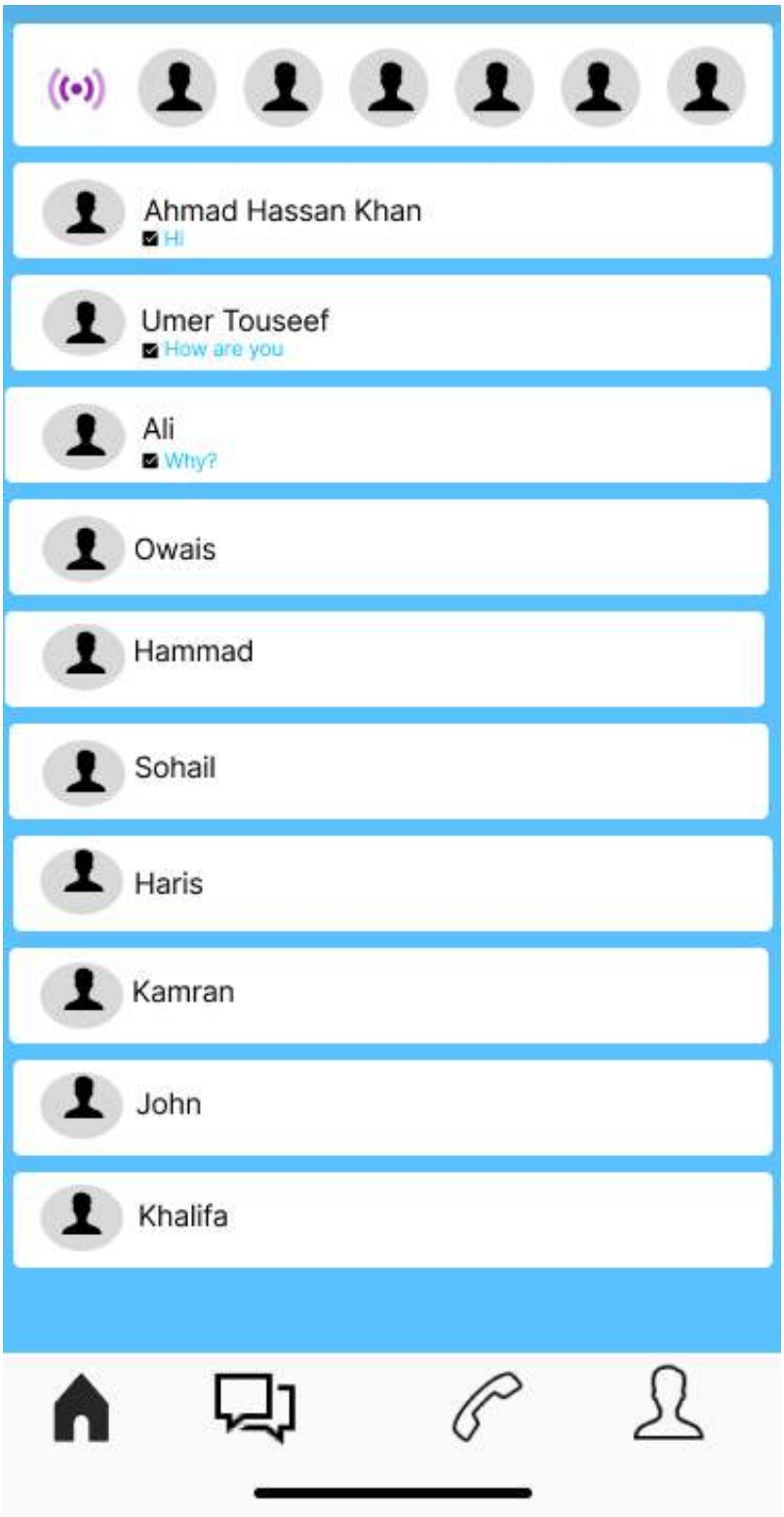


ERD DIAGRAM


User
user_id : PK
email : unique
password
two_factor_auth
account_status
Profile
profile_id : PK
user_id : FK
username
bio
privacy_settings
Message
message_id : PK
sender_id : FK to User
receiver_id : FK to User
message_type
content
timestamp
is_encrypted
GroupChat
groupchat_id : PK
group_name
members_count
Media
media_id : PK
message_id : FK to Message
media_type
media_content
quality
location_info

