illumination

Sprint 1

By Team 1 Tech Titans

Agenda

Team Members

Anuhya Marapalli

Scrum Master / Developer

Snehalatha Boothpur

Designer / Developer

Rithin Guptha Bajuri

Developer

Team Members

Harshitha Rangaraju

Team Leader and Developer

Srinivas Reddy Bapathu

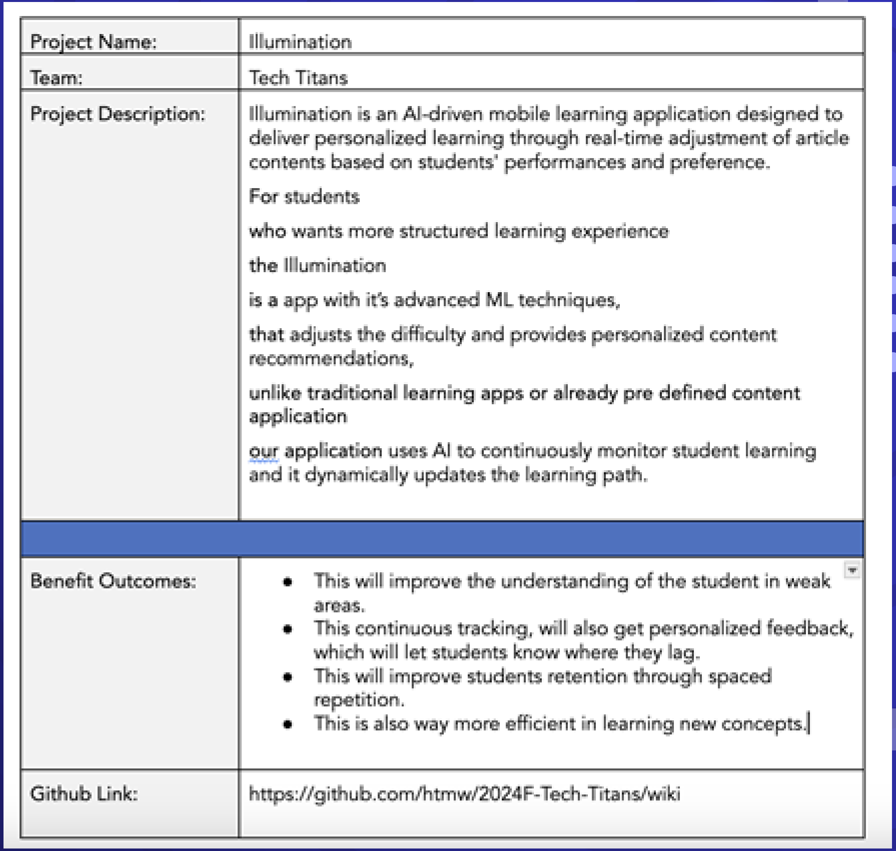
Developer and Tester

Improvements

- Update in the Product Schedule

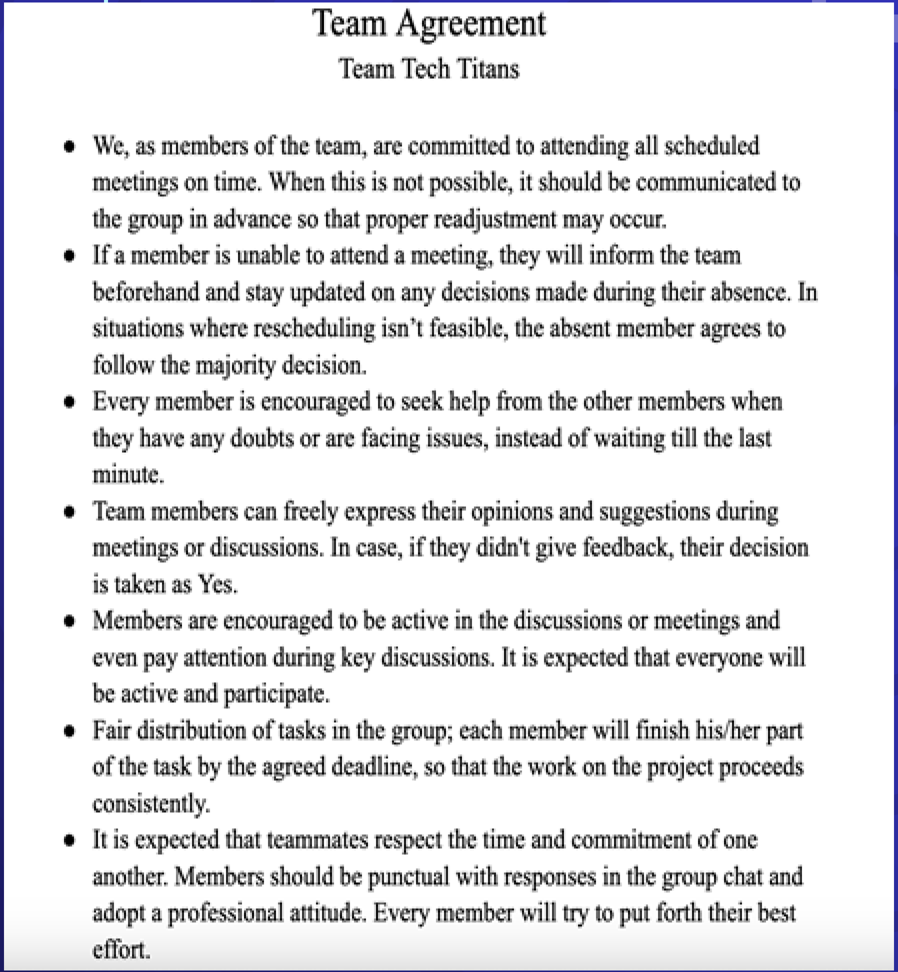
Team mail id : Techtitans816@gmail.com

Project Description



Project Name:	Illumination
Team:	Tech Titans
Project Description:	Illumination is an AI-driven mobile learning application designed to deliver personalized learning through real-time adjustment of article contents based on students' performances and preference. For students who wants more structured learning experience the Illumination is a app with it's advanced ML techniques, that adjusts the difficulty and provides personalized content recommendations, unlike traditional learning apps or already pre defined content application our application uses AI to continuously monitor student learning and it dynamically updates the learning path.
Benefit Outcomes:	• This will improve the understanding of the student in weak areas. • This continuous tracking, will also get personalized feedback, which will let students know where they lag. • This will improve students retention through spaced repetition. • This is also way more efficient in learning new concepts.
Github Link:	https://github.com/htmw/2024F-Tech-Titans/wiki

Team Agreement



Team Agreement

Team Tech Titans

- We, as members of the team, are committed to attending all scheduled meetings on time. When this is not possible, it should be communicated to the group in advance so that proper readjustment may occur.
- If a member is unable to attend a meeting, they will inform the team beforehand and stay updated on any decisions made during their absence. In situations where rescheduling isn't feasible, the absent member agrees to follow the majority decision.
- Every member is encouraged to seek help from the other members when they have any doubts or are facing issues, instead of waiting till the last minute.
- Team members can freely express their opinions and suggestions during meetings or discussions. In case, if they didn't give feedback, their decision is taken as Yes.
- Members are encouraged to be active in the discussions or meetings and even pay attention during key discussions. It is expected that everyone will be active and participate.
- Fair distribution of tasks in the group; each member will finish his/her part of the task by the agreed deadline, so that the work on the project proceeds consistently.
- It is expected that teammates respect the time and commitment of one another. Members should be punctual with responses in the group chat and adopt a professional attitude. Every member will try to put forth their best effort.

Ankit, 17 year old

Ankit is a high schooler who is preparing for IIT JEE exams where is he good at Mathematics and Chemistry but he struggles in Physics, even though he attends extra classes, but he never excels it. So, he feels like he personalized study material to improve his weak areas.

Goals:

- Have good grasp on difficult physics topics.
- Have access to personalized materials on complex topics or topics where he is weak at.
- Able to balance school, extra classes and self study.

Challenges

- There is a lot of content in online or in books but unable to find proper content for his weakness topics.
- Searching for proper material is time taking.
- Unable to identify the weak topics.

Rajat, 28 year old

Rajat is CA (Chartered Accountant) aspirant from Mumbai, but he is also working full time in financial firm, which causes him have less time to study. He finds financial reporting and taxation difficult and even struggling to focus because of tight schedule.

Goals:

- Improve the understanding of the complex topics.
- Able to access the targetted material on the topics which he finds difficult.
- Able to balance both work and preparation.

Challenges:

- Its difficult to manage both work life and student life which leading him not to study well.
- Time consuming on finding the concepts he is weak at.
- Struggling to study all because of broad topics in CA.

Kavya, 21 year old

Kavya is engineering student, as she is near her job trails and she is interested in Machine Learning and GenAI, she want to study them and learn them, but she have no idea on machine learning. When she searching of google for roadmap, all those roadmap doesn't suit her well which causes her to distract.

Goals

- Master all Machine learning and deep learning concepts.
- Able to read fine quality materials which simplify the complex concepts into simple once.

