

FactFinder

Justice League



Agenda

- Improvements from feedback
- Minimum Viable Product
- Architecture diagrams
- Sequence diagrams
- Product Backlog
- Sprint 2 Backlog
- Metrics
- Retrospective
- Stories planned for sprint 3
- Project demo for sprint 2
- Live application demo



Meet our team



Suraj Salunke

Quality Analyst &
Developer



Manthan Kale

Scrum Master &
Developer



Kavita Kamtekar

Full Stack Developer



Saurabh Chaudhary

Product
Manager & Developer



Gayatri Kulkarni

Developer



Maheswari Vidyadharani

Developer



Sai Kumar Tata

Developer & Designing



Rushabh Shingala

Developer & Designing

Improvements made from Professor Feedback:

- Improved problem statement.
- Improved the project description based on feedback.
- Updated the team agreement.
- Retrospective slides were missing, we added that.
- Github link was also missing. We added that.
- Removed unused screenshot data.

Project Description

Fact Finder is a web app designed to combat online misinformation by differentiating between fake and real news. Additionally, it can create a summary of the news.

For anyone concerned about online misinformation and facing time constraints for reading news articles.

who upload the news article

the Fact Finder web app

is a web app that use machine learning and deep learning algorithms

that can detect misinformation.

Unlike believe any information on internet.

Our application verifies the authenticity of information and saves time by creating summaries of articles.

Benefit Outcomes:

- Ensuring the authenticity of the information.
- Saves valuable time by generating summaries of the articles.
- Contributes to the fight against misinformation.



Team working agreement

Team Agreement

CS691 - Team Justice League (23915)

Purpose of the Agreement:

To ensure the successful completion of our collaborative project and foster a positive working environment for all team members.

Team Values:

1. Collaboration: We value open communication and collaboration, encouraging all team members to actively engage in discussions and contribute ideas for the project's success.
2. Accountability: Each team member is accountable for their assigned tasks, and if challenges arise, open communication is essential to address and overcome obstacles collectively.
3. Transparency: We prioritize transparent communication through various channels to build trust within the team. Keeping cameras on during Zoom meetings is encouraged for meaningful team interactions.

Communication:

1. The team will utilize Zoom for weekly meetings to facilitate meaningful discussions. Weekly meetings will be held every Tuesday, Friday, and Sunday. Attendance is mandatory, with exceptions allowed in exceptional cases.
2. Active participation in meetings is expected from every team member, including sharing ideas, engaging in discussions, and providing updates on individual work progress.
3. For immediate discussions, urgent matters, and doubts, a WhatsApp messenger group will be employed.
4. Microsoft Sharepoint will be the designated platform for sharing final deliverables, allowing all team members to collaboratively edit documents.
5. A shared platform, such as Jira, will be used for project management. It includes designated groups for different roles, facilitating efficient collaboration among Developers, Business Analysts, and the Product Owner.

Owner.

Work Division and Participation:

1. Project work will be equitably divided among team members, with equal responsibilities assigned to ensure a balanced workload.
2. Timely completion of assigned work is crucial. In cases of potential delays, team members must communicate with their peers to redistribute tasks accordingly.
3. Work separation between members is voluntary. However, if a member lacks participation, the Product Owner reserves the right to assign necessary tasks to ensure project progress.
4. In the event of a member's absence during meetings, the member pledges to support the decisions made during the meeting.

Team Members:

1. Saurabh chaudhary
2. Suraj Salunkhe
3. Kavita Kamtekar
4. Manthan Kale
5. Maheswari Vidyadharani
6. Rushabh Shingala
7. Sai Kumar Tata
8. Gayatri Kishor Kulkarni



Personas

Background: Maria is a community activist working on social justice issues. She recognizes the role of misinformation in shaping public opinion and wants to combat false narratives that may undermine her advocacy efforts. Maria is motivated to use the web application as a tool to verify information before sharing it within her community.

Age: 35

Occupation: Community Activist

Goals and Motivation: Maria's goal is to empower her community with reliable information. By leveraging the web application, she aims to strengthen the credibility of her advocacy work, foster informed discussions, and counteract misinformation that may be used to undermine social justice causes

Personas



Background: David owns a small business that heavily relies on its online presence for customer engagement. He's concerned about potential misinformation impacting the reputation of his business. The web application is crucial for David to verify news and updates related to his industry.