User Interface of Chat

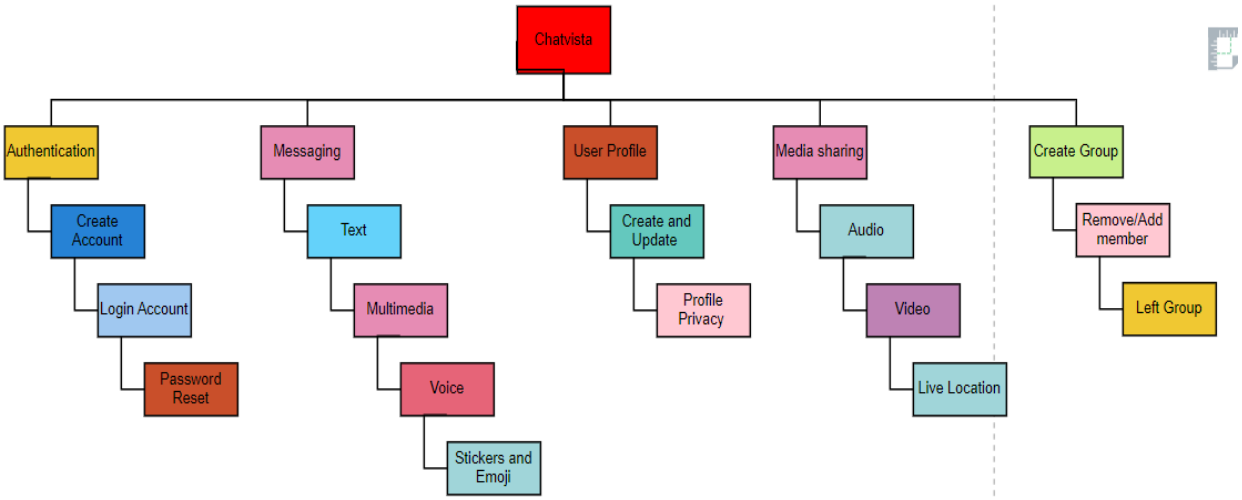


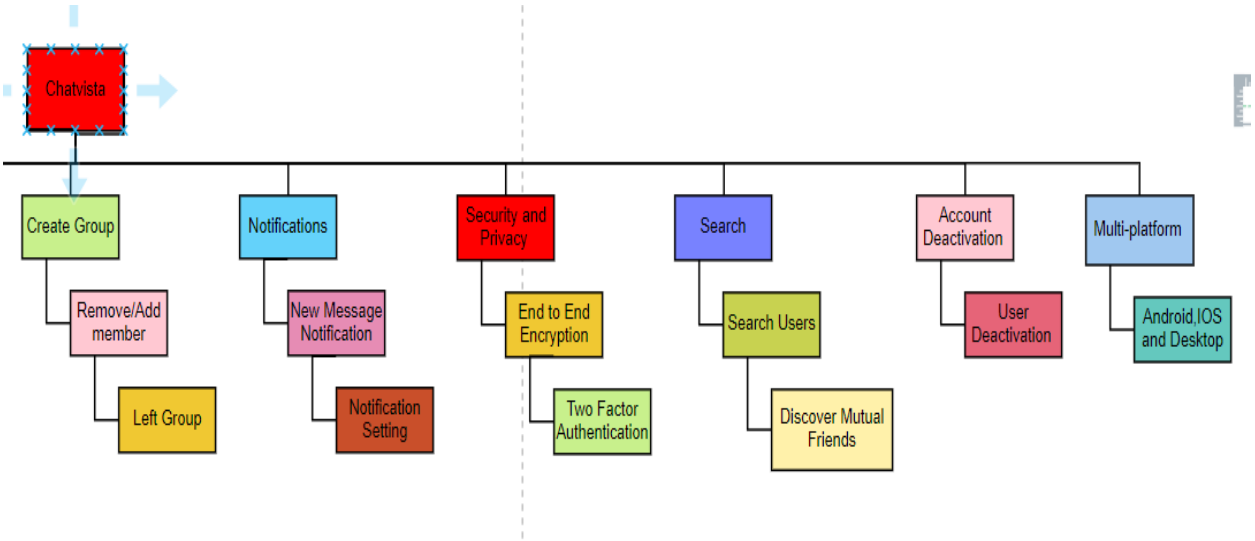


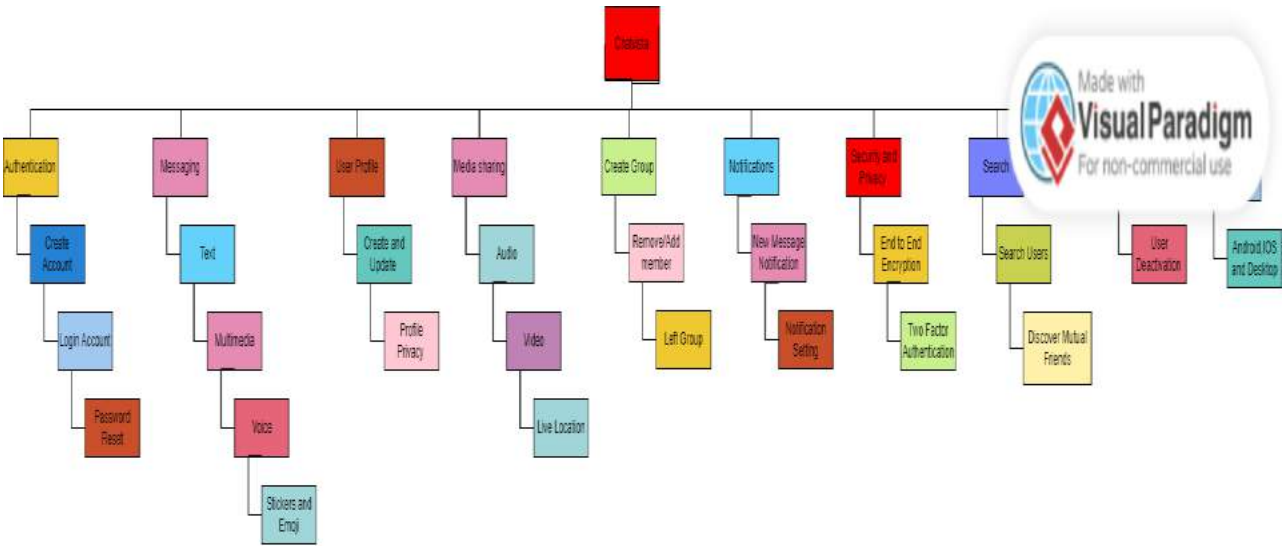
Project Iteration 3

Use Project Management Tools

- WBS

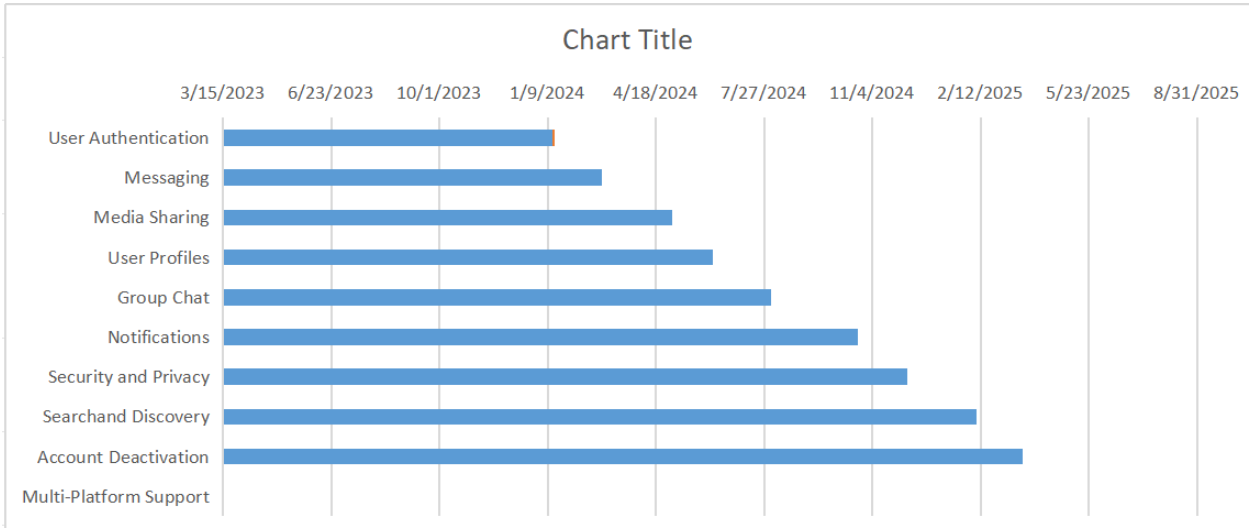

Chatvista
Authentication
Create Account
Login Account
Password Reset
Messaging
Text
Multimedia
Voice
Stickers and Emoji
User Profile
Create and Update
Profile Privacy
Media sharing
Audio
Video
Live Location
Create Group
Remove/Add member
Left Group