Challenges

- There are alot of materials on it which causes to read alot of materials of same topics to understand them.
- Facing difficulties in retaining the concepts.
- Unable to keep up with the latest trends on ML.

MVP

- **Subject Selection**: Choose subjects to access articles.
- **Article Reading**: Browse and read subject-specific articles.
- **Mark Articles for Later**: Save articles for future review.
- **Search Functionality**: Search articles within a subject.
- **Personalized Recommendations**: Get suggestions based on performance.

Technologies

01.

Backend

fastAPI
Node JS
Mongodb
AWS
Pytorch

02.

Frontend

React Native

03.

Tools

Github
Postman
Google Colab
VSCode

1. Backend

Here FastAPI is primarily used for machine learning backend tasks where as Node JS is primarily deals with Client Side code. MongoDB for Storing the data. AWS for hosting and even for storing the objective Data. Pytorch for Machine learning

2. Frontend

React Native is used for building cross platform mobile application.

3. Tools

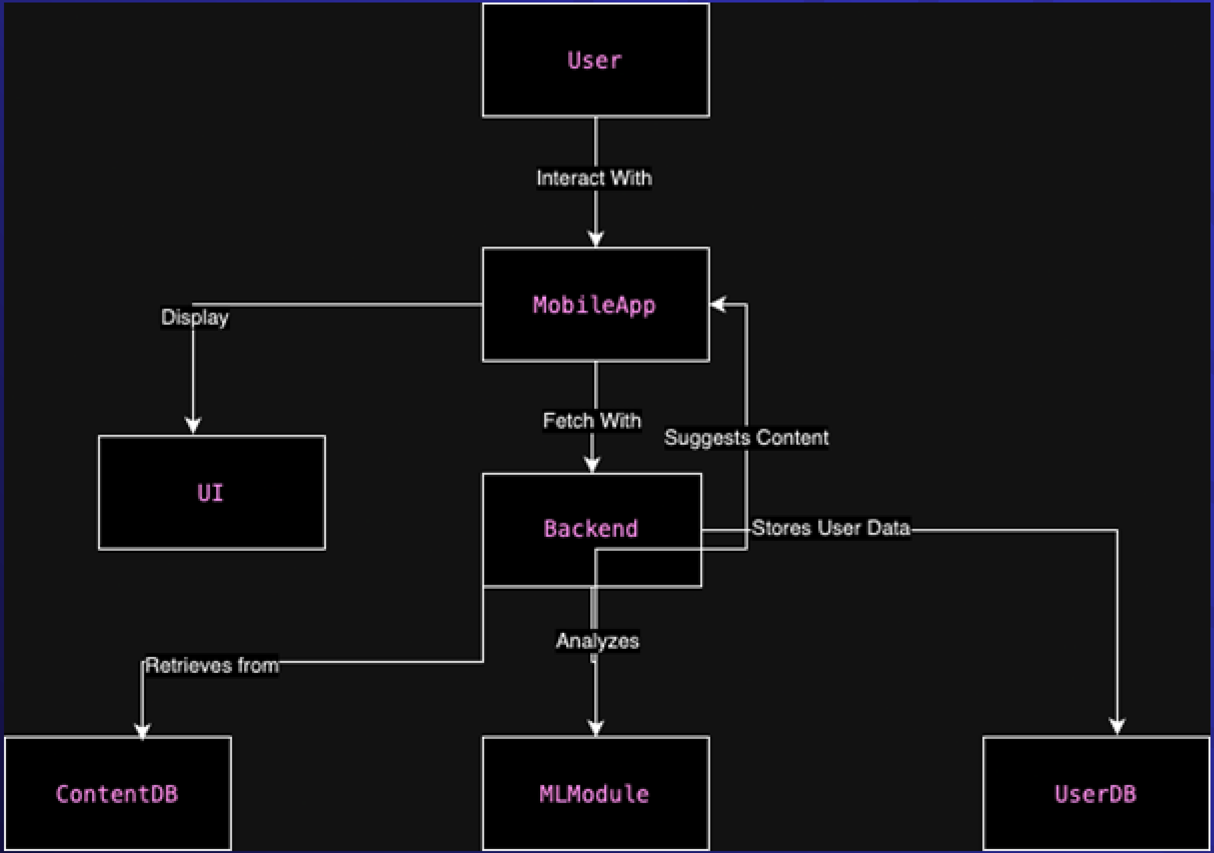
Github is where code and even the documents are shared. Postman is for API Testing. Google Colab for training the Machine Learning Model. VSCode is used for writing the code

Algorithms

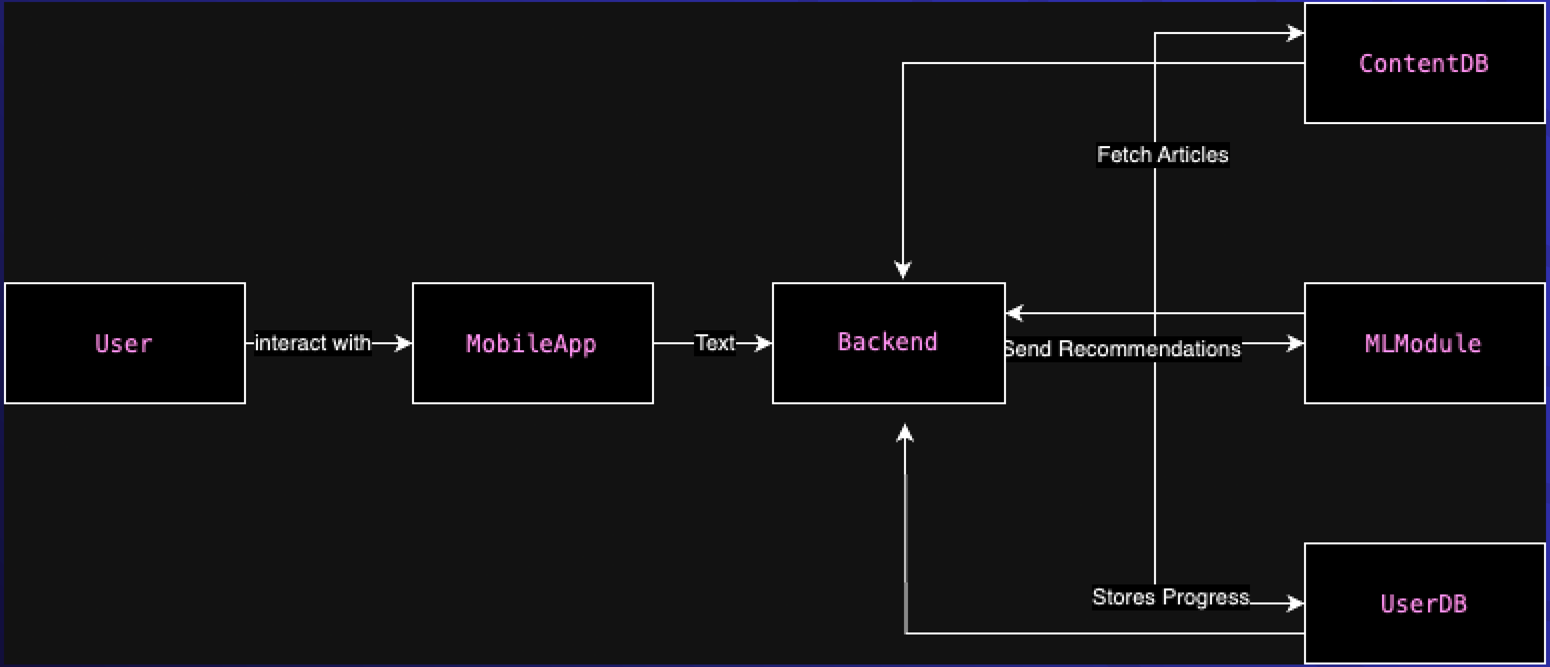
Reinforcement Learning
Reinforcement Learning (RL) is a machine learning paradigm where an agent learns by interacting with an environment and receiving rewards for actions. In adaptive learning, RL is used to dynamically adjust content difficulty based on student responses, maximizing engagement and learning efficiency over time.

Word2Vec
Word2Vec is a deep learning-based model that transforms words into continuous vector representations, capturing semantic relationships between words. In content-based filtering, it is used to convert textual content (article text) into vectors, allowing us to measure similarity between content items. Similar vectors imply similar content, enabling personalized recommendations.