Age: 38

Occupation: Small Business Owner

Goals and Motivation: David's primary goal is to safeguard his business's reputation. By using the web application, he aims to prevent the spread of false information that could harm customer trust and loyalty. His motivation is to maintain transparency and integrity in his business communications.

Personas

Background: Michelle is a fitness and health enthusiast who frequently relies on online health-related information. With the abundance of health-related news articles and social media posts, Michelle often encounters conflicting information. The web application is valuable for him to discern between credible and misleading health information.

Age: 31

Occupation: Fitness Trainer

Goals and Motivation: Michelle's primary goal is to maintain a healthy lifestyle and share accurate health advice with her followers. By using the web application, he aims to avoid the spread of misinformation in the fitness and health community, contributing to a more informed and health-conscious online environment.

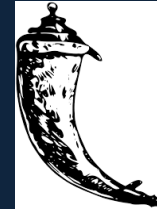
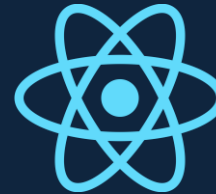


Technologies

1.FrontEnd: JavaScript, HTML5, CSS.



2.Framework: React, Flask.



3.Backend : Python



4.Database : NoSQL, MangoDB



Algorithms

Machine Learning Algorithms (scikit-Learn)

Logistic Regression : Supervised learning algorithm for classification.

K Nearest Neighbour (KNN): Instance based, non-parametric algorithm for classification

Decision Tree: Supervised learning algorithm for classification.

Deep Learning(Tensorflow)

Recurrent Neural Network(RNN): Ideal for Natural Language Processing(NLP) task.

Algorithms(cont..)

```
import numpy as np
import pandas as pd
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import accuracy_score, classification_report
import re
import string

# creating another method to process the text
from nltk.corpus import stopwords
from nltk.stem.porter import PorterStemmer

port_stem = PorterStemmer()

def clean_and_lower(text):
    cleaned_text = re.sub(r'^A-Za-z0-9+', ' ', text)
    cleaned_text = cleaned_text.lower()
    cleaned_text = cleaned_text.split()
    cleaned_text = [port_stem.stem(word) for word in cleaned_text if not word in stopwords.words('english')]
    cleaned_text = ' '.join(cleaned_text)

    return cleaned_text
```

Algorithms(cont..)

```
df['content'] = df['content'].apply(clean_and_lower)

X = df['content']
y = df['classification']

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.25, stratify=y, random_state=42)
X_train = vectorization.fit_transform(X_train)
X_test = vectorization.transform(X_test)

print(y_train.value_counts())
print(y_test.value_counts())

1    17610
0    16063
Name: classification, dtype: int64
1     5871
0     5354
Name: classification, dtype: int64

Logistic_model = LogisticRegression()
Logistic_model.fit(X_train, y_train)
Logistic_model.score(X_test, y_test)

]: 0.9865478841870824
```

Algorithms(cont..)

```
Logistic_model = LogisticRegression()  
Logistic_model.fit(X_train,y_train)  
Logistic_model.score(X_test,y_test)
```

0.9865478841870824

```
y_pred_LR = Logistic_model.predict(X_test)  
  
print(classification_report(y_test,y_pred_LR))
```

	precision	recall	f1-score	support
0	0.98	0.99	0.99	5354
1	0.99	0.98	0.99	5871
accuracy			0.99	11225
macro avg	0.99	0.99	0.99	11225
weighted avg	0.99	0.99	0.99	11225