Chatvista
Create Group
Remove/Add member
Left Group
Notifications
New Message Notification
Notification Setting
Security and Privacy
End to End Encryption
Two Factor Authentication
Search
Search Users
Discover Mutual Friends
Account Deactivation
User Deactivation
Multi-platform
Android,IOS and Desktop



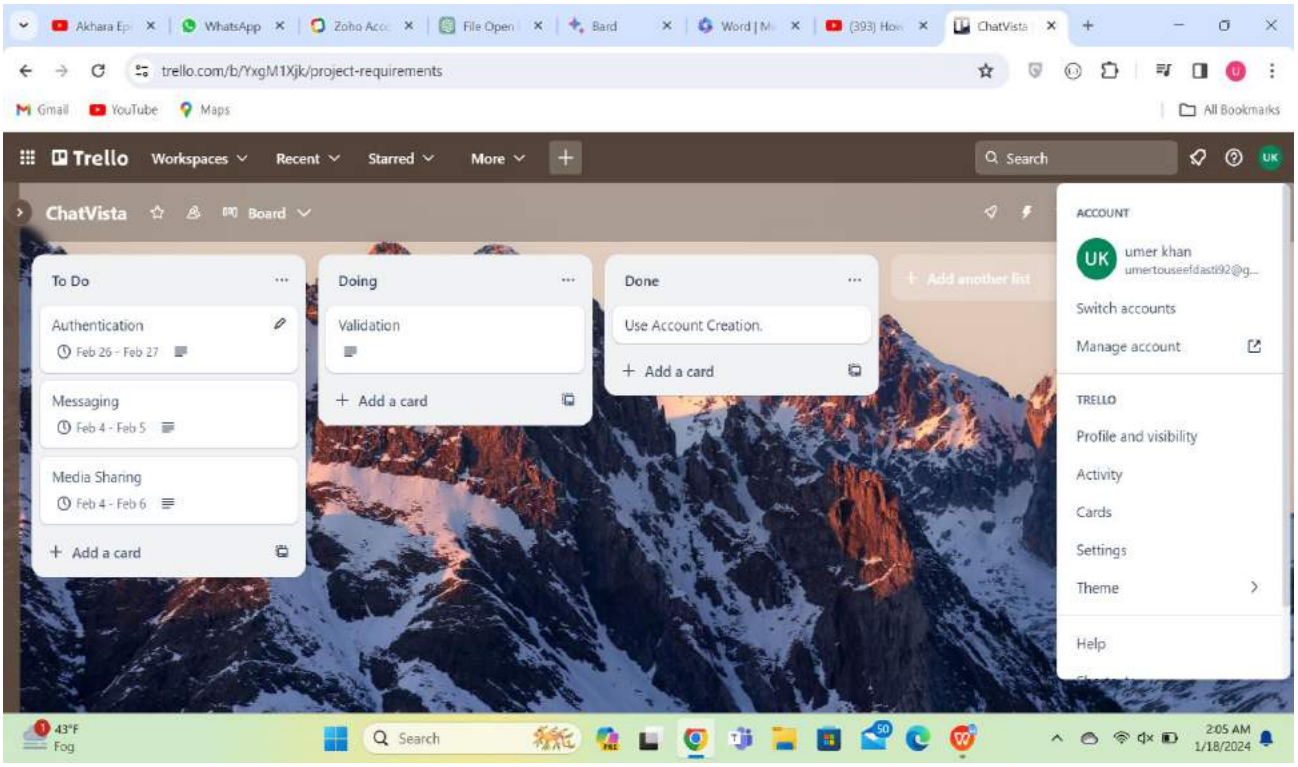
Gantt Chart

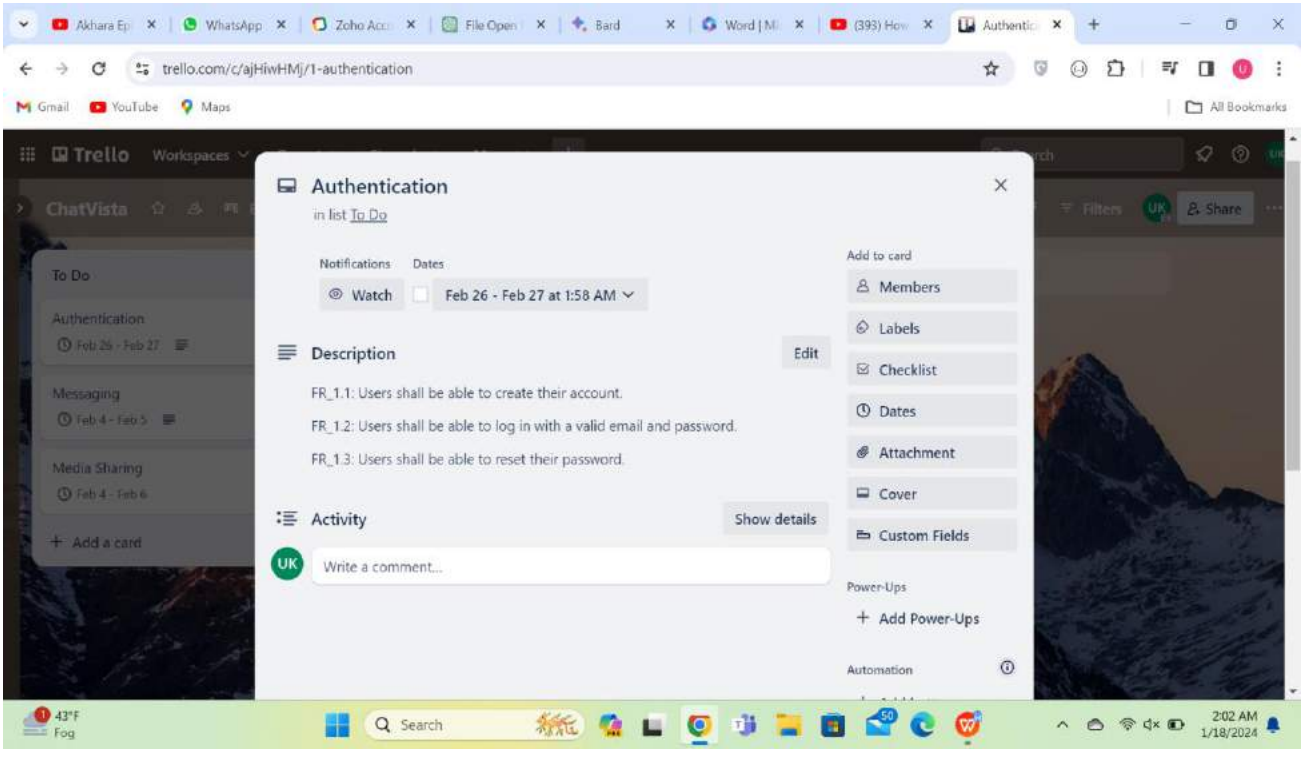
	Task	Duration	Start Date	End Date
FR_1	**User Authentication**	**45**	2024-01-13	2024-02-27
FR_2	**Messaging**	**65**	2024-02-28	2024-05-02
FR_3	**Media Sharing**	**38**	2024-05-03	2024-06-09
FR_4	**User Profiles**	**54**	2024-06-10	2024-08-02
FR_5	**Group Chat**	**80**	2024-08-03	2024-10-21
FR_6	**Notifications**	**35**	2024-10-22	2024-12-05
FR_7	**Security and Privacy**	**53**	2024-12-06	2025-02-07
FR_8	**Searchand Discovery**	**43**	2025-02-08	2025-03-22
FR_9	**Account Deactivation**	**35**	2025-03-23	2025-05-06
FR_10	**Multi-Platform Support**	**95**	2025-05-07	2025-08-19

