

Sentiment Analysis Project System Design Document



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Introduction

The purpose of this document is to display the Design of the sentiment analysis web application. This Document will feature visualisations such as System Sequence Diagrams and GUI Screenshots.

System Sequence Diagram

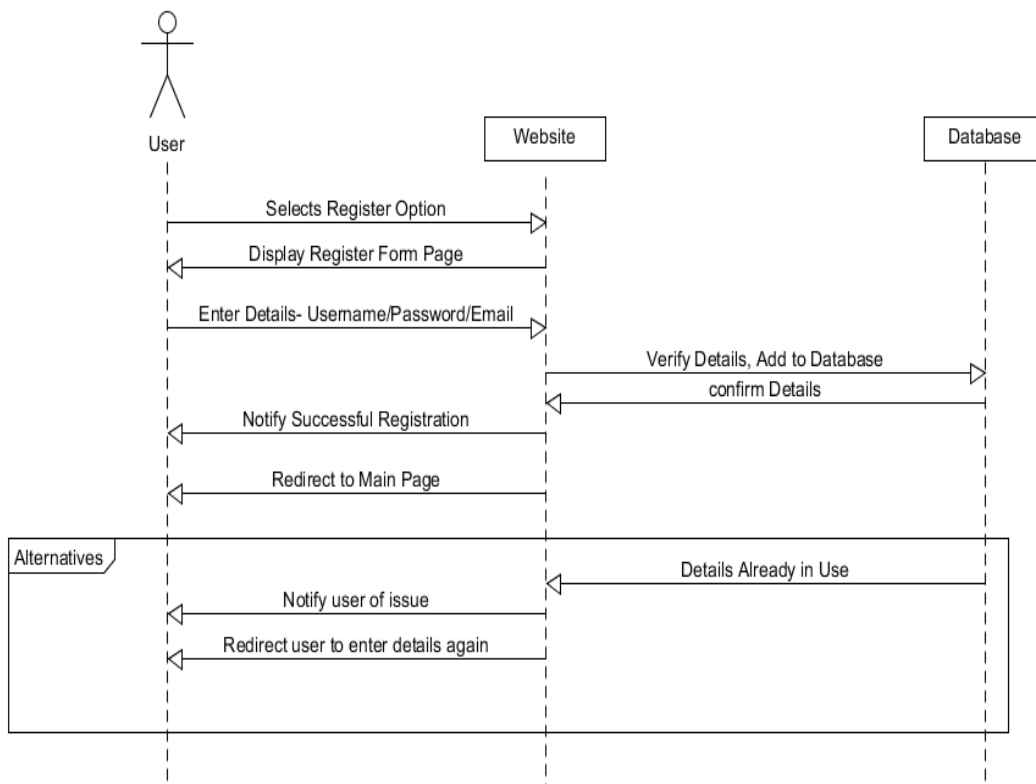
This diagram outlines the entities involved in different operations throughout the website, and how these entities interact with each other.

Prototype screens

Prototype screens for the system, including prototypes for features such as the Login screen, Homepage, Analysis page and History page.