API

```
In [5]: ▶ from flask import Flask, request

factFinder = Flask(__name__)
@factFinder.route('/predict', method=['POST'])

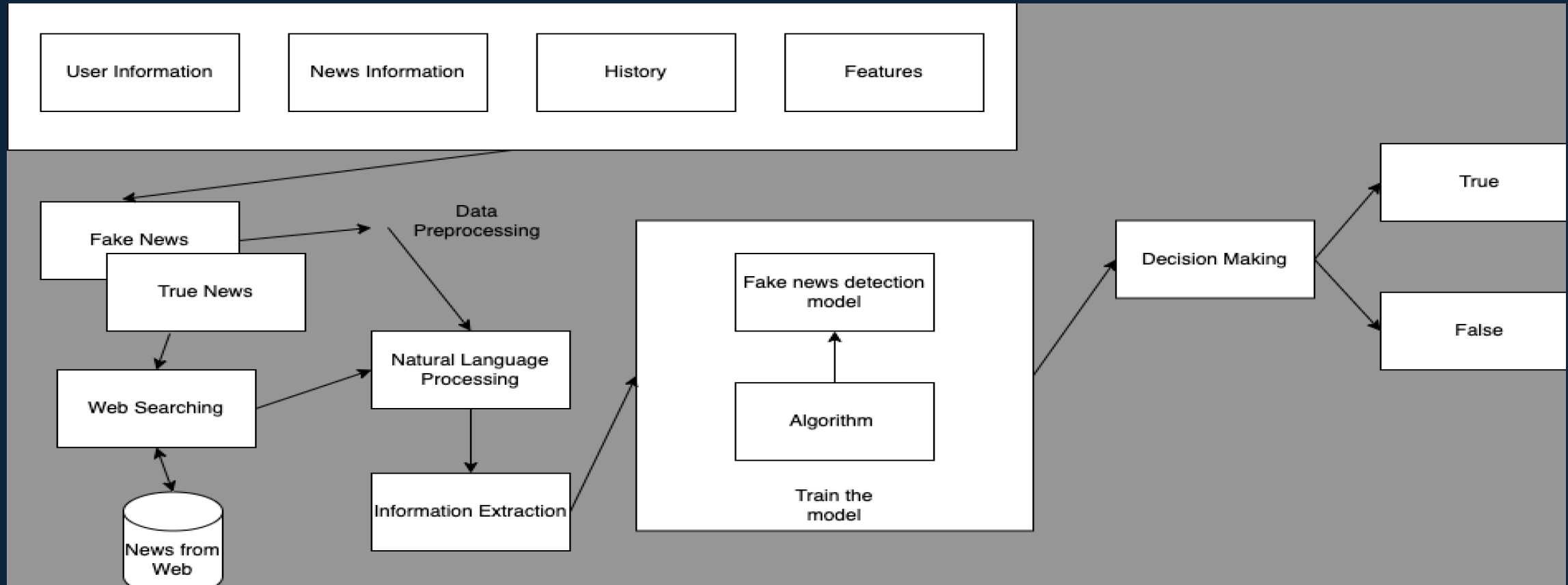
def predict():
    news = request.form['news']
    result = prediction(news)
    return result

def prediction(news):
    news_test = {'news_to_predict': [news]}
    df_news = pd.DataFrame(news_test)
    df_news['news_to_predict'] = df_news['news_to_predict'].apply(clean_and_lower)
