

comp90082-2024-s2-sa-redback.....	3
Templates.....	5
Template - Project plan.....	6
Template - Decision documentation.....	8
Template - Status report.....	9
Get the most out of your team space.....	10
Background.....	14
Project overview.....	15
Client Goal.....	17
Scopes.....	18
Stakeholders.....	20
Technical Consideration.....	22
Development Environment.....	23
Ethical Consideration.....	25
Requirements.....	26
Personas.....	27
Prototype.....	29
User Stories.....	31
Product Backlog.....	38
Non-Functional Requirements.....	45
Sprint.....	47
Sprint 1.....	48
Plan for Sprint 1.....	49
Sprint 1 Retrospective.....	50
Sprint 2.....	51
Plan for Sprint 2.....	52
Architecture.....	56
MongoDB Database Model.....	57
API.....	58
Deployment Decision.....	60
Collaboration.....	62
About Us.....	63
Agile Ceremonies.....	64
Sprint 1 Planning Meeting.....	65
Sprint 1 Retrospective Meeting.....	67
Meetings.....	68
Client Meetings.....	69
07/08/2024 Client Meeting.....	70
Mentor Meetings.....	73
21/08/2024 Mentor Meeting.....	74
14/08/2024 Mentor Meeting.....	75
07/08/2024 Mentor Meeting.....	76
04/08/2024 Mentor Meeting.....	77
Team Meetings.....	78
20/08/2024 Team Meeting.....	79

15/08/2024 Team Meeting . . . . .	81
13/08/2024 Team Meeting . . . . .	83
06/08/2024 Team Meeting . . . . .	85

## 👋 Welcome to the SWISP - AI Chatterbox Project Space!

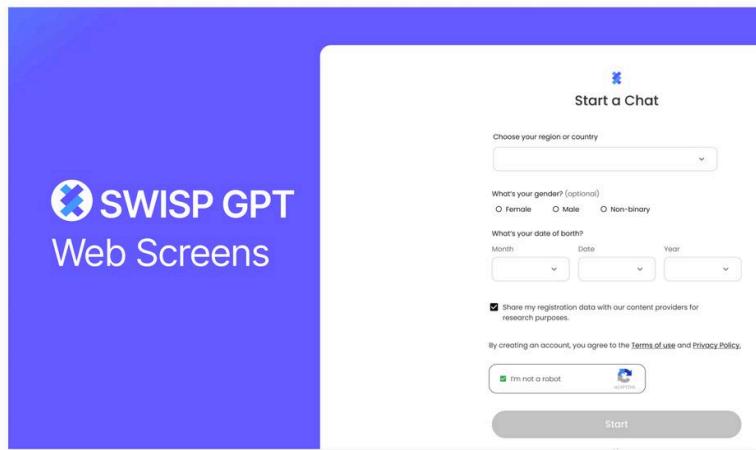
### About the Project

Welcome to SWISP Lab's exciting journey into the digital world! We're taking our fun paper chatterboxes and turning them into a smart digital tool. Our new AI chatbot is here to create interesting "what if" questions that make you think in new ways.

Our AI chatterbox is perfect for hackathons and learning activities. It helps you explore new ideas about the future and imagine "what if" scenarios. Just type in a topic, and the chatbot will come up with eight unique questions to spark your imagination.

Whether you're thinking about climate change, future technology, or how society might change, our chatbot is here to help you explore new ideas. It's not just fun to use – it also saves all the questions and answers so you can learn from them later.

Join us in this world of "what if" thinking. Let's see where your imagination can take you!



### Table of Contents

[Expand all](#) [Collapse all](#)

- › [Templates](#)
- › [Background](#)
- › [Requirements](#)
- › [Sprint](#)
- › [Architecture](#)
- › [Collaboration](#)
- › [Meetings](#)

### Quick Links

[Trello Board](#)

[Github](#)

[Figma Prototype](#)

### Meet the team



Yujun Yan  
Mentor



**Yiyao Li (Shaelyn)**

Product Manager

[@YiYao Li](#)



**Yiqun Liu (Elva)**

Scum Master

[@Yiqun Liu](#)



**Yingying Guo (Vicky)**

Quality Assurance Leader

[@Yingying Guo](#)



**Jionghao Song (Harry)**

Developer

[@Jionghao Song](#)



**Leyao Lyu (Lydia)**

Developer

[@Leyao Lyu](#)

## Templates

## Template - Project plan

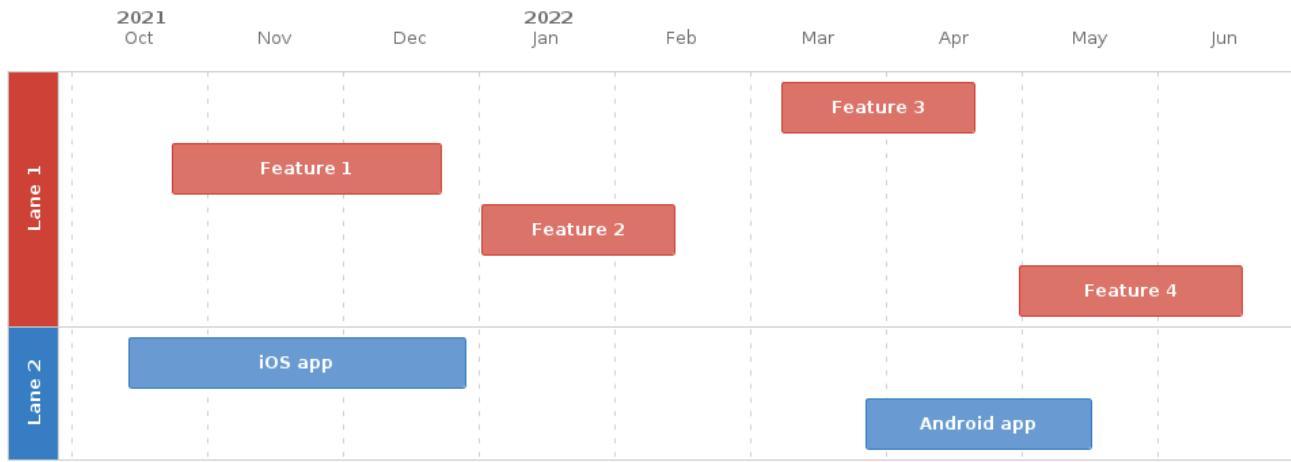
Driver	
Approver	
Contributors	
Informed	
Objective	
Due date	
Key outcomes	
Status	NOT STARTED / IN PROGRESS / COMPLETE

## Problem Statement

## Scope

Must have:	<ul style="list-style-type: none"><li>•</li><li>•</li></ul>
Nice to have:	<ul style="list-style-type: none"><li>•</li><li>•</li></ul>
Not in scope:	<ul style="list-style-type: none"><li>•</li><li>•</li></ul>

## Timeline



## ▶ Milestones and deadlines

Milestone	Owner	Deadline	Status

## 🔗 Reference materials

## Template - Decision documentation

Status	NOT STARTED / IN PROGRESS / COMPLETE
Impact	HIGH / MEDIUM / LOW
Driver	
Approver	
Contributors	
Informed	
Due date	
Resources	

### Relevant data

### Background

### Options considered

	Option 1	Option 2
Description		
Pros and cons	+ -	+
Estimated cost	LARGE	MEDIUM

### Action items



### Outcome



## Template - Status report

i Copy and paste this section for each week.

### ✓ Win

- 1.
- 2.
- 3.

### ✗ Needs input

- 1.
- 2.
- 3.

### ■ Focus

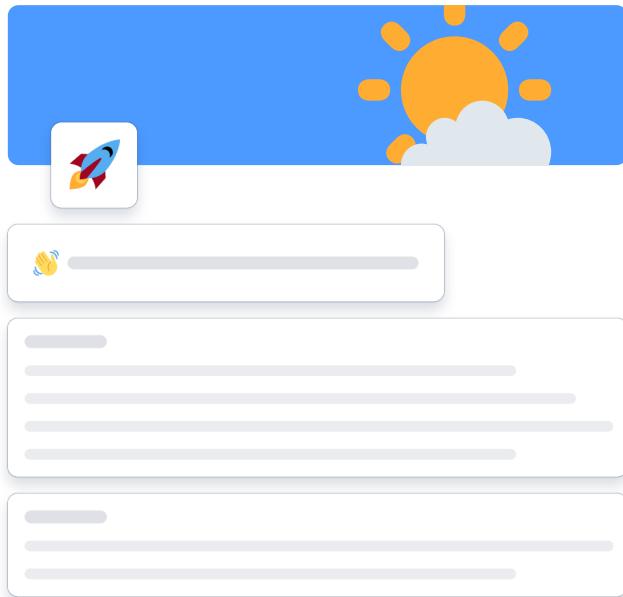
- 1.
- 2.

Notes	
Important Links	

# Get the most out of your team space

## Create a stellar overview

The overview is the first page visitors will see when they visit your space, so it helps to include some information on what the space is about and what your team is working on.



**Add a header image.** This gives your overview visual appeal and makes it welcoming for visitors.

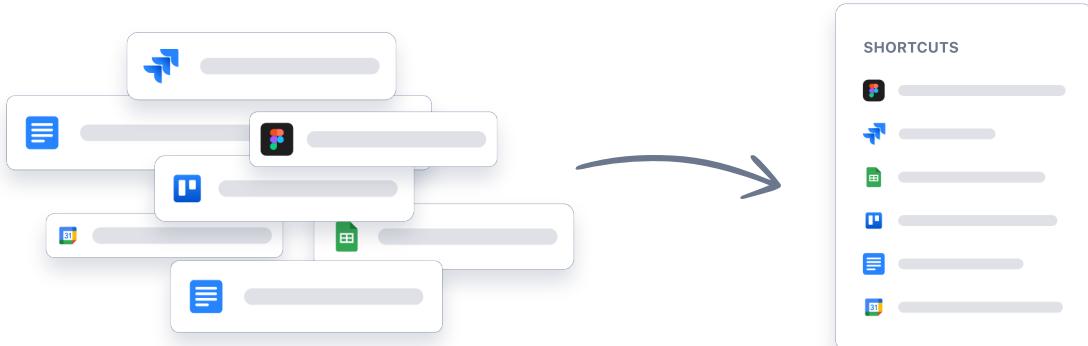
**Explain what the space is for.** Start by summarizing the purpose of the space. This could be your team's mission statement or a brief description of the kind of work you do.

**Share team goals.** Add links to your team's OKRs, project plans, and [product roadmaps](#) so visitors can quickly get a sense of your team's goals.

**Tell people how to contact you.** Share your timezone and links to Slack channels, email aliases, or other contact details your team uses so visitors can contact you with questions or feedback about your team's work.

## Use shortcuts for easy access

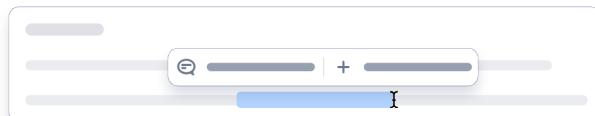
Shortcuts are helpful for important pages that members of a space might need to get to often. These shortcuts are added and organized by the space administrator. Space admins can link to pages in the space, other related spaces, or relevant external web content as well as reorder the shortcuts as needed.



## 💡 Start discussions with inline comments

Thoughtful responses can get lost and lose context as email replies pile up. And if you neglect to copy someone or want to add them later on, it's difficult for them to get up to speed. [Inline comments](#) allow anyone (or everyone) to huddle around an idea while referencing key information on the project page.

To leave an inline comment, highlight text on the page and the comment icon will appear.

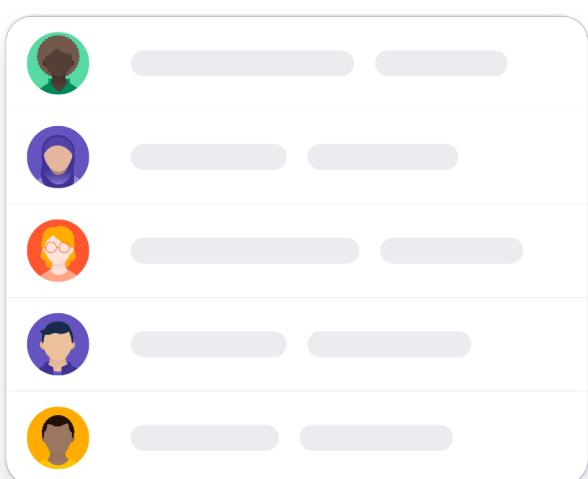


Team members with permission to access the page can respond to any comment. Plus, when a comment thread comes to its natural conclusion, comments can be resolved and cleared away.

## 👏 Loop in team members with @mentions

[@mentions](#) on Confluence function like @mentions on social media platforms like Twitter, Instagram, and Slack. Type the @ symbol on a Confluence page or in a comment, begin spelling a team member's first name, and a list will appear. Select the individual to ask a question or assign a task.

@ |



## 👏 Endorse ideas with reactions

Use reactions when you want to support a comment or acknowledge you've seen one without clogging up the thread with another comment.

You can also use reactions on a page or blog post. The author of the content will be notified, and if enough team members react or add comments to the content, it'll be surfaced on Confluence home feed



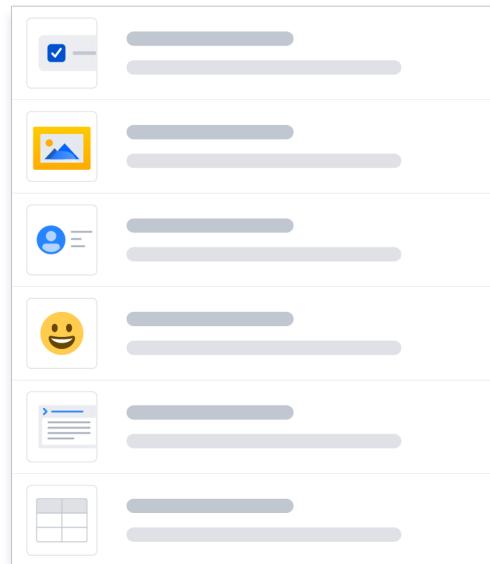
## Take your Confluence space to the next level

Extend the capabilities of your Confluence pages by adding extra functionality or including dynamic content.

