Project Report

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Executive Summary

Key Pain Points and Issues with the Current System

1. **Superficial Connections:** Existing platforms prioritize visual appeal and brief interactions, leading to shallow connections.
2. **Limited Social Opportunities:** Difficulty in finding like-minded individuals offline hinders the formation of meaningful relationships.
3. **Imposed Community Guidelines:** Users often struggle to express their perspectives on global issues due to restrictive guidelines set by developers.

Summary of Proposed System Features, Goals, and Benefits

1. **Interest-Based Matching:** Users are matched based on shared interests, fostering meaningful connections.
2. **In-Person Meetups:** The platform encourages offline meetups centered around common interests.
3. **Flexible Interaction:** Users can express their views freely and control whom they interact with.
4. **Enhanced Security:** The incorporation of verification measures and secure communication protocols ensures user safety.

Background

Current System and Business Process Overview

Traditional social networking platforms such as Tinder, Bumble, and Facebook dominate the digital landscape. These platforms primarily focus on superficial interactions, where users often prioritize visual appeal and brief encounters. Communication is often hindered by language barriers, limiting the depth of connections formed. Moreover, the lack of emphasis on shared interests and hobbies leads to a dearth of meaningful connections and lasting friendships. Offline social opportunities are also limited, further hindering users from building genuine relationships.

Key Issues, Weaknesses, Challenges, and Pain Points

1. **Superficial Interactions:** Users are judged based on profile pictures or limited bio information, leading to shallow connections.
2. **Lack of Interest-Based Matching:** Difficulty in finding individuals who share passions and interests.
3. **Limited Offline Social Opportunities:** Few opportunities to meet like-minded individuals in real life and engage in meaningful offline activities.

Proposed System Functionality

Functional Requirements and Specifications

1. **User Profile Creation:** Users create profiles with personal information and interests.
2. **Interest Selection:** Users select interests from a predefined list or manually input them.
3. **Matching Algorithm:** Matches users based on compatibility percentages derived from profile data.
4. **Chat Feature:** Allows seamless communication between matched users.
5. **Verification Measures:** Includes email verification.

System Flow Chart of the Proposed System

The proposed system's flow chart illustrates the user journey from profile creation, interest selection, matching, chatting, to verification processes.

Personas or User Roles Who Will Interact with the System

1. **Active Users:** Regularly engage with the platform to connect with like-minded individuals.
2. **New Users:** In the process of setting up profiles and exploring potential matches.
3. **Matched Users:** Engage in conversations with their matches and participate in offline meetups.
4. **Administrators:** Oversee platform management, user activity, and enforce security measures.

Interactions with Other External Systems/Interfaces

1. **Database Integration:** Utilizes MongoDB for storing user data and profiles.
2. **Communication Protocols:** Implements WebSockets for real-time communication.
3. **Security Protocols:** Employs HTTPS for secure data transmission and industry-standard encryption for sensitive data.

Technical Specifications

Frontend: React, Axios, HTML, CSS, JavaScript.

Backend: Node.js, Express, MongoDB Atlas.

Database: MongoDB.

For web application structure: HTML, CSS, and JavaScript.

- The application is compatible with Chrome, Firefox, Microsoft edge.
- User authentication can be done using JWT(JSON Web Tokens)
- The application is developed using VS Code

System Alternatives:

The main alternatives are facebook, Snapchat, Tinder, Bumble.
We will compare MatchMagnet with these apps based on some criteria. And will try to find why MatchMagnet can be a better solution as a social media platform.

Criteria	MatchMagnet	Alternatives
Functionality	It will help find people with similar interests. Accounts will get filtered suggestions based on the order of their preferences and hobbies.	Facebook uses a geolocation algorithm to suggest profiles Snapchat is an image-sharing app and the contacts of a user are suggested Tinder & Bumble uses a live location tracker to track people near a user.
Ease of Use	This app essentially provides a user-friendly experience with a familiar swiping mechanism, straightforward icons, and a helpful FAQ section to guide users through any uncertainties.	Facebook provides familiar interfaces, user guidance, and many other suggestions. Tinder has swipe options easily.
Target Group	• Individuals Seeking Meaningful Connections • Users Interested in Shared Hobbies and Interests • Socially Active Users looking to expand their social circle	• **Facebook:** Broad audience of users spanning various age groups • **Snapchat:** Younger users, particularly teenagers and young adults • **Tinder:** Broad audience of users spanning various age groups • **Bumble:** Younger users, particularly teenagers and young adults
Scalability	Our revenue model will be a freemium model at the beginning but as soon as the	Facebook & Snapchat earn their revenue through advertisements.

	user base grows we plan to launch some premium features and start a subscription model.	Tinder and Bumble generate profit from their premium features.
Organizational Impact	Our project influences meaningful connections and social stability on the basis of common interests and hobbies.	Other platforms have a variety of niches. So they have Massive global impact, influencing diverse user groups and industries. but here our project matchmaking solely develops friendship with like minded people.
Customizability	● Users can customize their interests, hobbies & backgrounds ● Can set priorities for interests and hobbies ● Can customize their match percentage rate. ● Change profile images and Bio.	● Offer diverse options for expressing individuality ● Users can engage in a variety of content-sharing activities ● Users can express themselves through various formats and mediums.
Security	All chats will be end-to-end encrypted. One can report against another user for any harmful activities . If any user uses words related to vulgarity and violence, one can block the user for certain times.	Different platforms provide a range of privacy settings to enable users to regulate the visibility of their information. Most of them alert the user if any suspicious phenomenon occurs.
Technology Factors	Compatible with Android and iOS, and Cross-Platform for Windows and Linux.	There is software that combines web and mobile platforms, while others only have one. In addition, various technology stacks are used for different services.
Strategic Alignment	Accelerate meaningful connection. Take Customer-Centric Approach for growth	Implements agility to be flexible and responsive according to users demands to meet

Feasibility Analysis

Technical Feasibility:

Requirements:

- Development tools: VS Code
- Frontend: React, HTML, CSS
- Backend: Node.js, Express.js
- Database: MongoDB
- Cloud Hosting: AWS, Cloudflare

CRC Analysis:

Complexity:

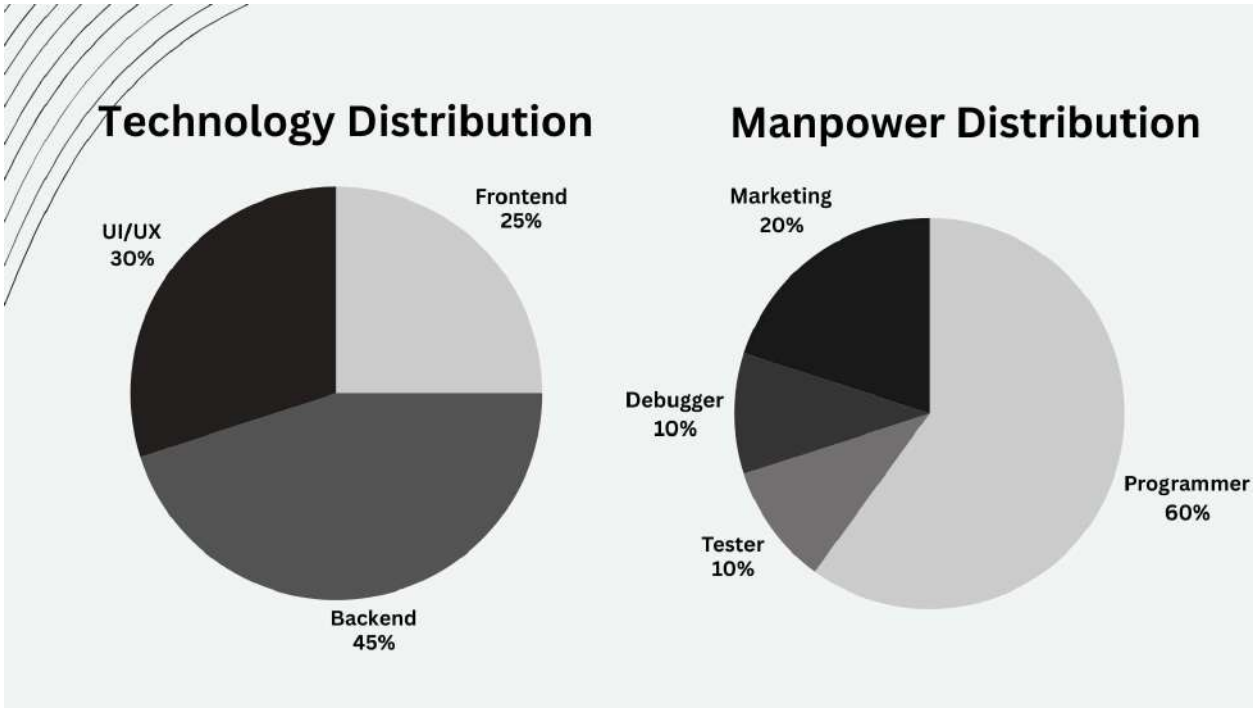
- Identifying the components
- Evaluating interdependencies
- Considering integrations
- Implementation

Risk:

- Technical Capability
- Security Vulnerabilities

Control:

- Implementing risk management controls throughout the project lifecycle
- Continuously monitor and adapt controls



Economic Feasibility:

Stages	Breakdown	Cost
Development cost	Starting Phase (6 month)	2 lacs
	Next 1 year later launch	6 las
	Next 4 year	15 lacs
Software	License fee (5 year)	5 lacs
Hardware	office Cost	30 lacs
	Cloud Services	20 lacs
Marketing	First 1 year	10 lacs
	Next 4 year	20 lacs
Infrasructure	IT	2 lacs
Miscellaneous	Annual Maintainance (4 lacs*5)	20 lacs
	Operations	10 lacs
Total (5 years)		140 lacs

TANGIBLE COST

TANGIBLE BENIFITS

We will generate revenue through promoting ads, premium paid features for users.