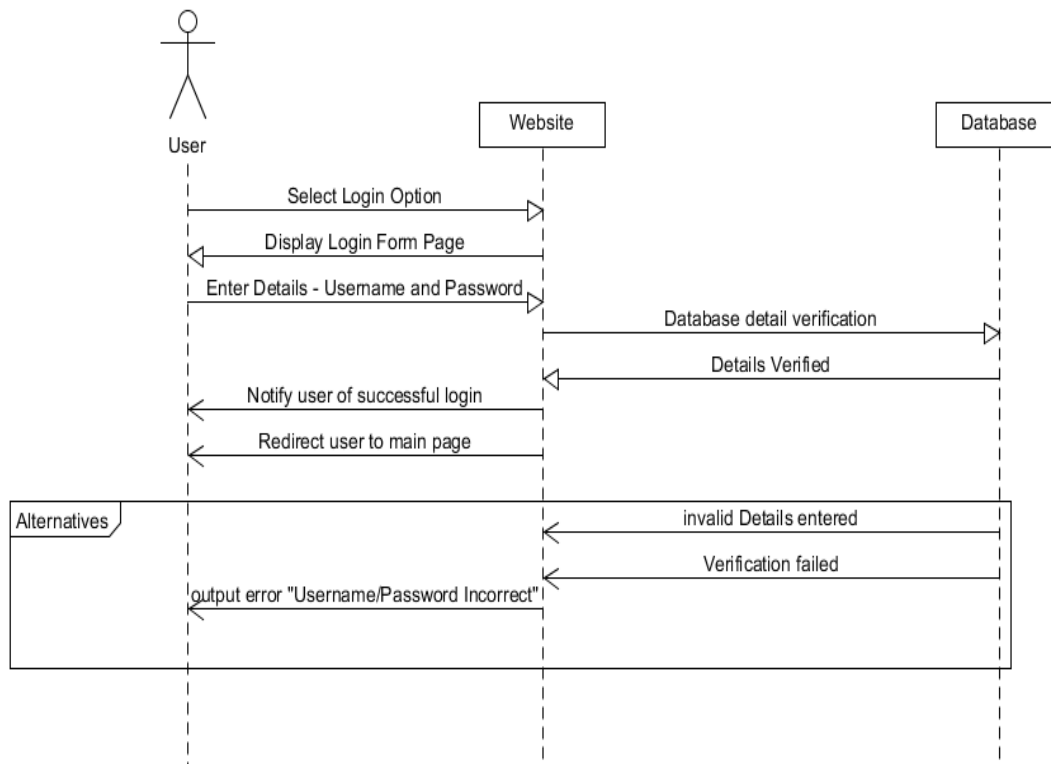
System Sequence Diagrams

Register



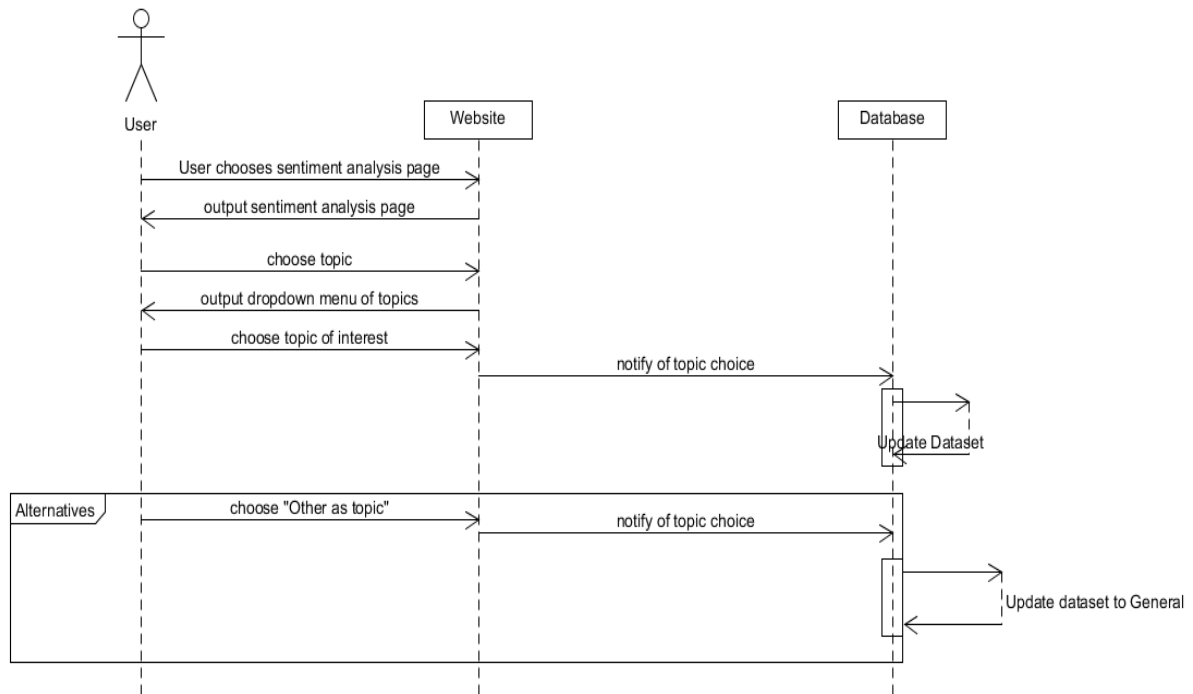
In the system sequence diagram above, the user selects the registration option, they are then directed to the registration page. The user enters their username, password and email. These details are verified and sent to the secure database. Once entered into the database. The website notifies the user their registration is successful. The user is then logged in and redirected to the main page.