    new_X_test = df_news['news_to_predict']
    new_X_test = vectorization.transform(new_X_test)
    pred_LR = Logistic_model.predict(new_X_test)
    pred_DT = DT_model.predict(new_X_test)

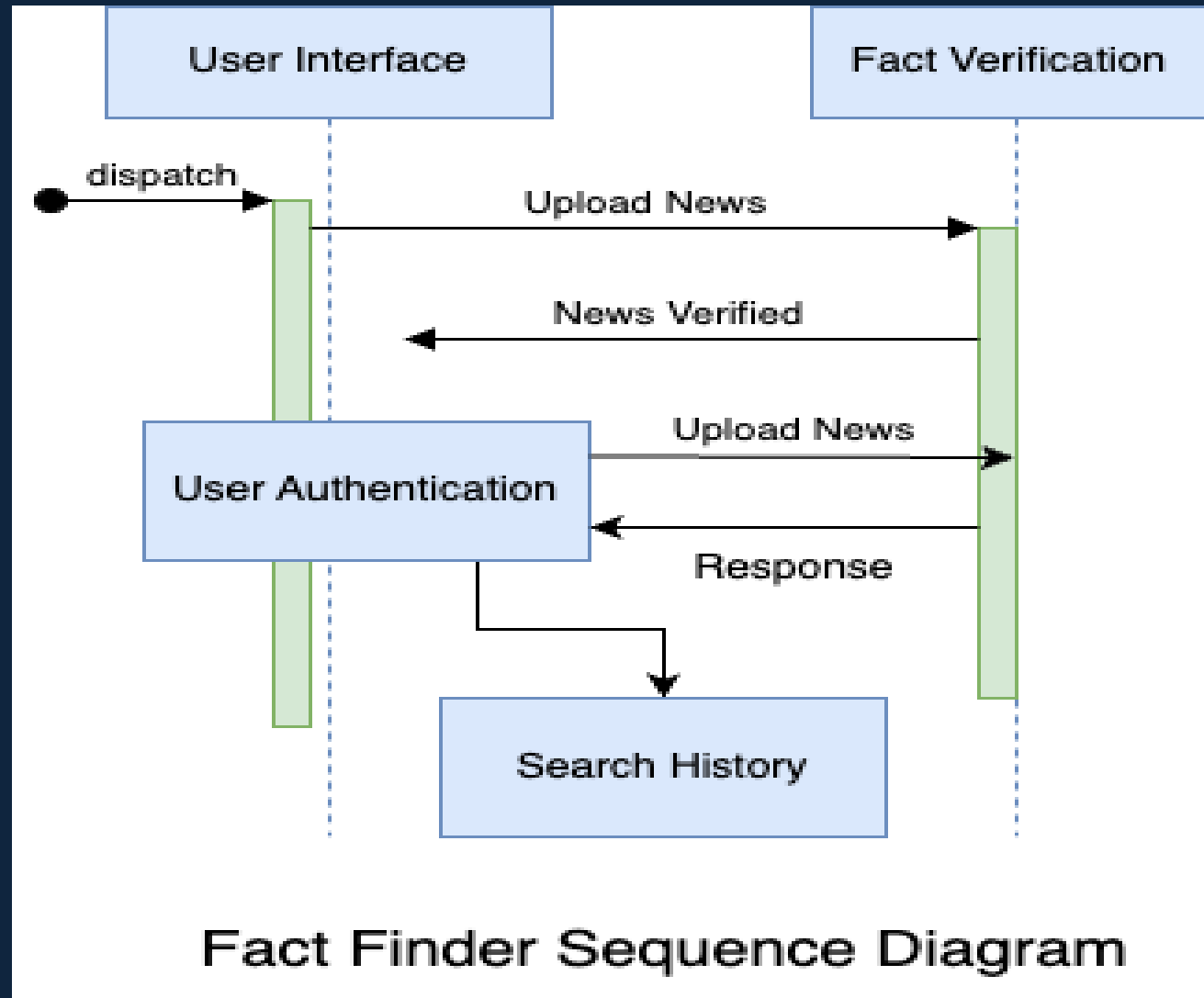
    if (pred_LR[0] == 1):
        print("This News is Fake")
    elif (pred_LR[0] == 0):
        print("This is an actual News")

if __name__ == '__main__':
    factFinder.run(debug=True)
```