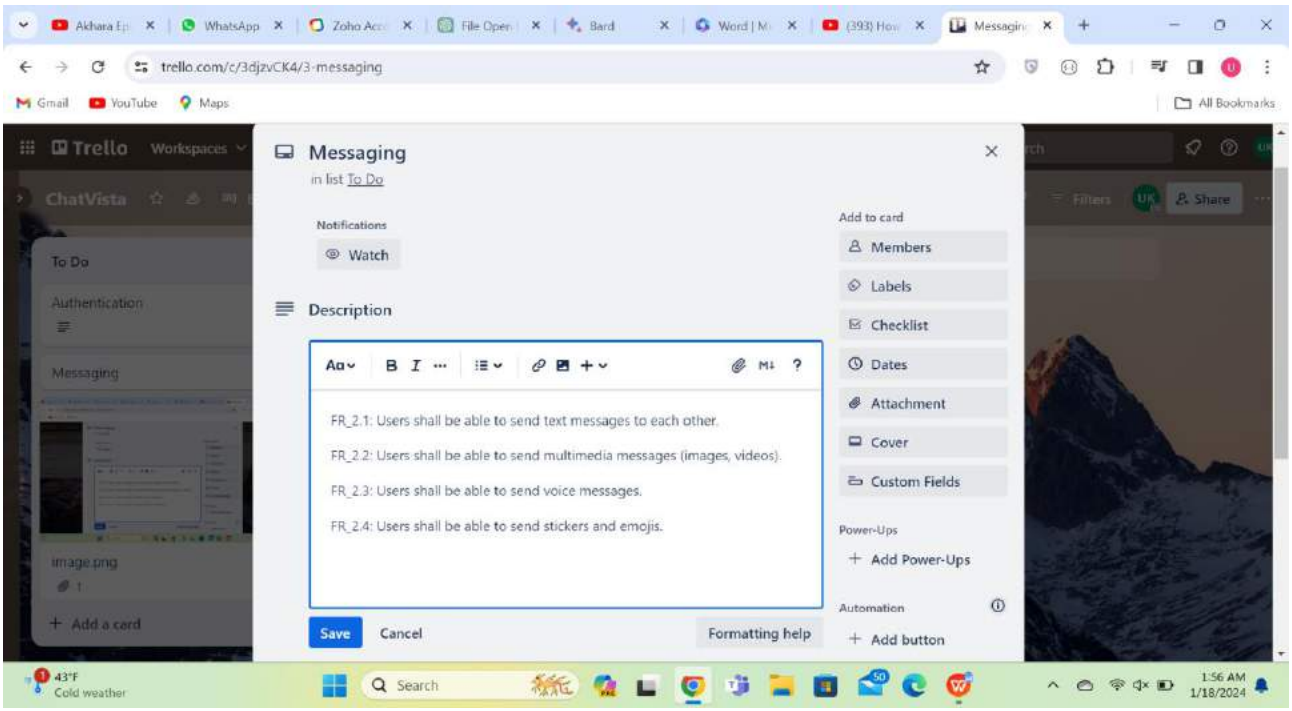


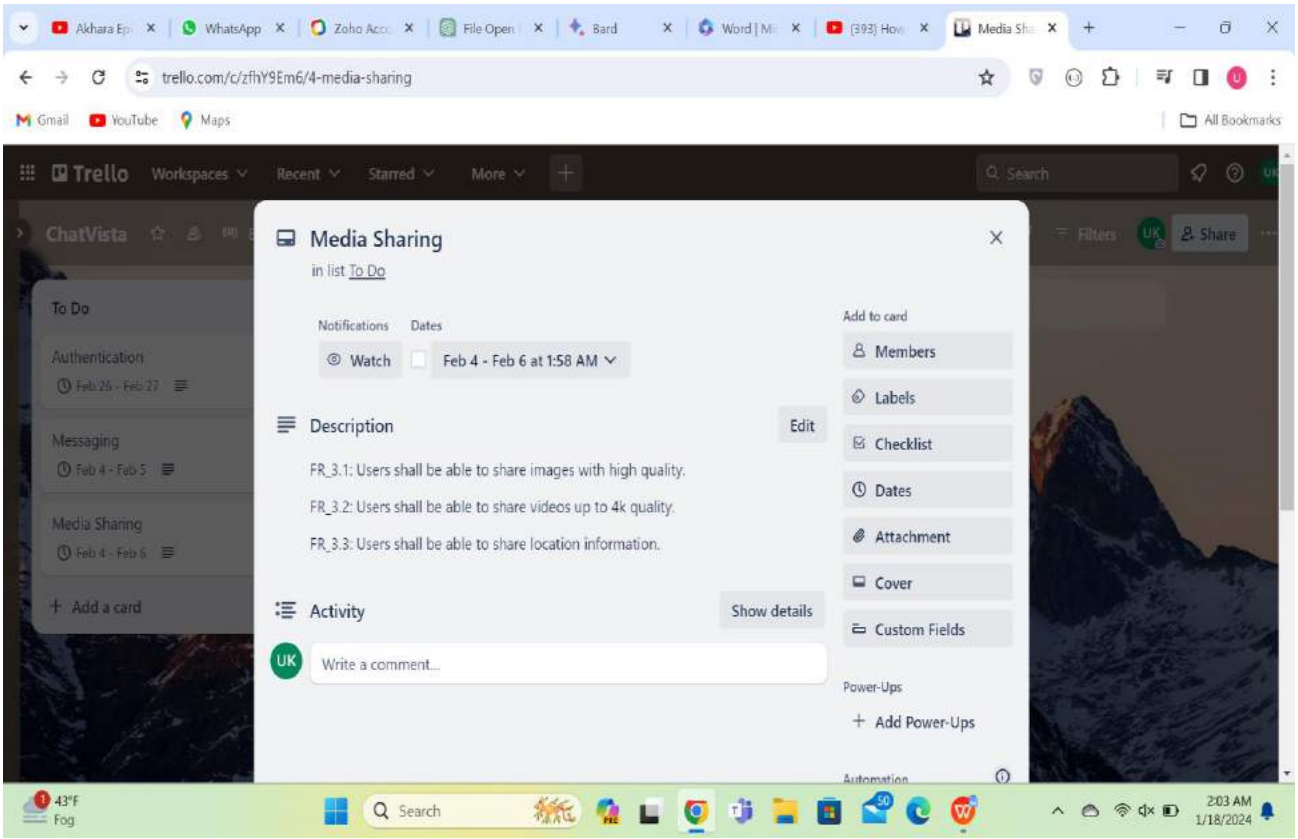
Task Management

