SC2006 SOFTWARE ENGINEERING

LAB 5:

Final Deliverables

Motley Crew

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Project Description

Mission Statement

Team Motley Crew aims to develop a website that empowers individuals with the knowledge they need to thrive in a fast-paced world, anytime, anywhere. Our project is dedicated to delivering **concise and informative news summaries** that cater to the unique lifestyles and preferences of our audience, by harnessing the power of LLMs to offer personalized experiences. We believe that staying informed should be accessible, efficient, and inclusive, and we are committed to providing a tech-driven news consumption experience that enriches lives and fosters informed decision-making. In harmony with the Smart Nation principles, we are committed to champion equitable access to information and knowledge, leaving no citizen behind in the digital age. We also wish to foster a culture of inclusivity, where the benefits of technology are harnessed to empower every individual in our diverse society.

Target Audience

Our target audience represents a diverse group of individuals with unique lifestyles, needs, and preferences. It ranges from busy professionals to students who juggle demanding work or study schedules, recreational, and family commitments. They value staying informed but often struggle to find time for comprehensive news consumption. Tech-savvy users who embrace digital tools and applications to streamline their lives and routines will also benefit from our tech-driven news consumption experience.

Technology Stack

Technology

Mini Digest is a full-stack web application deployed live on Vercel web servers. It builds on React/Material UI frontend with a serverless architecture using Firebase as our primary database. Integrated with OpenAI's latest LLM (gpt-4-1106-preview), it supports response streaming and rendering via OpenAI's API endpoints with live news articles being pulled and processed directly from NewsAPI endpoints.

Development Workflow

Mini Digest was developed following modern software design paradigm, utilising git and Github as the main version control and collaboration workflow. Development features were completed via branching onto separate branches from main and pull requests were created prior to merging changes for timely code reviews. Commits and branch names also strictly adhere to conventional commit message formats.

Functional Requirements

1. **Landing Page**
   1.1. When a non-logged in user navigates to the website, they will be directed to the landing page
   1.2. The page must display two mutually exclusive buttons: "Sign Up" and "Login".
      1.2.1. If "Sign Up" is selected, the user shall be redirected to the user registration page.
      1.2.2. If "Login" is selected, the user shall be redirected to the user login page.

2. **User Registration**
   2.1. Users shall be able to create accounts by providing a unique username, email, and password
      2.1.1. Users must input their username in the top input text box.
      2.1.2. Users must input their emails in the second from the top input text box.
      2.1.3. Users must enter their password in the third from the top input text box.
      2.1.4. Users must re-enter their password as confirmation in the bottom input text box.
         2.1.4.1. If the re-entered password does not match the password, the system must show an error message to the user, prompting them to try again.
   2.2. User registration includes validation and error handling for duplicate usernames and email to ensure a smooth on boarding experience.
      2.2.1. Passwords entered by user must meet certain requirements.
         2.2.1.1. Passwords must contain a minimum of 12 characters.
         2.2.1.2. Passwords must contain at a combination of uppercase, lowercase letters and at least 1 number.
      2.2.2. If the password does not meet all requirements, the system must show an error message with the condition not met, prompting them t
   2.3. The system must be able to securely sync with the database to save the user information under a newly created user account.
      2.3.1. The user data saved consists of the username, email, and password.
      2.3.2. A default profile must be created as an entry into the database.
         2.3.2.1. A default profile contains the basic user login information with no news preferences set.
            2.3.2.1.1. Default reading age is set to 21 years old.
            2.3.2.1.2. Default news preference is set to "All".
   2.4. Once a user is registered, the user shall be directed to the home page.

3. **User Login**
   3.1. Users with existing accounts shall be able to securely log in using their registered credentials on the login page.
      3.1.1. Registered credentials include either username or email address, and password.
         3.1.1.1. Users must input their username or emails in the top input text box.
         3.1.1.2. Users must input their password in the bottom input text box.
   3.2. The system must authenticate the credentials of the user by checking with the database.
      3.2.1. If the user is unable to be authenticated, the system must show an error message to the user, prompting them to try again.
      3.2.2. If the user successfully authenticates, the system must allow the user to log in and redirect them to the home page.
   3.3. The system must display a "Forget Password" button to allow users to retrieve their login information and reset their passwords.
      3.3.1. If "Forget Password" is selected, users will be redirected to the Forget Password page.
      3.3.2. Forget Password Page

3.3.2.1. The page consists of a prompt for users to enter the email address registered with their account in a text box.

3.3.2.2. A "Next" button shall be displayed for users to submit their email address.

3.3.2.3. Upon submission, the system will verify that the email listed is indeed registered under an existing account.

3.3.2.4. If the email is verified,

3.3.2.4.1. An email containing instructions to change password shall be sent to the email address.

3.3.2.4.2. The system will generate a random 8-digit PIN and reset the user's password to the PIN.

3.3.2.4.3. The email shall contain the PIN with instructions to use the PIN as a temporary password.

3.3.2.4.4. Upon logging in with the PIN, the system will direct the user to their profile page's reset password page and prompt the user to change their password.

3.3.2.5. If the email is not verified,

3.3.2.5.1. Return an error message: "Email is not registered, join us today!"

3.3.2.5.2. A button shall allow users to sign up by redirecting them to the sign-up page.ng them to the sign-up page.

4. Home Page

4.1. Users are presented with a streamlined dashboard to access their daily summarised news.

4.1.1. The dashboard shall consist of a top-aligned horizontal navigation bar.

4.1.1.1. The nav-bar will consist of three left-aligned buttons: "Your Digest", "Trending", and "Explore".

4.1.1.1.1. If "Your Digest" is selected, the user shall be redirected to the Your Digest Page.

4.1.1.1.2. If "Trending" is selected, users shall be redirected to the Trending page.

4.1.1.1.3. If "Explore" is selected, users shall be redirected to the Explore page.

4.1.1.2. The nav-bar will consist of one right-aligned button, "Profile", and an icon beside.

4.1.1.2.1. If "Profile" is selected, users shall be redirected to the User Profile Settings page.

4.1.2. The dashboard shall contain a greeting, in the format "Good morning, <Username>".

4.2. Your Digest Page

4.2.1. Users are presented with a summarised version of the news, with content based on pre-selected interests, alongside an input text box to alter the text's writing style.

4.2.2. User Preference Selection

4.2.2.1. The User Preference Selection bar will consist of "All", and seven topic preference selection options: "Sports", "Tech", "Business", "Health", "Entertainment" and "Science".

4.2.2.2. Upon selection, the selected preference will be highlighted in grey.

4.2.2.3. If "All" is selected, all seven preferences will be highlighted.

4.2.3. News Summary

4.2.3.1. The summarised text body will be the output of the process as outlined in News Summarisation Function.

4.2.3.2. The text body will be left aligned.

4.2.3.3. The text body will display a minimum text size of 12.

4.2.4. The date of the news in will be displayed right aligned to the Dashboard greeting.

4.2.4.1. The date format will be Day-Month name.

4.2.5. A right aligned input text box shall allow users to input custom prompts to alter the writing style of the summarised text.

4.2.5.1. A header above the input text box will read "Stylize it!".

4.2.5.2. The text box shall contain an input text field with a "summarise" button at the bottom.

4.2.5.2.1. If "summarise" is selected, the user inputted prompt will alter the current displayed text.

4.2.5.2.2. If no text is inputted when "summarise" is selected, a "Please input a prompt" error message will be displayed.

5. News Article Retrieval

5.1. The system must ensure the news endpoint is live by querying it prior to retrieving articles.

5.1.1. The system must return a report after establishing connection.

5.2. The system must be able to specify the type of articles it retrieves.

5.2.1. The system must be able to specify the category of articles.

5.2.2. The system must be able to specify the country of articles.

5.2.3. The system must be able to specify if it is retrieving trending or live news.

5.3. The system must establish a connection with the NewsAPI endpoint to fetch a list of news articles.

5.3.1. If retrieval is successful, the system must return a report of the articles fetched.

5.3.2. Each fetched article item will contain the news source, author, title, description, link to article, link to article image, date published and content.