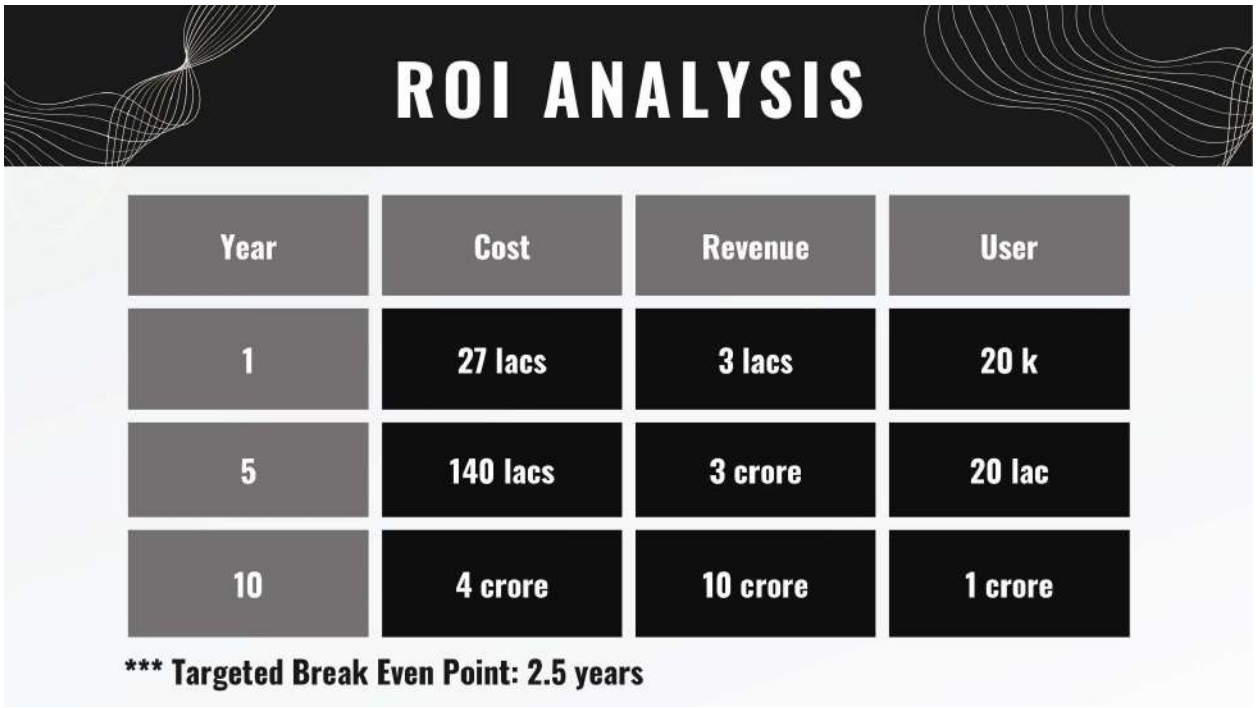
Intangible Costs & Benefits:

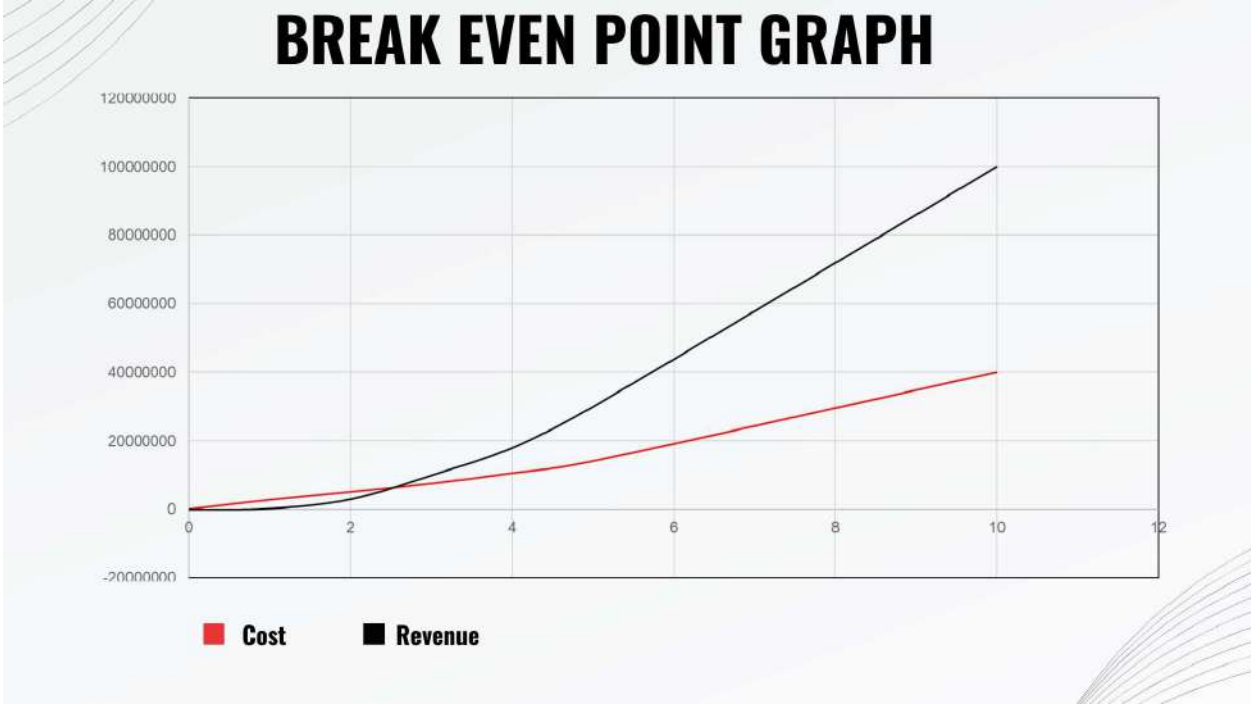
Costs:

- User Adoption and Learning Curve
- Brand Reputation and Credibility
- User Engagement and Retention
- Regulatory Compliance and Legal Risks

Benefits:

- Enhanced User Satisfaction and Experience
- Improved user experience and satisfaction
- Building strong relationships with users
- attract users & contribute to the platform's long-term success
- Innovation & Adaptation





Description:
Here is a total 10 years plan shown. From the start to 2.5 years, there is no profit because the cost is greater than the benefits. But after 2.5 years, we are expecting that we will get profit and after 10 years we can make 10 crore money for 4 crore investment.

Operational Feasibility:

Improvement expectation:

- Enhanced Matching Algorithms
- Personalization Features
- Streamlined Communication
- Comprehensive User Profiles
- Robust Security Measures

Ease of use:

- Seamless Onboarding process
- Responsive Design
- Customizable Settings
- Clear Communication channels

Scalability:

- Load balancing
- Horizontal scaling
- Modular approach
- Regular optimization

Activity Planning and Control:

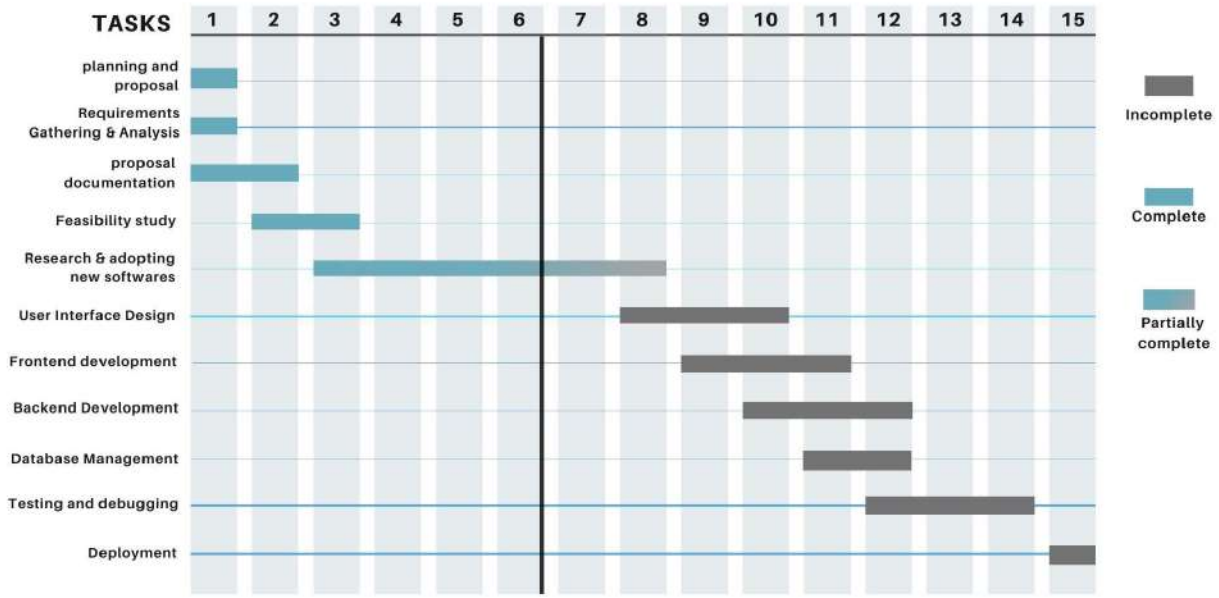
Task Details and Timeline

Major Tasks	Breakdown	Alloted Week
Analysis	Planning & Proposal	0-1
	Alternate Systems Evaluation	1-2
	Feasibility & Requirement	2-3
Learning	Frontend Development	3-6
	Backend Development	6-8
	Database Management	7-8
Development	Design	8-9
	Implementation	9-12
	Debugging & Testing	12-14
	Deployment	14-15
	System Documentation	8-15

Task Details and Timeline

Major Tasks	Breakdown	Detailed breakdown	Alloted Week
Development	Design		8-9
	Implementation	UI Design	9-10
		Web App Interface	9-11
		Backend Interface	10-12
		Algorithm Implementation	10-12
		Security	11-12
		Database Implementatiuon	11-12
	Debugging & Testing		12-14
	Deployment		14-15
	System Documentation		8-15

Gantt Chart:

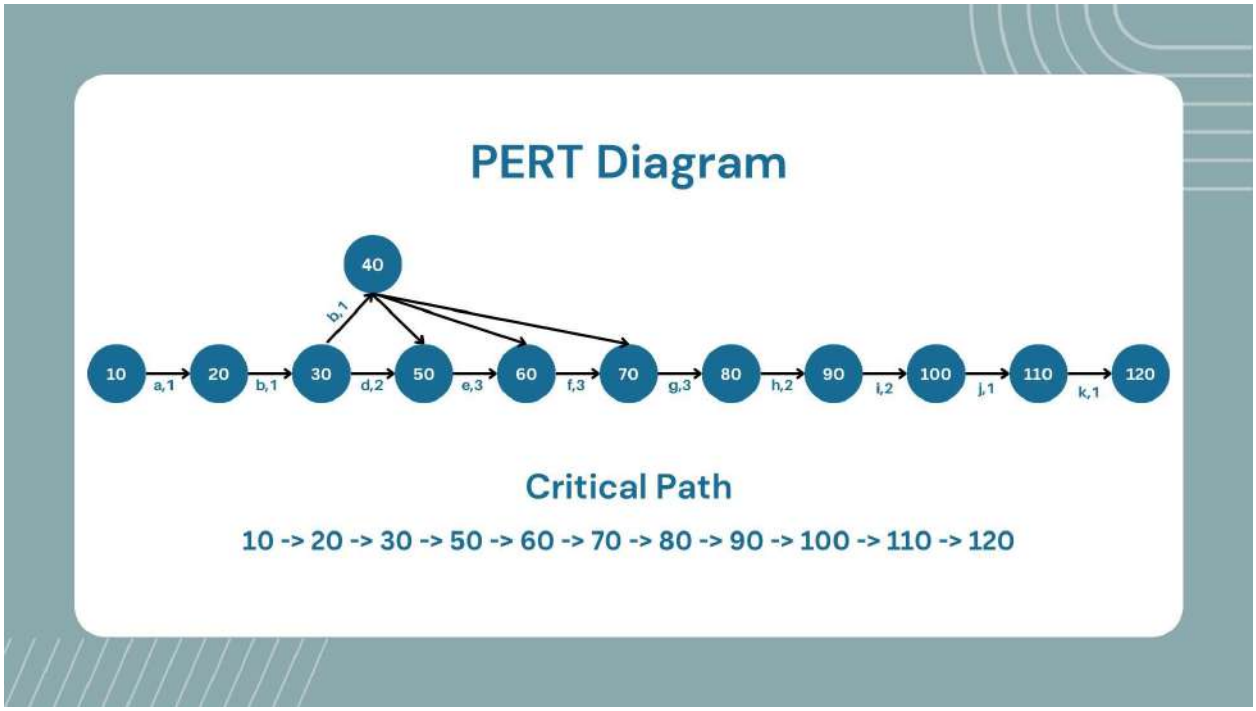


Description:

This chart shows a total 15-week plan. Where some are complete, some are incomplete, some are partially completed. When we were in the 6th week, 4 tasks were completed, one was partially completed. Rest others are incomplete.

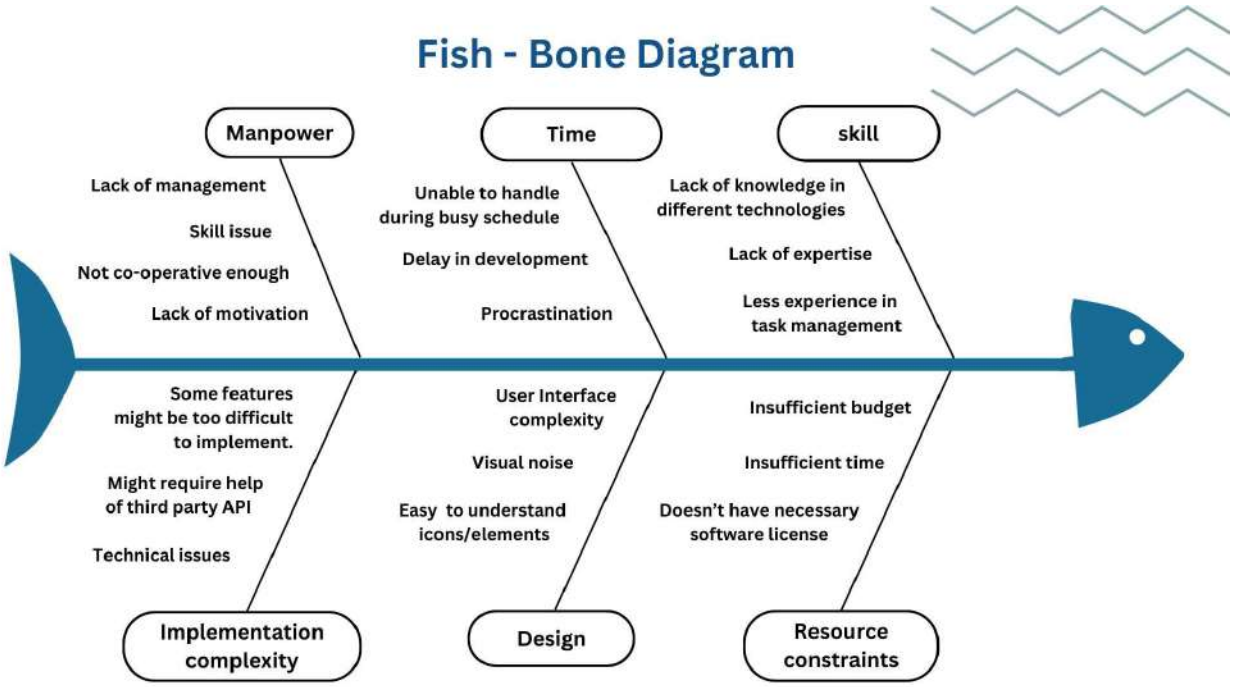
Dependency Table:

NODE	TASKS	PREREQUISITE	Number of weeks
a	planning	No prerequisite	1
b	requirements gathering	a	1
c	alternative system evaluation	b	1
d	feasibility study	b,c	2
e	Designing	d	3
f	Frontend Development	c,e	3
g	Backend Development	c,f	3
h	Database Development	g	2
i	Integration Testing	h	2
j	Bug Fixing & Refinement	i	1
k	Deployment & Launch	j	1



Description:

This pert diagram shows the maximum time needed to complete the project. And it also shows the critical path which holds the longest path. This critical path starts from planning and ends with deployment.



Description:

This fishbone diagram represents the problems that we may face for building this software. There are mainly 6 types of problem we may face. For every type of problems, there are many problems. This problems are software, hardware and management related.

Requirements Elicitation and Analysis

Features and Specifications:

- Profile Matching
- Communication tools
- Privacy and safety Measures

Objectives and Goals:

Foster Meaningful Connections: MatchMagnet's primary objective is to foster genuine and lasting connections between individuals by aligning their interests, preferences, and values. The app aims to facilitate meaningful relationships that enrich users' lives by addressing the pain point of superficial interactions.

Enhance Social Well-being: By providing a platform for meaningful social interactions, MatchMagnet seeks to enhance users' social well-being and alleviate feelings of loneliness and isolation. This goal aligns with the app's mission to address the pain points of modern socialization and promote a sense of belonging and connection.

Promote Diversity and Inclusivity: MatchMagnet celebrates diversity and inclusivity by welcoming users from all backgrounds and communities. This objective addresses the pain point of exclusion and discrimination, ensuring that everyone feels valued and accepted within the app's community.

Continual Improvement: MatchMagnet is committed to continually improving its platform based on user feedback and technological advancements. This goal addresses the pain point of stagnant social networks by offering innovative features and enhancements that keep the app relevant and engaging in an ever-evolving digital landscape.

Key Stakeholders:

1. Users
2. Developers
3. Investors
4. Community Partners

Key Findings

- Users' demographics and their experiences with the app.
- Insights into what users prioritize when using such apps.
- Identified technical and other issues faced by users.

Survey Process:

Survey Tool: Google Form.

Distribution: Distributed among targeted audiences.

Data Collection: Responses were collected from the participants.

Data Analysis: To extract meaningful insights and feedback.

Survey Questions:

Demographics:

- Age
- Gender
- Location
- Occupation

User Experience:

- How often do you use connection-making apps?
- What features do you find most useful in such apps?
- What difficulties have you encountered while using these apps?

User Preferences:

- What type of connections are you looking to make (e.g., friendships, professional networks, romantic relationships)?
- How important are the following features to you: profile pictures, detailed bios, mutual interests?

Technical Issues:

- Have you experienced any technical issues such as slow loading times, freezing, or crashes?
- How do you rate the stability and reliability of the app compared to others?

Security and Privacy:

- How comfortable are you sharing personal information on the app?
- What security features do you find essential (e.g., two-factor authentication, profile verification)?

General Feedback:

- How satisfied are you with the current social media and connection-making apps?
- What improvements would you like to see in MatchMagnet?

Post Survey Analysis

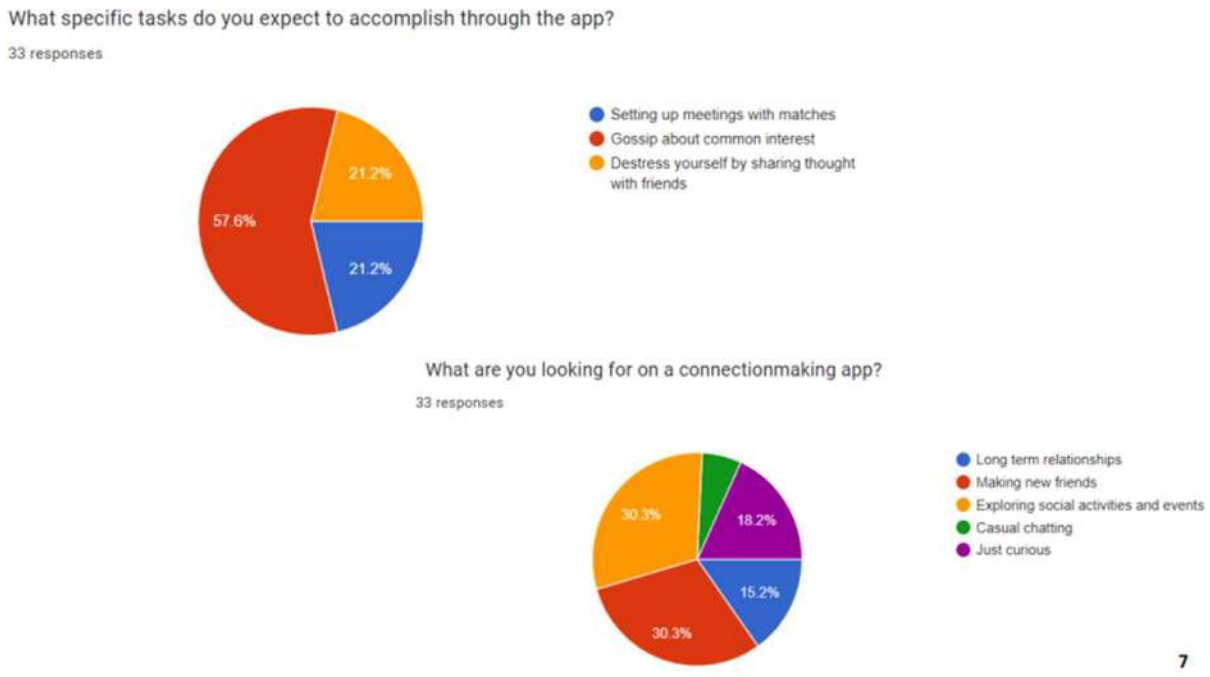
Survey Process:

- Explanation of the survey process:
- Used google form for the survey
- Distribute form
- Collect data from Targeted audience
- Analyze the feedback

Key Findings:

- Breakdown of user demographics
- User experience and expectation
- User's priorities
- Technical and other issues

User goals



Insights

- Users are clear about their motivations for using MatchMagnet.
- Users express varied preferences, making it challenging to meet everyone's needs.
- The main purpose is to find like minded fellows

Create Profile

How comfortable are you with sharing personal details such as your occupation, education, or relationship status on your MatchMagnet profile?