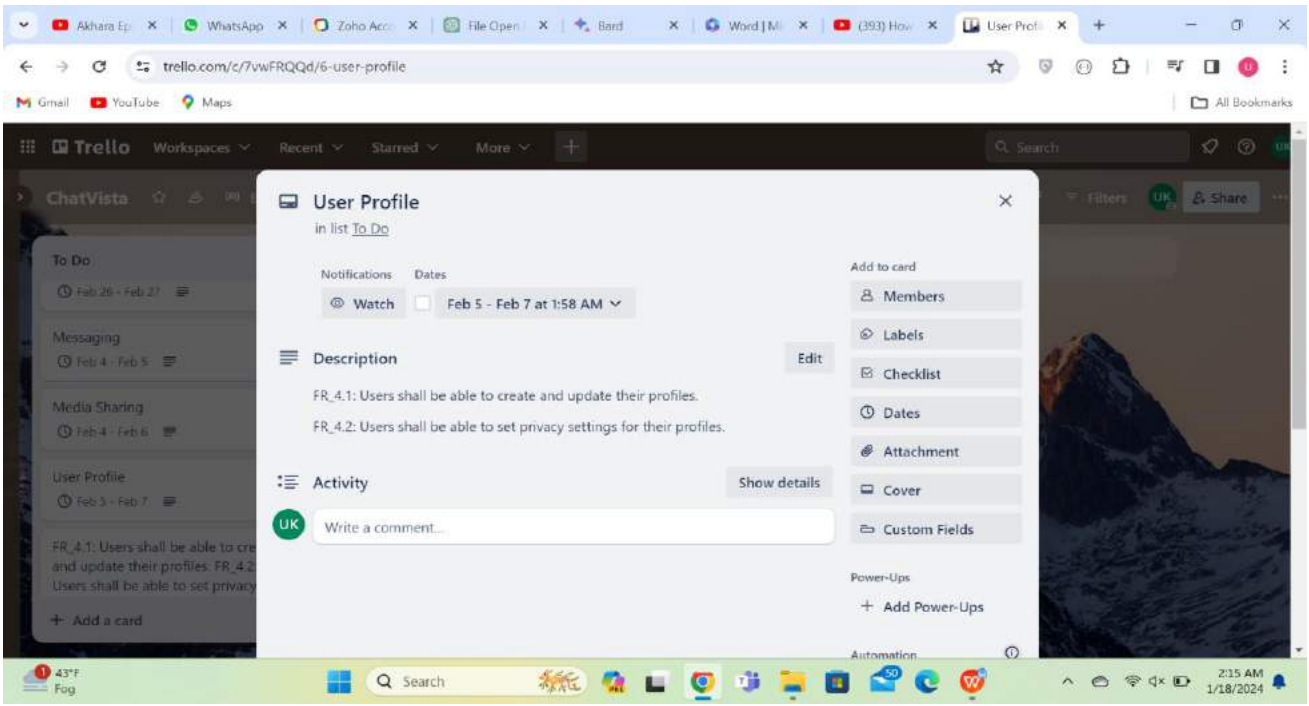
Tool used for this task is trello.This is the user interface of thisTask Management.