6. News Summarisation Function

6.1. A Large-Language Model (LLM) shall be hosted on a separate server to provide summarisation functions.

6.1.1. The server must have available endpoints to grant access to querying the LLM.

6.2. The system must ensure the LLM endpoint is live by querying it prior to using it.

6.2.1. The system must return a report after establishing connection.

6.3. The system must query the LLM via the endpoint using prompts engineered in a specific templated format.

6.3.1. Prompt inputs must include the preferences of the users such as categories, country, and preferred reading age.

6.3.2. Prompt inputs must have a field to specify word limit for summary outputs.

6.3.3. Prompt inputs must have a field to allow for user-defined customisation of body text.

6.4. The system must return a report after each response and store the output in the database.

7. Trending Page

7.1. Users are presented with a summarised version of the top 10 trending news.

7.2. The page begins with "Good morning, <User>" above the list of trending articles.

7.3. In each article box, the user can click on the "Visit Page" or "Share" buttons.

7.3.1. "Visit page" brings users to the source of the news article.

7.3.2. "Share" allows users to copy the link of the news article.

7.4. News Summary

7.4.1. Summarised Text Body

7.4.1.1. The summarised text body will be the output of the process as outlined in News Summarisation Function.

7.4.1.2. The text body will be left aligned.

7.4.1.3. The text body will display a minimum text size of 12.

8. Explore Page

8.1. Fact-of-the-Day Function.

8.1.1. The LLM will generate a fact based on the date.

8.1.2. The generated fact must be shorter than 30 words.

8.2. Display titles and short excerpt of news articles

    8.2.1. Users can be directed to the source to read the full article.

8.3. User Preference Selection

    8.3.1. The User Preference Selection bar will consist of "All", and seven topic preference selection options: "Sports", "Tech", "Business", "Health", "Entertainment" and "Science".

    8.3.2. Upon selection, the selected preference will be highlighted in grey.

    8.3.3. If "All" is selected, all seven preferences will be highlighted.

8.4. The page begins with "Good morning, <User>" above the list of articles.

8.5. The articles will be ordered by most recent first.

    8.5.1. The date format will be Day-Month name.

9. **User Profile Settings**

9.1. The system must show a drop-down list when the user clicks on their profile icon at the top right of the website.

    9.1.1. The drop-down list will consist of two options: "Settings" and "Log Out".

        9.1.1.1. If "Settings" is selected, the user will be directed to the settings page.

        9.1.1.2. If "Log Out" is selected, the system must safely log the user out and redirect them to the landing page.

9.2. Users shall be able to update their profile information in the settings page.

    9.2.1. The user shall be able to update their email address.

    9.2.2. The user shall be able to update their username.

    9.2.3. The user shall be able to update their password.

    9.2.4. The user shall be able to update their reading age.

Non-Functional Requirements

Performance	Summarization Speed: 1. The summarization process should be efficient to provide a response within 3 seconds. 2. Users should not experience significant delays of more than 5 seconds while fetching and summarizing articles.
Responsiveness	1. The application's user interface should be responsive such that each page loads within 5 seconds, ensuring smooth interactions across different devices.
Customization:	User Preference Tracking: 1. The application should continuously update and adjust user preferences based on user interactions. 2. Summarization content should align with user-selected age and preferences
Usability	User-Friendly Interface: 1. The user interface should be intuitive and easy to navigate, where users can retrieve their desired information within 5 seconds of launching the website. 2. Users of varying technical backgrounds should be able to use the app without difficulty.
Accessibility	1. The application should adhere to the Web Content Accessibility Guidelines (WCAG) 2.2, ensuring usability for users with disabilities.

Data Dictionary

Term	Definition
User	An individual who uses the website to retrieve summarised news based on their personal preferences.
System	The application that encompasses the entire summarisation functionality. It includes the user interface, back-end servers, and databases, as well as LLM API and NewsAPI.
News Summary	A concise representation of the key points from the main news article retrieved from the NewsAPI, which is then displayed in the user interface.
News	This refers to any content, particularly in the form of updates or reports, that has information about current events and developments from around the world. This serves as the input data for the LLM to begin the process of summarization.
News Search	A request or query made by a user to the news application's backend. It is done with the objective of retrieving certain news articles or summaries based on certain criteria.

Use Case Diagram
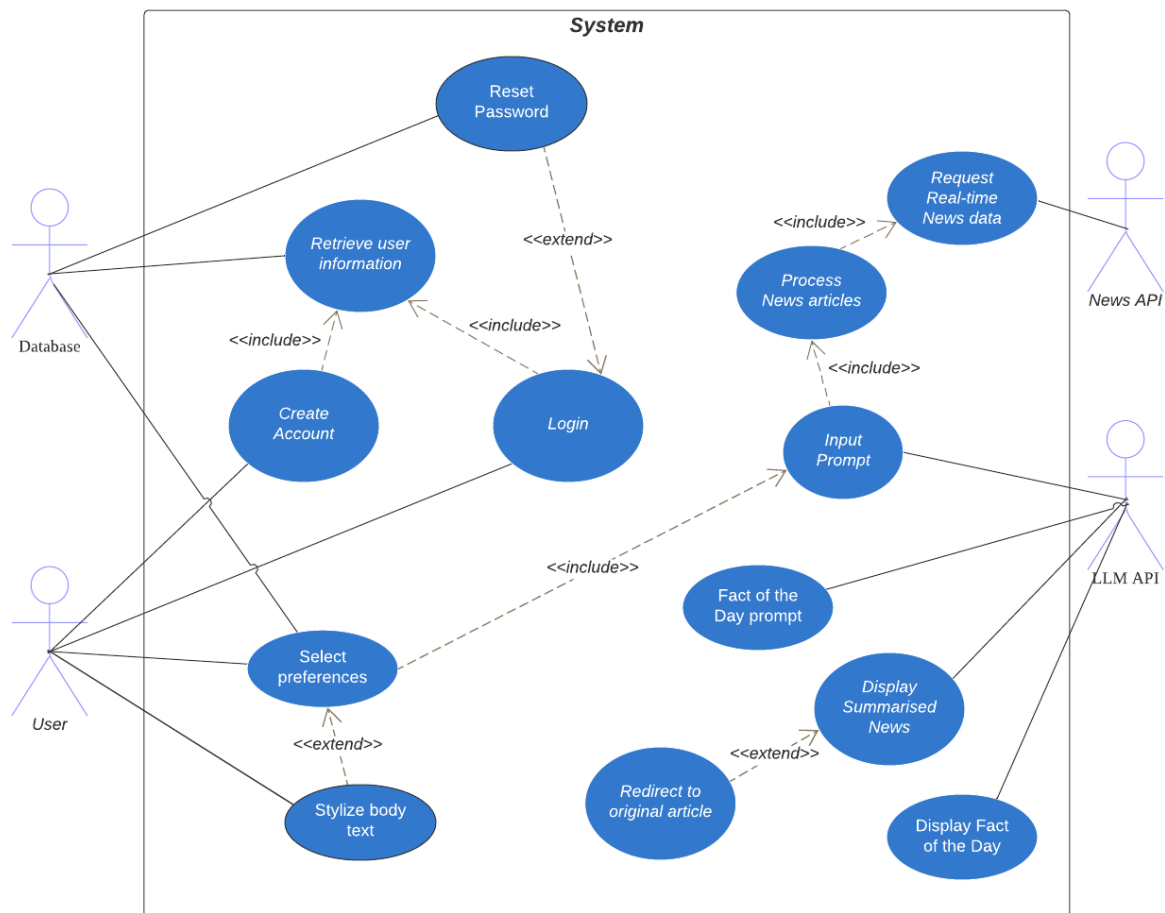
User Case Description

Use Case ID:	1		
Use Case Name:	Create account		
Created By:	Lokeshh Sampath	Last Updated By:	Lokeshh Sampath
Date Created:	4/9/2023	Date Last Updated:	4/9/2023