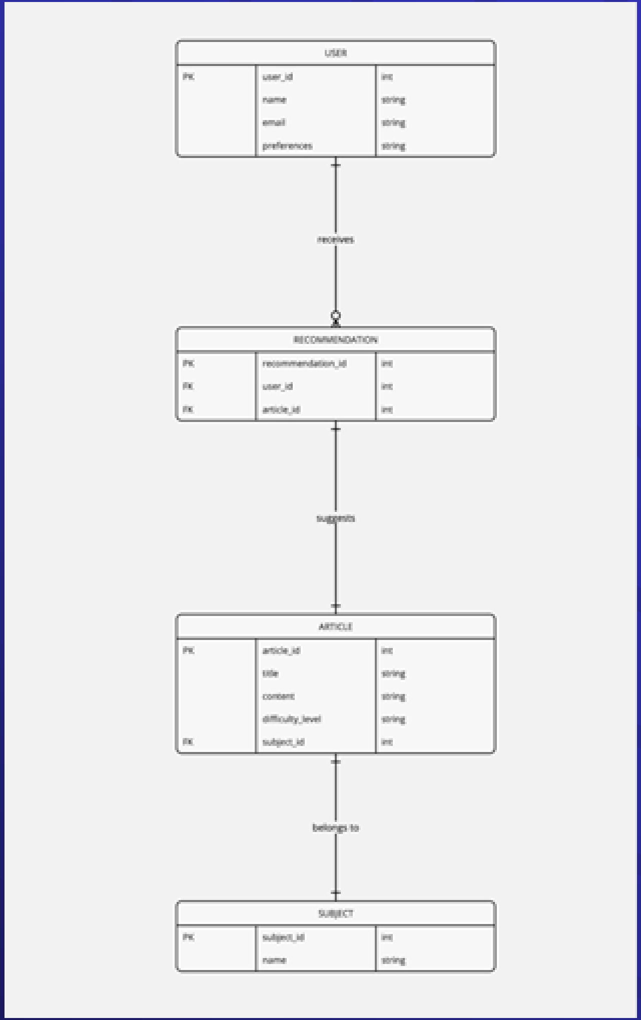
Architecture Diagram



Context Diagram



ER Diagram


USER
PK
user_id
int
name
string
email
string
preferences
string
receives
RECOMMENDATION
PK
recommendation_id
int
FK
user_id
int
FK
article_id
int
suggests
ARTICLE
PK
article_id
int
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content
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difficulty_level
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FK
subject_id
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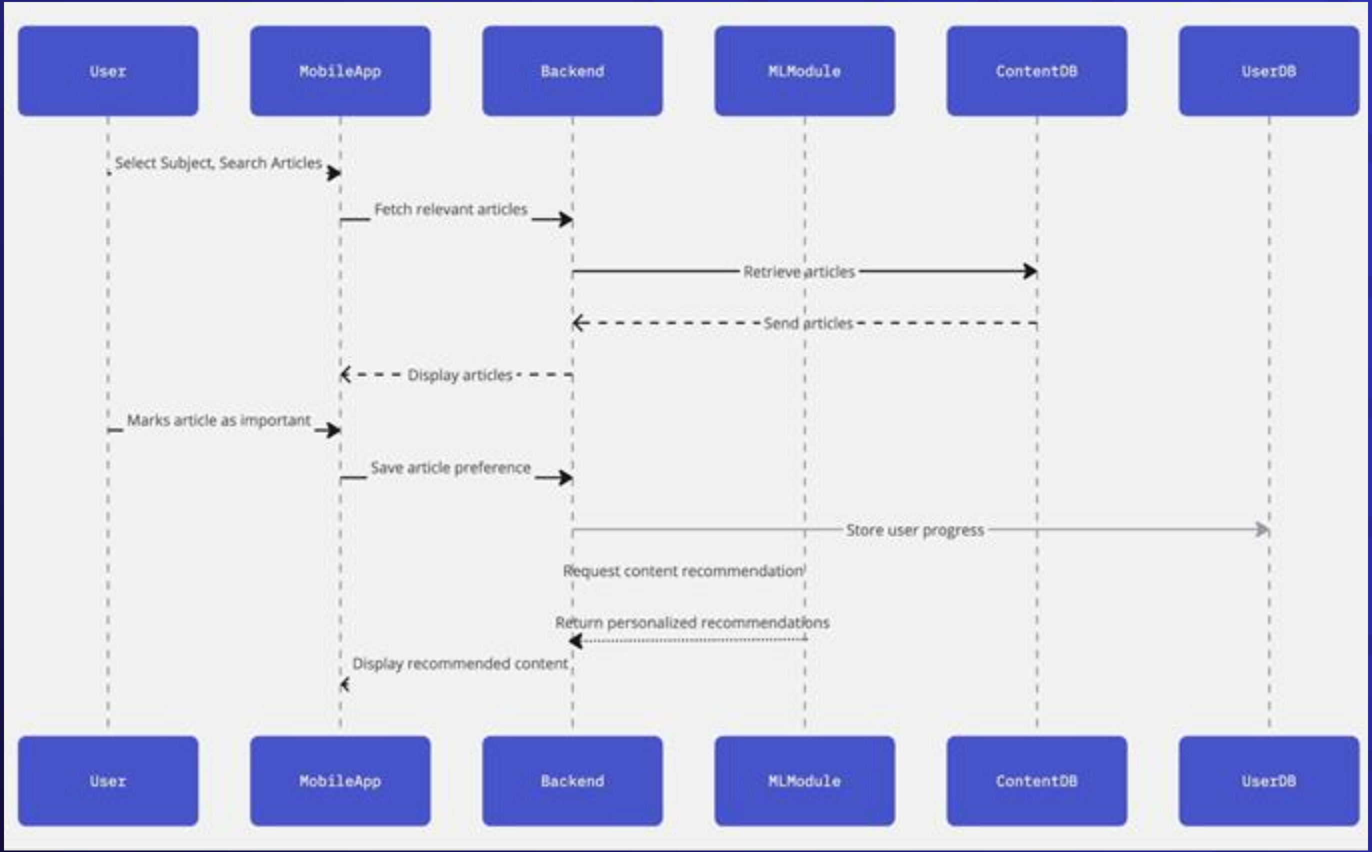
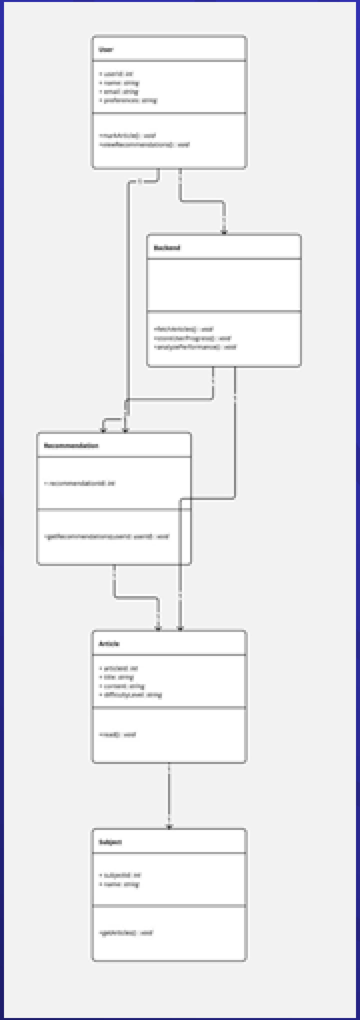
belongs to
SUBJECT
PK
subject_id
int
name
string

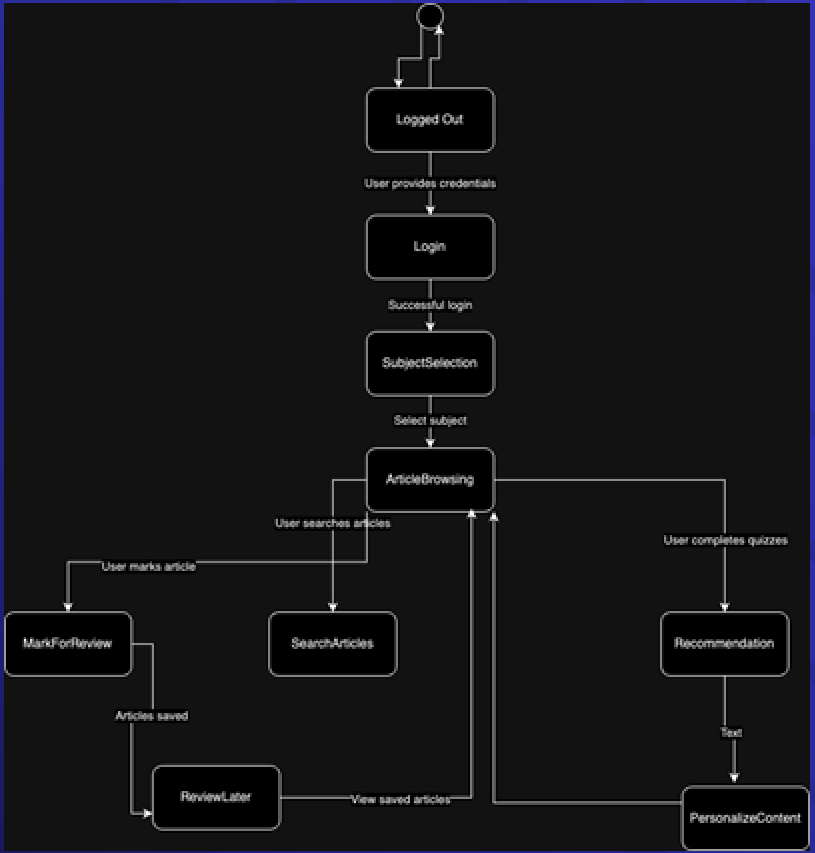
Sequence Diagram



Class Diagram



State Diagram



Product Backlog

#	Sprint	Feature	User Story/Technical Story	Acceptance Criteria
1	Sprint 1	**Subject Selection**	**User Story 1**: As a student, I want to select a subject so I can access relevant learning content.	Users can select from multiple subjects (e.g., Math, Science, History). Selected subjects load relevant articles.
2	Sprint 1	**Article Reading**	**User Story 2**: As a student, I want to browse and read articles related to the subject I selected.	Articles display in a clean, mobile-friendly interface. Users can scroll and navigate within articles seamlessly.
3	Sprint 1	**Mark Articles for Later**	**User Story 3**: As a student, I want to mark articles as "difficult" or "important" for later review.	Users can mark articles as "difficult" or "important". Marked articles appear in a "Review Later" section.
4	Sprint 1	**Article Search**	**User Story 4**: As a student, I want to search for specific articles within a subject.	Users can search for articles by keywords within a subject. Search results are displayed based on relevance.
5	Sprint 1	**Article Navigation**	**User Story 5**: As a student, I want to navigate between articles within the same subject.	Users can use "next" and "previous" buttons or a navigation bar to move between articles. Ensure smooth transitions.