/

### To add functionality:

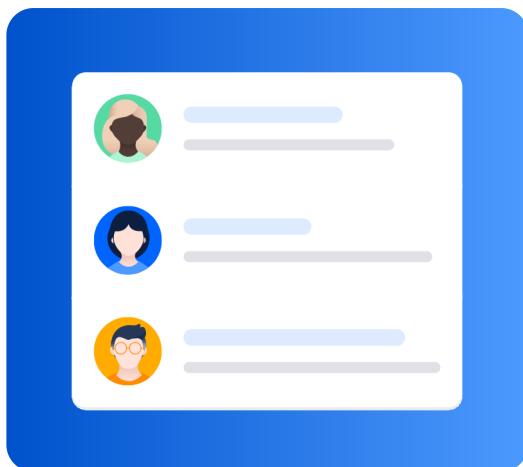
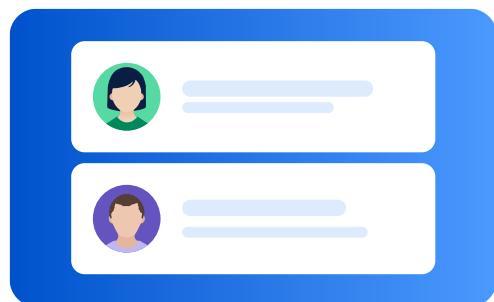
1. Type '/' to open the list of items available to use
2. Find the item to be inserted and select it
3. Select **Insert**



## Useful elements for Team space

### Introduce the team

Add [user profiles](#) to display a short summary of a given Confluence user's profile with their role, profile photo and contact details.

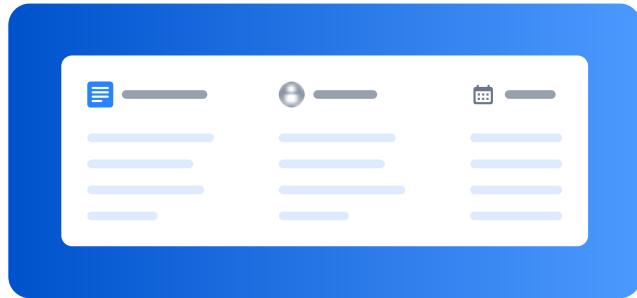


### Share news and announcements with your team

Display a stream of latest [blog posts](#) so your team can easily see what's been going on.

**Display a list of important pages**

Paste in page URLs to create smart links, or use the [content report table](#) to create a list of all the pages in the space.





## Background

As technology advances, encouraging creative thinking is more important than ever. The SWISP Lab has developed paper "chatterboxes" to help people explore "what if" questions, sparking creativity. However, these tools face challenges in scaling and deep interaction. Many existing digital tools cannot also engage users meaningfully. The AI Chatterbox project, led by SWISP Lab, aims to solve this by using an AI-driven platform to bring the benefits of traditional tools into the digital age, making creative exercises more accessible and interactive for everyone.

- [Project overview](#)
- [Client Goal](#)
- [Scopes](#)
- [Stakeholders](#)
- [Technical Consideration](#)
- [Development Environment](#)
- [Ethical Consideration](#)

# Project overview

## Introduction:

The AI Chatterbox project seeks to bring the traditional paper-based chatterbox into the digital age by developing a web-based AI chatbot. Historically, the chatterbox has been used to prompt speculative thinking by asking "what if" questions, stimulating creativity and interdisciplinary dialogue. This project aims to replicate and enhance this experience through an AI-driven platform that generates speculative questions based on user input. Designed primarily for use in art galleries, this chatbot will engage users, particularly those aged 14-28, in thoughtful exploration of complex social and environmental issues.

## Key Features:

### Features

- **Web-Based Platform:** Accessible via a web interface, eliminating the need for app downloads. Users can engage with the AI Chatterbox from any device with internet access.
- **AI-Generated Questions:** The chatbot generates eight unique "what if" questions based on user input. These questions are designed to stimulate creativity and critical thinking on a wide range of topics.
- **Multilingual Support:** The platform supports multiple languages, making it accessible to a global audience. This feature ensures that users from different linguistic backgrounds can interact with the chatbot effectively.
- **No Login Required:** Users can start interacting with the chatbot immediately without creating an account or logging in, ensuring a seamless and hassle-free experience.
- **Adaptive Question Generation:** The system adapts its question generation based on user input, allowing for a diverse range of speculative questions tailored to various topics.
- **Data Collection and Analysis:** Collects and securely stores user interactions for future research and analysis. This feature helps understand user behaviour and improve the system based on feedback.
- **QR Code Access:** Simplifies user access by providing QR codes directly to the chatbot. This feature ensures easy and quick interaction, especially in public or gallery settings.
- **Output Filtering:** Ensures that generated questions adhere to safety and appropriateness standards by filtering out any potentially harmful or inappropriate content.
- **User Feedback Mechanism:** Provides options for users to give feedback on the questions and their experience, helping to refine and improve the chatbot's performance and content.

## Benefits:

- **Enhanced Engagement:** The AI Chatterbox fosters deep engagement by encouraging users to explore speculative scenarios and think critically about complex issues.
- **Accessibility:** Being web-based and login-free, the platform is accessible to a wide audience, ensuring ease of use across different devices and locations.
- **Data-Driven Insights:** By collecting and storing interaction data, the platform allows for valuable research insights, helping to understand user behavior and preferences.
- **Cultural Relevance:** With multilingual support and adaptability to diverse inputs, the AI Chatterbox can be used across various cultural contexts, making it relevant and inclusive.
- **Budget-Friendly Implementation:** Utilizing OpenAI's API allows for a cost-effective solution that still provides high-quality, AI-generated content.
- **Sustainability:** The digital nature of the AI Chatterbox ensures long-term sustainability by reducing the need for physical materials and allowing for continuous updates and improvements, making it an environmentally friendly solution.

- **Seamless Accessibility:** The platform is engineered for effortless access, enabling users to quickly engage with the AI Chatterbox by scanning a QR code. This streamlined approach eliminates the need for downloads or complex setup, ensuring a smooth and efficient user experience.

## Client Goal

1. **Web-Based AI Chatbot:** Develop a web-based AI chatbot that generates eight speculative "what if" questions based on user input. This tool will serve as a conversation starter in art galleries.
2. **Replacement of Manual Process:** The chatbot will replace the current manual method of generating speculative questions, streamlining the process.
3. **Critical Thinking Promotion:** The chatbot aims to encourage users to think critically about complex issues, including climate change, racism, and digital inclusion.
4. **Fully Digital System:** The system must be entirely digital, eliminating the need for printed materials or physical templates.
5. **No User Login Required:** The platform should not require users to log in, ensuring easy access and usability.
6. **User-Friendly Design:** The chatbot should be accessible and easy to use for individuals with varying levels of expertise in speculative inquiry.
7. **Theme-Specific Question Generation:** The generated "what if" questions will be directly related to the specific theme provided by the user's input.
8. **Low Budget Implementation:** The project has a low budget, and the client is open to using OpenAI's API for generating the speculative questions.
9. **Data Archiving for Research:** All generated data must be collected and archived, allowing for future analysis, which will contribute to ongoing learning and exploration.

# Scopes

## Inner Scope

Scopes	Objectives	Functionalities
AI Chat Box	<ul style="list-style-type: none"><li>Develop an AI chatbot which allows generate 8 hypothetical questions based on user inputs.</li><li>Users can interact with the chatbox, such as regenerate response.</li></ul>	<ul style="list-style-type: none"><li>Automatically generate questions fostering creativity and critical thinking.</li><li>Provide an interactive interface with users. Users can interact with the chatbox through keywords based on their preferences.</li></ul>
Data Collection	<ul style="list-style-type: none"><li>Collect data on user interactions with the chatbot to improve system performance and study user behavior.</li></ul>	<ul style="list-style-type: none"><li>Securely store data.</li><li>Provide retrieval and feedback mechanisms.</li></ul>
Web Server	<ul style="list-style-type: none"><li>Provide a stable, secure, and scalable server infrastructure to support the chatbot's operation.</li><li>Allow users globally access the website.</li></ul>	<ul style="list-style-type: none"><li>Implement high concurrency processing.</li><li>Implement data security.</li><li>Provide performance monitoring.</li></ul>
Web Development	<ul style="list-style-type: none"><li>Create a user-friendly and responsive web interface seamlessly integrated with the AI chatbot.</li></ul>	<ul style="list-style-type: none"><li>Provide an intuitive user interface.</li><li>Optimize user experience suitable for various devices.</li></ul>
QR Code Accessing	<ul style="list-style-type: none"><li>Simplify user access to the chatbot and related resources via QR codes.</li></ul>	<ul style="list-style-type: none"><li>Generate QR codes for accessing the website.</li><li>Providing instant access and usage tracking by scanning QR codes.</li></ul>
Input Filtering	<ul style="list-style-type: none"><li>Identify discriminatory, offensive, or otherwise inappropriate content to ensure safety and appropriateness.</li></ul>	<ul style="list-style-type: none"><li>Automatically detect any discriminatory, offensive, or impolite user inputs.</li><li>Automatically filter any discriminatory, offensive, or impolite user inputs.</li></ul>
Output Filtering	<ul style="list-style-type: none"><li>Filter output content to prevent responses that might lead to a poor user experience, ensuring the interaction with the chatbot complies with relevant laws and ethical standards, avoiding the spread of harmful, illegal, or inappropriate information.</li></ul>	<ul style="list-style-type: none"><li>Automatically detect inappropriate or potentially harmful content output.</li><li>Automatically filter inappropriate or potentially harmful content output</li><li>Provide user feedback options to report or flag inappropriate outputs to improve the content filtering mechanism.</li></ul>
History	<ul style="list-style-type: none"><li>Provide users with access to and review their interactions with the</li></ul>	<ul style="list-style-type: none"><li>Automatically record interaction history</li></ul>

	chatbot to facilitate continuous learning.	<ul style="list-style-type: none"> <li>Provide search and review capabilities for history.</li> </ul>
--	--	---

## Outer Scope

Scopes	Objectives	Functionalities
Admin Console	<ul style="list-style-type: none"> <li>Develop an <b>Admin Console</b> that allows administrators to adjust system parameters, particularly for question generation, ensuring the system can meet diverse research needs and provide flexible outputs tailored to specific studies.</li> </ul>	<ul style="list-style-type: none"> <li>Provide a user-friendly admin interface to allow authorized personnel to modify parameters related to the question generation process.</li> <li>Allow real-time updates to the question generation process based on adjusted parameters, ensuring instant reflection of changes in system outputs.</li> <li>Provide monitoring tools to track how parameter adjustments impact system performance and question relevance, allowing administrators to refine settings based on feedback and data.</li> <li>Incorporate analytics tools to help administrators fine-tune parameters based on past user interactions and question performance, optimizing for future research needs.</li> </ul>
Data Archiving	<ul style="list-style-type: none"> <li>Collect users' age, location, and input content to enhance user satisfaction and engagement for future analysis and review.</li> </ul>	<ul style="list-style-type: none"> <li>Regularly and automatically store important user interactions and system performance data.</li> <li>Apply necessary encryption measures to archived data to ensure data security.</li> </ul>
User Data Deletion	<ul style="list-style-type: none"> <li>Ensure users have the right to delete their personal data at any time, maintaining their privacy rights.</li> <li>Follow data protection regulations, such as GDPR, to guarantee the effective execution of user data deletion requests.</li> </ul>	<ul style="list-style-type: none"> <li>Provide a user-friendly interface enabling users to submit data deletion requests conveniently.</li> <li>Provide confirmation steps and execute data deletion promptly upon user request confirmation.</li> </ul>
Multi-language	<ul style="list-style-type: none"> <li>Expand the chatbot's multi-language support to cover more global users.</li> </ul>	<ul style="list-style-type: none"> <li>Automatically detect and switch languages by users' IP address or location, ensuring accurate translation and cultural adaptation.</li> </ul>

## Stakeholders

Stakeholders	Description	Level of Interest	Level of Influence	Potential Impact	Communication Plan
Kate Coleman and Sarah Healy	As clients of SWISP Lab, they represent the end-users and educational goals of the project, providing requirements and reviewing project results.	High	High	Their feedback and requirements determine the overall direction and ultimate success of the project. Ignoring their opinions could lead to the project deviating from its educational objectives.	Hold a meeting after each sprint to provide a project progress report, obtain timely feedback, and maintain direct communication with the product owner. Regularly send project update emails and conduct periodic showcases of phase results.
Development Team	Responsible for the actual development of the AI chatbot.	High	High	The team's capabilities and efficiency directly impact the quality and timeliness of the project's delivery. If the team is not well-coordinated or lacks resources, the project may not be completed on time.	Daily standups for progress reports, weekly sprint reviews, and planning meetings. Regular internal communication and problem-solving meetings.
14-28 years old teenagers	The primary users of the AI chatbot, interacting to generate and explore hypothetical questions.	High	Low	User feedback influences product usability and user experience but does not directly affect the project's development timeline. Ignoring user experience may cause the project to lose interest among its target audience.	User experience surveys and feedback forms, regular user testing, and focus group discussions. Collect user data for continuous improvement of product design.
Science Gallery Melbourne	Collaborative partner involved in practical application and testing, providing feedback on usage and user experience improvements.	Medium	Medium	Their feedback helps improve the AI chatbot's user experience and ensures smooth implementation in public events. Ignoring their input may result in unresolved issues during practical applications.	Bi-weekly partner feedback meetings to ensure their suggestions are integrated into the development cycle. Showcase project milestones and discuss feedback during testing phases.
University of Melbourne Ethics Committee	Responsible for ensuring the project activities meet ethical standards, especially concerning research and educational activities involving minors.	Low	High	If the ethics committee does not approve or requires significant modifications to the project, it may lead to delays or inability to proceed as planned.	Submit detailed project plans and regular updates to ensure all activities comply with ethical requirements. If necessary, conduct face-to-face discussions and

					clarifications with committee representatives.
Experts in AI and Education	Provide technical support and consultation for the development of the AI chatbot, ensuring the effectiveness of the algorithms and the quality of question generation.	Medium	Medium	Their advice is crucial for the project's technical direction and the effectiveness of the AI features. Ignoring technical advice could lead to poor technical implementation.	Monthly technical advisory meetings to discuss technical challenges and progress. Ad-hoc communication and sharing of technical documentation as needed.
Data Privacy Experts	Ensure the project complies with data protection laws and handles intellectual property issues.	Low	High	Failure to comply with data privacy laws or to address intellectual property issues may lead to legal risks or project suspension.	Regular compliance checks and legal consultation meetings. Provide detailed legal review reports as necessary.
Legal Advisors	Ensure the project complies with data protection laws and handles intellectual property issues.	Low	High	Failure to comply with data privacy laws or to address intellectual property issues may lead to legal risks or project suspension.	Regular compliance checks and legal consultation meetings. Provide detailed legal review reports as necessary.