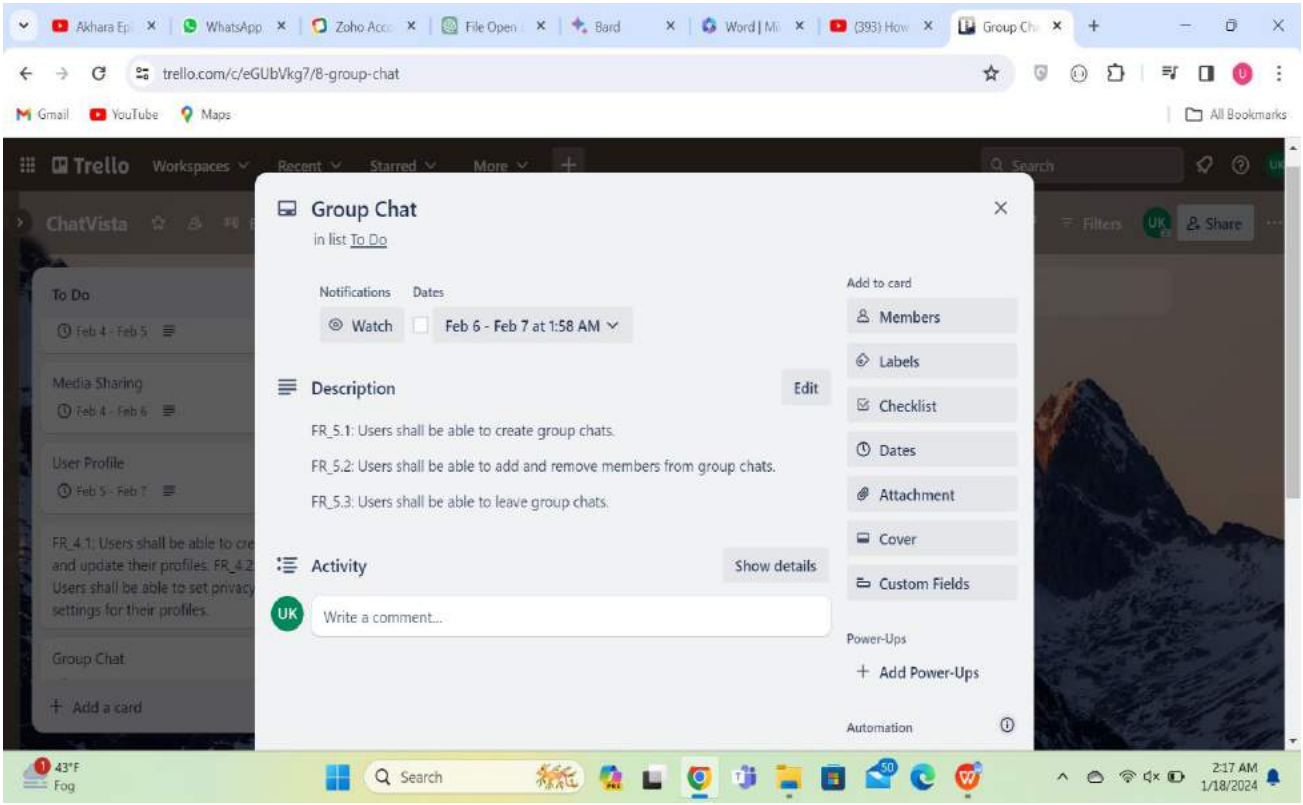


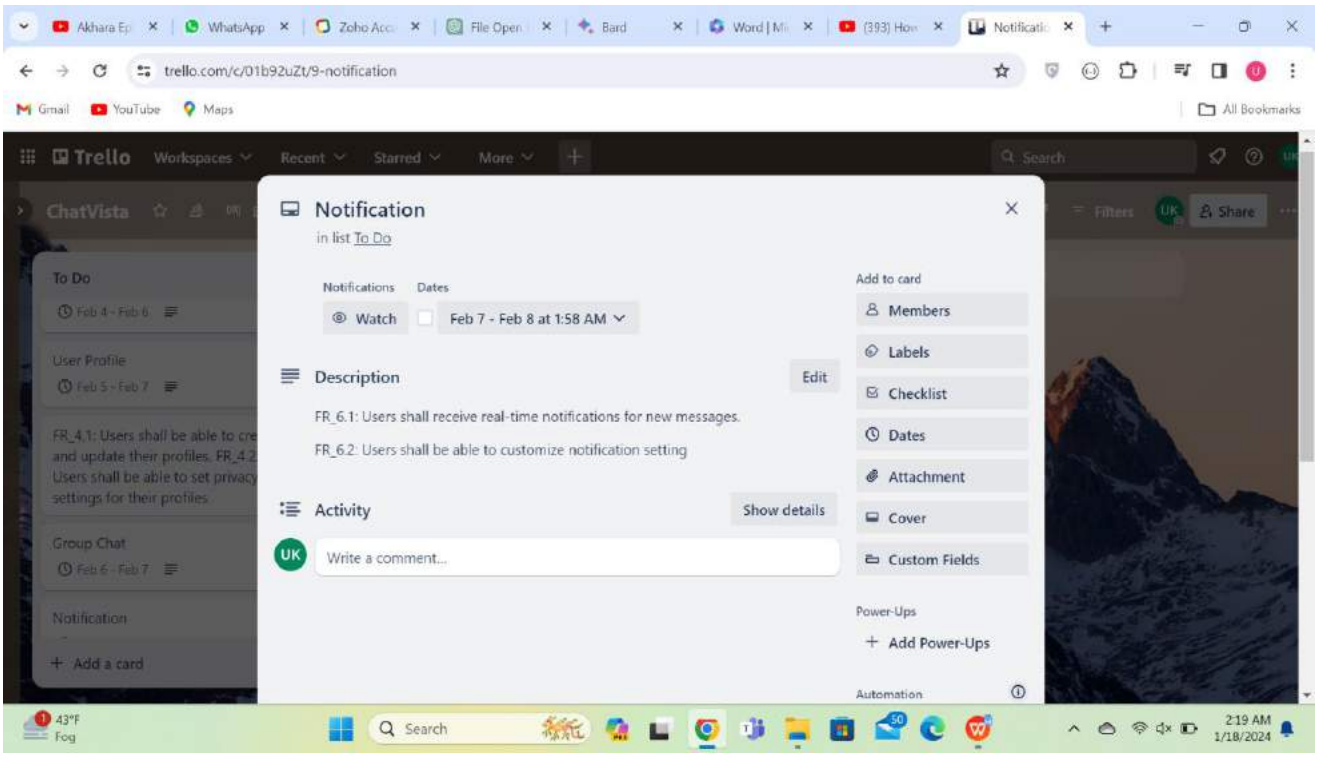


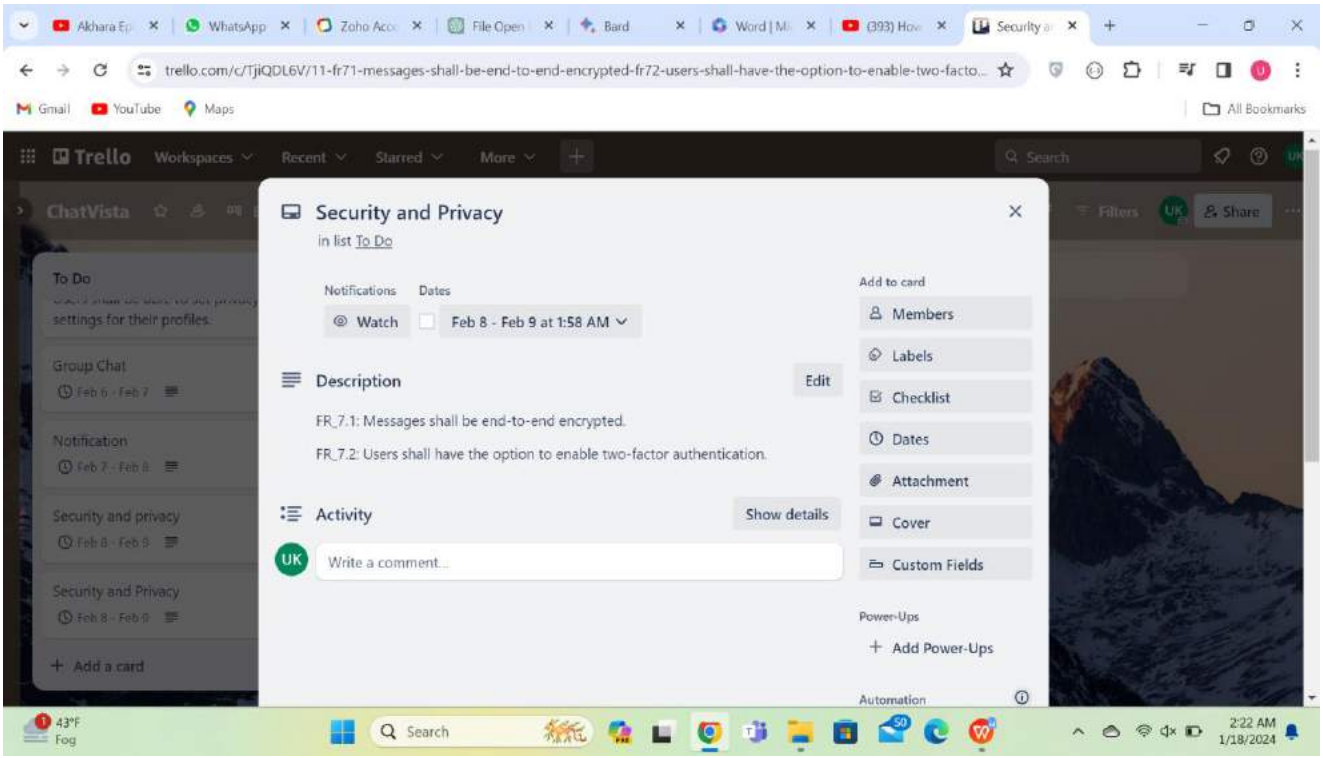

trello.com/c/3djzvCK4/3-messaging
Trello
Workspaces
Messaging
in list To Do
Notifications
Watch
Description
FR_2.1: Users shall be able to send text messages to each other.
FR_2.2: Users shall be able to send multimedia messages (images, videos).
FR_2.3: Users shall be able to send voice messages.
FR_2.4: Users shall be able to send stickers and emojis.
Save
Cancel
Formatting help
Add to card
Members
Labels
Checklist
Dates
Attachment
Cover
Custom Fields
Power-Ups
Add Power-Ups
Automation
Add button
ChatVista
To Do
Authentication
Messaging
image.png
Add a card
Share
1:56 AM
1/18/2024


trello.com/c/zfhY9Em6/4-media-sharing
Trello
Workspaces
Recent
Starred
More
Media Sharing
in list To Do
Notifications
Watch
Dates
Feb 4 - Feb 6 at 1:58 AM
Description
Edit
FR_3.1: Users shall be able to share images with high quality.
FR_3.2: Users shall be able to share videos up to 4k quality.
FR_3.3: Users shall be able to share location information.
Activity
Show details
Write a comment...
Add to card
Members
Labels
Checklist
Dates
Attachment
Cover
Custom Fields
Power-Ups
Add Power-Ups
Automation
ChatVista
To Do
Authentication
Messaging
Media Sharing
Add a card
Share
2:03 AM
1/18/2024


trello.com/c/7vwFRQQd/6-user-profile
Trello
Workspaces
Recent
Starred
More
ChatVista
User Profile
in list To Do
Notifications
Watch
Dates
Feb 5 - Feb 7 at 1:58 AM
Description
Edit
FR_4.1: Users shall be able to create and update their profiles.
FR_4.2: Users shall be able to set privacy settings for their profiles.
Activity
Show details
UK
Write a comment...
Add to card
Members
Labels
Checklist
Dates
Attachment
Cover
Custom Fields
Power-Ups
Add Power-Ups
Automation
To Do
Messaging
Media Sharing
User Profile
Add a card
Share
Search
2:15 AM