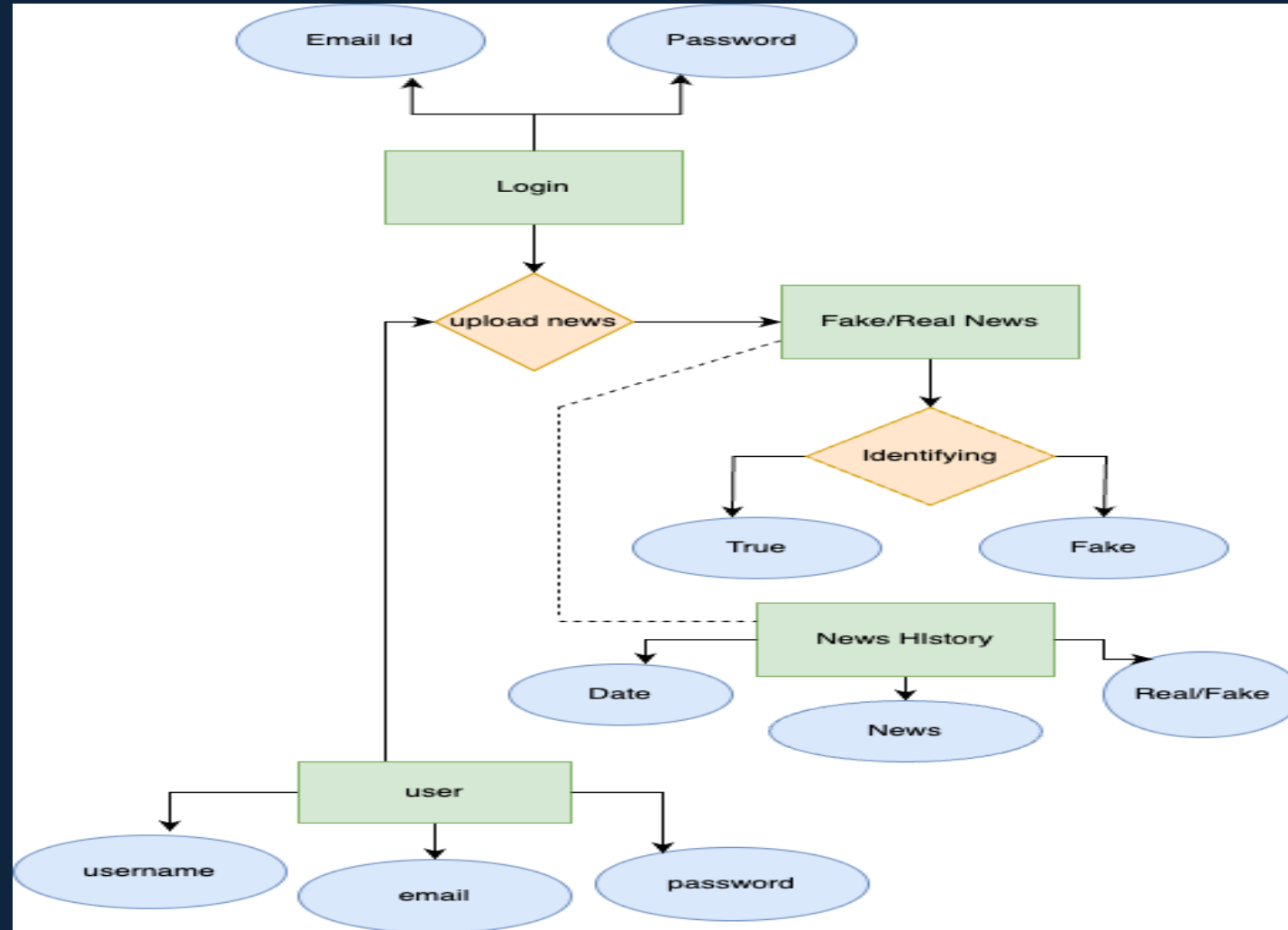
Architecture Diagram



Sequence Diagram



Entity-Relation Diagram:



Product Backlog

User Stories for Product Backlog	Acceptance Criteria
As a user, I want to verify the authenticity of news articles to ensure the information I consume is reliable.	<p>Scenario: Validating News Given: I am on the home page. When: I input a text containing more than 50 words and less than 500 words. Then: The system should accurately determine whether the news is fake or true.</p> <p>Scenario: Text Input Validation Given: I am on the home page. When: I input a text with fewer than 50 words. Then: The system should display an error message indicating that the input is too short.</p>
As a user, I want the front end to seamlessly communicate with the back end to ensure a smooth user experience.	<p>The front-end components make API requests to the back end. API responses are handled appropriately in the front end. Error handling is implemented to manage communication failures. Data exchanged between front end and back end is secure and follows best practices.</p>
As a user, I want to view my activity history on the home page for quick reference.	<p>The home page displays a section for user activity history. Each activity entry includes relevant details such as timestamp and type of activity. Users can interact with the history section, e.g., clear history or filter by date.</p>
As a developer, I want to ensure that the back end functions as expected and handles various scenarios.	<p>Comprehensive unit tests cover each backend function. Integration tests validate the interactions between different backend components. Test coverage is regularly reviewed and maintained. Performance testing is conducted to ensure scalability.</p>

Product Backlog

As a user, I want to view my activity history on the home page for quick reference.	The home page displays a section for user activity history. Each activity entry includes relevant details such as timestamp and type of activity. Users can interact with the history section, e.g., clear history or filter by date.
As a developer, I want to ensure that the back end functions as expected and handles various scenarios	Comprehensive unit tests cover each backend function. Integration tests validate the interactions between different backend components. Test coverage is regularly reviewed and maintained. Performance testing is conducted to ensure scalability.
As a data scientist, I want to implement a neural network model in the backend for accurate predictions.	The neural network model is integrated into the backend architecture. Model training scripts are implemented and tested. The model's accuracy is regularly monitored and maintained above 90%. The model can handle new data inputs and adapt accordingly.
As a system administrator, I want to manage user information securely in a database.	User data is securely stored in a database. CRUD operations (Create, Read, Update, Delete) are implemented for user data. Passwords are stored securely using hashing and salting techniques. User data can be retrieved and updated as needed.
As a user, I want my activity history to be stored securely and retrievable.	Activity history data is stored in a dedicated database. The database schema allows for efficient retrieval and querying of historical data. Data retention policies are implemented to manage storage requirements.
As a data scientist, I want access to quality training data for the neural network model.	Training data is collected and preprocessed to meet model requirements. Data augmentation techniques are applied to enhance the model's generalization. The training dataset is regularly updated to incorporate new patterns and trends.