## Technical Consideration

**Client Requirement :** Embrace any technology; strive for maximum inclusivity.

Component	Technology	Description	Reason
Front-End	React Framework	An open-source JavaScript library for building user interfaces, aimed at improving development efficiency and enabling fast UI rendering.	Team members have experience with React, facilitating quick project startup and minimizing time needed for adaptation.
Back-End	Django (Python)	An advanced Python web framework designed for easier and faster development of complex, database-driven websites.	Django covers all project needs comprehensively, with team members having rich experience using it.
Database	MongoDB	An open-source NoSQL database that stores data in documents (JSON/BSON format). Offers flexibility and scalability compared to traditional relational databases.	Free version of MongoDB meets project requirements within the limited budget.
LLM API	ChatGPT	ChatGPT is a state-of-the-art large language model developed by OpenAI, capable of generating human-like text based on the prompts it receives. It excels in natural language understanding and generation, making it ideal for interactive applications.	ChatGPT was chosen because of its ability to generate creative and thought-provoking "what if" questions, aligning perfectly with our project's goal of inspiring critical thinking and imagination. Its adaptability and strong performance in language tasks make it an excellent choice for our speculative AI chatbot, ensuring high-quality interactions with users.
Hosting Platform	Netlify	Netlify is a modern web hosting platform that simplifies the deployment and management of websites. It offers continuous deployment from Git, a global CDN for fast content delivery, and built-in serverless functions, making it ideal for developers looking for a streamlined, scalable, and reliable solution for hosting web projects.	We selected Netlify as our hosting solution due to its excellent developer experience, which allows us to focus more on building our AI chatbot rather than managing infrastructure.  Our project will be developed using React for the frontend, Django for the backend, and MongoDB as the database. Netlify seamlessly integrates with these technologies, providing a cohesive environment that supports our full stack development.

# Development Environment

Our development environment is structured to support a robust, scalable, and collaborative workflow that integrates both frontend and backend technologies, ensuring seamless deployment and efficient management of the project.

## 1. Programming Languages:

**JavaScript:** Primarily used for frontend development with the React framework.

**Python:** Utilized in the backend with the Django framework for handling server-side logic.

## 2. Frameworks and Libraries:

**React:** A JavaScript library used for building user interfaces, particularly single-page applications.

**Django:** A high-level Python web framework that encourages rapid development and clean, pragmatic design.

**MongoDB:** A NoSQL database used for storing and managing the application's data.

## 3. Integrated Development Environment (IDE):

**Visual Studio Code:** Our primary code editor, offering a versatile environment for coding in JavaScript, Python, and other languages with integrated debugging, Git control, and extensions.

## 4. Version Control System:

**GitHub:** Used for source code management, enabling version control, collaboration, and continuous integration/continuous deployment (CI/CD) pipelines.

## 5. APIs and Microservices:

**ChatGPT API:** Integrated for advanced conversational AI capabilities, allowing the chatbot to generate "what if" questions and interact intelligently with users.

## 6. Hosting and Deployment:

**Netlify:** Used to host the frontend of the application, providing continuous deployment from GitHub and ensuring the site is fast, secure, and scalable.

## 7. Collaboration Tools:

**Confluence:** Used for documentation, project planning, and knowledge sharing among team members.

**Trello:** For task management, tracking project progress, and ensuring that all team members are aligned with project goals.

**Slack:** For daily communication and instant messaging.

**WeChat:** Used primarily for quick communication among team members.

**Microsoft Teams:** Primarily used for file sharing with clients, ensuring that all necessary documents and resources are accessible and up-to-date.

**Zoom:** Utilized for remote meetings and team discussions.

## 8. Operating Systems:

Our application is developed and tested to be fully compatible with both **Windows** and **macOS** operating systems, ensuring accessibility across different user environments.

## 9. Database Management:

**MongoDB:** Used as the primary database for storing and retrieving application data. It is chosen for its scalability and flexibility in handling large datasets.

## 10. Security and Monitoring:

Regular security audits and monitoring tools are in place to ensure the application remains secure, with data integrity maintained across all transactions.

This development environment is designed to ensure efficiency, reliability, and scalability, supporting the project's goals while facilitating collaboration among the development team.

# Ethical Consideration

## User Privacy and Data Protection:

- **Description:** Our AI chatbot collects and stores user input prompts and the questions it generates, making data privacy and protection paramount, especially for underage users. We must comply with data privacy regulations across different countries, implementing robust measures to secure user data and safeguard their privacy.
- **Reason:** Protecting minors' data is of utmost importance. By enforcing stringent data protection protocols, we can secure user trust and adhere to international and local legal frameworks, thereby mitigating potential ethical issues.

## Bias and Fairness:

- **Description:** ChatGPT may inadvertently introduce biases related to race, gender, culture, or other factors in the content it generates. Given our global and culturally diverse user base, it is crucial to ensure that the generated content is fair, inclusive, and representative of diverse perspectives.
- **Reason:** Minimizing and addressing AI biases is essential for providing a fair and equitable experience for users from various backgrounds. Ensuring content inclusivity and respect for diversity is particularly critical when serving a global audience.

## Content Appropriateness and Safety:

- **Description:** Considering our user demographic, which includes individuals aged 14-28, and especially minors, it is imperative to ensure that the questions and content generated are age-appropriate and free from potentially harmful or distressing elements. Strict content filtering and moderation mechanisms should be implemented to prevent the dissemination of inappropriate information.
- **Reason:** Safeguarding underage users from exposure to harmful content is both an ethical and legal responsibility. By ensuring content appropriateness, we create a safe and healthy environment that supports positive user interaction and learning.

## Transparency and User Control:

- **Description:** Users should be adequately informed about how the AI system operates and have sufficient control over their data, particularly when minors are involved. It is essential to communicate how their data will be used and stored.
- **Reason:** Enhancing the awareness and control of young users over their data is crucial for protecting their interests. This approach not only helps in building trust but also ensures compliance with legal requirements, especially those concerning minors.

## Cultural Sensitivity and Diversity:

- **Description:** Serving a global user base with diverse cultural backgrounds, our AI system must be culturally sensitive and avoid generating content that could be offensive or disrespectful to certain groups. We should consider cross-cultural differences and adjust the AI's content generation strategies accordingly.
- **Reason:** Respecting and understanding cultural diversity ensures broader acceptance of our AI system worldwide. It provides users with an experience that honours their cultural background, thereby preventing cultural conflicts and misunderstandings.

## Responsibility and Accountability Mechanisms:

- **Description:** To address potential ethical issues, particularly in dealing with a global and diverse user base, we need to establish clear responsibility and accountability mechanisms to promptly respond and take corrective actions when necessary.
- **Reason:** A strong accountability framework is vital when managing a diverse user group across different cultures and age groups. It ensures we can effectively handle and resolve any ethical challenges, maintaining the integrity and safety of our system.



## Requirements

- Personas
- Prototype
- User Stories
- Product Backlog
- Non-Functional Requirements

# Personas



Image generated by AI

**Lily Anderson**  
High School Student

Age: 16  
Gender: Female  
Ethnicity: Australian  
Location: Melbourne

Art
Design
Book
Creativity

**Major responsibilities**

- Helps in planning and organizing activities for the school's art club, including arranging visits to galleries and inviting guest speakers.
- Actively participates in school-level art and design competitions, often winning or placing highly.
- Continuously experiments with different art mediums and techniques to broaden her artistic skills.

**Goals and tasks**

- Use the chatterbox to help herself and her friends better understand and discuss artworks during gallery visits.
- Stimulate creative thinking by posing and pondering hypothetical questions to explore the possibilities behind art.
- Broaden her artistic perspective by engaging in more in-depth discussions through interactive questions.

**Physical, social, and technological environment**

- Uses a smartphone and tablet for learning and social interaction.
- Follows artists and designers on platforms like Instagram and Pinterest for inspiration.
- Regularly participates in art-related online and offline events.

**Quote**

- "Visiting an art exhibition is not just about appreciating the works, but also about exploring the stories behind the creativity. With the chatterbox, I can engage in deeper discussions with my friends, sparking more inspiration."

**Personality**

Introvert	<div style="width: 50%; height: 10px; background-color: #ccc;"></div>	Extrovert
Sensing	<div style="width: 10%; height: 10px; background-color: #ccc;"></div>	Intuition
Thinking	<div style="width: 50%; height: 10px; background-color: #ccc;"></div>	Feeling
Judging	<div style="width: 10%; height: 10px; background-color: #ccc;"></div>	Perceiving



Image generated by AI

**Lucas Martin**  
Undergraduate Student

Age: 22  
Gender: Male  
Ethnicity: European  
Location: France

Art
Design
Inspiration
Creativity

**Major responsibilities**

- Participates in school and community art exhibitions and design workshops
- Develops and creates visual art pieces focusing on social and environmental issues

**Goals and tasks**

- To spark creative thinking and find new inspiration for art projects
- To explore and reflect on complex social issues and integrate them into his art
- To use the AI tool to generate deep "what if" questions that help break out of conventional thinking

**Physical, social, and technological environment**

- Frequently works in the campus studio and library
- Actively interacts with peers and the artist community, participating in various art-related events
- Proficient in using design software and enjoys sourcing artistic inspiration through the internet and social media

**Quote**

- "I want my artwork to ignite conversations about social and environmental issues. I'm always on the lookout for new perspectives and innovative ideas to push the boundaries of what art can communicate."

**Personality**

Introvert	<div style="width: 50%; height: 10px; background-color: #ccc;"></div>	Extrovert
Sensing	<div style="width: 10%; height: 10px; background-color: #ccc;"></div>	Intuition
Thinking	<div style="width: 50%; height: 10px; background-color: #ccc;"></div>	Feeling
Judging	<div style="width: 10%; height: 10px; background-color: #ccc;"></div>	Perceiving



Image generated by AI

**Emily Song**  
System Manager

Age: 28  
Gender: Female  
Ethnicity: Asian  
Location: Melbourne

Reliability | Efficiency  
Innovation | Security

**Major responsibilities**

- Overseeing the technical implementation and maintenance of the AI-powered chatbot system.
- Ensuring system reliability, security, and scalability to handle increasing user interactions needs.
- Coordinating with the development team to troubleshoot and resolve any system issues that arise.
- Managing the integration of the chatbot and ensuring seamless user experiences.

**Goals and tasks**

- Ensure the system is stable, secure, and efficiently processes inputs and generates "what if" questions.
- Regularly monitor performance and implement updates or improvements.
- Collaborate with departments to ensure the chatbot meets SWISP Lab's digital transformation goals.
- Develop and enforce data protocols to protect privacy and maintain integrity.

**Physical, social, and technological environment**

- Works in a technology-driven environment within the university, frequently liaising with development teams.
- Uses monitoring tools and analytics to keep track of system performance and user engagement metrics.
- Regularly interacts with stakeholders to align the system's functionality with organizational goals.

**Quote**

- "Maintaining a reliable and secure system is crucial to our success. My role is to ensure the technology we implement not only meets current needs but also scales for future growth."

**Personality**

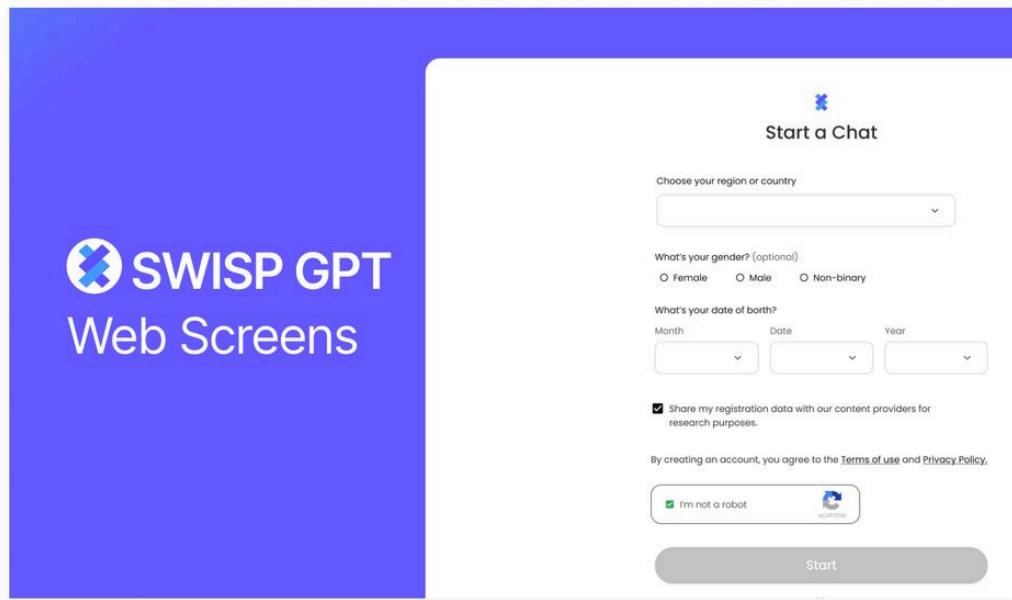
Introvert	<div style="width: 10%; background-color: #555; height: 10px;"></div>	Extrovert
Sensing	<div style="width: 10%; background-color: #555; height: 10px;"></div>	Intuition

Thinking	<div style="width: 10%; background-color: #555; height: 10px;"></div>	Feeling
Judging	<div style="width: 10%; background-color: #555; height: 10px;"></div>	Perceiving

# Prototype

## Reference

SA-Redback



Start a Chat

Choose your region or country

What's your gender? (optional)

Female    Male    Non-binary

What's your date of birth?

Month   Date   Year

Share my registration data with our content providers for research purposes.

By creating an account, you agree to the [Terms of use](#) and [Privacy Policy](#).