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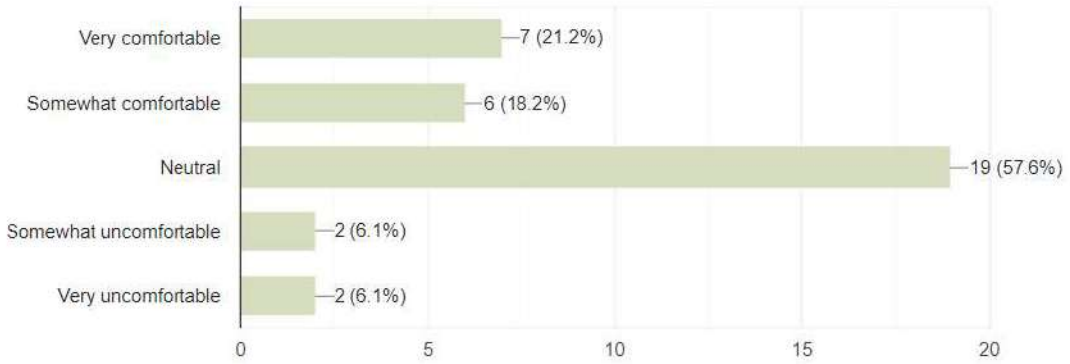

What information do you consider essential to include in your MatchMagnet profile? (Select all that apply)

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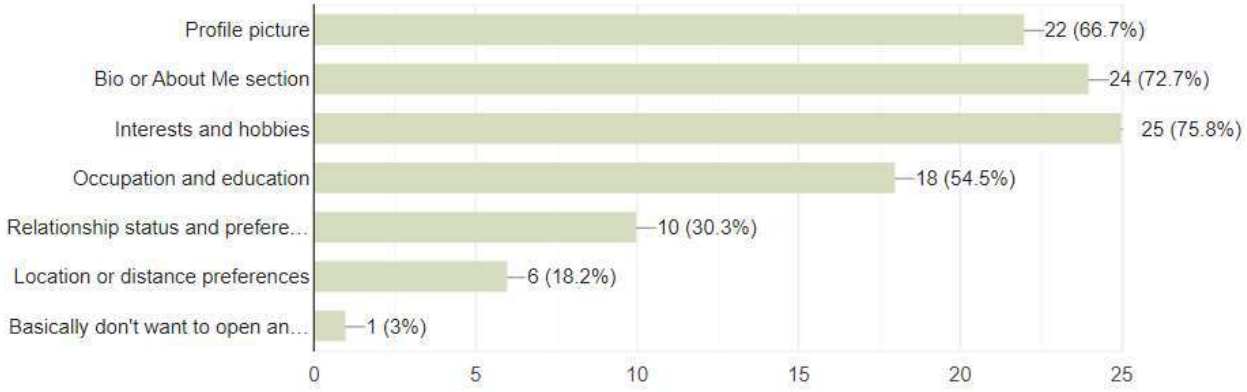

Would you prefer to have options for privacy settings on certain profile information, such as hiding your last name or specific interests?

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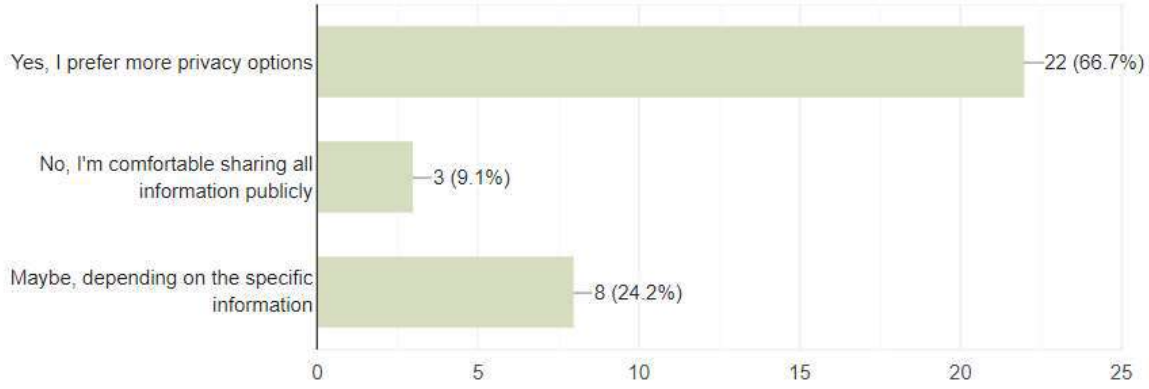

User Insights Summary:

- Neutral Stance on Privacy
- Security Priority
- Valued Information Types
- Profile Completeness

User Experience

How satisfied are you with the current Social Media apps?

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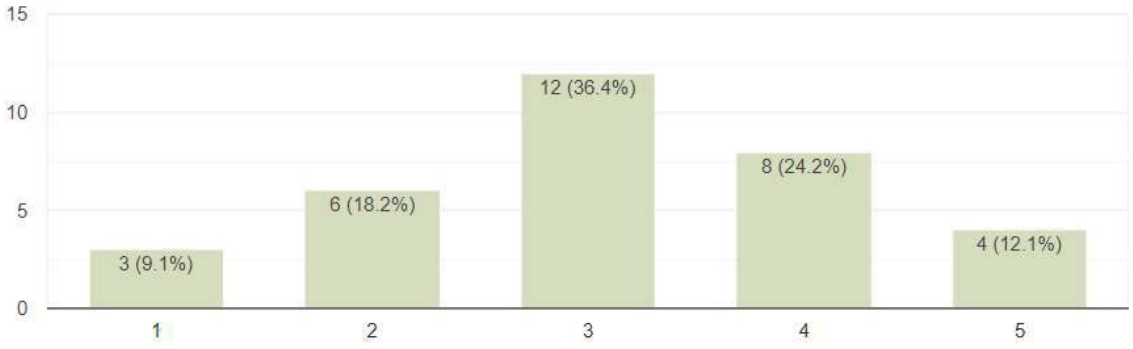

Which social media app you will prefer for chatting?

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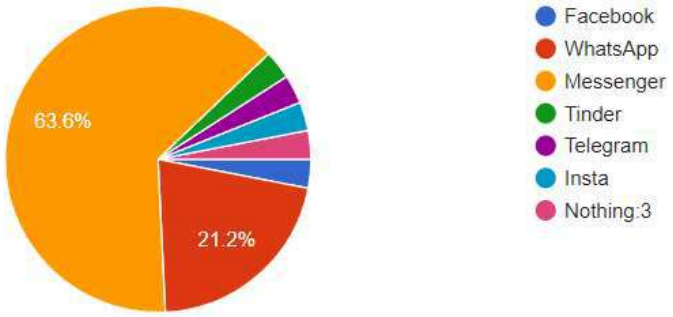

Which social media app is good of Connection-Making?

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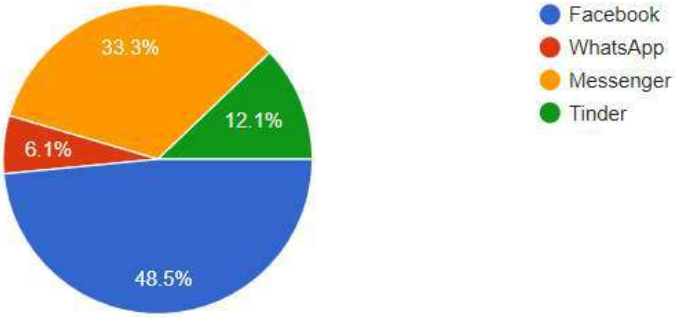

From your past experience of using social media platforms. What improvements do you believe could enhance your social media experience?

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What do you find most important in a potential connection-making app?

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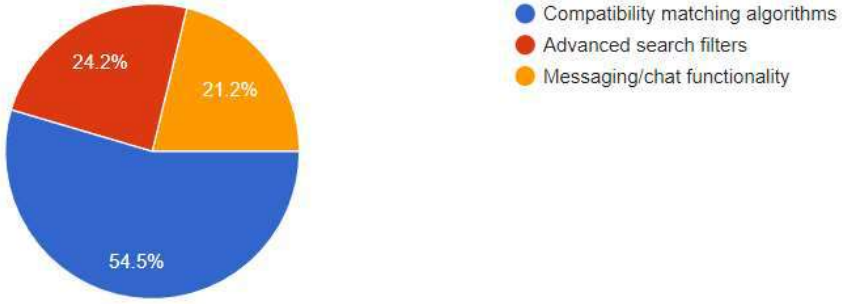

How comfortable are you with meeting someone from a connection making app in person?

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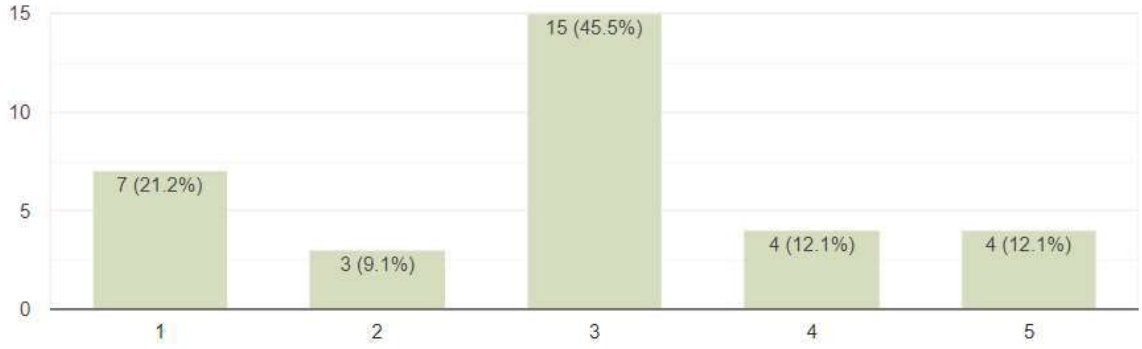

How reliable is the content you come across on social media platforms?