Product Backlog

#	Sprint	Feature	User Story/Technical Story	Acceptance Criteria
6	Sprint 1	Basic UI for Articles	Technical Story 1: Set up basic UI/UX for browsing and reading articles.	Clean, intuitive design for subject selection and article reading. Ensure mobile responsiveness.
7	Sprint 1	Content Management System	Technical Story 2: Implement content management system for loading articles by subject.	Articles are stored and categorized by subject. Efficient retrieval of content from a backend system.
8	Sprint 1	Mark and Save Articles	Technical Story 3: Add functionality for marking and saving articles for later review.	Users can save marked articles to a "Review Later" list. Data is persisted across sessions.
9	Sprint 1	Search Functionality	Technical Story 4: Implement article search functionality.	Enable a search feature within each subject. Search results are displayed quickly and accurately.
10	Sprint 2	**Personalized Recommendations**	**User Story 6: As a student, I want personalized content recommendations based on my performance so I can improve weak areas.**	The system provides content recommendations based on quiz performance and article difficulty. Users are directed to articles covering weak areas.

Product Backlog

#	Sprint	Feature	User Story/Technical Story	Acceptance Criteria
11	Sprint 2	Spaced Repetition	User Story 7: As a student, I want the app to implement spaced repetition to reinforce key concepts over time.	The app identifies and schedules spaced repetition for topics users struggle with. Users are prompted to revisit articles or take quizzes at optimal intervals.
12	Sprint 2	Performance Dashboard	User Story 8: As a student, I want to track my progress in a performance dashboard.	The dashboard shows quiz scores, articles read, and time spent on each subject. Users can see areas of strength and weakness visually.
13	Sprint 2	Targeted Feedback on Quizzes	User Story 9: As a student, I want to receive targeted feedback after quizzes so I can understand my mistakes.	Detailed feedback is provided for each quiz question. Feedback explains why certain answers are correct/incorrect.
14	Sprint 2	Dynamic Content Adjustment	User Story 10: As a student, I want the app to dynamically adjust content difficulty based on my performance.	The difficulty of content increases if the user performs well. If a student struggles, simpler articles or review content is recommended.
15	Sprint 2	Basic Machine Learning for Recommendations	Technical Story 5: Implement a basic machine learning model for personalized content recommendations.	The model analyzes quiz performance and article difficulty to recommend personalized learning paths. Adjustments are made based on user progress.

Product Backlog

#	Sprint	Feature	User Story/Technical Story	Acceptance Criteria
16	Sprint 2	Spaced Repetition Algorithm	Technical Story 6: Integrate spaced repetition algorithm to reinforce key concepts.	Use spaced repetition techniques to schedule when users should revisit difficult topics. Ensure the system prompts users at the right time for maximum retention.
17	Sprint 2	Performance Dashboard Development	Technical Story 7: Build a performance dashboard to visualize progress.	The dashboard shows quiz results, time spent, and subject mastery. Visual charts display performance trends.
18	Sprint 2	Quiz Feedback Mechanism	Technical Story 8: Provide detailed quiz feedback for user learning.	Implement feedback mechanisms to explain quiz results. Feedback is both constructive and designed to reinforce learning.
19	Sprint 3	User Accounts & Syncing	User Story 11: As a student, I want to create an account and log in so I can save my progress and preferences across devices.	Users can create accounts with email/password. User progress, preferences, and recommendations are saved and synced across devices.
20	Sprint 3	Adaptive Study Paths	User Story 12: As a student, I want my study path to adapt based on my long-term learning trends and preferences.	The app uses ML to analyze long-term trends and dynamically adjust learning paths. Preferences are stored, and content is adapted based on user learning styles.

Product Backlog

#	Sprint	Feature	User Story/Technical Story	Acceptance Criteria
21	Sprint 3	Reminders for Spaced Repetition & Recommendations	User Story 13: As a student, I want to receive reminders for spaced repetition and personalized study recommendations.	Notifications prompt users for spaced repetition and recommended articles. Reminders are personalized based on past performance and study schedules.
22	Sprint 3	Learning History	User Story 14: As a student, I want to view my learning history so I can review previously studied articles and performance.	Users can access their study history, including completed articles and quizzes. History includes quiz scores, article read dates, and time spent.
23	Sprint 3	Adaptive Feedback Based on Trends	User Story 15: As a student, I want to receive adaptive feedback based on my performance trends over time so I can improve continuously.	The app provides adaptive feedback based on overall performance and trends. Feedback is more tailored as the system learns from the user's progress and actions.
24	Sprint 3	User Authentication	Technical Story 9: Implement user authentication and profile management.	Secure user authentication system with account creation, login, and password recovery. Ensure user progress and data are stored across sessions.
25	Sprint 3	Refined ML for Long-Term Learning	Technical Story 10: Refine the machine learning model for adaptive feedback based on long-term learning trends.	The ML model adapts based on user learning patterns and feedback. Ensure the model evolves based on long-term trends and personalized learning data.

Product Backlog

#	Sprint	Feature	User Story/Technical Story	Acceptance Criteria
26	Sprint 3	Reminders & Notifications	Technical Story 11: Implement reminders and notifications for spaced repetition and content recommendations.	Notifications are sent based on spaced repetition schedules and content recommendations. Ensure reminders are relevant and personalized to user learning paths.
27	Sprint 3	Final UI/UX Improvements	Technical Story 12: Finalize UI/UX improvements for a polished, engaging user experience.	Refine the user interface for a smooth, intuitive experience. Ensure the app is fully responsive and accessible on different devices.

Sprint 1

#	Story/Task (User Story or Technical Story)	Story Points	Acceptance Criteria
1	User Story 1: As a student, I want to select a subject so I can access relevant learning content.	3 Points	Users can select from multiple subjects (e.g., Math, Science, History). Selected subjects load relevant articles.
2	User Story 2: As a student, I want to browse and read articles related to the subject I selected.	5 Points	Articles display in a clean, mobile-friendly interface. Users can scroll and navigate within articles seamlessly.
3	User Story 3: As a student, I want to mark articles as "difficult" or "important" for later review.	3 Points	Users can mark articles as "difficult" or "important". Marked articles appear in a "Review Later" section.
4	User Story 4: As a student, I want to search for specific articles within a subject.	8 Points	Users can search for articles by keywords within a subject. Search results are displayed based on relevance.
5	User Story 5: As a student, I want to navigate between articles within the same subject.	2 Points	Users can use "next" and "previous" buttons or a navigation bar to move between articles. Ensure smooth transitions.

Sprint 1

#	Story/Task (User Story or Technical Story)	Story Points	Acceptance Criteria
6	Technical Story 1: Set up basic UI/UX for browsing and reading articles.	5 Points	Clean, intuitive design for subject selection and article reading. Ensure mobile responsiveness.
7	Technical Story 2: Implement content management system for loading articles by subject.	5 Points	Articles are stored and categorized by subject. Efficient retrieval of content from a backend system.
8	Technical Story 3: Add functionality for marking and saving articles for later review.	3 Points	Users can save marked articles to a "Review Later" list. Data is persisted across sessions.
9	Technical Story 4: Implement article search functionality.	8 Points	Enable a search feature within each subject. Search results are displayed quickly and accurately.