Login



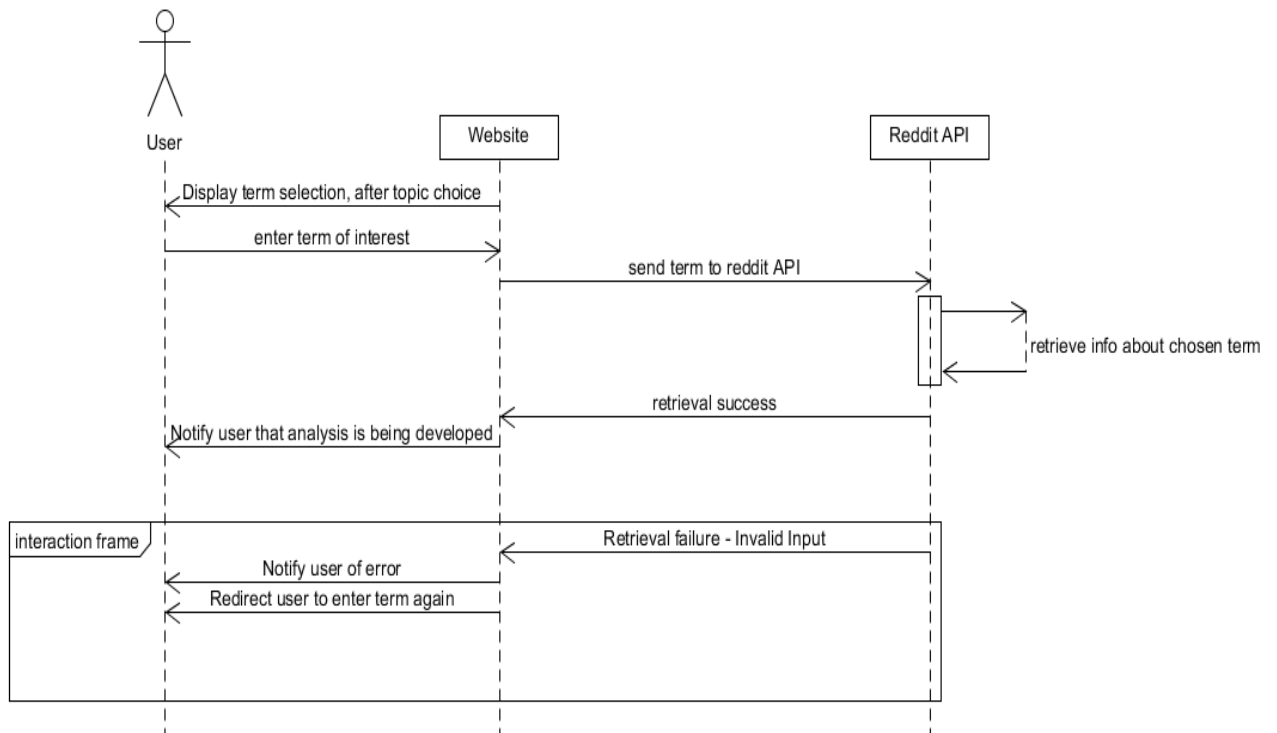
In the system sequence diagram above, the user selects the login option, they are then displayed the login page. The user enters their username and password. Their details are then forwarded to the database to be verified. Once the details are verified the user is notified, the user become logged in and is redirected to the main page. In the alternative scenario the details which the user has entered are not correct. They are notified of this by an error message and allowed to attempt to enter their details again.