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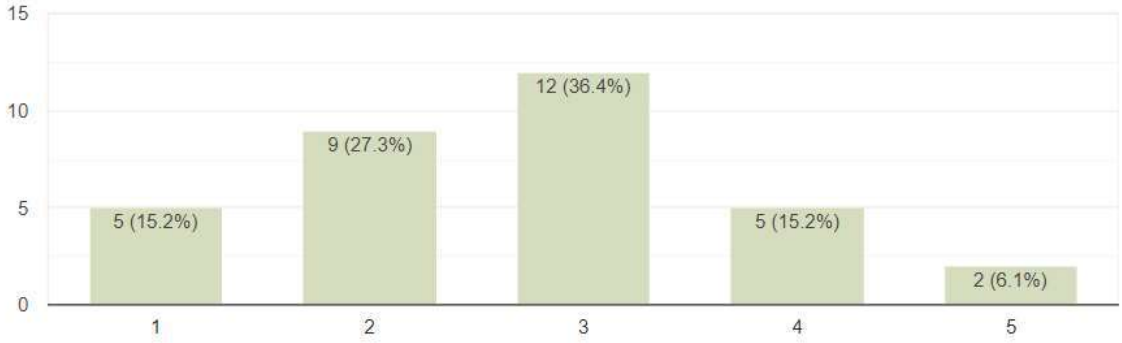

What type of content do you prefer to see on social media platforms?

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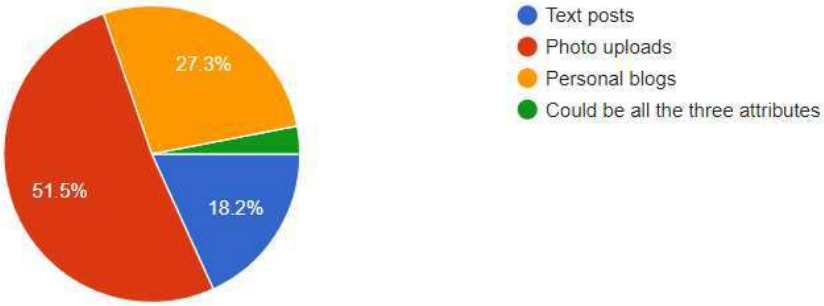

What type of people suggestions do you prefer?

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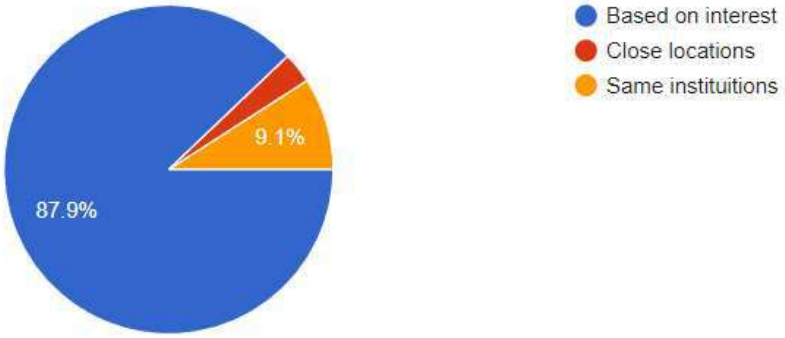

Insights

- Importance of Compatibility Matching
- Social Interaction
- Comfort and Satisfaction
- Platform Preferences

User Expectations

What would motivate you to spend more time on a new social media app?

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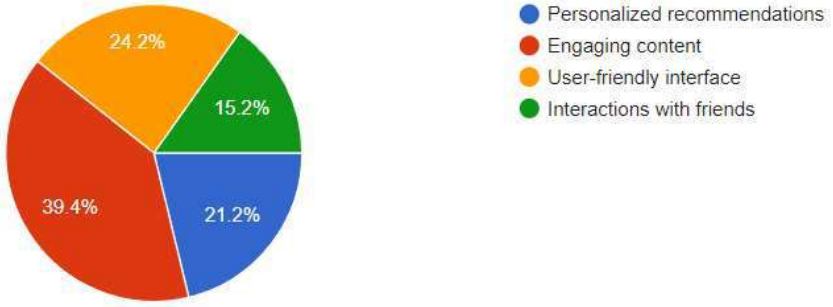

Which of the following security measures do you expect MatchMagnet to have to protect your personal information and ensure a safe online experience?

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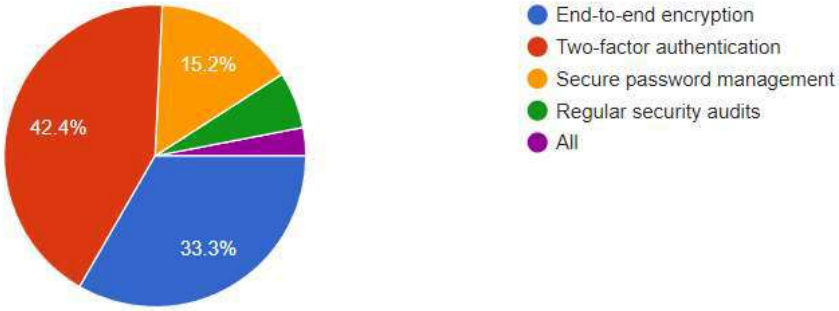

Would you like MatchMagnet to offer personalized recommendations based on your activity and preferences?

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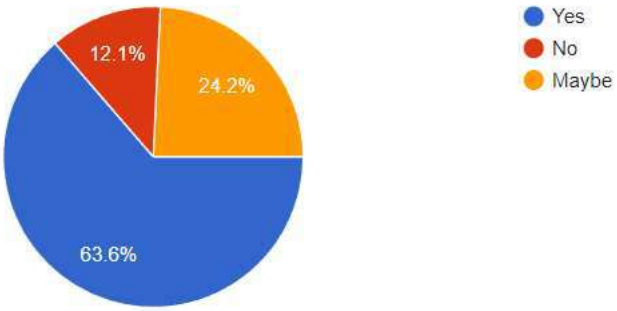

Insights

- Need to focus on delivering relevant content, optimizing usability, and fostering social connections.
- It is quite difficult to cope with the user's choice
- For security measurement two-step authentication will be developed

Technological Challengers

How often do you experience slow loading times or performance issues while using any chatting or connection making apps?

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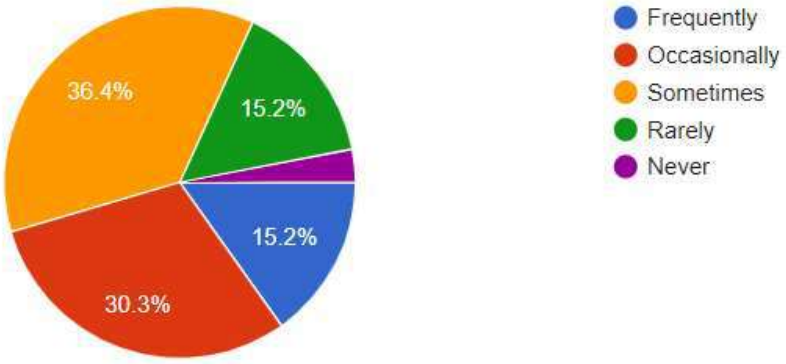

Have you encountered any difficulties with the other apps crashing or freezing unexpectedly?

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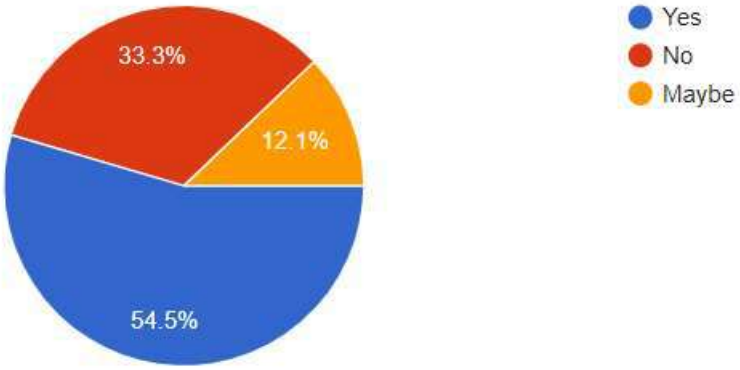

Have you faced challenges with logging in or accessing your account on other apps?

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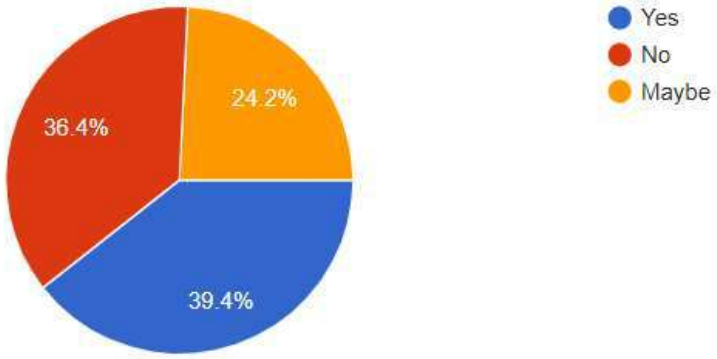

Do you encounter any compatibility issues between other apps and your device's operating system or browser?

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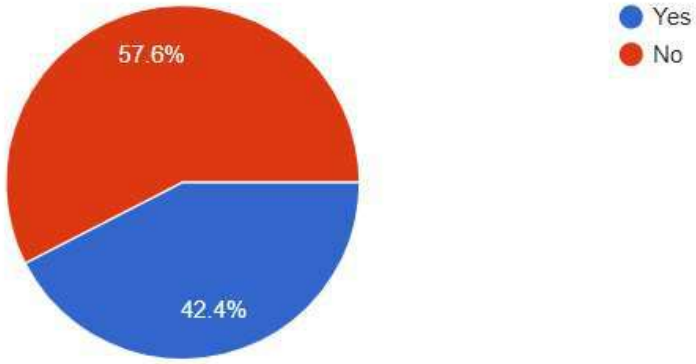

Have you experienced any connectivity issues, such as difficulty connecting to the internet while using other apps?