Total 42 Points

Test Cases

Story/Task	Test Case ID	Test Case Description	Preconditions	Steps	Expected Result	Status
User Story 1: Subject Selection	TC-1.1	Verify that a user can select a subject from a predefined list.	Subject list is available in the app.	1. Open the app. 2. Select a subject from the list. 3. Confirm subject loads correctly.	The subject is selected, and relevant articles load.	Pass
	TC-1.2	Verify subjects load correctly based on user selection.	Subject list is available.	1. Select each subject. 2. Ensure the correct articles for each subject are displayed. 3. Navigate to a subject.	The articles related to the selected subject are loaded.	Pass
User Story 2: Browse and Read Articles	TC-2.1	Verify that articles display correctly in a mobile-friendly layout.	Subject has been selected, and articles are available.	1. Select a subject. 2. Open an article. 3. Scroll through the article.	Articles display properly and scrolling is smooth.	Pass
	TC-2.2	Verify article readability and responsiveness across devices.	Articles are loaded in the app.	1. Open an article. 2. Check readability on mobile and tablet devices. 3. Resize the window to ensure responsiveness.	Article content is legible and the layout adapts to different devices.	Pass

Test Cases

Story/Task	Test Case ID	Test Case Description	Preconditions	Steps	Expected Result	Status
User Story 3: Mark Articles for Review	TC-3.1	Verify marking an article as "difficult" or "important".	An article is displayed.	1. Open an article. 2. Mark it as "difficult". 3. Mark it as "important".	Article is successfully marked as "difficult" or "important".	Pass
	TC-3.2	Verify that marked articles appear in the "Review Later" section.	One or more articles are marked.	1. Mark articles. 2. Navigate to the "Review Later" section. 3. Check that the marked articles appear.	Marked articles are listed in the "Review Later" section.	Pass
User Story 4: Search for Articles	TC-4.1	Verify search results match keywords entered by the user.	Articles are available in the selected subject.	1. Open the search bar. 2. Enter a keyword. 3. Execute the search.	Relevant articles based on the keyword are returned.	Pass
	TC-4.2	Verify the speed and accuracy of the search functionality.	Articles are available.	1. Open the search bar. 2. Enter a variety of keywords. 3. Test search speed. 4. Ensure results are accurate.	Search results are returned quickly, and accuracy is maintained.	Pass

Test Cases

Story/Task	Test Case ID	Test Case Description	Preconditions	Steps	Expected Result	Status
User Story 5: Navigate Between Articles	TC-5.1	Verify that "next" and "previous" buttons navigate between articles.	At least two articles are available in the subject.	1. Open an article. 2. Use the "next" button to move to the next article. 3. Use the "previous" button to go back.	The user is able to navigate between articles smoothly.	Pass
	TC-5.2	Ensure smooth transitions between articles when navigating.	At least two articles are available.	1. Open an article. 2. Navigate between articles using the "next" and "previous" buttons. 3. Check for any delays or disruptions during transitions.	Transitions between articles are smooth without delay or disruption.	Pass
Technical Story 1: Basic UI/UX Setup	TC-6.1	Verify UI layout for subject selection and article reading.	App is accessible.	1. Open the app. 2. Browse the subject list. 3. Select a subject and read an article. 4. Check UI consistency and readability.	The UI is intuitive, and articles are displayed in a clean, readable format.	Pass
	TC-6.2	Test mobile responsiveness of the UI/UX.	App is accessible on mobile devices.	1. Open the app on mobile. 2. Browse the subject and article pages. 3. Check for UI consistency and responsiveness to different screen sizes.	The UI is responsive and works smoothly on mobile devices.	Pass

Test Cases

Story/Task	Test Case ID	Test Case Description	Preconditions	Steps	Expected Result	Status
Technical Story 2: Content Management	TC-7.1	Verify that articles are correctly categorized by subject.	Content is loaded into the backend.	1. Open the app. 2. Select each subject. 3. Ensure articles appear under the correct subject categories.	Articles are correctly categorized and load under the appropriate subjects.	Pass
	TC-7.2	Test efficiency of content retrieval from the backend.	Backend content is available.	1. Open the app. 2. Select a subject. 3. Time how long it takes for the articles to load. 4. Test under different network conditions.	Articles are retrieved quickly, even under varied network conditions.	Pass
Technical Story 3: Mark and Save Articles	TC-8.1	Verify marked articles persist across user sessions.	Articles are marked for review.	1. Mark an article for review. 2. Close the app. 3. Reopen the app and check that the marked article persists.	Marked articles are saved and persist across sessions.	Pass
Technical Story 4: Search Functionality	TC-9.1	Verify that search results are relevant and load quickly.	Articles are available for search.	1. Open the search bar. 2. Search for a term. 3. Measure the time taken to display results. 4. Check relevance of displayed articles.	Search results are quick and relevant.	Pass

Test Cases

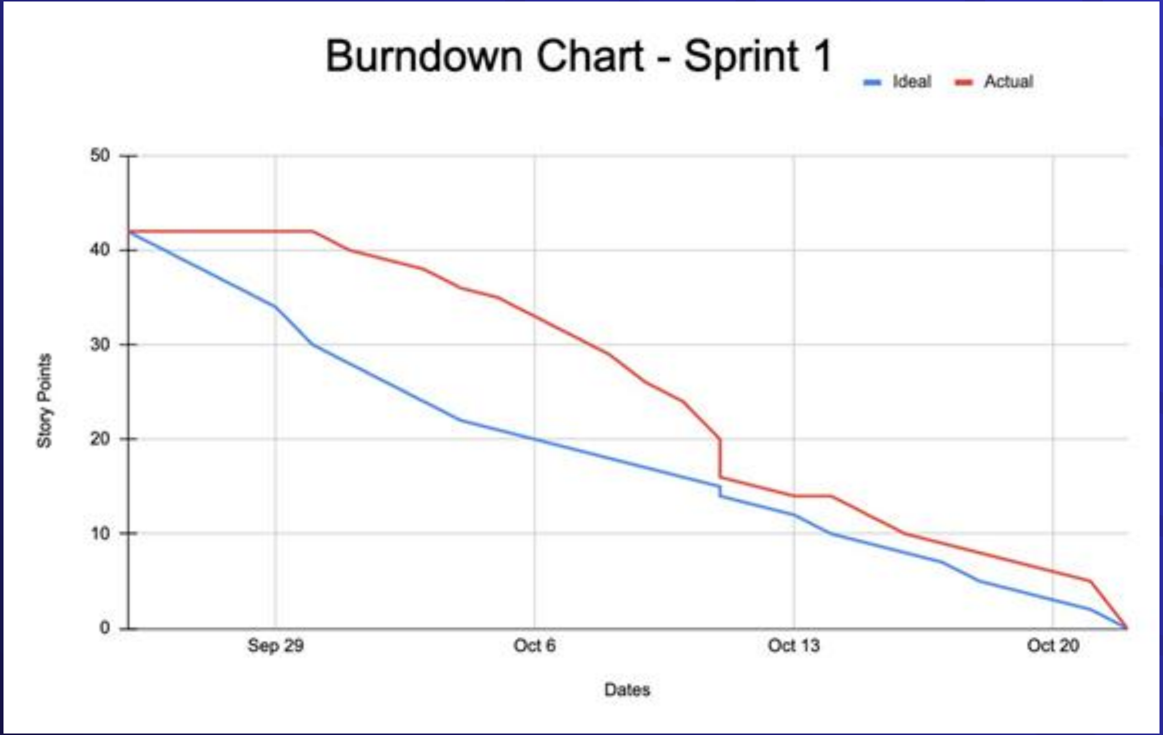
Story/Task	Test Case ID	Test Case Description	Preconditions	Steps	Expected Result	Status
Technical Story 2: Content Management	TC-7.1	Verify that articles are correctly categorized by subject.	Content is loaded into the backend.	1. Open the app. 2. Select each subject. 3. Ensure articles appear under the correct subject categories.	Articles are correctly categorized and load under the appropriate subjects.	Pass
	TC-7.2	Test efficiency of content retrieval from the backend.	Backend content is available.	1. Open the app. 2. Select a subject. 3. Time how long it takes for the articles to load. 4. Test under different network conditions.	Articles are retrieved quickly, even under varied network conditions.	Pass
Technical Story 3: Mark and Save Articles	TC-8.1	Verify marked articles persist across user sessions.	Articles are marked for review.	1. Mark an article for review. 2. Close the app. 3. Reopen the app and check that the marked article persists.	Marked articles are saved and persist across sessions.	Pass
Technical Story 4: Search Functionality	TC-9.1	Verify that search results are relevant and load quickly.	Articles are available for search.	1. Open the search bar. 2. Search for a term. 3. Measure the time taken to display results. 4. Check relevance of displayed articles.	Search results are quick and relevant.	Pass

Sprint 1 Completed Stories

Story/Task	**Story Points**
User Story 1: Subject Selection	3 Points
User Story 2: Browse and Read Articles	5 Points
User Story 3: Mark Articles for Review	3 Points
User Story 4: Search for Articles	8 Points
User Story 5: Navigate Between Articles	2 Points
Technical Story 1: Basic UI/UX Setup	5 Points
Technical Story 2: Content Management System	5 Points
Technical Story 3: Mark and Save Articles	3 Points
Technical Story 4: Search Functionality	8 Points