Actor:	User, Database
Description:	The user creates a news account on the application.
Preconditions:	1. User has downloaded and opened the application. 2. User is not already registered with the app using the same credentials.
Postconditions:	1. If successful, a new user's account is created in the database, and the user is logged in. 2. User can proceed to use the app and obtain news summaries based on his/her preferences.
Priority:	High
Frequency of Use:	One-time per user, occasional (only for new users)
Flow of Events:	1. User enters the application and clicks on sign up. 2. Application displays the signup screen. 3. User provides the registration information, including username and password. 4. Upon clicking of register button, the back-end system validates uniqueness of username and complexity of password. 5. If both conditions are satisfied, the app creates an account for the user and logs in the user automatically. 6. User lands on main home page.
Alternative Flows:	If provided username already exists, app displays an error message, prompting user to re-enter a different username.
Exceptions:	1.EX.1 If details for account creation does not meet criteria, system must show an error message to user, prompting them to try again.
Includes:	Retrieve user information
Special Requirements:	1. Secure storage of user credentials. 2. Automatic log in to the home page.
Assumptions:	Users are using a valid username and password.
Notes and Issues:	Server capacity issues may slow down the process of registration of new accounts.

Use Case ID:	2		
Use Case Name:	Login		
Created By:	Lokeshh Sampath	Last Updated By:	Lokeshh Sampath
Date Created:	4/9/2023	Date Last Updated:	4/9/2023

Actor:	User, Database
Description:	User logs in to the application, using a unique account.
Preconditions:	The user must open the application and click on the login button.
Postconditions:	1. The user's account credentials are valid. 2. When successful, the user is redirected to the home page of the application. In case of failed login, system to allow user to retry.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. User enters the application and clicks on login. 2. Application displays the login screen. 3. User enters their username and password in the input boxes provided. 4. System takes in the input and looks for the username and hashed password in the server-side database. 5. User is redirected to the home page upon successful authentication. If unsuccessful, system prompts the user to retry.
Alternative Flows:	NIL
Exceptions:	2.EX.1 If login details do not match any existing accounts, system must show an error message to user, prompting them to try again.
Includes:	Retrieve user information
Special Requirements:	Secure storage of user credentials in database.
Assumptions:	NIL
Notes and Issues:	Server downtime may prevent successful login.

Use Case ID:	3
Use Case Name:	Retrieve User Information

Created By:	Lau Quan Feng, Ryan	Last Updated By:	Lau Quan Feng, Ryan
Date Created:	4/9/2023	Date Last Updated:	4/9/2023

Actor:	User
Description:	Obtains user profile details and preferences stored in database
Preconditions:	User is creating an account or logging into the website
Postconditions:	Loads preferences and account details into the website and displays them.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. System initiates request to retrieve user information after user clicks on create account or login. 2. The system will validate with the database if the account exists, or a new account is being created 3. Requested user information will be fetched from the database.
Alternative Flows:	NIL
Exceptions:	3.EX.1 If the connection with database cannot be established, the system must display an error message to the user.
Includes:	NIL
Special Requirements:	NIL
Assumptions:	NIL
Notes and Issues:	NIL

Use Case ID:	4		
Use Case Name:	Select Preference		
Created By:	Claire Chu	Last Updated By:	Claire Chu
Date Created:	4/9/2023	Date Last Updated:	4/9/2023

Actor:	User
Description:	User selects preferences for the summarised content.
Preconditions:	User must be logged in
Postconditions:	System sends preferences to input prompt.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. Upon logging in, users are given options to choose from in the dashboard's preference bar, taken from the database. 2. User selects preferences.
Alternative Flows:	NIL
Exceptions:	NIL
Includes:	Input prompt
Special Requirements:	NIL
Assumptions:	NIL
Notes and Issues:	NIL

Use Case ID:	5		
Use Case Name:	Stylize body text		
Created By:	Claire Chu	Last Updated By:	Claire Chu
Date Created:	4/9/2023	Date Last Updated:	4/9/2023

Actor:	User
Description:	Users can choose to change the writing style of their summarised news
Preconditions:	1. Users must be logged in 2. Initial summarised text is displayed
Postconditions:	Input prompt with style preferences is sent to the LLM API
Priority:	Medium
Frequency of Use:	Medium
Flow of Events:	1. Users decide if they wish to change the writing style of the currently available text. 2. Users input their desired style into the text box if they wish to change the style. 3. System will send the inputted text to the input prompt.
Alternative Flows:	NIL
Exceptions:	NIL
Includes:	NIL
Special Requirements:	NIL
Assumptions:	Stylistic choices are comprehensible and non-contradictory.
Notes and Issues:	NIL

Use Case ID:	6		
Use Case Name:	Input Prompt		
Created By:	Claire Chu	Last Updated By:	Claire Chu
Date Created:	4/9/2023	Date Last Updated:	4/9/2023

Actor:	LLM API, News API, User
Description:	LLM API generates summarised text based on inputted prompt from user
Preconditions:	Users must select text style and/or content preferences
Postconditions:	LLM API must return summarised news to be displayed
Priority:	High
Frequency of Use:	High
Flow of Events:	1. Preferences are received from user and formatted into the input prompt. 2. Input prompt is processed by the LLM API. 3. LLM API receives processed news article content. 4. LLM API summarises relevant news content in accordance to user preferences. 5. LLM API returns summarised news to be displayed.
Alternative Flows:	NIL
Exceptions:	NIL
Includes:	Process News Articles
Special Requirements:	NIL
Assumptions:	There is relevant news content that can be taken from the News API.
Notes and Issues:	NIL

Use Case ID:	7
Use Case Name:	Reset Password
Created By:	Eunice Lee
Last Updated By:	Eunice Lee
Date Created:	4/9/2023
Date Last Updated:	4/9/2023

Actor:	User
Description:	User can reset their password in the event they forget
Preconditions:	Have a registered email
Postconditions:	User's password has been changed and they can successfully login
Priority:	High
Frequency of Use:	Low
Flow of Events:	1. The user will be able to click into the forget password page. 2. The page consists of a prompt for users to enter their email registered to their account in an input box. 3. Upon submission, the system verifies that the email is registered under an existing account. 4. The system generates a random password and resets the account's password to it. 5. An email containing instructions to change password will be sent to the email address. 6. Using the given password as a temporary one, the user logs in to the page. 7. The system prompts the user to change their password. 8. After a successful attempt to change password, the user is brought back to the home page.
Alternative Flows:	7.AC.1 If the email is not verified, the system prompts the user to register their email and create an account.
Exceptions:	NIL
Includes:	NIL
Special Requirements:	NIL
Assumptions:	NIL
Notes and Issues:	NIL

Use Case ID:	8		
Use Case Name:	Display Fact of the Day		
Created By:	Lee Jia Xin Mildred	Last Updated By:	Lee Jia Xin Mildred
Date Created:	4/9/2023	Date Last Updated:	4/9/2023

Actor:	LLM API
Description:	The LLM API processes and provides a daily "Fact of the Day" to the website.
Preconditions:	1. The LLM API is operational and accessible by the website. 2. The website has sent a request for the "Fact of the Day."
Postconditions:	"Fact of the Day" is displayed
Priority:	Medium
Frequency of Use:	High (Daily)
Flow of Events:	1. The website sends a request to the LLM API, requesting the "Fact of the Day." 2. The LLM API receives the request and validates it. 3. The LLM API generates a random "Fact of the Day" or retrieves it from a reliable source. 4. The LLM API sends the "Fact of the Day" back to the website. 5. The website displays the received fact to the user.
Alternative Flows:	NIL
Exceptions:	NIL
Includes:	NIL
Special Requirements:	1. The LLM API should ensure that the "Fact of the Day" is accurate, interesting, and informative.
Assumptions:	1. The LLM API has access to a reliable source of interesting facts.
Notes and Issues:	NIL

Use Case ID:	9		
Use Case Name:	Display Summarised News		
Created By:	Lee Jia Xin Mildred	Last Updated By:	Lee Jia Xin Mildred
Date Created:	4/9/2023	Date Last Updated:	4/9/2023