Choose Topic



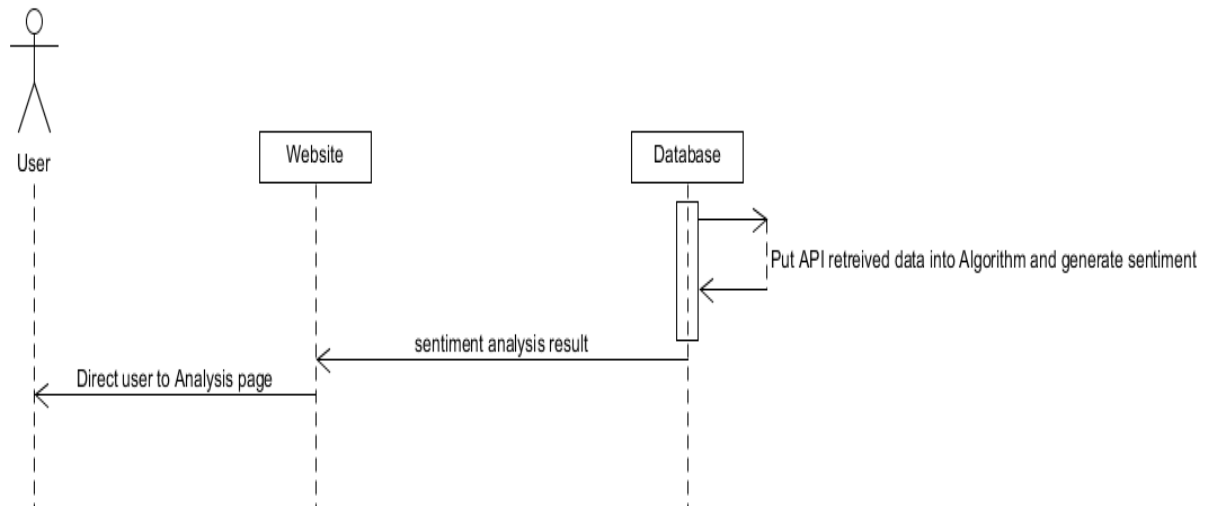
In the above system sequence diagram the user begins by choosing the sentiment analysis page. They are then redirected to the sentiment analysis page. In this page they must begin by choosing a topic. A dropdown menu is displayed to allow them to choose from a range of topics. The user chooses a topic which suits them. The database then updates the dataset which will be utilized to make a prediction when the user chooses their term of choice for analysis. In the alternative scenario the user cannot find a topic from the dropdown menu which best decides the term they want an analysis of. The user chooses the “Other” option which will make the general dataset be chosen which is less specific.

Choose Term



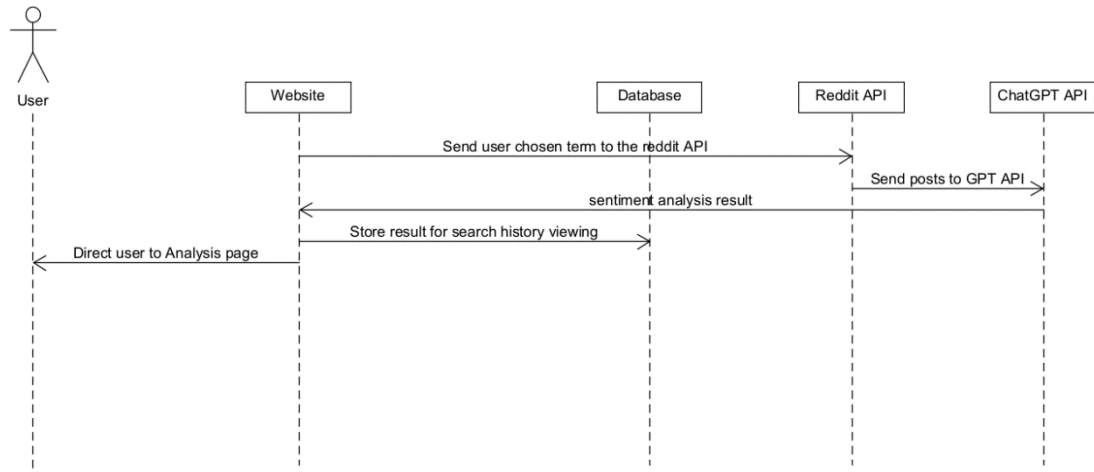
In the above system sequence diagram the user has already entered the topic which they believe best suits their term, they are then asked to type in the term which they would like to analyse. Once they have entered this term. The term is sent to the reddit API so that data and posts about this term can be retrieved, Once the data is retrieved. It can be organised and sent to the sentiment analysis algorithm for the creation of an analysis. In the alternative scenario, the term which the user has chosen is invalid, the website notifies the user of this issue, and the user is prompted to attempt to type the term in again.