Team Velocity - This Sprint

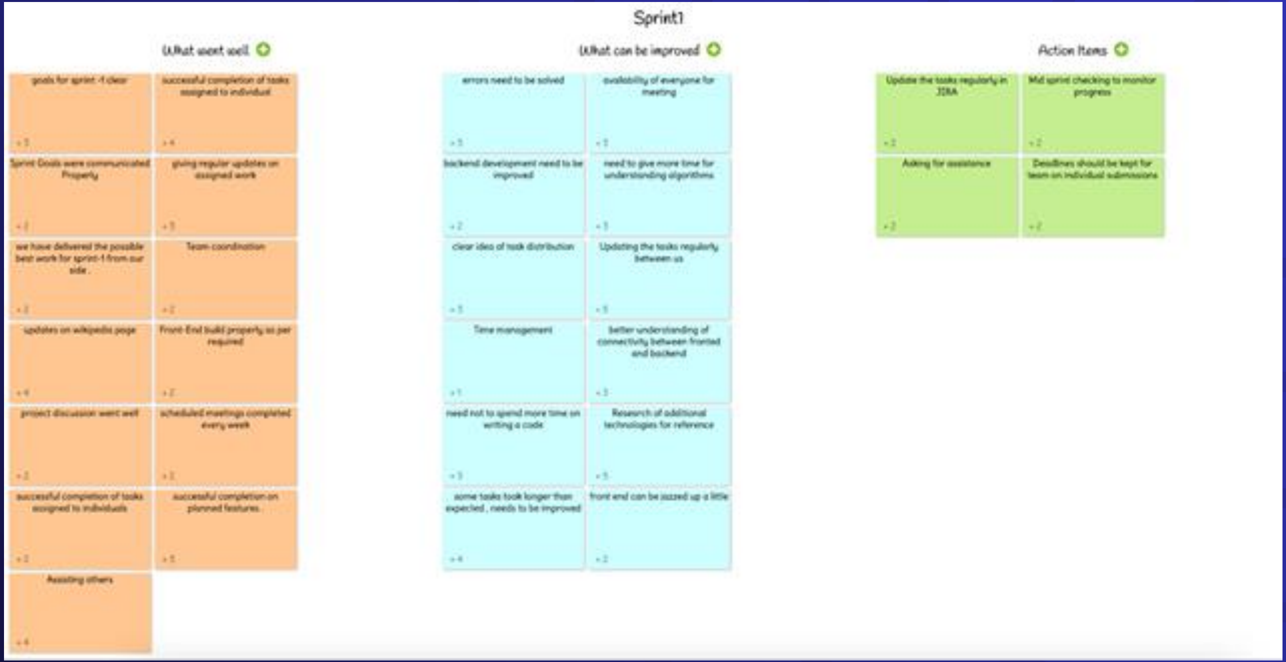
Total Story Points Completed: 42 Points



Completed/Committed Ratio

Story Points Committed: 42 Points
Story Points Completed: 42 Points
Completed/Committed Ratio: 42/42 = 100%

Retrospective



Sprint1

What went well

- goals for sprint -1 clear +1
- successful completion of tasks assigned to individual +4
- Sprint Goals were communicated Properly +1
- giving regular updates on assigned work +1
- we have delivered the possible best work for sprint-1 from our side . +2
- Team coordination +2
- updates on wikipedia page +4
- Front-End build properly as per required +2
- project discussion went well +2
- scheduled meetings completed every week +1
- successful completion of tasks assigned to individuals +2
- successful completion on planned features +1
- Assisting others +4

What can be improved

- errors need to be solved +1
- availability of everyone for meeting +1
- backend development need to be improved +2
- need to give more time for understanding algorithms +1
- clear idea of task distribution +1
- Updating the tasks regularly between us +1
- Time management +1
- better understanding of connectivity between frontend and backend +1
- need not to spend more time on writing a code +1
- Research of additional technologies for reference +1
- some tasks took longer than expected , needs to be improved +4
- front end can be jazzed up a little +2

Action Items

- Update the tasks regularly in JIRA +2
- Mid sprint checking to monitor progress +2
- Asking for assistance +2
- Deadlines should be kept for team on individual submissions +2

Sprint 2

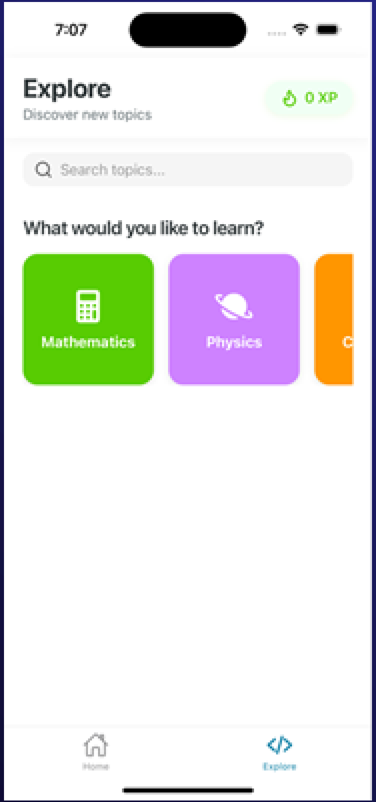
#	Sprint	Story/Task	Story Points	Acceptance Criteria
1	Sprint 2	User Story 6: As a student, I want personalized content recommendations based on my performance so I can improve weak areas.	8 Points	- The system provides content recommendations based on quiz performance and article difficulty. - Users are directed to articles covering weak areas.
2	Sprint 2	User Story 7: As a student, I want the app to implement spaced repetition to reinforce key concepts over time.	8 Points	- The app identifies and schedules spaced repetition for topics users struggle with. - Users are prompted to revisit articles or take quizzes at optimal intervals.
3	Sprint 2	User Story 8: As a student, I want to track my progress in a performance dashboard.	5 Points	- The dashboard shows quiz scores, articles read, and time spent on each subject. - Users can see areas of strength and weakness visually.
4	Sprint 2	User Story 9: As a student, I want to receive targeted feedback after quizzes so I can understand my mistakes.	5 Points	- Detailed feedback is provided for each quiz question. - Feedback explains why certain answers are correct/incorrect.
5	Sprint 2	User Story 10: As a student, I want the app to dynamically adjust content difficulty based on my performance.	8 Points	- The difficulty of content increases if the user performs well. - If a student struggles, simpler articles or review content is recommended.

Sprint 2

#	Sprint	Story/Task	Story Points	Acceptance Criteria
6	Sprint 2	Technical Story 5: Implement a basic machine learning model for personalized content recommendations.	8 Points	- The ML model analyzes quiz performance and article difficulty to recommend personalized learning paths. - Adjustments are made based on user progress.
7	Sprint 2	Technical Story 6: Integrate spaced repetition algorithm to reinforce key concepts.	8 Points	- Use spaced repetition techniques to schedule when users should revisit difficult topics. - Ensure the system prompts users at the right time for maximum retention.
8	Sprint 2	Technical Story 7: Build a performance dashboard to visualize progress.	5 Points	- The dashboard shows quiz results, time spent, and subject mastery. - Visual charts display performance trends.
9	Sprint 2	Technical Story 8: Provide detailed quiz feedback for user learning.	5 Points	- Implement feedback mechanisms to explain quiz results. - Feedback is both constructive and designed to reinforce learning.

App Screenshots

Explore Screen


7:07

Explore

Discover new topics

0 XP

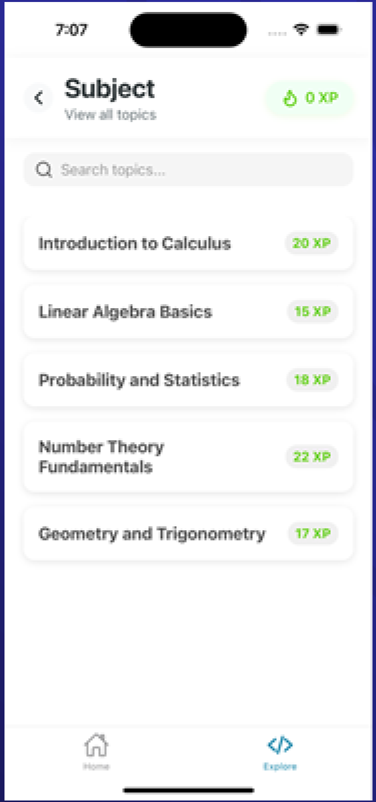
Search topics...

What would you like to learn?

Mathematics

Physics

List of Lessons


7:07

Subject

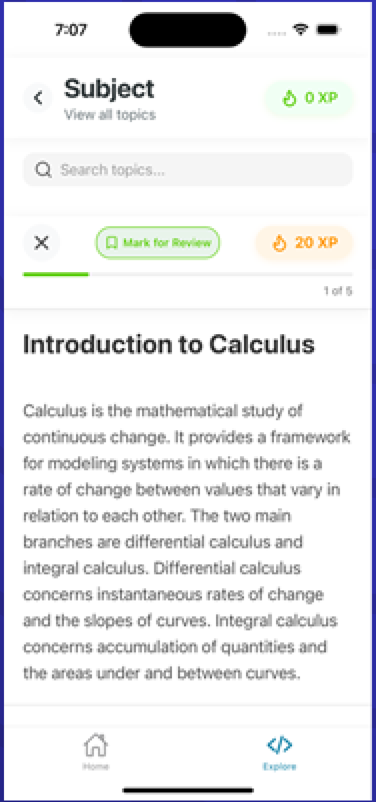
View all topics

0 XP

Search topics...

Introduction to Calculus	20 XP
Linear Algebra Basics	15 XP
Probability and Statistics	18 XP
Number Theory Fundamentals	22 XP
Geometry and Trigonometry	17 XP

Article screen


7:07

Subject

View all topics

0 XP

Search topics...