Actor:	News API, LLM API
Description:	News API provides news articles for display on website, which the LLM API then summarises and subsequently returns a stream to the main website.
Preconditions:	1. The LLM API is operational and accessible. 2. The website has sent a request for summarised news articles.
Postconditions:	The LLM API returns summarised news articles to the website
Priority:	High
Frequency of Use:	High
Flow of Events:	1. News articles are fetched from the News API. 2. The LLM API processes the summary request by using its language model to generate summarised versions of the requested news articles of the particular topic(s). 3. The summary is returned to the website. 4. The website displays the received summaries to the user, via streaming.
Alternative Flows:	NIL
Exceptions:	10.EX.1: If the LLM API encounters errors during the summarisation process, display an error message.
Includes:	NIL
Special Requirements:	NIL
Assumptions:	1. The LLM API can generate coherent and accurate summaries from news articles.
Notes and Issues:	NIL

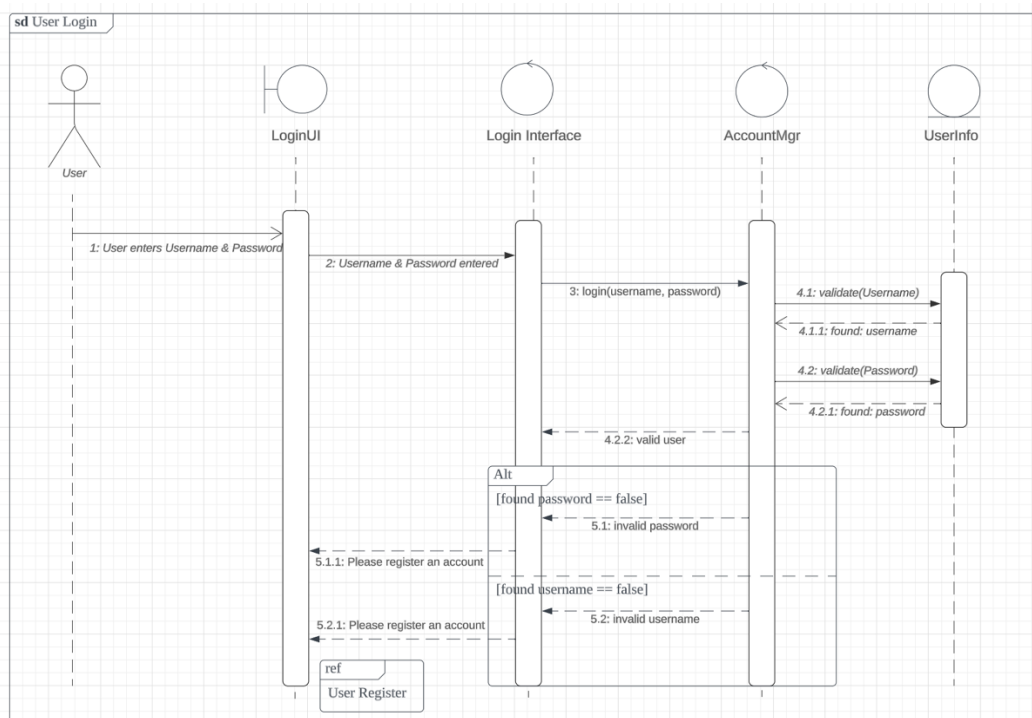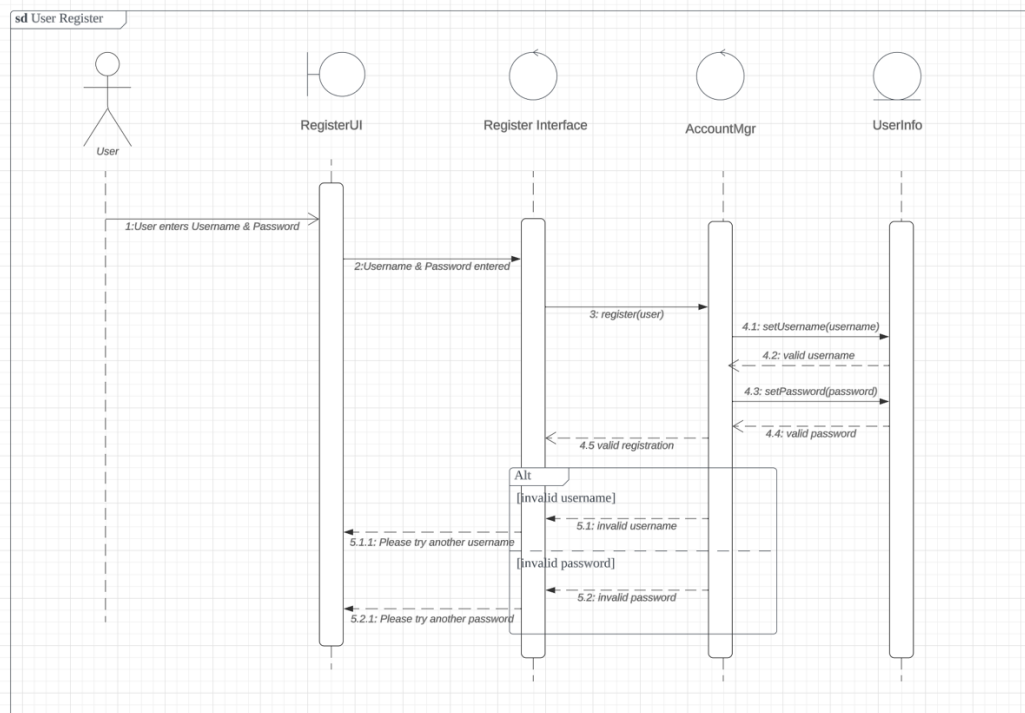|	
Use Case ID:	10
Use Case Name:	Request Real-time News Data
Created By:	Lau Quan Feng, Ryan
Last Updated By:	Lau Quan Feng, Ryan
Date Created:	4/9/2023
Date Last Updated:	4/9/2023

Actor:	News API
Description:	The system requests for news article data from the API endpoint to display a list of queried results given user preference, country, and whether the news is breaking.
Preconditions:	1. User logs into the website. 2. User changes their preferred news categories
Postconditions:	The system processes the response object to be used by other processes such as LLM summarisation.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. User logs into website or changes their preferred news categories. 2. The system sends a GET request to the API endpoint with the relevant information from user. 3. API will send a POST request containing a response object with the relevant news articles based on preferences selected by user. 4. Information within the response object will be used in downstream processing in the LLM for summarisation.
Alternative Flows:	NIL
Exceptions:	12.EX.1 If the API connection cannot be established, the system must display an error message visible to the user on the dashboard.
Includes:	NIL
Special Requirements:	NIL
Assumptions:	NIL
Notes and Issues:	NIL

Use Case ID:	11
Use Case Name:	Fact of the Day prompt
Created By:	Lau Quan Feng, Ryan
Last Updated By:	Lau Quan Feng, Ryan
Date Created:	4/9/2023
Date Last Updated:	4/9/2023