Receive Sentiment



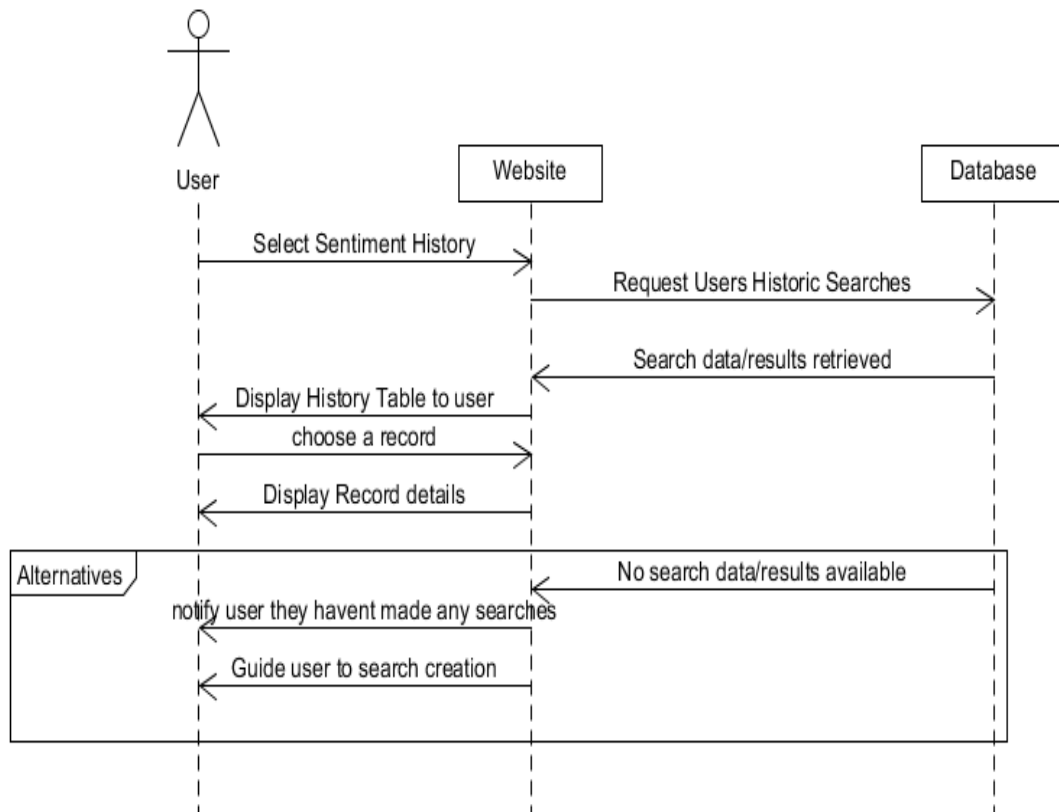
In the above system sequence diagram, the user has already chosen the topic and term of their choice. The data which has been retrieved by the reddit API is put into the sentiment analysis algorithm and dataset, the sentiment analysis is generated. The website then outputs this generated result to the user.

Receive AI generated sentiment analysis.



In the following system sequence diagram the user has already chosen the topic and term of their choice, the reddit API retrieves info on the topic and sends the posts to the GPT API, GPT then analyses the sentiment and returns a result, this result is then stored in the database for future search history viewing, and finally output to the user.