Mark for Review

20 XP

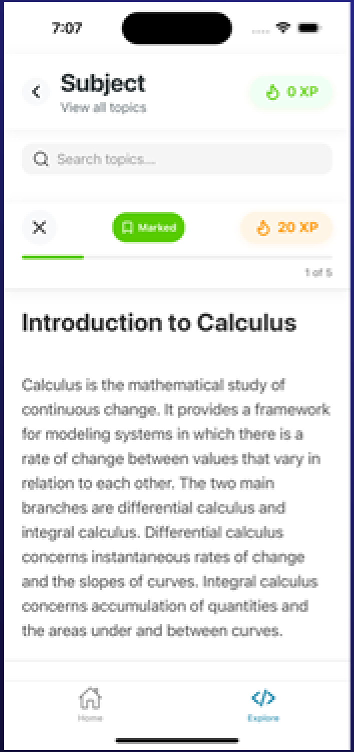
1 of 5

Introduction to Calculus

Calculus is the mathematical study of continuous change. It provides a framework for modeling systems in which there is a rate of change between values that vary in relation to each other. The two main branches are differential calculus and integral calculus. Differential calculus concerns instantaneous rates of change and the slopes of curves. Integral calculus concerns accumulation of quantities and the areas under and between curves.

App Screenshots

When article is marketed to read later



7:07

Subject
View all topics

0 XP

Search topics...

Marked

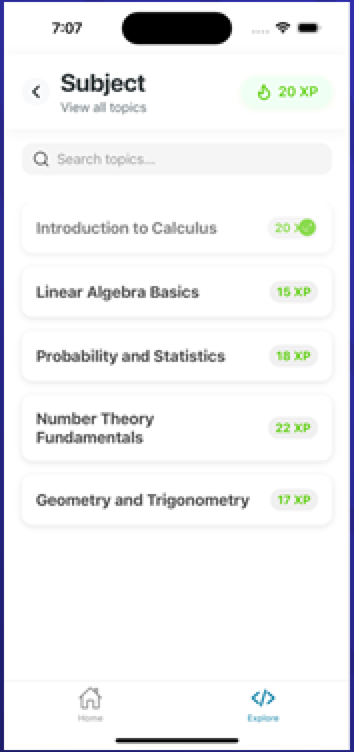
20 XP

1 of 5

Introduction to Calculus

Calculus is the mathematical study of continuous change. It provides a framework for modeling systems in which there is a rate of change between values that vary in relation to each other. The two main branches are differential calculus and integral calculus. Differential calculus concerns instantaneous rates of change and the slopes of curves. Integral calculus concerns accumulation of quantities and the areas under and between curves.

When article is completed, adding of rewards



7:07

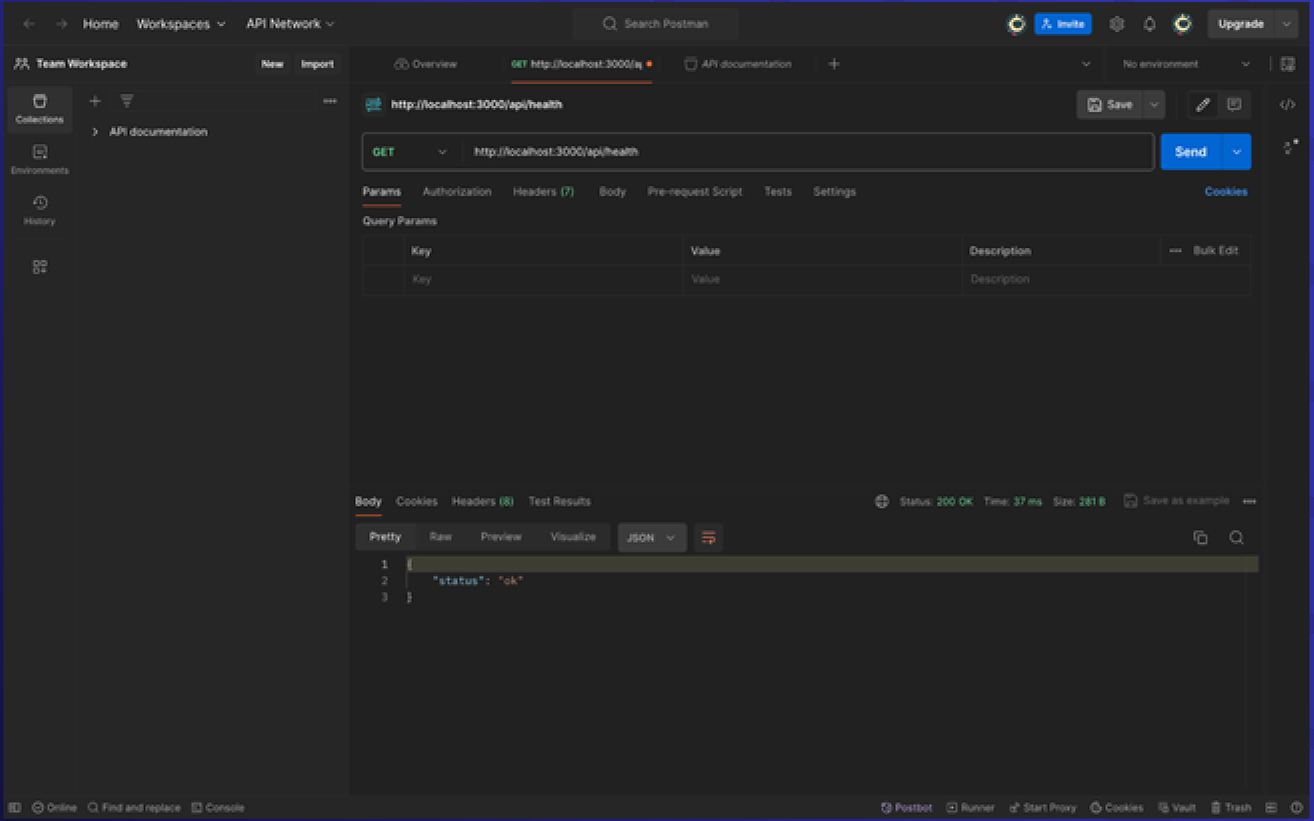
Subject
View all topics

20 XP

Search topics...

Introduction to Calculus	20 X
Linear Algebra Basics	15 XP
Probability and Statistics	18 XP
Number Theory Fundamentals	22 XP
Geometry and Trigonometry	17 XP