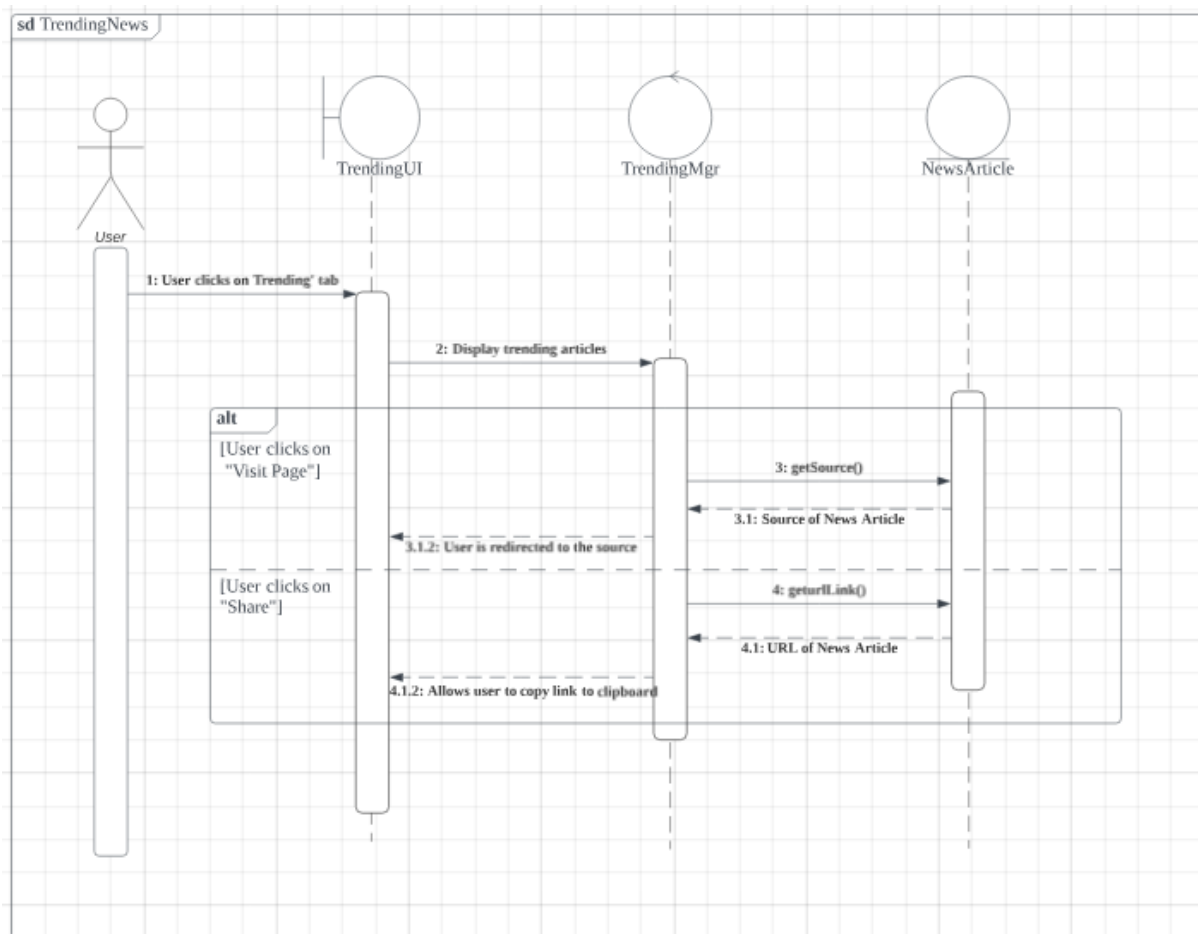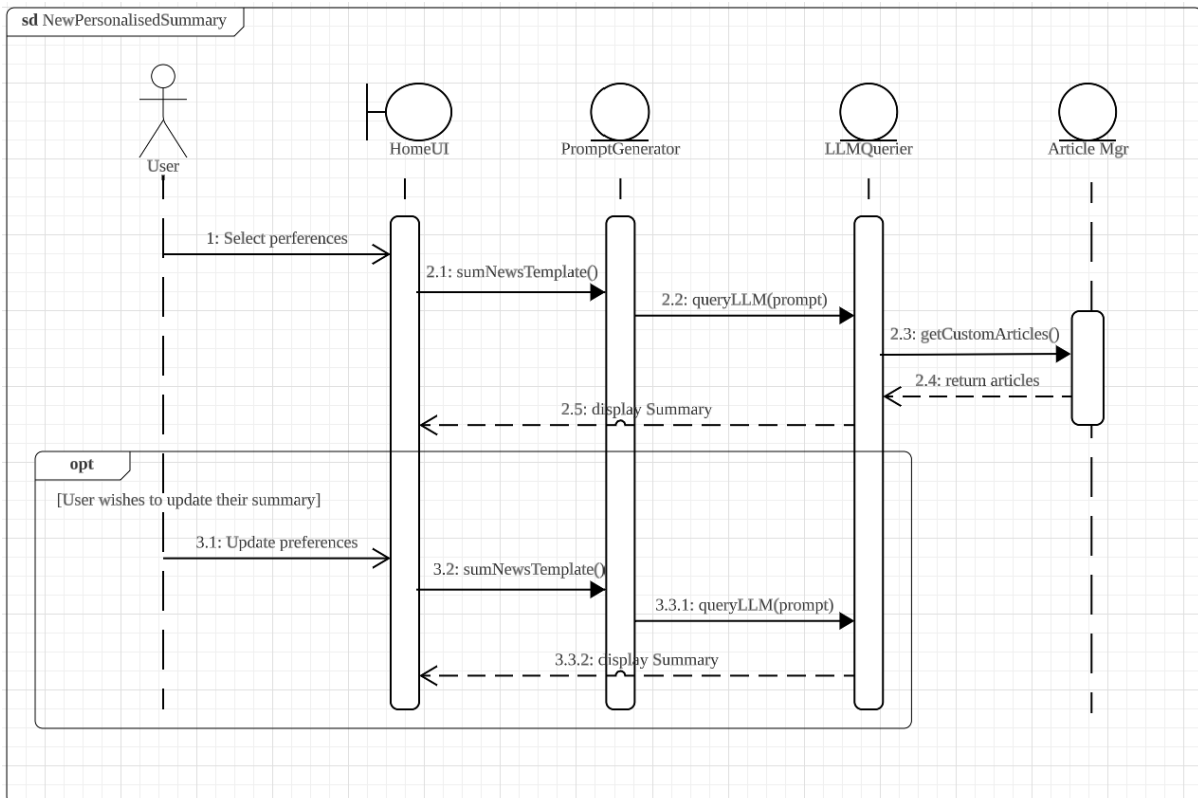|	
Actor:	LLM API
Description:	The LLM will receive a templated prompt input which prompts it to generate a short and interesting fact of the day based on what day of the year it is. E.g., "9th August is Singapore's birthday!"
Preconditions:	User must navigate to the explore page.
Postconditions:	Fact of the day generated will be displayed on the explore page.
Priority:	Medium
Frequency of Use:	Medium
Flow of Events:	1. The system will obtain the date of the current day upon user log in. 2. The date will be fed into a prompt template. 3. The overall prompt will be sent to the LLM via a POST request. 4. The LLM will process the prompt received and generate a fact of the day. 5. The LLM API will send a POST to the system containing the generated response from the LLM.
Alternative Flows:	NIL
Exceptions:	14.EX.1 If the API connection cannot be established, the system must display an error message visible to the user on the dashboard.
Includes:	NIL
Special Requirements:	NIL
Assumptions:	User is logged into the website.
Notes and Issues:	NIL

Class Diagrams of Entity, Key Boundary and Control Classes

Sequence Diagrams

sd NewPersonalisedSummary

User → HomeUI: 1: Select perferences

HomeUI → PromptGenerator: 2.1: sumNewsTemplate()

PromptGenerator → LLMQuerier: 2.2: queryLLM(prompt)

LLMQuerier → Article Mgr: 2.3: getCustomArticles()

Article Mgr ⇢ LLMQuerier: 2.4: return articles

PromptGenerator ⇢ HomeUI: 2.5: display Summary

opt [User wishes to update their summary]

User → HomeUI: 3.1: Update preferences

HomeUI → PromptGenerator: 3.2: sumNewsTemplate()

PromptGenerator → LLMQuerier: 3.3.1: queryLLM(prompt)

PromptGenerator ⇢ HomeUI: 3.3.2: display Summary

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sd TrendingNews

User → TrendingUI: 1: User clicks on Trending' tab

TrendingUI → TrendingMgr: 2: Display trending articles

alt [User clicks on "Visit Page"]

TrendingMgr → NewsArticle: 3: getSource()