I'm not a robot

**Start**

skip

**SWISP GPT**

+ New chat Q

Your conversations Clear All

- Benefits of AI in healthcare
- If humans could breathe underwater
- Climate change impacts** Settings Q
- Last 7 Days
- Cities in 2050
- Sustainable urban planning strategies
- Effects of deforestation
- Future of work in a post-automation

EN Settings

What's in your mind?... Send

**Climate change impacts on agriculture**

Here are eight "what if" questions in English focused on the impacts of climate change on agriculture:

1. "What if rising temperatures lead to a permanent drought in major agricultural regions?"
2. "What if climate change causes a global shift in crop growing seasons?"
3. "What if more frequent extreme weather events disrupt global food supply chains?"
4. "What if climate change forces a transition to vertical farming as the primary method of agriculture?"
5. "What if increased CO<sub>2</sub> levels enhance plant growth but decrease nutritional value?"
6. "What if traditional crops become unsustainable, and we have to rely on genetically modified organisms?"
7. "What if climate change makes certain pests and diseases more prevalent, drastically reducing crop yields?"
8. "What if rising sea levels result in the loss of fertile coastal farmland?"

These questions encourage further exploration of the varied impacts of climate change on agriculture.

**SWISP GPT**

+ New chat Q

Your conversations Clear All

- Benefits of AI in healthcare
- If humans could breathe underwater
- Climate change impacts** Settings Q
- Last 7 Days
- Cities in 2050
- Sustainable urban planning strategies
- Effects of deforestation
- Future of work in a post-automation

EN Settings

Please give more examples on rising sea levels result in the loss of fertile coastal farmland Send

**Climate change impacts on agriculture**

Here are eight "what if" questions in English focused on the impacts of climate change on agriculture:

1. "What if rising temperatures lead to a permanent drought in major agricultural regions?"
2. "What if climate change causes a global shift in crop growing seasons?"
3. "What if more frequent extreme weather events disrupt global food supply chains?"
4. "What if climate change forces a transition to vertical farming as the primary method of agriculture?"
5. "What if increased CO<sub>2</sub> levels enhance plant growth but decrease nutritional value?"
6. "What if traditional crops become unsustainable, and we have to rely on genetically modified organisms?"
7. "What if climate change makes certain pests and diseases more prevalent, drastically reducing crop yields?"
8. "What if rising sea levels result in the loss of fertile coastal farmland?"

These questions encourage further exploration of the varied impacts of climate change on agriculture.

**Rising sea levels result in the loss of fertile coastal farmland**

Certainly! Here are more examples exploring the impact of rising sea levels on fertile coastal farmland:

1. "What if rising sea levels lead to increased salinity in coastal aquifers, making the soil unsuitable for traditional crops?"
2. "What if frequent flooding from rising sea levels results in the loss of nutrient-rich topsoil along coastal areas?"
3. "What if rising sea levels cause saltwater intrusion into freshwater irrigation systems, compromising crop growth in coastal regions?"
4. "What if coastal erosion driven by rising sea levels destroys essential farmland infrastructure, such as irrigation channels and storage facilities?"
5. "What if the loss of fertile coastal farmland forces agricultural communities to relocate, impacting local economies and food security?"
6. "What if rising sea levels lead to the displacement of coastal communities and the abandonment of valuable farmland?"
7. "What if the inundation of coastal areas due to rising sea levels results in the degradation of important estuarine ecosystems that support agricultural productivity?"
8. "What if rising sea levels require costly adaptations and investments in coastal farmland protection, straining agricultural budgets and resources?"

These scenarios provide various perspectives on how rising sea levels could affect coastal farmland and agriculture.

What's in your mind?... Send

## User Stories

- **Story Points** - Using Fibonacci numbers (1, 2, 3, 5, 8, 13, etc.) for estimates.
- **Priority** - using the MoSCoW including must have, should have, could have, will not have
- **Name of Personas:** Lily (User), Lucas (International User), Emily (Admin)

### Epic Feature 1: AI-Driven Question Generation System

ID	As a	I want to	So that	WITH/ WITH OUT GPT	Acceptance Criteria	Priority	Size Estimation	Dependency	Justification
E1-US1	Lily	input a topic	I can start the creative thinking process	WITH OUT ChatGPT	<ul style="list-style-type: none"> <li>System accepts input</li> <li>Feedback confirming input received or invalid input</li> </ul>	Must Have	1	None	<p>Core functionality that receives users' input of <b>AI Chat Box</b> within <b>Inner Scope</b>.</p> <p>Implementation includes a input text box and input processing.</p>
E1-US2	Lily	get 8 unique "what if" questions based on initial input	I can stimulate my creative thinking	WITH OUT ChatGPT	<ul style="list-style-type: none"> <li>8 unique, diverse "what if" questions generated</li> <li>Clear presentation of questions</li> </ul>	Must Have	5	E1-US1	<p>Core functionality that generates responses of <b>AI Chat Box</b> within <b>Inner Scope</b>.</p> <p>Implementation includes generating by interacting with LLM API and presenting 8 unique, diverse questions on chatbox.</p>
E1-US3	Emily	collect Lily information including location and gender	I can use Lily data for future analysis	WITH OUT ChatGPT	<ul style="list-style-type: none"> <li>Secure storage of collected data</li> </ul>	Should Have	1	None	<p>Advanced functionality that collect users information to improve user experience of <b>Data Collection</b> within <b>Inner Scope</b>.</p> <p>Implementation includes secure storage of location and gender data.</p>
E1-US4	Emily	adjust question generation parameters	the system can meet various research needs	WITH ChatGPT	<ul style="list-style-type: none"> <li>Admin interface for parameter adjustment</li> <li>Parameters influence</li> </ul>	Could Have	3	E1-US2	<p>Optional advanced Functionality that allows administrators to modify question generation parameters, enhancing flexibility for research customization within <b>Admin Console</b> within <b>Outer Scope</b>.</p> <p>Implementation includes an</p>

					question generation				admin interface for setting question generation parameters.
E1-US5	Lily	get 8 new "what if" questions based on my responses	I can explore deeper aspects of the topic	WITH OUT ChatG PT	<ul style="list-style-type: none"> <li>New questions relate to previous answers</li> <li>Option to continue or return to original topic</li> </ul>	Showed Have	8	E1-US2, E1-US7	<p>Core functionality that deepens engagement by generating new "what if" questions based on user responses in <b>AI Chat Box</b> within <b>Inner Scope</b>.</p> <p>Implementation includes tracking responses to generate contextually relevant questions.</p>
E1-US6	Lily	regenerate 8 "what if" questions if unsatisfied	I can get more suitable questions	WITH OUT ChatG PT	<ul style="list-style-type: none"> <li>Clear "Regenerate" button</li> <li>New set of different questions generated</li> </ul>	Showed Have	3	E1-US2, E1-US5	<p>Core functionality that allows users to regenerate questions if unsatisfied in <b>AI Chat Box</b> within <b>Inner Scope</b>.</p> <p>Implementation includes a "Regenerate" button that generates a fresh set of questions.</p>
E1-US7	Lily	interact with the "what if" questions	I can explore different scenarios based on my input	WITH OUT ChatG PT	<ul style="list-style-type: none"> <li>Ability to select and respond to individual questions</li> <li>The system follow-up questions based on Lily responses</li> </ul>	Must Have	3	E1-US2	<p>Core functionality that enhances user interaction by allowing response-based follow-up questions in <b>AI Chat Box</b> within <b>Inner Scope</b>.</p> <p>Implementation includes selecting questions on interface and generating follow-up based on user input.</p>

## Epic Feature 2: Interaction Interface

ID	As a	I want to	So that	WITH/ WITHOUT GPT	Acceptance Criteria	Priority	Size Estimation	Dependency	Justification
E2-US1	Lily	Have an Lily friendly interface for inputting topic prompts	I can quickly start using the system	WITHOUT ChatG PT	<ul style="list-style-type: none"> <li>Interface is clean and clear</li> <li>Input process is smooth</li> </ul>	Must Have	3	E1-US1	<p>Core functionality that improves user experience by providing a clean, user-friendly interface for entering topic prompts in <b>AI Chat Box</b> within <b>Inner Scope</b>.</p> <p>Implementation includes</p>

					<ul style="list-style-type: none"> <li>There is an input prompt box</li> </ul>				creating an intuitive input prompt box.
E2-US2	Lily	Clearly view the 8 generated questions	I can easily read and deeply think about them	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>Questions displayed clearly in numerical form</li> <li>Layout is logical and readable</li> </ul>	Must Have	3	E1-US2	<p>Core functionality that enhances user experience by ensuring the clear presentation of the generated questions in <b>AI Chat Box</b> within <b>Inner Scope</b>.</p> <p>Implementation includes a logical layout and readable format for displaying the 8 questions.</p>
E2-US3	Admin	Monitor system usage	I can ensure the system runs smoothly and user data is secure	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>Admin panel is accessible only to authorized personnel</li> <li>The system logs and displays user activity</li> </ul>	Should Have	3	None	<p>Core functionality that maintains system security and performance by providing admin monitoring capabilities in <b>Web Server</b> within <b>Inner Scope</b>.</p> <p>Implementation includes an admin panel for authorized personnel to monitor system usage.</p>

### Epic Feature 3: Data Storage and Retrieval

ID	As a	I want to	So that	WITH/WITHOUT GPT	Acceptance Criteria	Priority	Size Estimation	Dependency	Justification
E3-US1	Lily	Have the system save my interaction records and answers	I can review and reference them later	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>All interactions are saved</li> <li>Historical records are accessible</li> </ul>	Should Have	3	None	<p>Core functionality that ensures long-term value by saving all user interaction records in <b>History</b> within <b>Inner Scope</b>.</p> <p>Implementation includes automatic recording and accessibility of historical interactions, allowing users to reference past sessions for review and further exploration.</p>

E3-US2	Lily	Access historical generated questions and answers locally	I can gain new inspiration	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>Search functionality is provided</li> <li>Search results are relevant and quick</li> </ul>	Could Have	5	E3-US1, E2-US2	<p>Core functionality that increases the system's reuse value by providing local access to historical questions and answers in <b>History</b> within <b>Inner Scope</b>.</p> <p>Implementation includes a search functionality that allows users to quickly and accurately retrieve past questions and answers, providing continued inspiration.</p>
E3-US3	Emil y	Ensure all Lily data is securely stored	I can protect Lily privacy and security	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>Data is encrypted in storage</li> <li>Access control mechanism is in place</li> </ul>	Must Have	3	E3-US1	<p>Critical functionality that ensures legal compliance and data security by securely storing user data in <b>Web Server</b> and <b>Data Collection</b> within Inner Scope.</p>
E3-US4	Emil y	Have the system store data long-term	I can support in-depth analysis and research	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>Data backup mechanism exists</li> <li>Storage expansion capability is available</li> </ul>	Should Have	3	E3-US3	<p>Core functionality that supports future research and analysis by providing long-term data storage capabilities in <b>Web Server</b> within Inner Scope and <b>Data Archiving</b> within <b>Outer Scope</b>.</p> <p>Implementation includes data backup and expansion mechanisms, ensuring the system can store large volumes of data securely over time.</p>
E3-US5	Emil y	Retrieve historical data based on region, topic, or other metadata	I can conduct multi-dimensional analysis	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>Advanced retrieval functionality is provided</li> <li>Multiple filter conditions are supported</li> </ul>	Should Have	5	E3-US1, E3-US2, E3-US4	<p>Advanced functionality that enhances data analysis capabilities by allowing retrieval of historical data using metadata in <b>History</b> within <b>Inner Scope</b>.</p> <p>Implementation includes multi-dimensional filters such as region, topic, and other metadata.</p>

## Epic Feature 4:User Access

ID	As a	I want to	So that	WITH/WITHOUT GPT	Acceptance Criteria	Priority	Size Estimation	Dependency	Justification
E4-US1	Lily	Use the system as a guest without registering an account	I can use the system directly and quickly	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>Guest access is provided.</li> </ul>	Must Have	1	None	<p>Core functionality that simplifies user access by allowing guest usage without requiring account registration in <b>QR Code Accessing</b> within <b>Inner Scope</b>.</p> <p>Implementation includes generating QR codes and providing instant access and usage tracking by scanning QR codes.</p>

### Epic Feature 5: Analytics and Reporting

ID	As a	I want to	So that	WITH/WITHOUT GPT	Acceptance Criteria	Priority	Size Estimation	Dependency	Justification
E5-US1	Emily	Deeply analyze Lily-generated questions and interaction data	I can optimize system performance	WITH ChatGPT	<ul style="list-style-type: none"> <li>Analytics dashboard available</li> </ul>	Could Have	5	E3-US1, E3-US4	<p>Advanced functionality that allows deep analysis of Lily-generated questions and interactions through an analytics dashboard in <b>Data Collection</b> within <b>Inner Scope</b>.</p> <p>Implementation includes an analytics dashboard that tracks and visualizes data.</p>
E5-US2	Emily	Export Lily data and interaction records	I can analyze the data externally or create reports	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>Data export functionality is available.</li> <li>Exported data is in a standard format</li> <li>Option to select specific data ranges or types for export.</li> </ul>	Could Have	3	E3-US1, E3-US4	<p>Optional functionality that provides the ability to export Lily's data and interaction records for external analysis or reporting purposes in <b>Data Collection</b> within <b>Inner Scope</b> and <b>User Data Deletion</b> within <b>Outer Scope</b>.</p>