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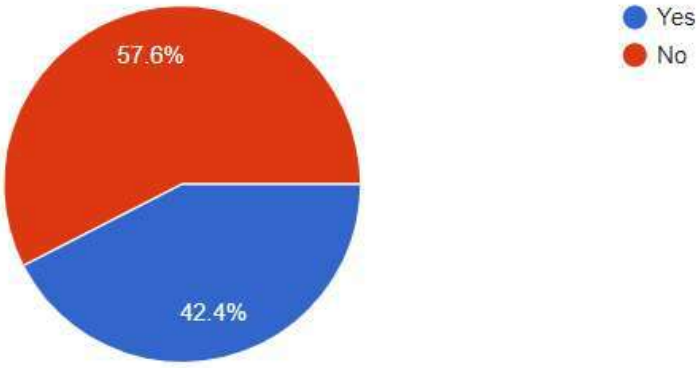

What do you find most frustrating about using other apps? (select all that apply)

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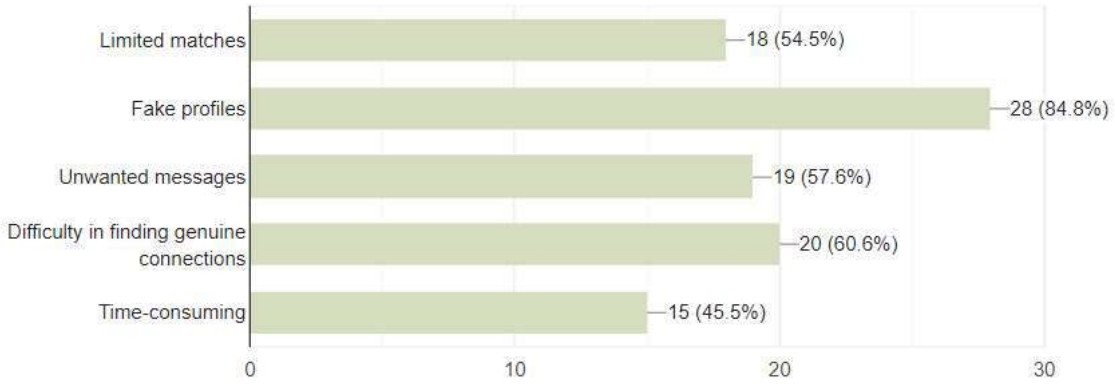
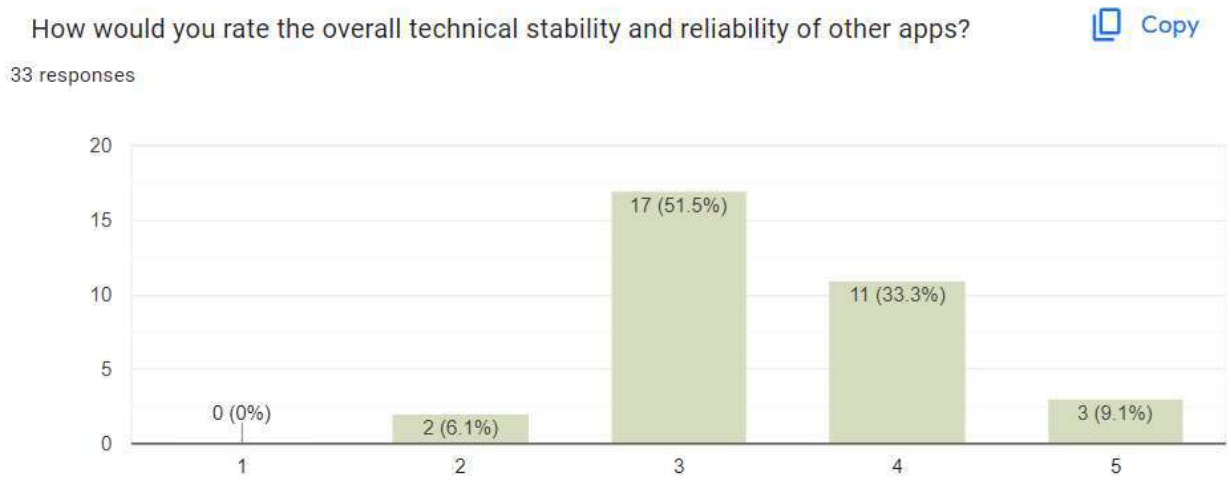




Insights

- Users have faced slow loading time, freezing, and crashes from other apps.
- Many users struggle with network connectivity.
- Fake profiles are the most frustrating for the maximum number of users.
- And lastly, users think that other apps are not so stable and these are buggy.

Requirement Analysis

Functional Requirements:

Must-Have:

User Profile Creation:
- Should keep a different section in the profile option
- Keep 2 step verification security steps
- Keep face recognition

Matching Algorithms:
- Advanced search filters for refining matches based on specific criteria.
- Make matches according to the priority of users.

Should-Have

Advanced Search Filters:
- Refines match results based on age, location, and interests.
- Allow customization of search parameters for more precise Matching.

Messaging/Chat Functionality:
- Enable messaging/chat functionality for communication between matched users.

Security Features:
- Two-factor authentication

Could-Have
- Responsive customer support
- Enhanced Ai features
- Compatibility with different devices

Non-Functional Requirements:
- Role-based access control
- Integration with customer relationship management (CRM) tools
- Scalable backend architecture
- WebSocket protocol for real-time communication.
- For storing user passwords libraries like bcrypt in the backend.

Some user demands

Technical

- User friendly UI
- Personalized Recommendation
- Two factor authentication
- Compatible with different OS
- Profile Verification
- Bug free user experience

User goals and objective

- Users aim to make new friends and engage in social activities via the connection-making app.

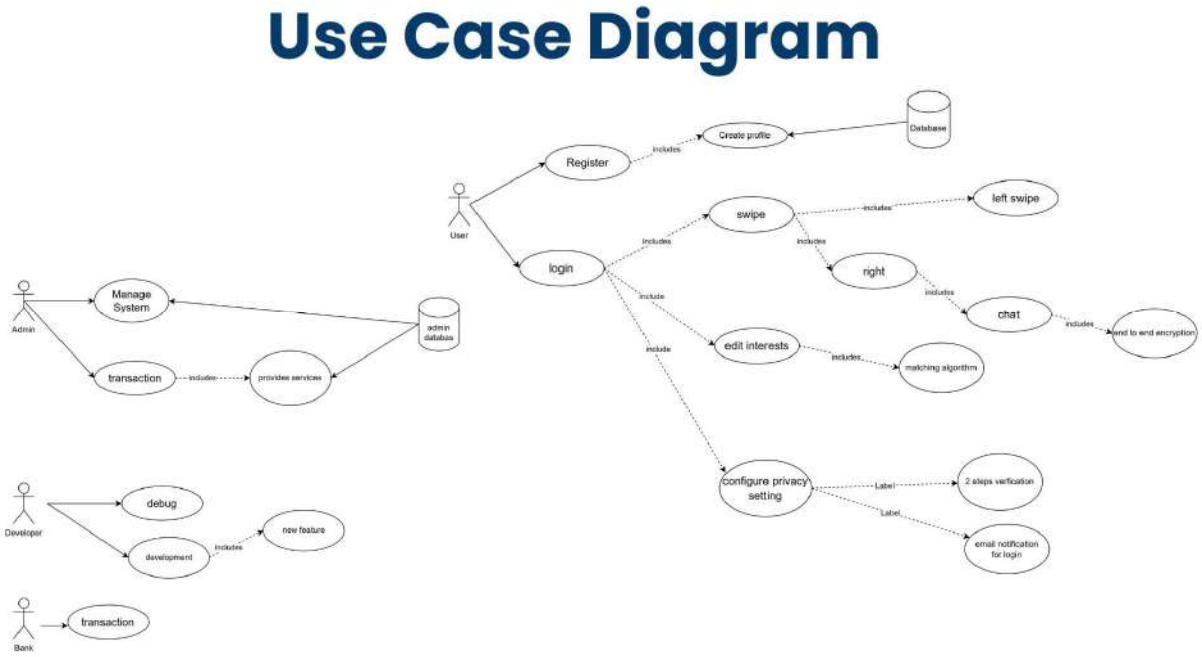
- They anticipate engaging in discussions about mutual interests, fostering social interaction and bonding.

Some user demands

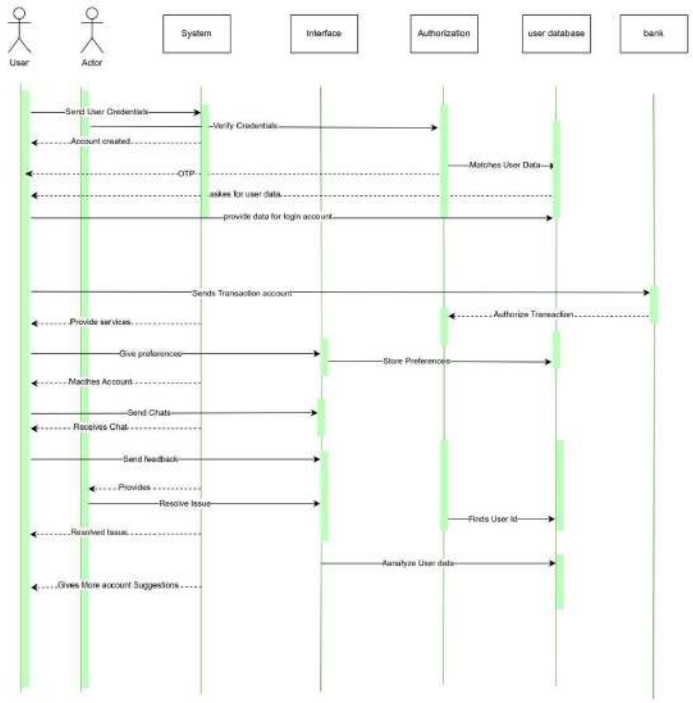
User Experiences

- Enhanced compatibility matching algorithms in connection-making apps.
- Increased opportunities for meaningful social interaction on social media platforms.
- Improved satisfaction and comfort levels with connection-making and social media apps consistent reliability of content on social media platforms.

Data Flow Diagrams



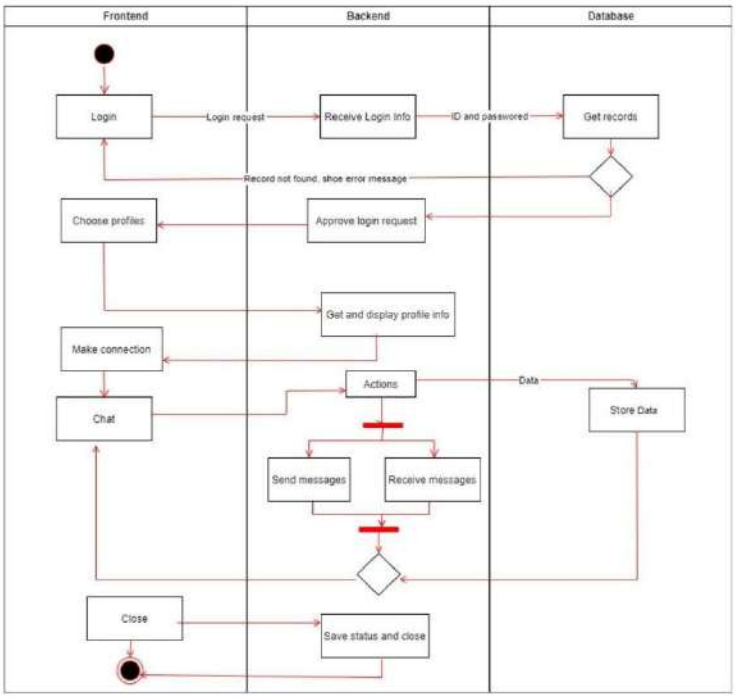
The use case diagram for MatchMagnet provides a visual representation of the different interactions between users and the system. It outlines various user actions such as creating a profile, logging in, selecting hobbies and interests, using the chatbox, and reporting issues. Each use case represents a specific functionality that the system offers, illustrating how users engage with MatchMagnet to achieve their goals.