API



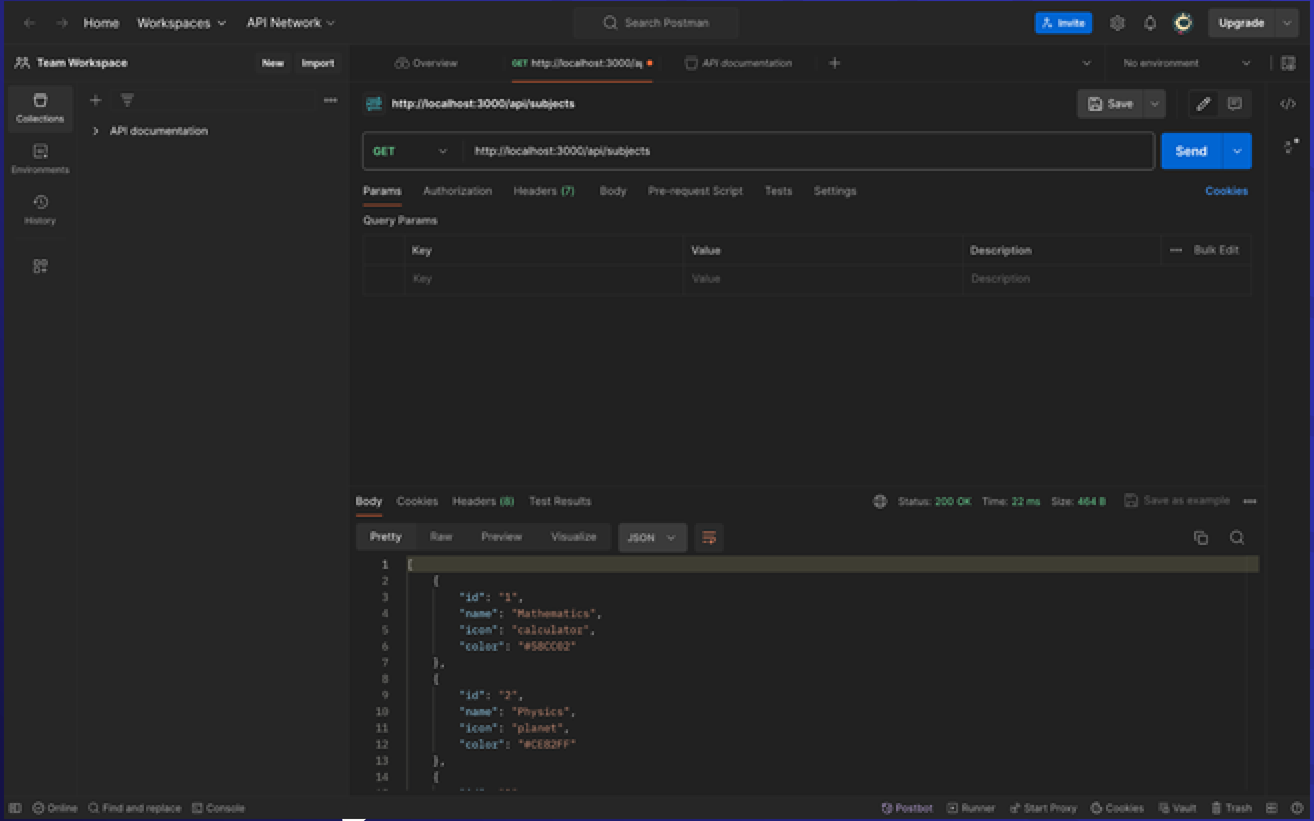
http://localhost:3000/api/health

GET http://localhost:3000/api/health

Status: 200 OK Time: 37 ms Size: 281 B

```
{
    "status": "ok"
}
```

API

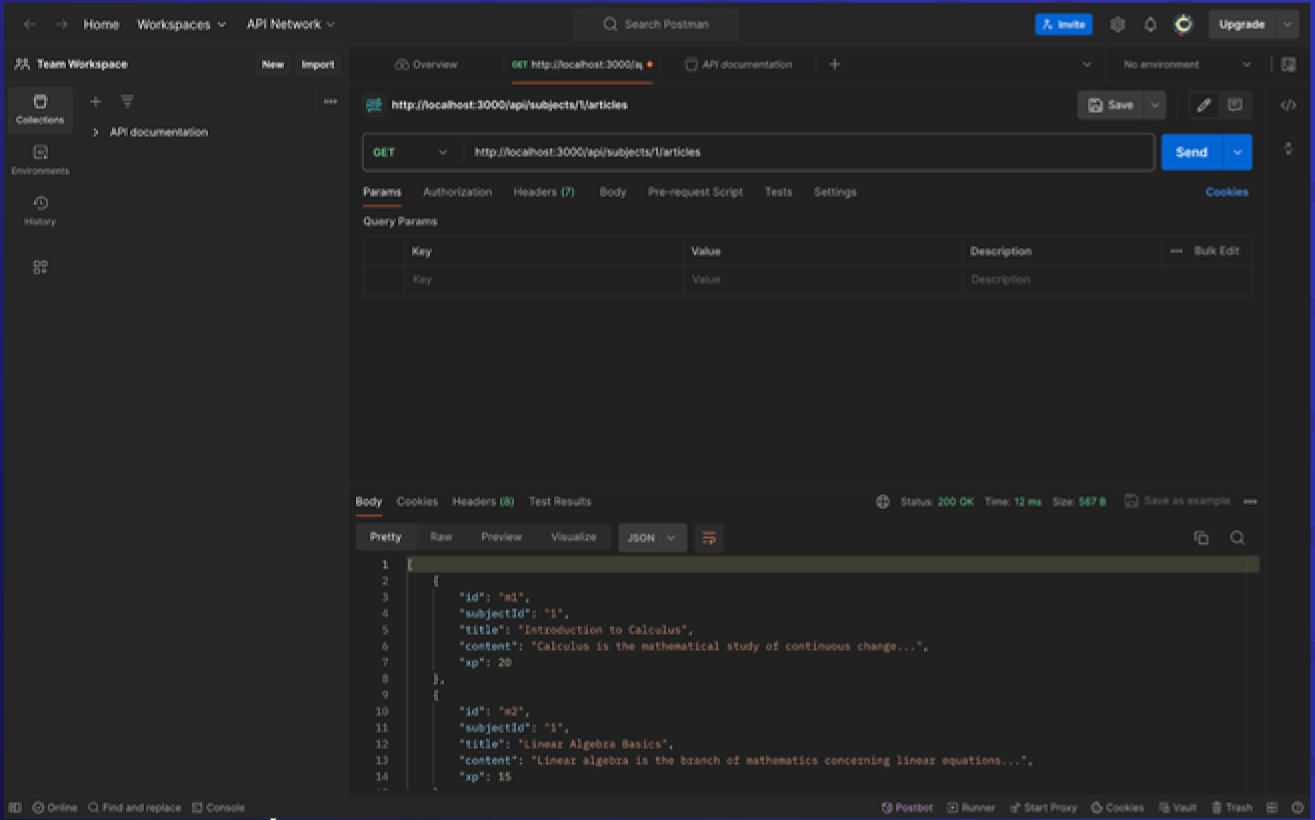


GET http://localhost:3000/api/subjects

Status: 200 OK Time: 22 ms Size: 464 B

```
[
    {
        "id": "1",
        "name": "Mathematics",
        "icon": "calculator",
        "color": "#58CC02"
    },
    {
        "id": "2",
        "name": "Physics",
        "icon": "planet",
        "color": "#CE82FF"
    },
    {
```

API



http://localhost:3000/api/subjects/1/articles

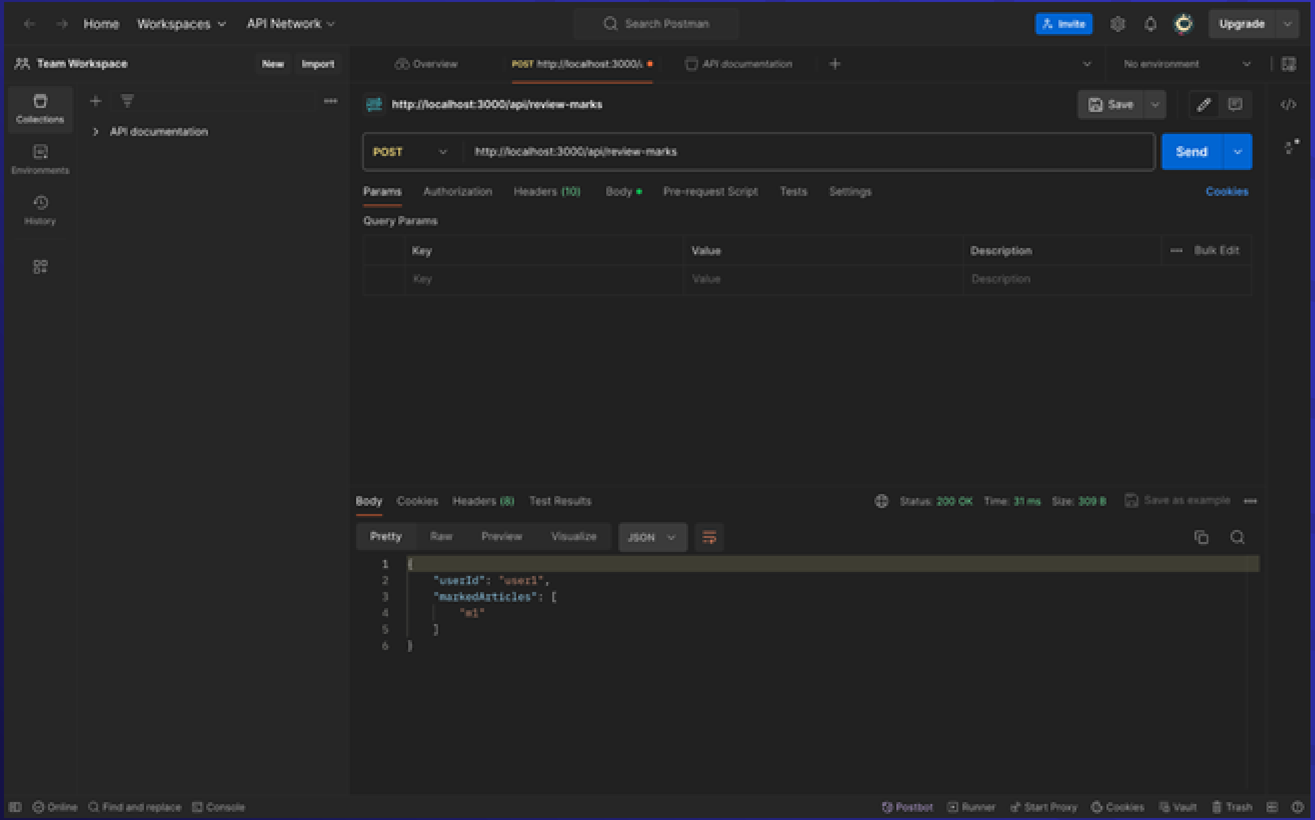
GET http://localhost:3000/api/subjects/1/articles

Key	Value	Description
Key	Value	Description

Status: 200 OK Time: 12 ms Size: 567 B

```
[
    {
        "id": "m1",
        "subjectId": "1",
        "title": "Introduction to Calculus",
        "content": "Calculus is the mathematical study of continuous change...",
        "xp": 20
    },
    {
        "id": "m2",
        "subjectId": "1",
        "title": "Linear Algebra Basics",
        "content": "Linear algebra is the branch of mathematics concerning linear equations...",
        "xp": 15
```

API



http://localhost:3000/api/review-marks

POST http://localhost:3000/api/review-marks

Status: 200 OK Time: 31 ms Size: 309 B

```
{
    "userId": "user1",
    "markedArticles": [
        "m1"
    ]
}
```

Wiki Link

https://github.com/htmw/2024F-Tech-Titans/wiki

Live Demo