NewsArticle ⇢ TrendingMgr: 3.1: Source of News Article

TrendingMgr ⇢ TrendingUI: 3.1.2: User is redirected to the source

[User clicks on "Share"]

TrendingMgr → NewsArticle: 4: geturlLink()

NewsArticle ⇢ TrendingMgr: 4.1: URL of News Article

TrendingMgr ⇢ TrendingUI: 4.1.2: Allows user to copy link to clipboard

sd ExplorePage

User → ExploreUI: 1: User clicks on Trending' tab

ExploreUI → ExploreMgr: 2: getFactOfTheDay()

ExploreMgr --> ExploreUI: 2.1: Display Fact of The Day

ExploreUI → ExploreMgr: 3: getExploreArticles()

ExploreMgr → NewsArticle: 3.1.1: getTitle()

NewsArticle --> ExploreMgr: 3.1.2: Title of Article

ExploreMgr → NewsArticle: 3.1.3: getDescription()

NewsArticle --> ExploreMgr: 3.1.4: Description of Article

ExploreMgr --> ExploreUI: 3.1.5: Display Explore Articles

opt [User selects preferred categories]

ExploreUI → ExploreMgr: 4: updateUserPref(category)

ExploreMgr --> ExploreUI: 4.1: Display filtered articles according to user's preference

Dialog Map

System Architecture

System Architecture Diagram
Mini Digest

External Dependencies — Firebase · News API · OpenAI · Vercel

Client Web Browsers

Presentation Layer — Web User Interface · Web Hosting

Application Layer — User Authentication · Profile Management · Live News Fetching · Summarisation

Firebase core services

API Integrations

Data Layer — Web Cache · User Database

miro
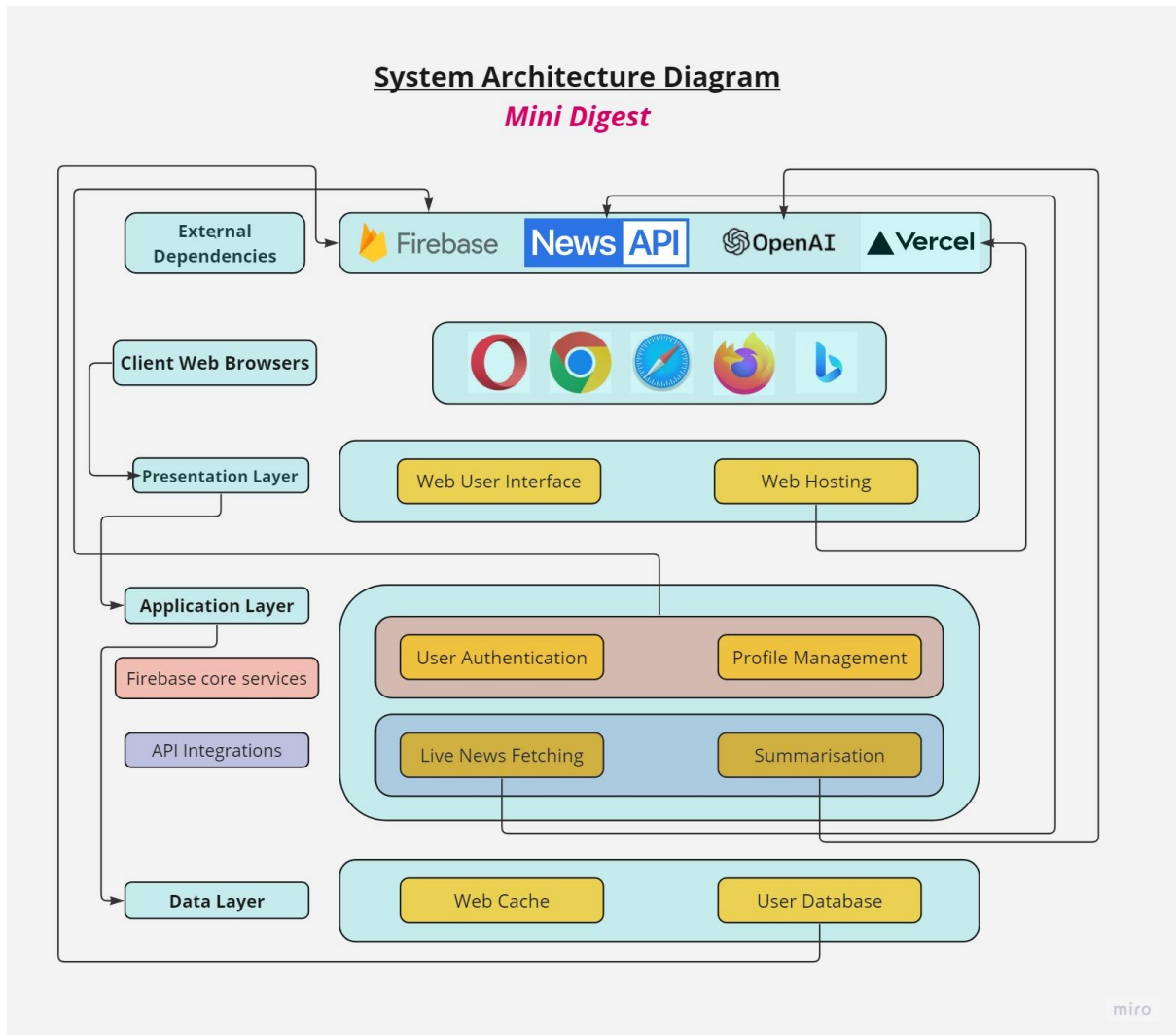
Black Box Testing

1. Login
   a. Generic cases

Test Id	Scenario	Expected Result	Actual Result
1	Login with valid account email and password	The system displays the home page for user to continue the operation.	The system displays the Home page for user to continue the operation.
2	Login without valid credentials.	The system prompts the user to enter the credentials again.	The system prompts the user to enter the credentials again.
3	Login without filling up the required fields	The system prompts the user to fill up the required fields for logging in.	The system prompts the user to fill up the required fields for logging in.

   b. Specific cases (Combination)

Test Id	Email Address	Password	Expected Result	Actual Result
1	test@gmail.com	password	Approve	Approve
2	test@gmail.com	invalidPassword	Reject	Reject
3	test@gmail.com	Empty(" ")	Reject	Reject
4	Empty(" ")	password	Reject	Reject

2. Registration
   a. Generic cases

Test Id	Scenario	Expected Result	Actual Result
1	Registration with valid inputs in all fields.	System approves the registration and launches the user's home page.	System approves the registration and launches the user's home page.
2	Registration with invalid email address.	System prompts the user to check input details.	System prompts the user to check input details.
3	Clicking "Sign Up" button while leaving blank fields.	System prompts the user to check input details.	System prompts the user to check input details.

4	Registration with different inputs in 'Enter Password' and 'Re-enter Password'.	System prompts the user to check input details.	System prompts the user to check input details.
5	Re-registration with an existing account's email address.	System prompts the user to check input details.	System prompts the user to check input details.

b. Specific cases (Email Address)

Test Id	Email Address	Expected Result	Actual Result
1	test@gmail.com	Approve	Approve
2	test	Reject	Reject
3	test@test	Reject	Reject
5	existing@gmail.com	Reject	Reject

c. Specific cases (Password)

Test Id	Password	Expected Result	Actual Result
1	pass	Reject (at least 6 letters)	Reject
2	password	Approve	Approve

d. Specific cases (Combination)

Username	Email Address	Password	Re-Enter Password	Expected Result	Actual Result
testuser	test@gmail.com	testpass	testpass	Created new user	Created new user
Empty("")	test@gmail.com	testpass	testpass	Please fill in all required fields	Please fill in all required fields
testuser	Empty("")	testpass	testpass	Please fill in all required fields	Please fill in all required fields

testuser	test@gmail.com	Empty("")	testpass	Please fill in all required fields	Please fill in all required fields
testuser	test@gmail.com	testpass	Empty("")	Please fill in all required fields	Please fill in all required fields
testuser	existing@gmail.com	testpass	testpass	Email has been used	Email has been used
testuser	test@gmail.com	testpass	diffpass	Passwords do not match	Passwords do not match

3. Trending

Test Id	Action	Expected Result	Actual Result
1	Click on Visit Page	Full-length article within the source website is opened in a different tab.	Full-length article within the source website is opened in a different tab.
2	Click on Share	URL of source website copied into clipboard	URL of source website copied into clipboard

4. Home
   a. Stylize Prompt

Test Id	Action	Expected Result	Actual Result
1	Input custom prompt and click 'update'	Generate first byte of new summary based on custom prompt within 5 sec	Generate first byte of new summary based on custom prompt within 5 sec

b. Preference Bar

Test Id	Action	Expected Result	Actual Result
1	Selecting any category in preference bar	Generates first word of summary within 3sec	Generates first word of summary within 3sec
2	Selecting one or multiple genres	Summary of news of respective genre(s) is generated	Summary of news of respective genre(s) is generated
3	Selecting 'All' genre	Deselects all currently selected genres	Deselects all currently selected genres

c. Refresh

Test Id	Action	Expected Result	Actual Result
1	Refresh page	Summary is cached and does not reload. User Selections are saved.	Summary is cached and does not reload. User Selections are saved.