1/18/2024


trello.com/c/eGUbVkg7/8-group-chat
Trello
Workspaces
Recent
Starred
More
ChatVista
Group Chat
in list To Do
Notifications
Watch
Dates
Feb 6 - Feb 7 at 1:58 AM
Description
Edit
FR_5.1: Users shall be able to create group chats.
FR_5.2: Users shall be able to add and remove members from group chats.
FR_5.3: Users shall be able to leave group chats.
Activity
Show details
UK
Write a comment...
Add to card
Members
Labels
Checklist
Dates
Attachment
Cover
Custom Fields
Power-Ups
Add Power-Ups
Automation
To Do
Media Sharing
User Profile
Group Chat
Add a card
Share
Search
2:17 AM
1/18/2024


trello.com/c/01b92uZt/9-notification
Trello
Workspaces
Recent
Starred
More
Search
ChatVista
Filters
Share
To Do
User Profile
Group Chat
Notification
Add a card
Notification
in list To Do
Notifications
Watch
Dates
Feb 7 - Feb 8 at 1:58 AM
Description
Edit
FR_6.1: Users shall receive real-time notifications for new messages.
FR_6.2: Users shall be able to customize notification setting
Activity
Show details
UK
Write a comment...
Add to card
Members
Labels
Checklist
Dates
Attachment
Cover
Custom Fields
Power-Ups
Add Power-Ups
Automation
43°F
Fog
Search
2:19 AM
1/18/2024


trello.com/c/TjiQDL6V/11-fr71-messages-shall-be-end-to-end-encrypted-fr72-users-shall-have-the-option-to-enable-two-facto...
Trello
Workspaces
Recent
Starred
More
Search
ChatVista
Filters
Share
To Do
Group Chat
Notification
Security and privacy
Security and Privacy
Add a card
Security and Privacy
in list To Do
Notifications
Watch
Dates
Feb 8 - Feb 9 at 1:58 AM
Description
Edit
FR_7.1: Messages shall be end-to-end encrypted.
FR_7.2: Users shall have the option to enable two-factor authentication.
Activity
Show details
UK
Write a comment...
Add to card
Members
Labels
Checklist
Dates
Attachment
Cover
Custom Fields
Power-Ups
Add Power-Ups
Automation
43°F
Fog
Search
2:22 AM
1/18/2024