### Epic Feature 6: Ethics and Content Filtering

ID	As a	I want to	So that	WITH/WITHOUT GPT	Acceptance Criteria	Priority	Size Estimation	Dependency	Justification
E6-US1	Emily	the system can automatically extract topic from Lily input	ensure content integrity and security	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>Extract topic from Lily input</li> </ul>	Must Have	3	E1-US1	<p>Core functionality that ensures system integrity by automatically extracting the topic from Lily's input in <b>AI Chat Bot</b> within <b>Inner Scope</b>.</p> <p>Implementation includes a reliable mechanism to detect and extract topics from user inputs, ensuring content is appropriately categorized and secured.</p>
E6-US2	Emily	Have strong language and content filtering capabilities	I can maintain a healthy platform environment	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>Input validation and filtering</li> <li>Flagging system for suspicious content</li> </ul>	Must Have	5	E6-US1	<p>Essential functionality that provides strong language and content filtering to maintain a healthy platform environment in <b>Input Filtering</b> within <b>Inner Scope</b>.</p> <p>Implementation includes validation mechanisms and a flagging system to detect and filter inappropriate content.</p>
E6-US3	Emily	Have system-generated questions and content follow ethical guidelines	I can engage in healthy, beneficial discussions	WITH ChatGPT	<ul style="list-style-type: none"> <li>Questions adhere to ethical standards</li> <li>Content promotes positive engagement</li> </ul>	Must Have	5	E6-US1, E6-US2	<p>Critical functionality ensuring system-generated questions follow ethical guidelines, fostering healthy and beneficial discussions in <b>Output Filtering</b> within <b>Inner Scope</b>.</p> <p>Implementation includes adherence to ethical standards in question generation.</p>
E6-US4	Lily	Have the system consider local language and cultural differences	I can receive more relevant and relatable questions	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>Multi-language support</li> <li>Culturally sensitive content generation</li> </ul>	Could Have	8	E1-US5	<p>Optional functionality that enhances user experience by supporting local language and cultural sensitivity in <b>Multi-language</b> within <b>Outer Scope</b>.</p> <p>Implementation includes multi-language support with culturally sensitive content generation, providing users with more relatable and contextually relevant questions.</p>

## Epic Feature 7: Globalization

ID	As a [User Story]			So that [Benefit]		WITH/WITHOUT	Acceptance Criteria	Priority	Size Estimation	Dependency	Justification
	Actor	Role	Description	Condition	Benefit						
E7-US1	Lucas	Accesses and uses the system globally	I can benefit from the system regardless of my location	WITHOUT ChatGPT	<ul style="list-style-type: none"> <li>System accessible from various countries</li> <li>Performance optimized for global use</li> </ul>	CouldHave	8	None			<p>Optional functionality that broadens the system's reach by optimizing for global access in <b>Web Server</b> within <b>Inner Scope</b> and <b>Multi-language</b> within <b>Outer Scope</b>.</p> <p>Implementation includes ensuring the system is accessible worldwide, optimizing performance to accommodate high concurrency and diverse geographical locations, allowing users to access the system smoothly from various countries.</p>

# Product Backlog

- **Story Points** - Using Fibonacci numbers (1, 2, 3, 5, 8, 13, etc.) for estimates.
- **Priority** - using the MoSCoW including must have, should have, could have, will not have
- **Name of Personas:** Lily (User), Lucas (International User), Emily (Admin)

## Epic Feature 1: AI-Driven Question Generation System

User Story ID	Story/Scenario	Trello Link	Size	Sub Tasks	Priority
E1-US1	As Lily, I want to input a topic so that I can start the creative thinking process	<a href="#">E1-US1: Input the Topic</a> SPRINT 2 BACKLOG	1	1. Design UI for input field 2. Implement input field 3. Implement input field validation 4. Develop feedback system for input validation 5. Test input field functionality	Must Have
E1-US2	As Lily, I want to get 8 unique "what if" questions based on initial input so that I can stimulate my creative thinking	<a href="#">E1-US2 : Generate 8 Unique "what if" Questions</a> SPRINT 2 BACKLOG	5	1. Define criteria for question diversity 2. Design question generation algorithm 3. Integrate algorithm with input handling 4. Implement question display interface 5. Ensure diversity in generated questions 6. Test question generation algorithm	Must Have
E1-US3	As Emily, I want to collect Lily's information including location and gender so that I can use her data for future analysis	<a href="#">E1-US3: Collect User Information</a> SPRINT 2 BACKLOG	1	1. Create data collection form 2. Implement secure data storage 3. Configure data encryption 4. Develop data access controls 5. Ensure data privacy and compliance 6. Conduct privacy impact assessment	Should Have
E1-US4	As Emily, I want to adjust question generation parameters so that the system can meet various research needs	<a href="#">E1-US4: Adjust Question Generation Parameters</a> PRODUCT BACKLOG	3	1. Define adjustable parameters 2. Create admin interface for parameter adjustment	Could Have

				3. Implement parameter validation 4. Ensure parameters influence question generation 5. Test parameter adjustments	
E1-US5	As Lily, I want to get 8 new "what if" questions based on my responses so that I can explore deeper aspects of the topic		8	1. Design user interface for response tracking 2. Implement response tracking 3. Generate new questions based on previous answers 4. Implement navigation options 5. Provide options to continue or return to the original topic 6. Test question generation logic	Should Have
E1-US6	As Lily, I want to regenerate 8 "what if" questions if unsatisfied so that I can get more suitable questions		3	1. Design user interface for the "Regenerate" button 2. Add "Regenerate" button 3. Develop algorithm to generate new set of questions 4. Ensure diversity in new questions 5. Test "Regenerate" functionality 6. Verify diversity of generated questions	Should Have
E1-US7	As Lily, I want to interact with the "what if" questions so that I can explore different scenarios based on my input		3	1. Design user interface for question selection 2. Implement question selection and response functionality 3. Develop system to follow up based on responses 4. Test question selection and response functionality 5. Implement and test follow-up mechanism	Must Have

## Epic Feature 2: Interaction Interface

User Story ID	Story/Scenario	Trello Link	Size	Sub Tasks	Priority
---------------	----------------	-------------	------	-----------	----------

E2-US1	As Lily, I want to have a Lily-friendly interface for inputting topic prompts so that I can quickly start using the system	<a href="#">E2-US1: User-Friendly Input Interface</a> SPRINT 2 BACKLOG	3	1. Define user requirements for the interface 2. Design interface layout 3. Implement input prompt box 4. Ensure smooth input process 5. Gather feedback from initial users 6. Test interface usability	Must Have
E2-US2	As Lily, I want to clearly view the 8 generated questions so that I can easily read and deeply think about them	<a href="#">E2-US2: Clearly View the 8 Generated Questions</a> SPRINT 2 BACKLOG	3	1. Define requirements for question display 2. Design layout for displaying questions 3. Implement question display in numerical form 4. Ensure readability and logical layout 5. Collect user feedback on display clarity 6. Test clarity of display	Must Have
E2-US3	Admin wants to monitor system usage so that they can ensure the system runs smoothly and user data is secure.	<a href="#">E2-US3: Admin Interface</a> PRODUCT BACKLOG	3	1. Define access levels and permissions for admin panel 2. Implement admin panel access control 3. Develop system logging for user activity 4. Implement alerts for unusual activity 5. Ensure system performance tracking 6. Test logging and performance tracking functionalities	Should Have

### Epic Feature 3: Data Storage and Retrieval

User Story ID	Story/Scenario	Trello Links	Size	Sub Tasks	Priority
E3-US1	Lily wants to have the system save her interaction records and answers so she can review and reference them later.	<a href="#">E3-US1: Save Interaction Records and Answers</a> SPRINT 2 BACKLOG	3	1. Define data storage schema for interactions 2. Implement interaction recording 3. Ensure data security and privacy 4. Develop historical record access functionality 5. Test interaction recording and access functionality	Should Have

E3-US2	Lily wants to access historical generated questions and answers locally so she can gain new inspiration.	E3-US2: Access Historical Interaction Locally PRODUCT BACKLOG	5	<ol style="list-style-type: none"> <li>1. Define search criteria and filters</li> <li>2. Implement search functionality</li> <li>3. Implement local data access</li> <li>4. Develop relevant and quick search results display</li> <li>5. Test search functionality and results accuracy</li> </ol>	Could Have
E3-US3	Emily wants to ensure all Lily data is securely stored so she can protect Lily's privacy and security.	E3-US3: Securely Store Data SPRINT 2 BACKLOG	3	<ol style="list-style-type: none"> <li>1. Define encryption standards and protocols</li> <li>2. Encrypt data in storage</li> <li>3. Implement access control mechanisms</li> <li>4. Implement audit logging for data access</li> <li>5. Test encryption and access control effectiveness</li> </ol>	Must Have
E3-US4	Emily wants the system to store data long-term so she can support in-depth analysis and research.	E3-US4: Long-Term Data Storage SPRINT 2 BACKLOG	3	<p>Define backup frequency and retention policies</p> <ol style="list-style-type: none"> <li>1. Implement data backup mechanisms</li> <li>2. Develop storage expansion capabilities</li> <li>3. Test backup and restore processes</li> <li>4. Monitor storage usage and performance</li> </ol>	Should Have
E3-US5	Emily wants to retrieve historical data based on region, topic, or other metadata so she can conduct multi-dimensional analysis.	E3-US5: Retrieve Historical Data PRODUCT BACKLOG	5	<ol style="list-style-type: none"> <li>1. Define filter criteria and user requirements</li> <li>2. Develop advanced retrieval functionality</li> <li>3. Implement support for multiple filter conditions</li> <li>4. Design and implement user interface for advanced search</li> <li>5. Test retrieval functionality with various scenarios</li> <li>6. Optimize retrieval performance</li> </ol>	Should Have

## Epic Feature 4: Lily Management

User Story ID	Story/Scenario	Trello Links	Size	Sub Tasks	Priority
E4-US1	Lily wants to use the system as a guest without registering an account so she can use the system directly and quickly.	<a href="#">E4-US1: Guest Access</a> SPRINT 2 BACKLOG	1	<ol style="list-style-type: none"> <li>Define access permissions for guest users</li> <li>Implement guest access functionality</li> <li>Design and implement guest user interface</li> <li>Test guest access functionality</li> </ol>	Must Have

### Epic Feature 5: Analytics and Reporting

User Story ID	Story/Scenario	Trello Links	Size	Sub Tasks	Priority
E5-US1	Emily wants to deeply analyze Lily-generated questions and interaction data so she can optimize system performance.	<a href="#">E5-US1: Deeply Analyse Interaction Data</a> PRODUCT BACKLOG	5	<ol style="list-style-type: none"> <li>Define metrics and KPIs for analysis</li> <li>Develop analytics dashboard</li> <li>Implement data visualization features</li> <li>Integrate data sources</li> <li>Ensure data accuracy and consistency</li> <li>Conduct usability testing for the dashboard</li> </ol>	Could Have
E5-US2	Emily wants to export Lily data and interaction records so she can analyze the data externally or create reports.	<a href="#">E5-US2: Export Data and Interaction Records</a> PRODUCT BACKLOG	3	<ol style="list-style-type: none"> <li>Define export format specifications</li> <li>Implement data export functionality</li> <li>Ensure data is in a standard format</li> <li>Add range/type selection</li> <li>Implement export options for different data types</li> <li>Test data export functionality</li> </ol>	Could Have

### Epic Feature 6: Ethics and Content Filtering

User Story ID	Story/Scenario	Trello Links	Size	Sub Tasks	Priority
E6-US1	Emily wants the system to automatically extract the topic from Lily's input so that it can ensure content integrity and security.	<a href="#">E6-US1: Automatic Topic Extraction</a> SPRINT 2 BACKLOG	3	<ol style="list-style-type: none"> <li>Define topic extraction criteria</li> <li>Implement topic extraction logic</li> <li>Implement error handling for extraction failures</li> </ol>	Must Have

				4. Test topic extraction for various inputs 5. Review and refine extraction accuracy	
E6-US2	Emily wants to have strong language and content filtering capabilities so that she can maintain a healthy platform environment.	<a href="#">E6-US2: Strong Language Filtering</a> SPRINT 2 BACKLOG	5	1. Define content filtering criteria and rules 2. Develop input validation and filtering mechanisms 3. Develop administrative controls for flagged content 4. Implement a flagging system for suspicious content 5. Test filtering and flagging functionality 6. Review and adjust filtering rules based on feedback	Must Have
E6-US3	Emily wants system-generated questions and content to follow ethical guidelines so that she can engage in healthy, beneficial discussions.	<a href="#">E6-US3: Ethical Content Guidelines</a> SPRINT 2 BACKLOG	5	1. Create a review process for ethical compliance 2. Develop guidelines for ethical content 3. Develop training materials for content creators 4. Ensure questions adhere to these guidelines 5. Implement feedback mechanism for ethical issues 6. Test content for compliance	Must Have
E6-US4	Lily wants the system to consider local language and cultural differences so that she can receive more relevant and relatable questions.	<a href="#">E6-US4: Consider Local Language and Culture</a> SPRINT 2 BACKLOG	8	1. Create a localization strategy for content 2. Develop culturally sensitive content generation 3. Develop a mechanism for continuous improvement based on feedback 4. Gather user feedback on language and cultural aspects 5. Implement multi-language support 6. Test for relevance and relatability	Could Have

## Epic Feature 7: Globalization

User Story ID	Story/Scenario	Trello Links	Size	Sub Tasks	Priority
---------------	----------------	--------------	------	-----------	----------

E7-US1	Lucas wants to access and use the system globally so he can benefit from the system regardless of his location.	 E7-US1: Global System Access PRODUCT BACKLOG	8	<ol style="list-style-type: none"> <li>1. Ensure system accessibility from various countries</li> <li>2. Optimize performance for global use</li> <li>3. Implement multi-region data centers</li> <li>4. Develop a global content delivery network (CDN)</li> <li>5. Monitor and address global performance issues</li> </ol>	Could Have
--------	---	--	---	---	------------

# Non-Functional Requirements

## Fairness & Transparency

- **Bias Detection and Diversity:** Implement mechanisms to minimize bias and ensure diverse content suitable for various user backgrounds.
- **Transparency:** Explain the AI decision-making process clearly and the logic behind generated questions, e.g., "This question is based on the user's input and relevant data."
- **Device Compatibility and Tool Support:** Support multiple devices and operating systems, and allow developers to use their preferred IDEs and version control tools.

## Informed Consent

- **Transparency:** Provide a clear statement on data collection, usage, storage, and sharing before use.
- **Voluntariness:** Ensure user consent is voluntary and informed, with the option to accept or decline services.
- **Children's Privacy:** Implement special consent processes for minors, including parental or guardian approval.

## Sustainability

- **Carbon Footprint:** Reduce paper use and resource waste through electronic means, lowering the carbon footprint.
- **Resource Optimization:** Align with sustainability goals to minimize environmental impact and promote eco-friendly practices.

## Reliability

- **High Availability and Stability:** Ensure the system is operational and stable during peak times, with quick recovery from failures.
- **Error Handling and Recovery:** Offer robust error handling with friendly messages and automatic recovery attempts.