Sprint 2 backlog

STORIES AND ACCEPTANCE CRITERIA

TEST CASES

STORIES COMPLETED

STORIES NOT COMPLETED

Stories and Acceptance criteria for Sprint 2

User stories	Acceptance Criteria
As a registered user, I want to be able to log in to the application so that I can access the website.	<ol style="list-style-type: none">1. Given the login page is displayed, when I enter valid credentials and click the "Login" button, then I should be redirected to the home page.2. Given the login page is displayed, when I enter an invalid username and valid password, then an error message should be shown indicating that the username is not recognized.3. Given the login page is displayed, when I enter a valid username and an invalid password, then an error message should be displayed indicating that the password is incorrect.4. Given the login page is displayed, when I leave both username and password fields blank and click the "Login" button, then an error message should be shown indicating that both fields are required.
As a security measure, I want my account to be locked after a certain number of unsuccessful login attempts.	<ol style="list-style-type: none">1. Given a user has made multiple unsuccessful login attempts, when the maximum allowed attempts are reached, then the user account should be locked.2. Given a locked account, when the user tries to log in, then an error message should be displayed indicating that the account is locked.3. Given a locked account, when the user clicks on a "Forgot Password" link, then they should be directed to a password recovery process.
As a new user, I want to register on the website to access exclusive features and personalized content.	<p>Scenario: Successful Registration Given that I am on the registration page, When I enter valid information (first name, last name, email address, and password), And click on the "Register" button, Then I should receive a confirmation message indicating successful registration.</p> <p>Scenario: Invalid Email Address Given that I am on the registration page, When I enter an invalid email address (e.g., without "@" symbol), And click on the "Register" button, Then I should see an error message indicating that the email address is invalid.</p> <p>Scenario: Existing Email Address Given that I am on the registration page, When I enter an email address that is already registered, And click on the "Register" button, Then I should see an error message indicating that the email address is already in use.</p>

Stories and Acceptance criteria for this Sprint

As a user, I want to view my previous news searches to track the authenticity of the information I have checked.	<p>Scenario: Viewing Search History</p> <p>Given: I am on the home page.</p> <p>When: I navigate to the "Search History" tab.</p> <p>Then: The system should display a list of my previous news searches with relevant details such as date and verification result.</p>
As a user, I want to learn more about the application and its creators to understand its purpose and creators.	<p>Scenario: Accessing About Us Page</p> <p>Given: I am on the home page.</p> <p>When: I navigate to the "About Us" tab.</p> <p>Then: The system should display information about the purpose of the application, its creators, and any other relevant details.</p>
As a user, I want to easily find and access contact information to reach out for support or inquiries.	<p>Scenario: Accessing Contact Page</p> <p>Given: I am on any tab other than "Contact."</p> <p>When: I navigate to the "Contact" tab.</p> <p>Then: The system should display contact information or a form for users to get in touch.</p>





