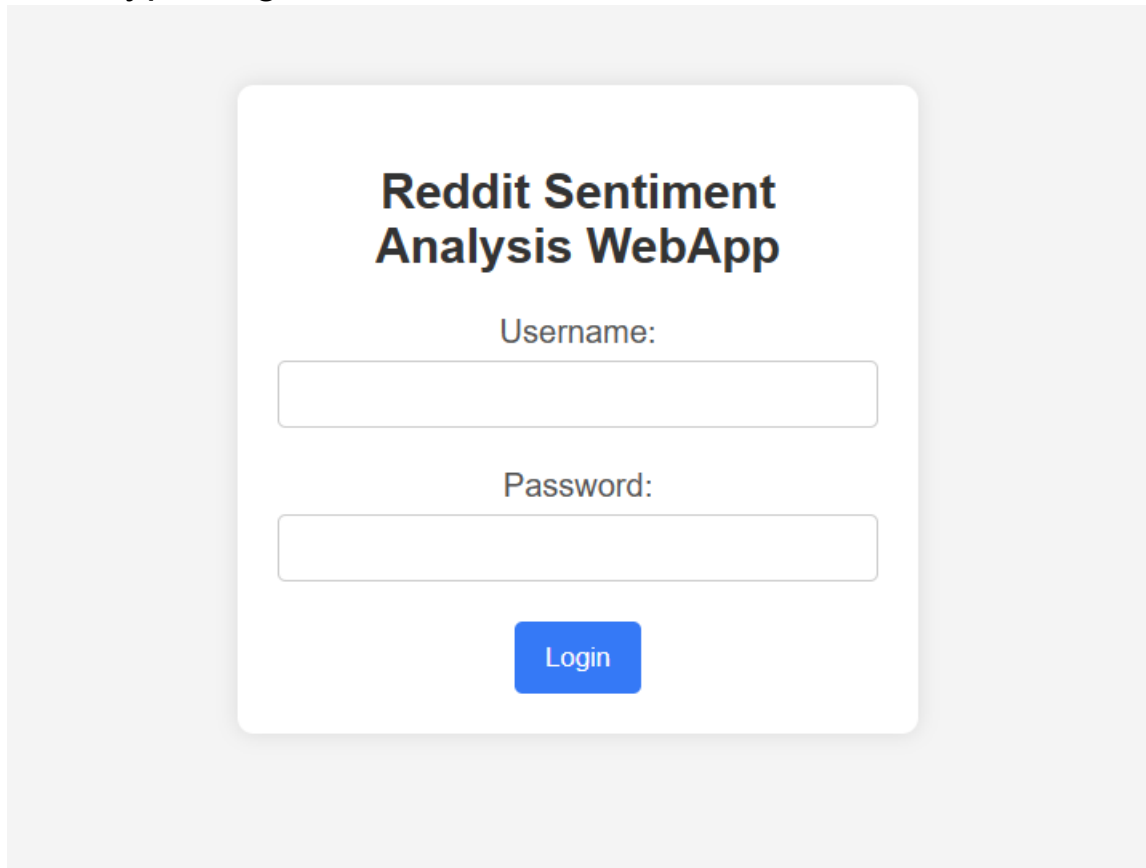
View Sentiment History



In the above system sequence diagram, the user chooses to see their sentiment history. Once they select the sentiment history option, the website interacts with the database to retrieve the previous sentiment results for the users searches. The website then displays a table of the previous searches and results the user has had. The user can then select a record individually from the table to view more statistics about it. In the alternative scenario the user has not made any previous searches. They are notified of this, and a guide is shown on how they can make a search to generate historical data.