## Usability

- **User Interface and Feedback:** Design an intuitive interface with clear feedback mechanisms for a smooth user experience.
- **User Feedback Mechanism:** Enable users to provide feedback on questions and show how AI adapts based on this feedback.

## Scalability

- **Response Time and Throughput:** Generate questions within seconds and handle multiple requests efficiently. Ensure scalability to maintain performance with increasing users.
- **Elastic Scaling:** Support automatic resource allocation to manage high loads while maintaining response time and processing capacity.

## Security & Data Protection

- **Data Security and Access Control:** Encrypt data in transit and storage, with access restricted to authorized users, especially for sensitive data.
- **Data Audit and Compliance:** Implement data auditing to track access and modifications, adhering to privacy and security regulations.

## Maintainability

- **Code Quality and Maintenance:** Maintain clean, understandable code for easy updates and fixes, with real-time monitoring and logging.
- **Modular Design:** To avoid widespread issues, use modular design for independent maintenance, upgrades, and replacements.





## Sprint 1

# Plan for Sprint 1

**Sprint Duration:** 2 weeks (August 9 - August 22)

## Sprint Goal:

- Establish foundational project documentation, including the background description, client goals, and motivation.
- Conduct a detailed analysis of project requirements, including user stories, product backlog, and non-functional requirements.
- Set up the development environment and confirm the technology stack, ensuring all team members are aligned on the tools and technologies to be used.

## Sprint Priorities

- Completion of essential documentation, including background description, project overview, client goals, and initial requirement analysis.
- Initial setup of the development environment and confirmation of the technology stack, ensuring all team members are familiar with the tools and processes.

## Sprint Review

- **Regular progress checks:** Ensure all documentation and setup tasks are completed by the end of the Sprint.
- **Feedback Collection:** Gather feedback on the initial setup and documentation to guide adjustments in the next sprint.

## Sprint 1 Retrospective

### Keep Doing

- Team Collaboration
- Clear Objectives
- Tool Efficiency
- Client Communication

### Challenges

- Scope Understanding
- Time Management
- Tool Integration

### Improvements

- Improving Requirement Clarity
- Simplifying Planning Meetings
- Tool Utilization

### Actions

- Clarify Requirements
- Schedule Regular Check-Ins
- Optimize Tool Usage

## Sprint 1 Retrospective

1. Keep Doing ➤	What went well?	2. Challenge ❌	What could have gone better?
<b>Team Collaboration</b> <ul style="list-style-type: none"><li>• Team members actively shared ideas.</li><li>• All meetings were attended by the entire team, with everyone actively participating and contributing.</li><li>• Documentation was updated promptly whenever changes were needed.</li></ul>	<b>Clear Objectives</b> <ul style="list-style-type: none"><li>• Sprint goals and tasks were clear to everyone involved.</li><li>• The team understood the priorities and what needed to be completed by the end of the Sprint.</li></ul>	<b>Tool Efficiency</b> <ul style="list-style-type: none"><li>• Tools like Confluence, Trello, Slack, and GitHub were used effectively, helping the team stay organized and on track during the planning phase.</li></ul>	<b>Scope Understanding</b> <ul style="list-style-type: none"><li>• There were challenges in understanding the scope of work or requirements, requiring further clarification and explanation from the mentor.</li></ul>
<b>Improving Requirement Clarity</b> <ul style="list-style-type: none"><li>• Engaged in more detailed discussions with the internal team and mentor, and created clearer documentation.</li></ul>	<b>Simplifying Planning Meetings</b> <ul style="list-style-type: none"><li>• Recommended shorter agendas, limiting discussion time, or breaking planning into smaller, focused meetings to increase efficiency.</li></ul>	<b>Tool Utilization</b> <ul style="list-style-type: none"><li>• Discussed and determined which platforms are best suited. Consider and explore better platforms.</li></ul>	<b>Time Management</b> <ul style="list-style-type: none"><li>• Meetings took longer than expected, indicating a need to simplify the meeting process.</li></ul>
<b>Clarify Requirements</b> <ul style="list-style-type: none"><li>• Asked internal team members to contact the mentor and client to clarify any ambiguous requirements.</li></ul>	<b>Schedule Regular Check-Ins</b> <ul style="list-style-type: none"><li>• Set up a regular schedule for internal team check-ins and client updates to ensure ongoing alignment.</li></ul>	<b>Optimize Tool Usage</b> <ul style="list-style-type: none"><li>• Encourage idea sharing and consider testing alternative tools.</li></ul>	

## Sprint 2

# Plan for Sprint 2

**Sprint Duration:** 4 weeks (August 23 - September 20)

## Sprint Goal:

- Implement the core functionalities of the AI-driven question Generation System, including input handling, question generation, and user information collection.
- Complete the initial development of the user interface, such as the user-friendly input interface and the display of generated questions.
- Ensure the security of data storage and the preservation of interaction records.
- **Note:** The interaction-related features will be developed in the next sprint.

## Sprint Priorities

- **Must Have:** Completion of core functionalities, including input processing, question generation and display, secure data storage, and topic extraction.
- **Should Have:** Optimization of user experience and ensuring the long-term storage and security of data.

## Sprint Review

- Regular progress checks to ensure that all Must Have tasks are completed by the end of the Sprint.
- Collection of issues and feedback during development for review and improvement in the next Sprint.

## Sprint 2 Backlog

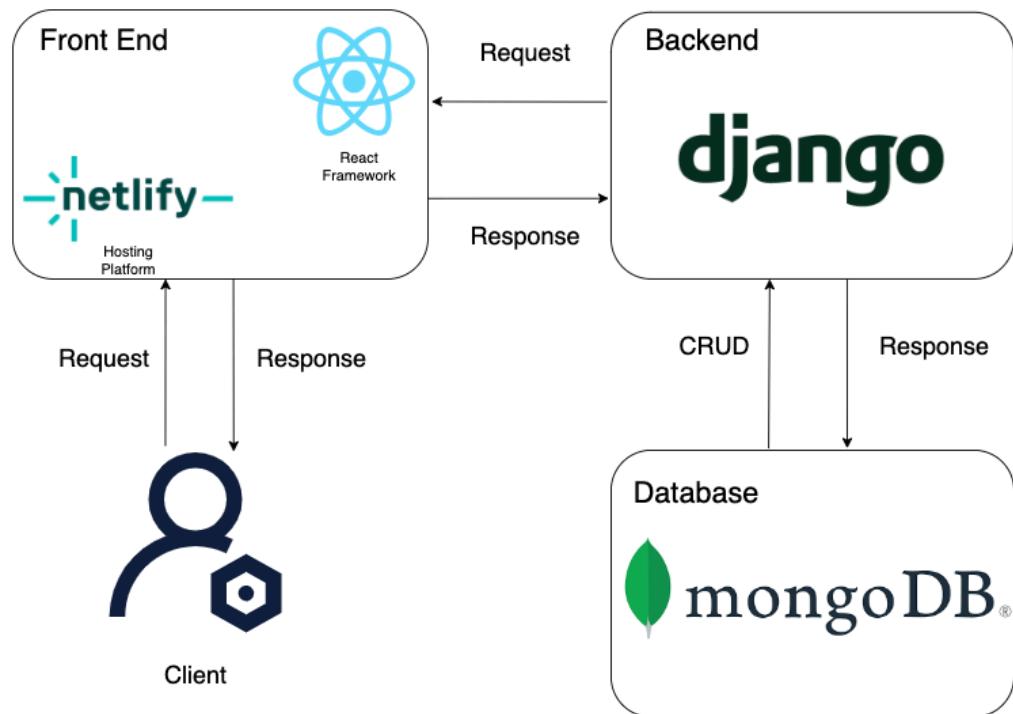
User Story ID	Story/Scenario	Trello Link	Size	Sub Tasks	Priority
E1-US1	As Lily, I want to input a topic so that I can start the creative thinking process	<a href="#">E1-US1: Input the Topic</a> SPRINT 2 BACKLOG	1	1. Design UI for input field 2. Implement input field 3. Implement input field validation 4. Develop feedback system for input validation 5. Test input field functionality	Must Have
E1-US2	As Lily, I want to get 8 unique "what if" questions based on initial input so that I can stimulate my creative thinking	<a href="#">E1-US2 : Generate 8 Unique "what if" Questions</a> SPRINT 2 BACKLOG	5	1. Define criteria for question diversity 2. Design question generation algorithm 3. Integrate algorithm with input handling 4. Implement question display interface	Must Have

				5. Ensure diversity in generated questions 6. Test question generation algorithm	
E1-US3	As Emily, I want to collect Lily's information including location and gender so that I can use her data for future analysis	<a href="#">E1-US3: Collect User Information</a> SPRINT 2 BACKLOG	1	1. Create data collection form 2. Implement secure data storage 3. Configure data encryption 4. Develop data access controls 5. Ensure data privacy and compliance 6. Conduct privacy impact assessment	Should Have
E1-US6	As Lily, I want to regenerate 8 "what if" questions if unsatisfied so that I can get more suitable questions	<a href="#">E1-US6: Generate 8 new "what if" Questions if User Unsatisfied</a> SPRINT 2 BACKLOG	3	1. Design user interface for the "Regenerate" button 2. Add "Regenerate" button 3. Develop algorithm to generate new set of questions 4. Ensure diversity in new questions 5. Test "Regenerate" functionality 6. Verify diversity of generated questions	Should Have
E2-US1	As Lily, I want to have a Lily-friendly interface for inputting topic prompts so that I can quickly start using the system	<a href="#">E2-US1: User-Friendly Input Interface</a> SPRINT 2 BACKLOG	3	1. Define user requirements for the interface 2. Design interface layout 3. Implement input prompt box 4. Ensure smooth input process 5. Gather feedback from initial users 6. Test interface usability	Must Have
E2-US2	As Lily, I want to clearly view the 8 generated questions so that I can easily read and deeply think about them	<a href="#">E2-US2: Clearly View the 8 Generated Questions</a> SPRINT 2 BACKLOG	3	1. Define requirements for question display 2. Design layout for displaying questions 3. Implement question display in numerical form 4. Ensure readability and logical layout 5. Collect user feedback on display clarity 6. Test clarity of display	Must Have

E3-US1	Lily wants to have the system save her interaction records and answers so she can review and reference them later.	<a href="#">E3-US1: Save Interaction Records and Answers</a> SPRINT 2 BACKLOG	3	<ol style="list-style-type: none"> <li>1. Define data storage schema for interactions</li> <li>2. Implement interaction recording</li> <li>3. Ensure data security and privacy</li> <li>4. Develop historical record access functionality</li> <li>5. Test interaction recording and access functionality</li> </ol>	Should Have
E3-US3	Emily wants to ensure all Lily data is securely stored so she can protect Lily's privacy and security.	<a href="#">E3-US3: Securely Store Data</a> SPRINT 2 BACKLOG	3	<ol style="list-style-type: none"> <li>1. Define encryption standards and protocols</li> <li>2. Encrypt data in storage</li> <li>3. Implement access control mechanisms</li> <li>4. Implement audit logging for data access</li> <li>5. Test encryption and access control effectiveness</li> </ol>	Must Have
E3-US4	Emily wants the system to store data long-term so she can support in-depth analysis and research.	<a href="#">E3-US4: Long-Term Data Storage</a> SPRINT 2 BACKLOG	3	<ol style="list-style-type: none"> <li>Define backup frequency and retention policies</li> <li>1. Implement data backup mechanisms</li> <li>2. Develop storage expansion capabilities</li> <li>3. Test backup and restore processes</li> <li>4. Monitor storage usage and performance</li> </ol>	Should Have
E4-US1	Lily wants to use the system as a guest without registering an account so she can use the system directly and quickly.	<a href="#">E4-US1: Guest Access</a> SPRINT 2 BACKLOG	1	<ol style="list-style-type: none"> <li>1. Define access permissions for guest users</li> <li>2. Implement guest access functionality</li> <li>3. Design and implement guest user interface</li> <li>4. Test guest access functionality</li> </ol>	Must Have
E6-US1	Emily wants the system to automatically extract the topic from Lily's input so that it can ensure content integrity and security.	<a href="#">E6-US1: Automatic Topic Extraction</a> SPRINT 2 BACKLOG	3	<ol style="list-style-type: none"> <li>1. Define topic extraction criteria</li> <li>2. Implement topic extraction logic</li> <li>3. Implement error handling for extraction failures</li> <li>4. Test topic extraction for various inputs</li> </ol>	Must Have

				5. Review and refine extraction accuracy	
E6-US2	Emily wants to have strong language and content filtering capabilities so that she can maintain a healthy platform environment.	<a href="#">E6-US2: Strong Language Filtering</a> SPRINT 2 BACKLOG	5	<ol style="list-style-type: none"> <li>1. Define content filtering criteria and rules</li> <li>2. Develop input validation and filtering mechanisms</li> <li>3. Develop administrative controls for flagged content</li> <li>4. Implement a flagging system for suspicious content</li> <li>5. Test filtering and flagging functionality</li> <li>6. Review and adjust filtering rules based on feedback</li> </ol>	Must Have
E6-US3	Emily wants system-generated questions and content to follow ethical guidelines so that she can engage in healthy, beneficial discussions.	<a href="#">E6-US3: Ethical Content Guidelines</a> SPRINT 2 BACKLOG	5	<ol style="list-style-type: none"> <li>1. Create a review process for ethical compliance</li> <li>2. Develop guidelines for ethical content</li> <li>3. Develop training materials for content creators</li> <li>4. Ensure questions adhere to these guidelines</li> <li>5. Implement feedback mechanism for ethical issues</li> <li>6. Test content for compliance</li> </ol>	Must Have
E6-US4	Lily wants the system to consider local language and cultural differences so that she can receive more relevant and relatable questions.	<a href="#">E6-US4: Consider Local Language and Culture</a> SPRINT 2 BACKLOG	8	<ol style="list-style-type: none"> <li>1. Create a localization strategy for content</li> <li>2. Develop culturally sensitive content generation</li> <li>3. Develop a mechanism for continuous improvement based on feedback</li> <li>4. Gather user feedback on language and cultural aspects</li> <li>5. Implement multi-language support</li> <li>6. Test for relevance and relatability</li> </ol>	Could Have

## Architecture



# MongoDB Database Model

We chose MongoDB for our design due to its flexible document model, which is well-suited for handling complex and dynamic data structures like sessions, questions, prompts, and feedback in our system. This model facilitates the easy storage and querying of structured or semi-structured data without predefined schemas, greatly enhancing development flexibility and speed. Moreover, MongoDB's high performance, robust scalability, and comprehensive querying capabilities make it an ideal choice for managing large-scale document storage and real-time data interactions, ensuring efficient processing and analysis of user data while supporting rapid system iterations and expansions.