Sequence Diagram

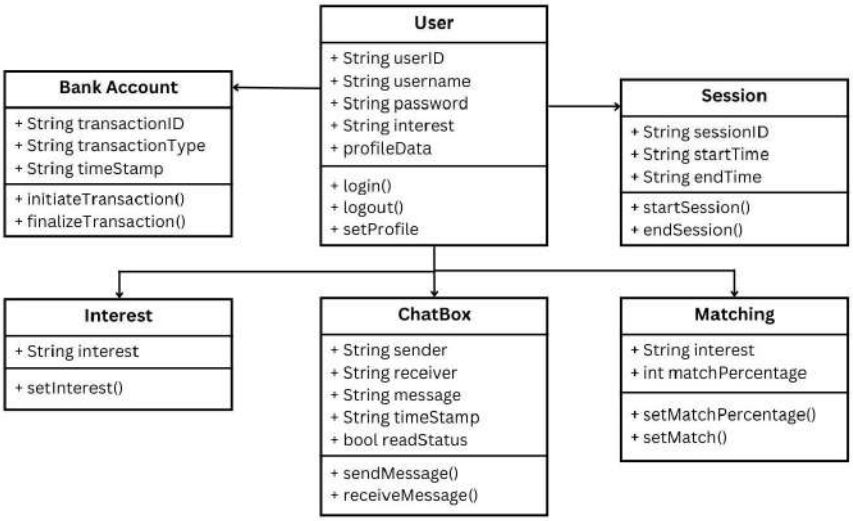
The sequence diagram details the flow of interactions between different objects over time within MatchMagnet. It shows the sequence of messages exchanged between users, the chatbox, and other system components like the profile database and support center. This diagram helps to understand the temporal order of operations, ensuring that each function is executed in the correct sequence for smooth user experience.

Activity Diagram



The activity diagram depicts the dynamic aspects of the MatchMagnet system by modeling the workflow of various activities. It shows the step-by-step process for user actions such as signing up, logging in, matching with others, and using the chat feature. This diagram helps to visualize the flow of control and data through the system, highlighting decision points and parallel activities.

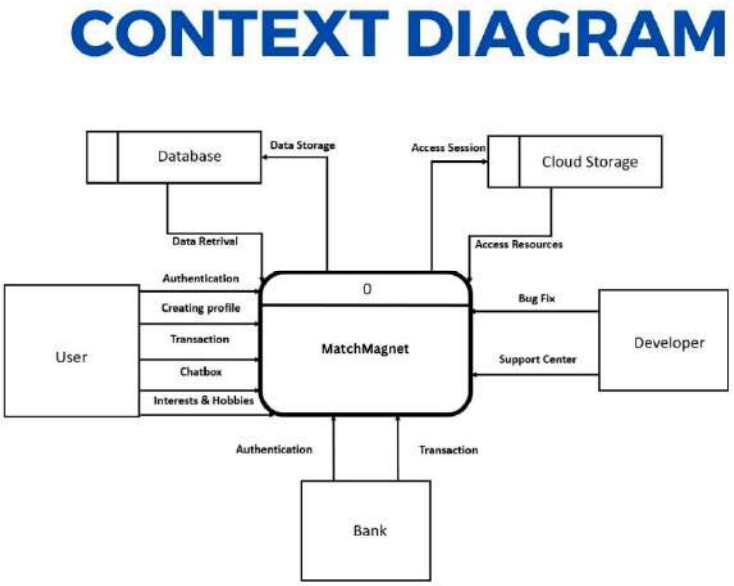
Class Diagram



The class diagram provides a static structure of MatchMagnet by defining the classes, their attributes, and methods. It includes classes like Bank Account, User, Session, ChatBox, Interest, and Matching. Each class encapsulates specific functionalities:

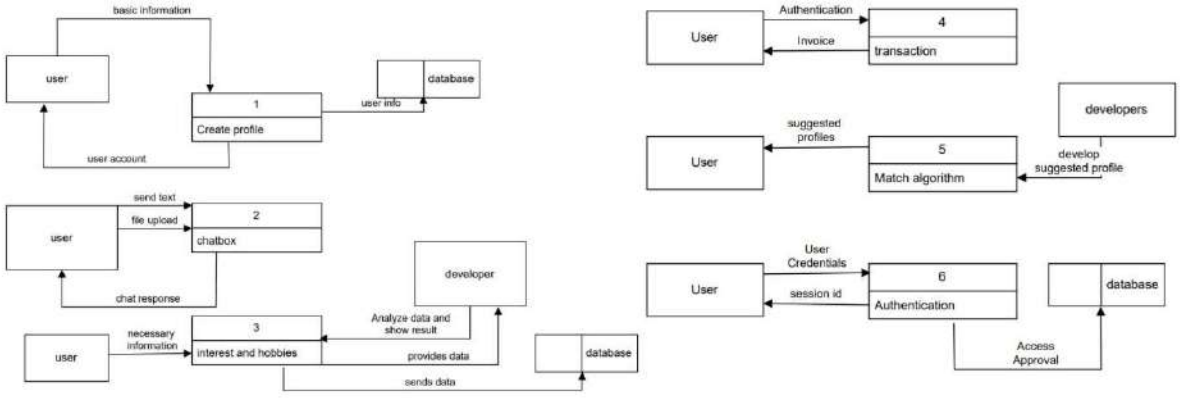
- **Bank Account**: Manages transactions with attributes like transactionID, transactionType, and methods to initiate and finalize transactions.
- **User**: Represents a user with attributes like userID, username, password, interests, and methods for login, logout, and setting profiles.
- **Session**: Tracks user sessions with attributes like sessionID, startTime, endTime, and methods to start and end sessions.
- **ChatBox**: Handles messaging with attributes like sender, receiver, message, timestamp, readStatus, and methods to send and receive messages.
- **Interest**: Manages user interests with attributes and methods to set interests.
- **Matching**: Facilitates matching based on interests with attributes like matchPercentage and methods to set matches.

UML Diagrams

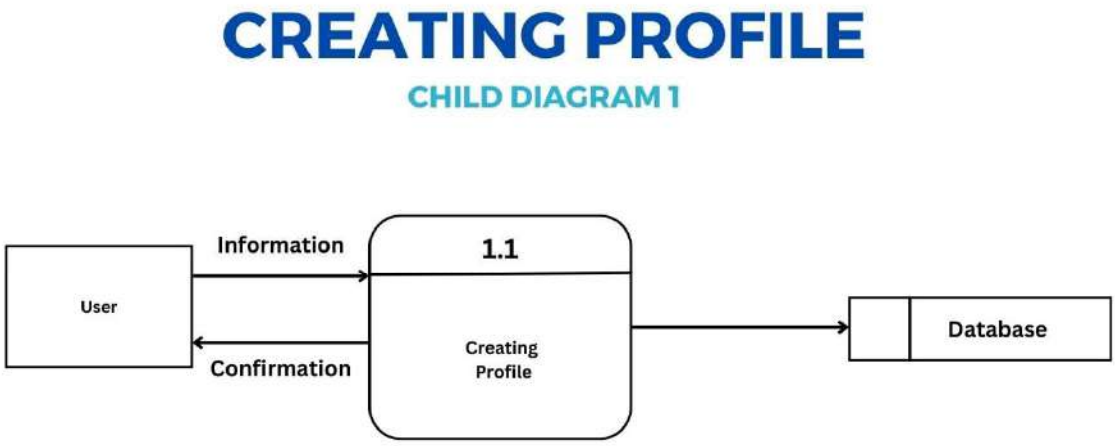


The context diagram for MatchMagnet provides a high-level view of the entire system, showcasing how external entities (users) interact with the system. It depicts the system as a single process and outlines the flow of information between the users and MatchMagnet. This diagram sets the stage for understanding the major interactions and the overall system architecture.

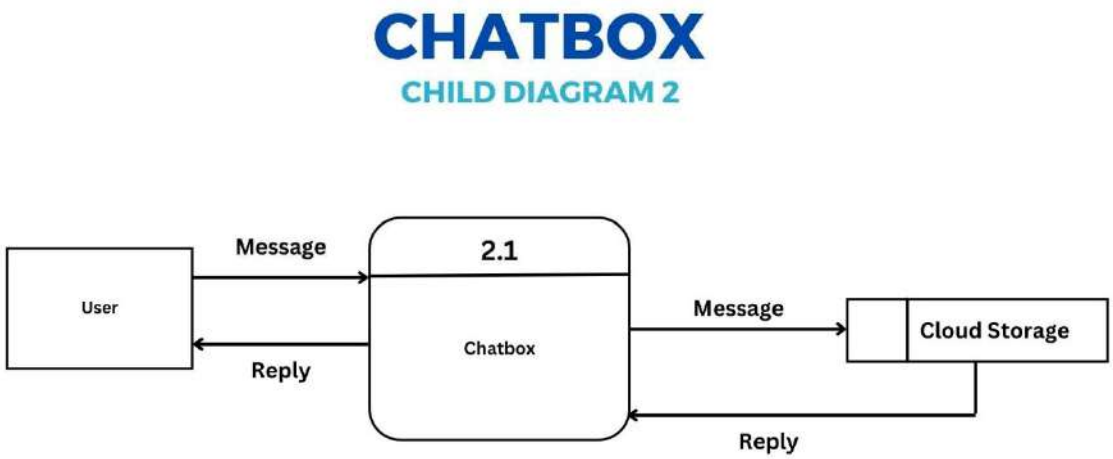
LEVEL 0 DIAGRAM



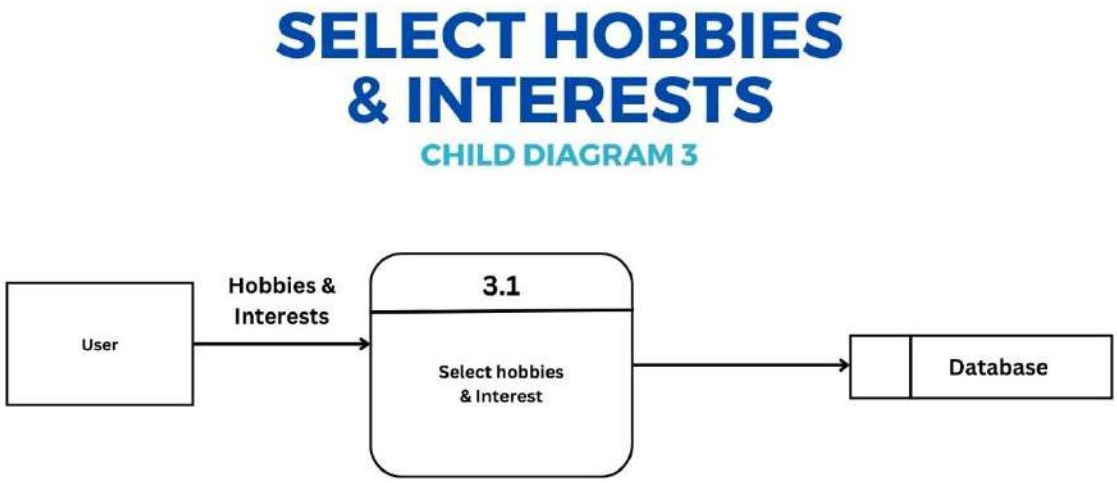
The Level 0 diagram breaks down the main system (MatchMagnet) into more detailed subprocesses. It identifies the key components and data stores, such as user profiles, chatboxes, hobbies and interests, transactions, authentication, support center, and bug fixing. This diagram serves as a blueprint for the system's primary functions and their interactions.