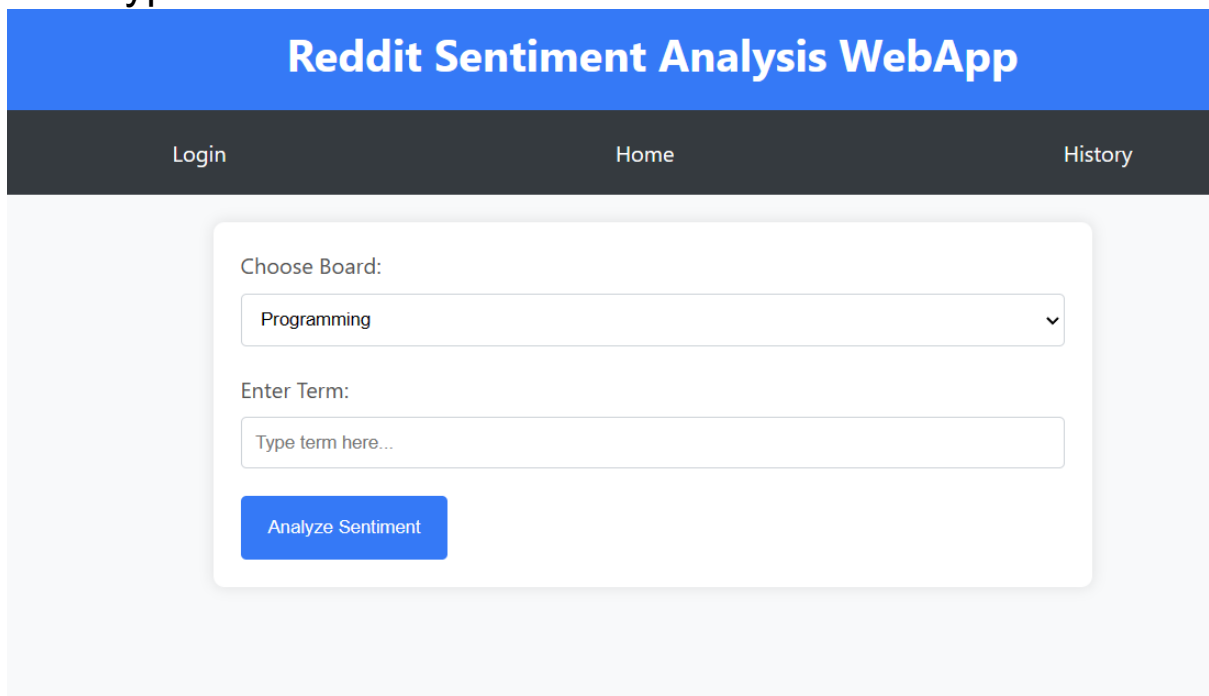
Prototype Screens

Prototype Login Screen



The login screen features a white card centered on a light gray background. At the top of the card, the text "Reddit Sentiment Analysis WebApp" is displayed in a bold, black font. Below the title, there are two input fields: the first is labeled "Username:" and the second is labeled "Password:". Both fields are empty and have a light gray border. At the bottom of the card, there is a blue button with the text "Login" in white.

Prototype Home Screen



The home screen has a blue header bar with the text "Reddit Sentiment Analysis WebApp" in white. Below the header is a dark gray navigation bar with three items: "Login", "Home", and "History". The main content area is a light gray background with a white card. The card contains a "Choose Board:" label above a dropdown menu showing "Programming" with a downward arrow. Below that is an "Enter Term:" label above a text input field with the placeholder "Type term here...". At the bottom of the card is a blue button with the text "Analyze Sentiment" in white.

Prototype Analysis Screen

Reddit Sentiment Analysis WebApp

Sample Analysis

The term "**Web Development**" was chosen from the general board. The sentiment analysis results are as follows:

Overall Judgment: Positive

AI Generated Analysis

Utilizing advanced AI algorithms, the sentiment analysis for "**Web Development**" provides a more detailed insight:

Overall Judgment: Positive

The AI analysis reveals that users express great enthusiasm for the latest web development trends and innovative frameworks. Some concerns are raised about browser compatibility issues, but overall, the sentiment is overwhelmingly positive, with users sharing collaborative projects and positive experiences.

Prototype History Screen

Reddit Sentiment Analysis WebApp

Analysis History

Topic: Web Development
Date: 2023-04-15
Result: Positive

Topic: Machine Learning
Date: 2023-03-28
Result: Negative

Analysis Details

Topic: Machine Learning

Date: 2023-03-28

Result: Negative

Additional details and sentiment breakdown can be displayed here.