## 1. VisitorSession Document

- **Content:**

- `_id` : Unique identifier automatically generated by MongoDB.
- `startTime` : Session start time.
- `endTime` : Session end time.
- `languagePreference` : User's language preference.
- `prompts` : Embedded document list containing all prompts in the session.
- `generatedQuestions` : Embedded document list containing all questions generated in the session.
- `feedbacks` : Embedded document list containing all feedback received in the session.

## 2. Prompt Subdocument

- **Content:**

- `promptID` : Locally generated unique identifier.
- `promptText` : User input prompt text.
- `timestamp` : Timestamp when the prompt was created.

## 3. GeneratedQuestion Subdocument

- **Content:**

- `questionID` : Locally generated unique identifier.
- `questionText` : Text of the generated question.
- `language` : Language of the question.
- `timestamp` : Timestamp when the question was generated.

## 4. Feedback Subdocument

- **Content:**

- `feedbackID` : Locally generated unique identifier.
- `questionID` : Unique identifier of the associated question (optional, if direct association with the question is needed).
- `feedbackText` : Feedback text.
- `rating` : Feedback rating.
- `timestamp` : Timestamp when the feedback was provided.

# API

## API Overview

API	Type	Main Features	How It Fits in the Project
<b>OpenAI API (ChatGPT)</b>	Language Model API	<ul style="list-style-type: none"><li>Generates human-like text based on prompts</li><li>Excels in natural language understanding and generation</li></ul>	Provides creative "what if" questions to enhance user engagement and stimulate critical thinking.
<b>Translation API (e.g., Google Translate API)</b>	Translation API	<ul style="list-style-type: none"><li>Supports multiple languages</li><li>Provides text translation capabilities</li></ul>	Enables multilingual support by translating chatbot responses, making it accessible to a global audience.
<b>MongoDB Atlas API</b>	NoSQL Database API	<ul style="list-style-type: none"><li>Flexible document model</li><li>High performance and scalability</li><li>Supports complex queries</li></ul>	Manages and stores user sessions, prompts, generated questions, and feedback, ensuring efficient data handling.
<b>Django REST Framework</b>	Web API Framework	<ul style="list-style-type: none"><li>Provides tools to build web APIs quickly</li><li>Handles serialization, authentication, and viewsets</li></ul>	Facilitates communication between the frontend and backend by creating RESTful APIs for data exchange.
<b>React Library (For Integration with APIs)</b>	Frontend JavaScript Library	<ul style="list-style-type: none"><li>Component-based architecture</li><li>State management</li><li>Handles API requests and dynamic rendering</li></ul>	Integrates with APIs to fetch and display data, manage state, and render dynamic content in the user interface.

## API Naming

We follow RESTful API design principles to provide a consistent and intuitive interface. Each request path is terminated with a /, clearly indicating its functionality and target resource.

### OpenAI API (ChatGPT)

- GET** /api/chatgpt/prompts/ - Retrieves all stored prompts.
- GET** /api/chatgpt/prompt/{prompt\_id}/ - Retrieves a specific prompt by ID.
- POST** /api/chatgpt/prompt/ - Creates a new prompt and retrieves the generated response.

- **PUT** /api/chatgpt/prompt/{prompt\_id}/ - Updates an existing prompt.
- **DELETE** /api/chatgpt/prompt/{prompt\_id}/ - Deletes a specific prompt by ID.

### Translation API (like Google Translate API)

- **GET** /api/translation/languages/ - Retrieves all supported languages.
- **GET** /api/translation/text/{text\_id}/ - Retrieves the translated text by ID.
- **POST** /api/translation/text/ - Submits a text for translation.
- **PUT** /api/translation/text/{text\_id}/ - Updates an existing translation request.
- **DELETE** /api/translation/text/{text\_id}/ - Deletes a specific translation by ID.

### MongoDB Atlas API

- **GET** /api/mongodb/collections/ - Retrieves all collections in the database.
- **GET** /api/mongodb/collection/{collection\_name}/documents/ - Retrieves all documents from a specific collection.
- **GET** /api/mongodb/collection/{collection\_name}/document/{document\_id}/ - Retrieves a specific document by ID.
- **POST** /api/mongodb/collection/{collection\_name}/document/ - Inserts a new document into a collection.
- **PUT** /api/mongodb/collection/{collection\_name}/document/{document\_id}/ - Updates a specific document in a collection.
- **DELETE** /api/mongodb/collection/{collection\_name}/document/{document\_id}/ - Deletes a specific document by ID.

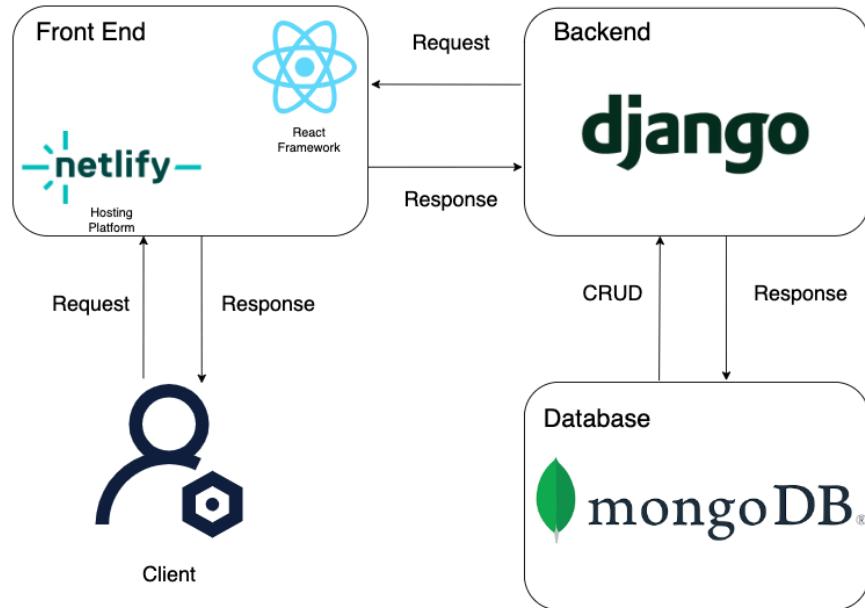
### Django REST Framework

- **GET** /api/users/ - Retrieves all users.
- **GET** /api/user/{user\_id}/ - Retrieves a specific user by ID.
- **POST** /api/user/ - Creates a new user.
- **PUT** /api/user/{user\_id}/ - Updates a specific user by ID.
- **DELETE** /api/user/{user\_id}/ - Deletes a specific user by ID.

### React Library (For Integration with APIs)

- **GET** /api/frontend/components/ - Retrieves all frontend components.
- **GET** /api/frontend/component/{component\_id}/ - Retrieves a specific component by ID.
- **POST** /api/frontend/component/ - Creates a new frontend component.
- **PUT** /api/frontend/component/{component\_id}/ - Updates a specific frontend component.
- **DELETE** /api/frontend/component/{component\_id}/ - Deletes a specific frontend component by ID.

## Deployment Decision



## Evaluation Criteria

- Performance and Reliability
- Scalability and Cost Efficiency
- Security and Compliance
- Development Efficiency and Maintenance
- Integration and Flexibility

## Deployment Tool Options

### Front End Deployment:

- Advantages: Leveraging Netlify's global CDN and continuous deployment features for React applications.
- Setup: Connect your GitHub repository to Netlify for automatic builds and deployments.

### Back End Using Netlify Functions:

- Advantages: Netlify Functions are powered by AWS Lambda, allowing you to run server-side code without managing a full server.
- Setup: Develop your Django application as a set of serverless functions.
- Deployment: Write functions to handle API requests, and deploy them directly on Netlify alongside your front end.

### Database Connection:

- Using MongoDB Atlas as a database solution. Configure environment variables in Netlify to securely store and access your database connection details.
- Set up API endpoints in your Netlify Functions to interact with MongoDB, ensuring secure and efficient data management.
- Security and Integration:

- Utilize environment variables on Netlify for sensitive information (like database URIs).
- Ensure secure HTTPS connections between your front end and Netlify Functions.
- Implement CORS within Netlify Functions to manage cross-origin requests effectively.

## Final Decision

Component	Technology	Description	Reason
Front-End	React Framework	An open-source JavaScript library for building user interfaces, aimed at improving development efficiency and enabling fast UI rendering.	Team members have experience with React, facilitating quick project startup and minimizing time needed for adaptation.
Back-End	Django (Python)	An advanced Python web framework designed for easier and faster development of complex, database-driven websites.	Django covers all project needs comprehensively, with team members having rich experience using it.
Database	MongoDB	An open-source NoSQL database that stores data in documents (JSON/BSON format). Offers flexibility and scalability compared to traditional relational databases.	Free version of MongoDB meets project requirements within the limited budget.



## Collaboration

- [About Us](#)
- › [Agile Ceremonies](#)

# About Us

## Team Info

NAME	ROLE	CONTACT
@Yujun Yan	Mentor	<a href="mailto:yujun.yan.1@unimelb.edu.au">yujun.yan.1@unimelb.edu.au</a>
@YiYao Li <b>Shaelyn</b>	Product Owner	<a href="mailto:yiya03@student.unimelb.edu.au">yiya03@student.unimelb.edu.au</a>
@Leyao Lyu <b>Lydia</b>	Developer	<a href="mailto:lyull@student.unimelb.edu.au">lyull@student.unimelb.edu.au</a>
@Jionghao Song <b>Harry</b>	Developer	<a href="mailto:jionghaos@student.unimelb.edu.au">jionghaos@student.unimelb.edu.au</a>
@Yiqun Liu <b>Elva</b>	Scrum Master	<a href="mailto:yiqun2@student.unimelb.edu.au">yiqun2@student.unimelb.edu.au</a>
@Yingying Guo <b>Vicky</b>	Quality Assurance Leader	<a href="mailto:yinguo3@student.unimelb.edu.au">yinguo3@student.unimelb.edu.au</a>

## Others Resources

- Trello  [COMP90082 2024 SM2 SA Redback](#)
- Github  <https://github.com/feit-comp90082/SA-RedBack> RESTRICTED CONTENT

## Agile Ceremonies

For each Sprint, Agile ceremonies include **Sprint Planning**, **Sprint Review**, and **Sprint Retrospective**.

# Sprint 1 Planning Meeting

## Date

Aug 8, 2024 9 pm - 10 pm

## Participants

- [@Yiqun Liu](#)
- [@YiYao Li](#)
- [@Jionghao Song](#)
- [@Yingying Guo](#)
- [@Leyao Lyu](#)

## Goals

- Sprint 1 Goal: Documentation(Background description, client goals, motivation...), Analysis of requirements, Development Environment, Plan
- Compile the tasks for Sprint 1 using the checklist
- Allocate tasks

## Discussion topics

Time	Item	Presenter	Notes
10 mins	Sprint 1 planning	<a href="#">@Yiqun Liu</a>	<ul style="list-style-type: none"><li>• Define goals and tasks for Sprint 1</li></ul>
15 mins	Background Discussion	All	<ul style="list-style-type: none"><li>• discuss and create a detailed structure</li><li>• Background content including: Background description, Project overview, Client goals, Motivation, Scope, Goal model, Personas, Stakeholders</li></ul>
15 mins	Requirement Discussion	All	<ul style="list-style-type: none"><li>• discuss and create a detailed structure</li><li>• Requirement content including: User Stories, Product backlog, Prototypes, Non-functional Requirements</li></ul>
10 mins	Development Environment Discussion	<a href="#">@Jionghao Song</a>	<ul style="list-style-type: none"><li>• Confirm everyone's skill</li><li>• Technology choices tentative</li></ul>

## Action items

- [@Yiqun Liu](#) : writes the team meeting and client meeting notes on Confluence and drafts the initial background analysis and user stories.

- @Leyao Lyu : writes the mentor meeting notes on Confluence and drafts the initial personas part. @YiYao Li : drafts the initial product overview and client goals.
- @Jionghao Song and @Yingying Guo : draft the initial Motivation, Scope, Goal mode, Stakeholders and Development Environment Part.

## ⌚ Decisions

None



# Sprint 1 Retrospective Meeting

## Date

Aug 22, 2024 1 pm - 1:30 pm

## Participants

- [@Leyao Lyu](#)
- [@Yiqun Liu](#)
- [@YiYao Li](#)
- [@Jionghao Song](#)
- [@Yingying Guo](#)

## Goals

- Review the team's performance in the Sprint, identify successful practices and challenges encountered, and discuss strategies for improvement.
- Through collective reflection and feedback, help the team to continuously optimize workflow, and improve efficiency and teamwork.

## Discussion topics

Time	Item	Presenter	Notes
10 mins	Review Sprint 1 Objectives and Achievements	<a href="#">@Yiqun Liu</a>	
10 mins	Identify What Went Well	All	
10 mins	Discuss Challenges Faced	All	
10 mins	Propose Improvements for Future Sprints	All	



## Meetings

- › [Client Meetings](#)
- › [Mentor Meetings](#)
- › [Team Meetings](#)

## Client Meetings

# 07/08/2024 Client Meeting

## 📅 Date & Time

Aug 7, 2024 3:15 pm - 4:05 pm

## 👥 Participants

• @Yiqun Liu

• @Yingying Guo

• **@Jionghao Song**

• @YiYao Li

• @Leyao Lyu

• The Client

• Other Group

• @Yujun Yan

## 📋 Goals

• Project introduction.

• Questions for the client.