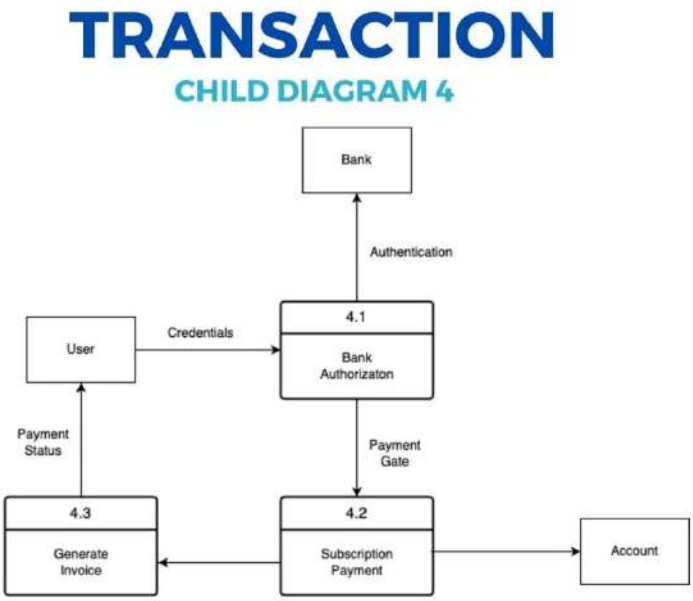
This diagram details the process of creating a user profile. The user inputs personal information, which is then confirmed and stored in the profile database. It illustrates the steps from initial data entry to successful profile creation, ensuring data integrity and user confirmation.



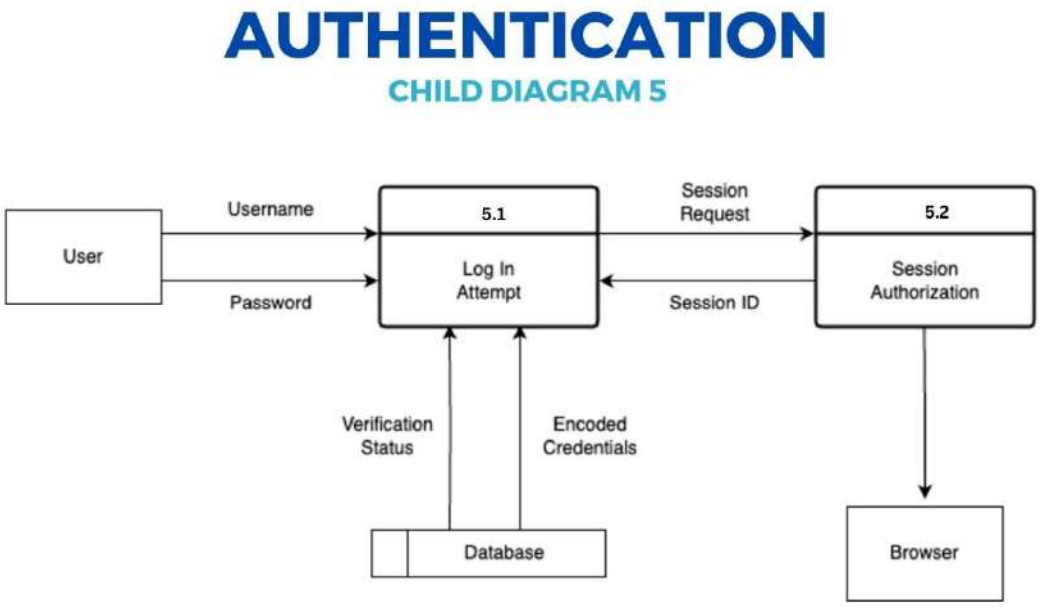
The chatbox child diagram focuses on user interactions through messaging. Users send messages, which are processed and stored in cloud storage. Replies are then retrieved and displayed. This diagram outlines the flow of communication, ensuring real-time messaging and data management.



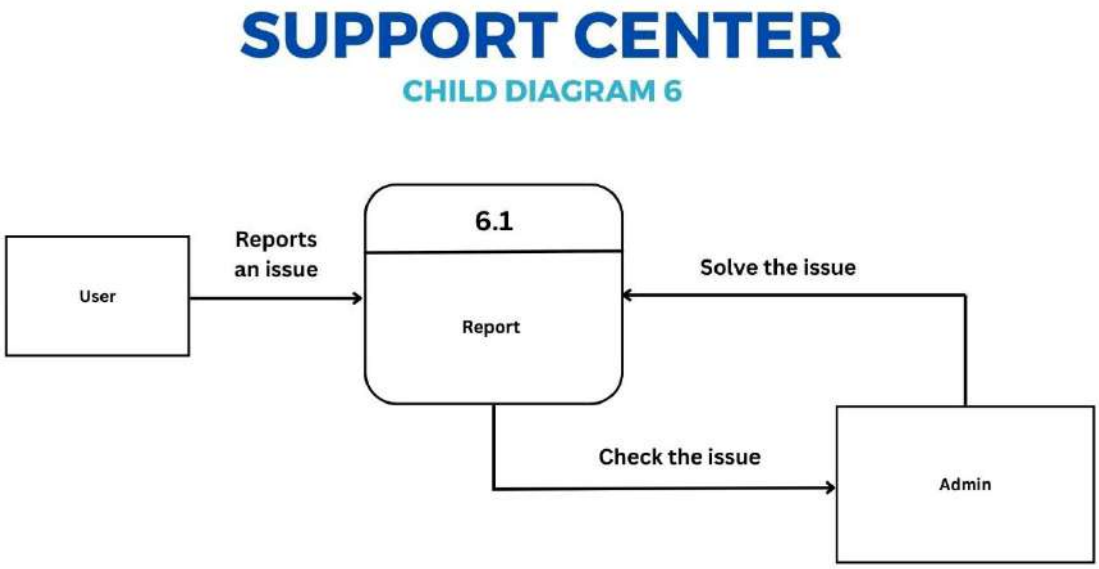
This diagram explains how users select their hobbies and interests. The user inputs their preferences, which are then saved in the database. This process helps in customizing the user experience by tailoring matches based on shared interests.



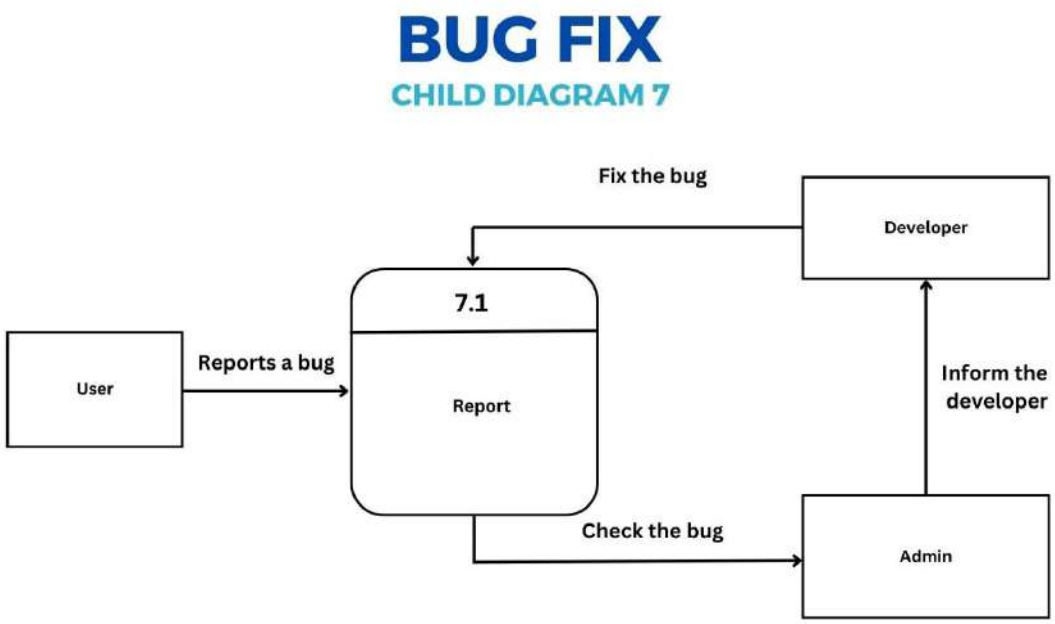
The transaction child diagram illustrates the financial aspects of MatchMagnet, such as subscription payments and purchases. It ensures secure handling of transactions, maintaining financial records, and providing confirmation to users.



The authentication child diagram shows the process of verifying user identity. It includes steps like user login, verification, and access control. This ensures that only authenticated users can access and use MatchMagnet's features, enhancing security.



This diagram details the support center process. Users can report issues, which are then checked and resolved by the admin. It ensures efficient problem-solving and user assistance, maintaining high service quality.



The bug fix diagram outlines how the system handles reported bugs. Users report bugs, which are verified by the admin and then forwarded to developers for fixing. This ensures systematic identification and resolution of technical issues, maintaining system reliability.

GitHub Link

https://github.com/KIBMAN/sadmatchmagnet

After downloading this project, one has to connect with our database, MongoDB using the string:

mongodb+srv://Zod:zodbroxyz@cluster0.zahhmrh.mongodb.net/?retryWrites=true&w=majority&appName=Cluster0

Also, we need to install npm on both server folder and client folder

Now we need to run the backend from server folder using the following commands:

```
cd server

npm run start:backend
```

After running the backend, we run the frontend from client folder:

```
cd client

npm run start: frontend
```