5. Explore
   a. Generic cases

Test Id	Scenario	Expected Result	Actual Result
1	Click on Explore tab.	Explore page ('Fact of the Day', 'Today in History' and news articles) generated within 3 seconds.	Explore page ('Fact of the Day', 'Today in History' and news articles) generated within 3 seconds
2	Refresh "Fact of the Day".	New fact is generated within 5 seconds.	New fact is generated within 5 seconds
3	Refresh "Today in History".	New history fact is generated within 5 seconds.	New history fact is generated within 5 seconds
4	Click on article card.	Full-length article within the source website is opened in a different tab.	Full-length article within the source website is opened in a different tab.
5	Selecting 'all' genres.	News articles are grouped into respective genres in order of 'Technology', 'Science', 'Sports', 'Business', 'Health', 'Entertainment'. 6 articles per genre is curated.	News articles are grouped into respective genres in order of 'Technology', 'Science', 'Sports', 'Business', 'Health', 'Entertainment'. 6 articles per genre is curated.

| 6	Selecting one genre.	6 articles are curated for selected genre.	6 articles are curated for selected genre.

6. Profile
   a. Generic cases

| Test Id	Scenario	Expected Result	Actual Result
1	Reset password	Successfully updated password!	Successfully updated password!
2	Update username	Updated in real-time and synchronised to backend	Updated in real-time and synchronised to backend

   b. Specific cases (Password)

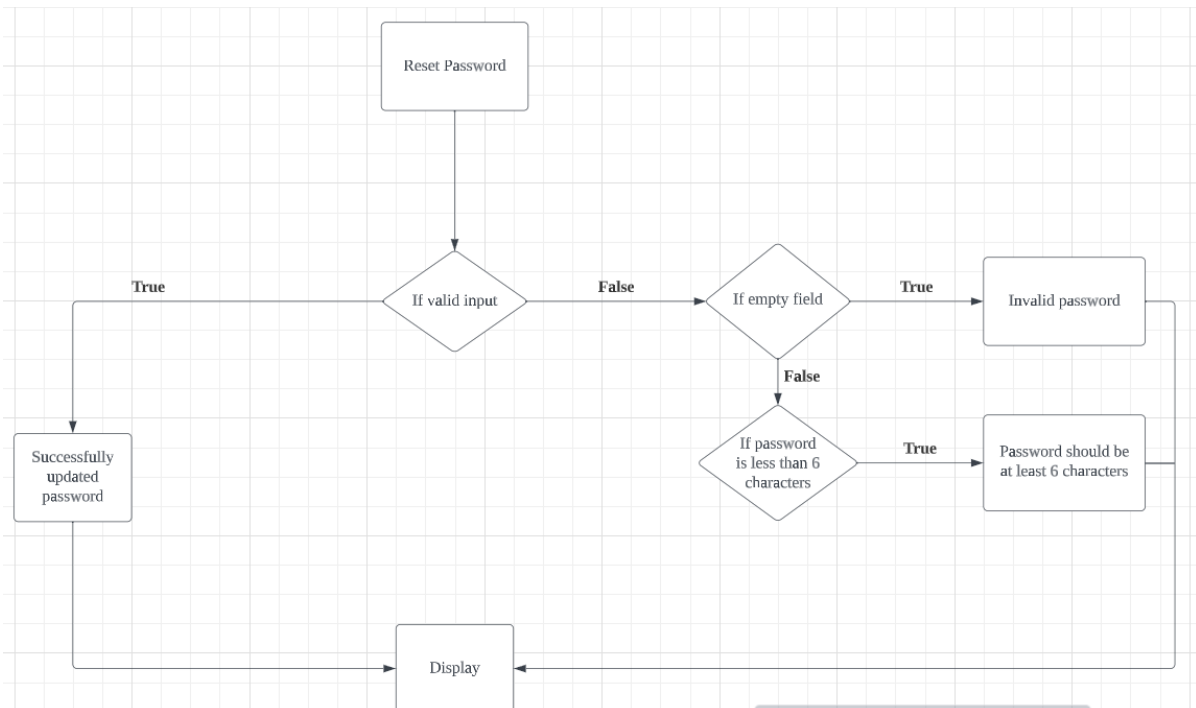| Test Id	Password	Expected Result	Actual Result
1	pass	Reject (at least 6 letters)	Reject
2	password	Approve	Approve

White Box Testing

Login
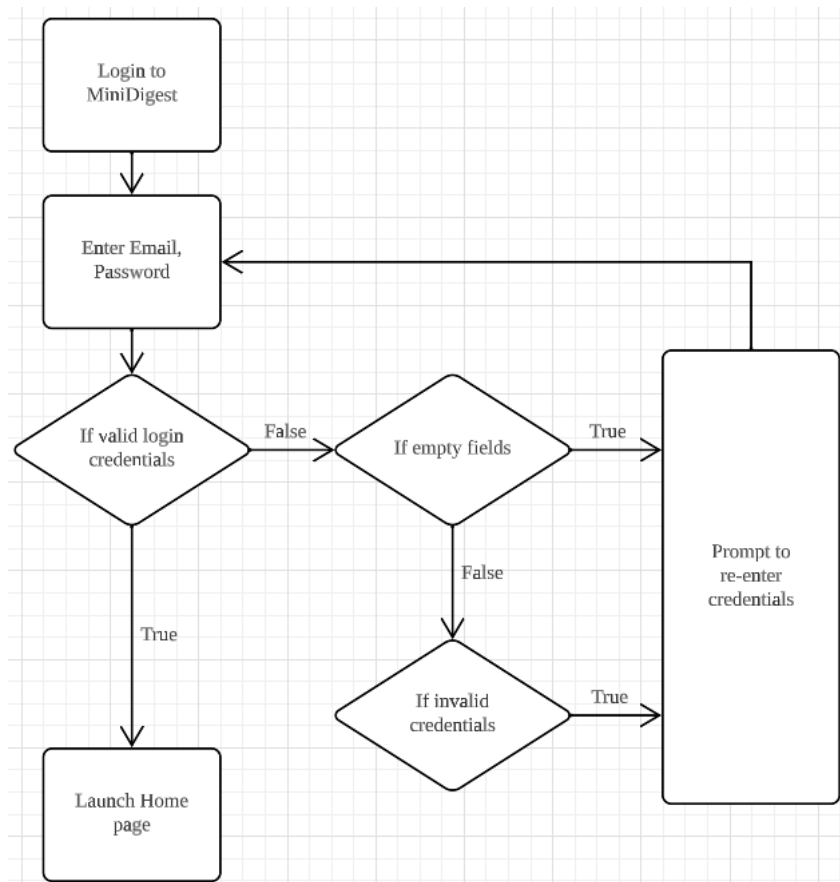
Registration
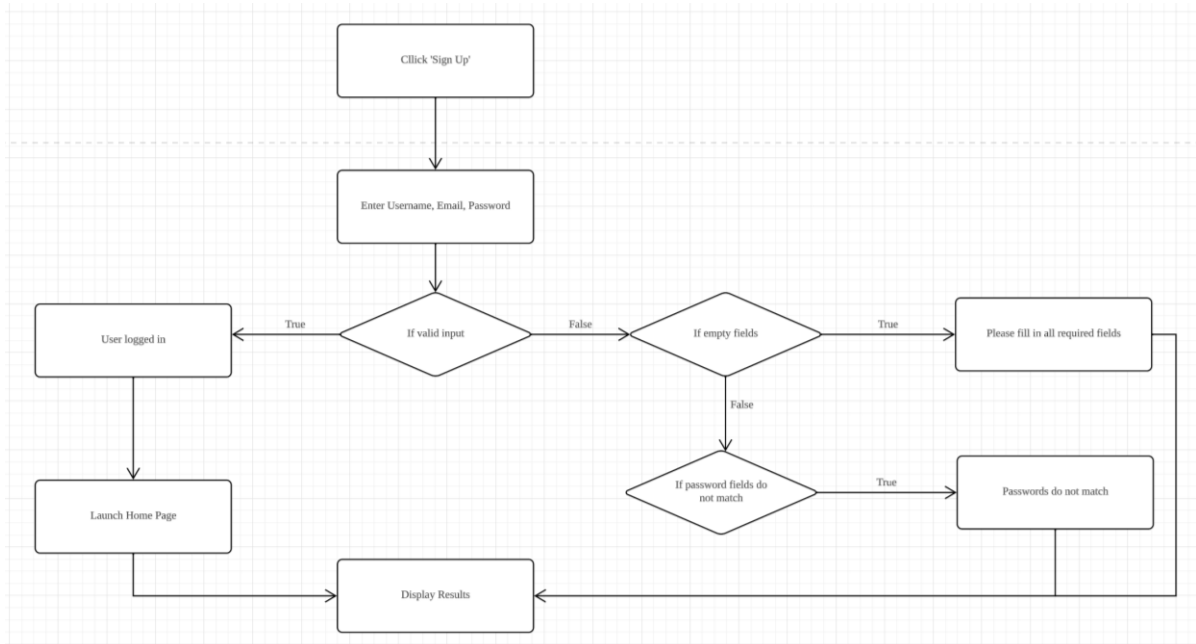
Reset Password