## 🗣 Discussion topics

Time	Item	Presenter	Notes
5 mins	Self-Introduction	The client	
15 mins	Project and SWIP Lab Introduction	The client	<ul style="list-style-type: none"><li>• What is the chatter box</li><li>• Example of the chatter box</li></ul>
35 mins	Q&A Session	Product owner and the client	

## 📝 Q&A Session Notes

Question from product owner	Response from the client
What is the most important requirement in this project	<ul style="list-style-type: none"><li>• <b>Efficiency:</b> The process must be efficient, with a focus on digital output. Keep everything digital for flexibility.</li><li>• <b>Process Guidance:</b> The system should guide users through a series of questions to input the correct information, enabling even those without expertise to drive their inquiry.</li></ul>

What about the dataset. How to build the dataset	<ul style="list-style-type: none"> <li><b>Complex Issues:</b> The dataset should address complex issues like climate change and racism, requiring manual cleaning and organization.</li> <li><b>Imagination &amp; Testing:</b> Encourage participants to use their imagination and challenge themselves.</li> </ul>
Are we allowed to use the API of the open AI	<ul style="list-style-type: none"> <li><b>GPT Integration:</b> Any available API, including GPT, can be used.</li> </ul>
How about the budget and the budget range	<ul style="list-style-type: none"> <li><b>Small Budget:</b> The budget is limited, with a need to keep discussions open.</li> </ul>
How to validate the generated result	<ul style="list-style-type: none"> <li><b>Validation:</b> Validate results by checking if the generated questions offer plausible or preferable possibilities.</li> </ul>
Beside the Chatter Box, what is other feature	<ul style="list-style-type: none"> <li><b>Data Storage:</b> Include a data bank.</li> <li><b>Ethics &amp; Filters:</b> Ensure ethical output with language and profanity filters.</li> </ul>
What is the current framework, does "build on that" means user the previous code	<ul style="list-style-type: none"> <li>Not build on the existing framework</li> <li>Creat our own</li> </ul>
Is it a APP or Website	<ul style="list-style-type: none"> <li>Website</li> <li><b>QR Code Integration:</b> The website can support QR code functionality.</li> <li><b>Global Accessibility:</b> The website should be accessible in other countries, particularly India, not limited to mobile devices.</li> </ul>
What does the "previous result retrieval "means	<ul style="list-style-type: none"> <li>No statically. Consider the place language and culture</li> <li><b>Keyword Search:</b> Preference for picking up questions through a keyword search.</li> </ul>
How long for the data storage	<ul style="list-style-type: none"> <li><b>Perpetuity:</b> The project should aim for long-term storage, not just immediate retrieval.</li> <li><b>Data Collection:</b> Data will be played and collected for 12 months, possibly with self-deletion functionality after a certain period, as the focus is on capturing temporary insights.</li> </ul>
Does the user input should only about the climate change	<ul style="list-style-type: none"> <li>No</li> <li>Users will generate input on big, complex issues like climate change, encouraging their own inquiry process.</li> </ul>

## ✓ Action items

- Understand the client's needs.
- Deepen the understanding of this project and the background
- Understand the feedback from the client.

 Decisions

4

## Mentor Meetings

# 21/08/2024 Mentor Meeting

## Date

Aug 21, 2024 6 pm - 6:35 pm

## Participants

- [@Leyao Lyu](#)
- [@Yiqun Liu](#)
- [@YiYao Li](#)
- [@Jionghao Song](#)
- [@Yingying Guo](#)
- [@Yujun Yan](#)

## Discussion topics

Time	Item	Presenter	Notes
20 mins	Self Report	<a href="#">@Yujun Yan</a>	<ul style="list-style-type: none"><li>• Everyone Report<ul style="list-style-type: none"><li>a. What they have done for last week</li><li>b. Any Blocking</li><li>c. Next Plan</li></ul></li></ul>
10 mins	Go Through Sprint 1 Checklist	<a href="#">@Yujun Yan</a>	<ul style="list-style-type: none"><li>• To ensure that all requirements on the checklist have been covered and no important details are missed.</li></ul>
5 mins	Q&A	Everyone	

## Action items

- Refine the name of branches on GitHub
- For each user story, link the priority with the scope
- Create “Sprint” content on confluence to record the sprint plan, review, and retrospective
- Make the subtask for product backlog

# 14/08/2024 Mentor Meeting

## Date

Aug 14, 2024 6 pm - 6:20 pm

## Participants

- @Leyao Lyu
- @Yiqun Liu
- @YiYao Li
- **@Jionghao Song**
- @Yingying Guo
- @Yujun Yan

## Goals

- Report what we did last week
- Plan what to do for next week
- Issue blockers

## Discussion topics

Time	Item	Presenter	Notes
10 mins	Report what we did last week	@Yiqun Liu	<ul style="list-style-type: none"><li>• Show the documents on Confluence</li><li>• Ask questions about ambiguous part</li></ul>
10 mins	Mentor's Instructions	@Yujun Yan	<ul style="list-style-type: none"><li>• Help arrange the Trello board</li><li>• Set up a template on Trello</li><li>• Tell us what to do next</li></ul>

## Action items

- Set up the Confluence landing page
- Add a link page with external links like Trello and GitHub
- Add a picture to the Persona section and format it as a template
- Organize Trello
- Gradually update the GitHub README
- Report the finalized tech stack to the client gradually
- Work on the product backlog
- Plan for Sprint 2.

## Decisions

# 07/08/2024 Mentor Meeting

## Date

Aug 7, 2024 6 pm - 6:30 pm

## Participants

- [@Leyao Lyu](#)
- [@Yiqun Liu](#)
- [@YiYao Li](#)
- [@Jionghao Song](#)
- [@Yingying Guo](#)
- [@Yujun Yan](#)

## Goals

- Introduction to Confluence

## Discussion topics

Time	Item	Presenter	Notes
30 mins	Confluence Introduction	<a href="#">@Yujun Yan</a>	<ul style="list-style-type: none"><li>• Introduces the functionalities of Confluence and outlines the modules that showcase previous student work. Shows detailed components and content of each module.</li></ul>

## Action items

- Start preparing for the Sprint 1 tasks
- Setup the Confluence

## Decisions



# 04/08/2024 Mentor Meeting

## 📅 Date

Aug 4, 2024 3 pm - 3:20 pm

## 👥 Participants

- @Leyao Lyu
- @Yiqun Liu
- @YiYao Li
- **@Jionghao Song**
- @Yingying Guo
- @Yujun Yan

## 📝 Goals

- Self-introduction
- Team Role Assignment
- Client meeting information

## 🗣 Discussion topics

Time	Item	Presenter	Notes
10 mins	Introduction	@Yujun Yan	<ul style="list-style-type: none"><li>• Get to know each other</li></ul>
10 mins	Project Brief	@Yujun Yan	<ul style="list-style-type: none"><li>• Record team member availability</li><li>• Presenting upcoming client meetings</li></ul>

## ✓ Action items

- Team members introduce themselves
- Prepare for the [first client meeting](#) questions

## ⌚ Decisions

👉 [@Yiqun Liu](#) will serve as scrum master, where she is responsible for facilitating team collaboration, ensuring the Scrum process is followed, and removing obstacles to the team's progress.

👉 [@YiYao Li](#) will serve as a product owner, where she is responsible for communicating with clients and presenting questions at client meetings.

## Team Meetings

# 20/08/2024 Team Meeting

## Date

Aug 20, 2024 12 pm - 4 pm

## Participants

- [@YiYao Li](#)
- [@Yiqun Liu](#)
- [@Yingying Guo](#)
- [@Leyao Lyu](#)
- [@Jionghao Song](#)

## Goals

- Update Confluence content.
- Finalize technical decisions.
- Review and update GitHub repository.
- Check Trello board status and update tasks.

## Discussion topics

Time	Item	Presenter	Notes
1hr30mins	Confluence Updates	All	<ul style="list-style-type: none"><li>• <b>Loading Page:</b> Decided to include photos of each team member on the loading page.</li><li>• <b>Section Review:</b> Reviewed all sections of Confluence for accuracy and consistency.</li><li>• <b>Font Size Consistency:</b> Adjusted font sizes across Confluence to ensure uniformity.</li><li>• <b>Personas Region:</b> Corrected the personas section for accuracy.</li><li>• <b>Prototype Interface:</b> Added a new section for prototypes, including links and screenshots.</li><li>• <b>Architecture Section:</b> Created and added content for the architecture section, including MongoDB Database Model and API details.</li></ul>
1hr	Technical Decisions		<ul style="list-style-type: none"><li>• <b>Stack Update:</b> Agreed to replace Docker and AWS with Netlify for a serverless approach. This decision was made based on team discussions to simplify deployment and management.</li></ul>
1hr	GitHub Repository		<ul style="list-style-type: none"><li>• <b>README Review:</b> Ensured all README content is accurate and up-to-date.</li><li>• <b>Figma Link Update:</b> Corrected the Figma link in the README.</li></ul>

			<ul style="list-style-type: none"> <li>• <b>Changelog Inclusion:</b> Decided to include the changelog directly within the README file rather than maintaining a separate <code>changelog.md</code>, for ease of updating each sprint.</li> </ul>
30mins	Trello Board		<ul style="list-style-type: none"> <li>• <b>To-Do Review:</b> Verified completion of the previous to-do items.</li> <li>• <b>New To-Dos:</b> Added and updated new tasks for the current sprint.</li> </ul>

## ✓ Action items

- Update the loading page on Confluence with team member photos.
- Finalize the Confluence sections and ensure consistency in font size.
- Implement the new technical stack using Netlify.
- Make the necessary changes to the README on GitHub and include the updated Figma link.
- Verify and update tasks on Trello.

## ⌚ Decisions

- 👉 Use Netlify for serverless hosting instead of Docker and AWS.
- 👉 Include the changelog directly in the README file for easier management.
- 👉 Schedule the next team meeting for August 22, 2024, at 7:00 PM, focusing on Sprint 2 planning.

# 15/08/2024 Team Meeting

## 📅 Date

Aug 15, 2024 2:30 pm - 3:30 pm

## 👥 Participants

- [@Yiqun Liu](#)
- [@YiYao Li](#)
- [@Jionghao Song](#)
- [@Yingying Guo](#)
- [@Leyao Lyu](#)

## 📝 Goals

- Discuss and evaluate the work completed by each team member
- Allocate tasks for the next meeting on Tuesday
- Discussion on the design style of the website

## 🗣️ Discussion topics

Time	Item	Presenter	Notes
10 mins	Work Presentation	All	<ul style="list-style-type: none"><li>• Each group member introduce their work to others</li></ul>
40 mins	Prototype Design Discussion	All	<ul style="list-style-type: none"><li>• Everyone discusses and shares opinions on website design in Confluence</li><li>• Adjust the design of the Prototype Part</li></ul>
10 mins	Future Work	All	<ul style="list-style-type: none"><li>• Check rest work with checklist</li><li>• Decide what to do next</li><li>• Be prepared for the team meeting next week</li></ul>

## ✓ Action items

- ✓ [@Yiqun Liu](#) : needs to update in Product Backlog Part in Trello and Confluence; draft loading pages in Confluence.
- ✓ [@Leyao Lyu](#) : needs to update the Persona. allocate the Product Backlog in Trello.
- ✓ [@YiYao Li](#) : needs to ask mentor the details about the structure on Trello and how to deploy it; prepare for delivery to a client meeting; update Github README file.
- ✓ [@Jionghao Song](#) : needs to update the Technical Consideration and make a technical structure.
- ✓ [@Yingying Guo](#) : needs to draft Prototype and update Technical Consideration; write Team Meeting Notes.

## ⌚ Decisions

 @Yingying Guo will be the Quality Assurance Leader

# 13/08/2024 Team Meeting

## Date

Aug 13, 2024 3 pm - 5 pm

## Participants

- [@Yiqun Liu](#)
- [@YiYao Li](#)
- [@Jionghao Song](#)
- [@Yingying Guo](#)
- [@Leyao Lyu](#)

## Goals

- Discuss and evaluate the work completed by each team member
- Prepare for the mentor meeting tomorrow
- Allocate tasks for the next meeting on Thursday

## Discussion topics

Time	Item	Presenter	Notes
20 mins	Work Presentation	All	<ul style="list-style-type: none"><li>• Each group member introduce their work to others</li></ul>
60 mins	Background Part Discussion	All	<ul style="list-style-type: none"><li>• Everyone discusses and shares opinions on Background Part in Confluence</li><li>• Adjust the structures of the Background Part</li></ul>
30 mins	Requirement Part Discussion	All	<ul style="list-style-type: none"><li>• Everyone discusses and shares opinions on Requirement Part in Confluence</li><li>• Adjust the structures of the Requirement Part</li></ul>
10 mins	Future Work	All	<ul style="list-style-type: none"><li>• Decide what to do next</li><li>• Be prepared for the mentor meeting tomorrow</li><li>• Sprint1 - Individual Contributions</li></ul>

## Action items

- [@Yiqun Liu](#) : needs to change in User Story Part; prepare for delivery to a mentor meeting
- [@Leyao Lyu](#) : sets up the Trello
- [@YiYao Li](#) : plans for Sprint2 plan
- [@Jionghao Song](#) needs to update the Scope Part and Non-Functional Part; write Team Meeting Notes
- [@Yingying Guo](#) : drafts Technical Consideration

## Decisions

 We decided to add a sign-in & sign up function

# 06/08/2024 Team Meeting

## 📅 Date

Aug 6, 2024 9:30 pm - 10:20 pm

## 👥 Participants

- [@Yiqun Liu](#)
- [@Yingying Guo](#)
- [@YiYao Li](#)
- [@Leyao Lyu](#)
- [@Jionghao Song](#)

## 📋 Goals

- Ice break
- Deepen the understanding of the project
- Discuss the current confusion and prepare for the client meeting

## 🗣 Discussion topics

Time	Item	Presenter	Notes
15 mins	Self-introduction	All	<ul style="list-style-type: none"><li>• Get to know each other</li></ul>
10 mins	Project Brief	All	<ul style="list-style-type: none"><li>• Deepen the understanding of this project</li></ul>
25 mins	Discuss the current questions	All	<ul style="list-style-type: none"><li>• Prepare the questions for the client meeting</li></ul>

## ✓ Action items

- Everyone introduces themselves including their educational background
- Everyone discusses their current confusion or questions about the project
- Prepare for the first client meeting

## ⌚ Decisions

👉 [@YiYao Li](#) will be the representative who asks questions.

👉 [@Yiqun Liu](#) will be the recorder for the client meeting.