FR_1. User Authentication
- Requirement Analysis: 10 days
- System Design: 5 days
- Implementation: 15 days
- Testing: 10 days
- Documentation: 5 days

Total Duration: 45 days

FR_2. Messaging
- Requirement Analysis: 12 days
- System Design: 8 days
- Implementation: 20 days
- Testing: 15 days
- Documentation: 10 days
- Total Duration: 65 days

FR_3. Media Sharing
- Requirement Analysis: 8 days
- System Design: 5 days
- Implementation: 12 days
- Testing: 8 days
- Documentation: 5 days
- Total Duration: 38 days

FR_4. User Profiles
- Requirement Analysis: 10 days
- System Design: 6 days
- Implementation: 18 days
- Testing: 12 days
- Documentation: 8 days
- Total Duration: 54 days

FR_5. Group Chat
- Requirement Analysis: 15 days
- System Design: 10 days
- Implementation: 25 days
- Testing: 18 days
- Documentation: 12 days
- Total Duration: 80 days

FR_6. Notifications (FR_6)
- Requirement Analysis: 8 days
- System Design: 5 days
- Implementation: 10 days
- Testing: 7 days
- Documentation: 5 days
- Total Duration: 35 days

FR_7. Security and Privacy

- Requirement Analysis: 12 days
- System Design: 8 days
- Implementation: 15 days
- Testing: 10 days
- Documentation: 8 days
- Total Duration: 53 days

FR_8. Search and Discovery

- Requirement Analysis: 10 days
- System Design: 7 days
- Implementation: 12 days
- Testing: 8 days
- Documentation: 6 days
- Total Duration: 43 days

FR_9. Account Deactivation

- Requirement Analysis: 8 days
- System Design: 5 days
- Implementation: 10 days
- Testing: 7 days
- Documentation: 5 days
- Total Duration: 35 days

FR_10. Multi-Platform Support

- Requirement Analysis: 20 days
- System Design: 15 days
- Implementation: 25 days
- Testing: 20 days
- Documentation: 15 days
- Total Duration: 95 days

Project Start Date: 2024-01-13
Project End Date:2025-08-19

Budget estimation

1. Personnel Costs:
- Project Manager: $50 per hour x 100 hours
- Developers: $40 per hour x 500 hours
- Designers: $35 per hour x 200 hours
- QA/Testers: $30 per hour x 150 hours

Total Personnel Costs: $62,500

2. Technology and Infrastructure:
- Server Costs: $100 per month x 12 months
- Software Licenses: $500 per license x 5 licenses
- Development Tools: $50 per tool x 3 tools

Total Technology and Infrastructure Costs: $7,200

3. Project Management:
- Project Management Software: $30 per month x 12 months
- Collaboration Tools: $20 per month x 12 months

Total Project Management Costs: $600

4. Marketing and Launch:
- Marketing Campaigns: $1,000 per campaign x 2 campaigns
- Launch Event: $2,000 for event-related expenses

Total Marketing and Launch Costs:$4,000

5. Training and Documentation:
- Training Materials: $50 per resource x 10 resources
- Documentation Tools: $40 per month x 6 months

Total Training and Documentation Costs: $600

6. Contingency and Miscellaneous:
- Contingency Fund: 5% of total estimated costs ($4,000)
- Miscellaneous Expenses: $1,000

Total Contingency and Miscellaneous Costs: $5,000

Grand Total Budget Estimate: $80,900

Budget Allocation by Phase:
Planning and Design: 20% of Grand Total
Development: 40% of Grand Total
Testing and QA: 15% of Grand Total
Launch and Post-Launch: 25% of Grand Total

Payment Schedule:
Initiation: 30% upfront upon project initiation
Milestone Payments: 30% at key project milestones
Final Payment: 40% upon project completion and acceptance

Team management
Creating a team management plan involves defining the roles and responsibilities of team members, establishing communication channels, addressing potential challenges, and ensuring a collaborative and productive work environment. Here's a template for a

Project Manager:
- Develops and maintains the project plan, including timelines and milestones.
- Conducts regular team meetings to discuss progress, challenges, and adjustments.
- Acts as a liaison between the development team and stakeholders.

Developers:
- Participates in sprint planning and execution.
- Collaborates with designers to implement UI/UX elements.
- Adheres to coding standards and contributes to code reviews.

Designers:
- Creates design mockups and prototypes for the application.
- Collaborates with developers to ensure seamless integration of design elements.
- Iterates on designs based on feedback from the team and stakeholders.

QA/Testers:
- Develops test plans and executes test cases.
- Collaborates with developers to prioritize and address identified issues.
- Ensures the application meets quality standards before release.

Communication Plan:
Regular Team Meetings:
- Weekly meetings to discuss progress, challenges, and upcoming tasks.
- Sprint reviews and retrospectives for continuous improvement.

Communication Tools:
- Utilize project management and collaboration tools (e.g., Jira, Slack, Zoom).
- Maintain clear documentation for tasks, requirements, and decisions.

Challenges and Conflict Resolution:
Identify Potential Challenges:
- Proactively identify potential challenges related to timelines, resources, or scope.
- Regularly assess team dynamics and address any issues promptly.

Conflict Resolution:

- Encourage open communication among team members.
- Establish a conflict resolution process to address disagreements constructively.

Training and Skill Development:

Continuous Learning:

- Encourage team members to participate in relevant training and workshops.
- Provide opportunities for skill development and knowledge sharing within the team.

Team Building:

- Team-Building Activities:
  - Organize occasional team-building activities to strengthen collaboration.
  - Recognize and celebrate team achievements and milestones.