User Interface Design Mock-ups

LANDING PAGE

MiniDigest

DIGEST YOUR DAILY DOSE OF NEWS

your everyday Catch up to the world.
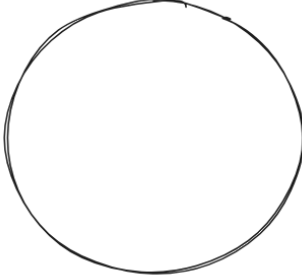
Sign Up | Login

LOGIN PAGE

MiniDigest

Welcome to your daily digest

Username

Password →

SIGNUP PAGE

MiniDigest

Username

Password

Re enter PW

Email

→

HOME PAGE

MiniDigest   Your Digest   Trending   Explore   ◯ Profile

ALL | SPORTS   TECH   BUSINESS   HEALTH   ENTERTAINMENT   SCIENCE

Good morning, John   28 Jul

Stylize it!

BLAH BLAH BLAH BLAH

input any custom prompts that user might want

summarise

*Bubble up whatever is selected --> filter news

TRENDING PAGE

MiniDigest   Your Digest   Trending   Explore   ◯ Profile

Good morning, John

Summary

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.

Visit page   share

SUMMARISES THE TOP 10 HEADLINING NEWS ARTICLES

EXPLORE PAGE

MiniDigest   Your Digest   Trending   Explore   ◯ Profile

ALL   SPORTS   TECH   BUSINESS   HEALTH   ENTERTAINMENT   SCIENCE
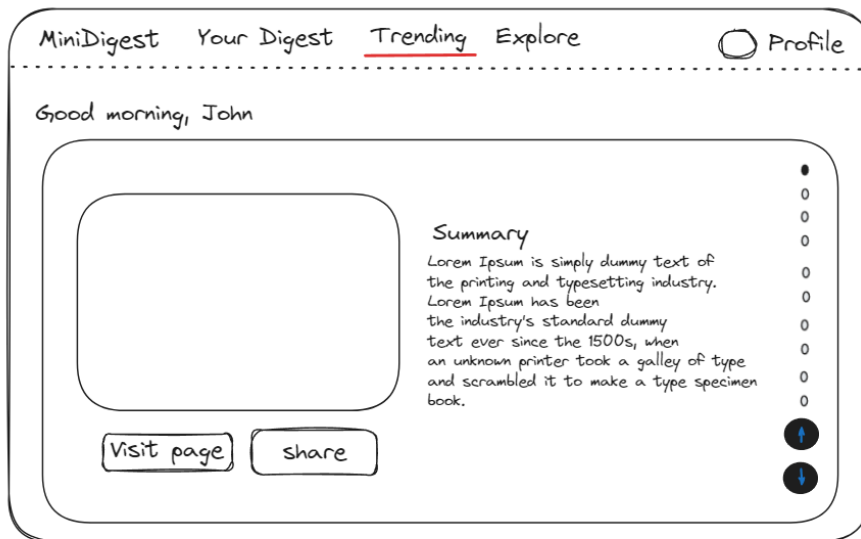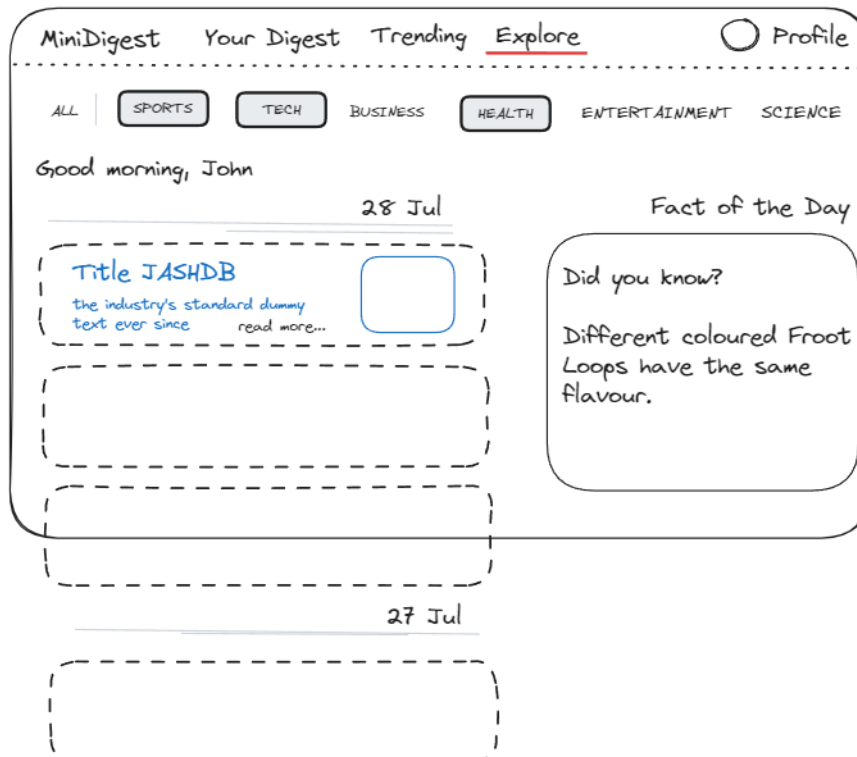
Good morning, John

28 Jul   Fact of the Day

Title JASHDB
the industry's standard dummy text ever since   read more...

Did you know?

Different coloured Froot Loops have the same flavour.

27 Jul

PROFILE PAGE

MiniDigest

Tell us More! We hope to provide you with more customised content

Username

Age

Country

Update particulars   Reset Password

Update Icon

30 Days since you've been digesting!

Overall User Interface Diagram