Test Cases

Coverage (Issues)	Key	Name	Objective	Test Script (Step-by-Step) - Expected Result	Test Script (Step-by-Step) - Step
FNDJL-17	FNDJL-T1	Successful Login	To verify that a user can successfully log in to the web application using valid credentials.	The user should be successfully logged into the application and redirected to the home page.	<ol style="list-style-type: none"> 1. Open the application login page. 2. Enter a valid username in the username field. 3. Enter a valid password in the password field. 4. Click on the "Login" button.
FNDJL-17	FNDJL-T2	Invalid Username	To verify that an error message is displayed when an invalid username is entered during login.	An error message should be displayed indicating that the username is not recognized.	<ol style="list-style-type: none"> 1. Open the application login page. 2. Enter an invalid username in the username field. 3. Enter a valid password in the password field. 4. Click on the "Login" button.
FNDJL-17	FNDJL-T3	Invalid Password	To verify that an error message is displayed when an invalid password is entered during login.	An error message should be displayed indicating that the password is incorrect.	<ol style="list-style-type: none"> 1. Open the application login page. 2. Enter a valid username in the username field. 3. Enter an invalid password in the password field. 4. Click on the "Login" button.
FNDJL-17	FNDJL-T4	Blank Username and Password	To verify that an error message is displayed when both username and password fields are left blank during login.	An error message should be displayed indicating that both username and password are required.	<ol style="list-style-type: none"> 1. Open the application login page. 2. Leave the username field blank. 3. Leave the password field blank. 4. Click on the "Login" button.
FNDJL-17	FNDJL-T5	Locked Account	To verify that an error message is displayed when a user tries to log in with an account that has been locked.	An error message should be displayed indicating that the account is locked.	<ol style="list-style-type: none"> 1. Open the application login page. 2. Enter a valid username with a locked account. 3. Enter a valid password. 4. Click on the "Login" button.
FNDJL-21	FNDJL-T6	Registration - Successful Registration	To verify that a user can successfully register by providing valid information in the registration page.	<p>The System saves the data in backend tables.</p> <p>The system redirects the user to the login page.</p>	<ol style="list-style-type: none"> 1. Open the registration page. 2. Enter a valid first name in the "First Name" field. 3. Enter a valid last name in the "Last Name" field. 4. Enter a valid and unique email address in the "Email Address" field. 5. Enter a secure password in the "Password" field. 6. Click on the "Register" button.
FNDJL-21	FNDJL-T7	Registration - Invalid Email Address	To verify that the registration process fails when an invalid email address is provided.	<p>User receives an error message indicating that the email address is invalid.</p> <p>The system does not proceed with the registration process.</p>	<ol style="list-style-type: none"> 1. Open the registration page. 2. Enter a valid first name in the "First Name" field. 3. Enter a valid last name in the "Last Name" field. 4. Enter an invalid email address (e.g., without "@" symbol) in the "Email Address" field. 5. Enter a secure password in the "Password" field. 6. Click on the "Register" button.

Test Cases

FNDJL-21	FNDJL-T8	Already Registered User	To verify that a user can successfully log in with valid credentials after completing the registration.	User is redirected to the home page or a dashboard, indicating successful login. The system displays the user's information or appropriate content for a logged-in user.	1. Open the login page. 2. Enter the registered email address in the "Email Address" field. 3. Enter the password used during registration in the "Password" field. 4. Click on the "Login" button.
FNDJL-4	FNDJL-T9	Validating News Verification Process	Verify that the system accurately determines the authenticity of news based on the input text.	The system accurately classifies the news as either true or fake. A clear indication of the result is displayed.	1. Enter a valid text input containing more than 50 words and less than 500 words.
FNDJL-4	FNDJL-T10	Text Input Validation	Ensure the system handles text inputs within the specified range.	The system should display an error message indicating that the input is too short.	1. Enter a text input with fewer than 50 words. 2. Click on the "Verify" button.
FNDJL-4	FNDJL-T11	History Display	Confirm that the system accurately displays the user's search history.	The system should show a list of previous news searches with relevant details (date, result, etc.).	Navigate to the "Search History" tab.
FNDJL-4	FNDJL-T12	About Us Information	Ensure the "About Us" tab provides relevant information about the system.	The page should contain information about the purpose, creators, and any other relevant details.	The user is on the "About Us" tab.
FNDJL-4	FNDJL-T13	Contact Page Accessibility	Confirm that users can access the "Contact" tab.	The system should display contact information or a form for users to get in touch.	Navigate to the "Contact" tab.
FNDJL-32	FNDJL-T14	ML model accuracy	Verify that the machine learning model accuracy is above 90%.	The model accuracy should be above 90%.	1. Execute the machine learning model on a test dataset. 2. Record the accuracy of the model.
FNDJL-32	FNDJL-T15	Confusion matrix Accuracy	Confirm that the confusion matrix accuracy is above 90%.	The overall accuracy from the confusion matrix should be above 90%.	1. Generate the confusion matrix using the model on a test dataset. 2. Calculate the overall accuracy from the confusion matrix.
FNDJL-32	FNDJL-T16	F1 Score	Ensure that the F1 score is near 1 for the machine learning model.	The F1 score for each class should be near 1.	1. Execute the machine learning model on a test dataset. 2. Calculate the F1 score for each class. 3. Verify that the F1 score is near 1 for each class.

Stories completed

 FNDJL-4	Create home page		0.5		DONE ▾
 FNDJL-16	Ui Updates		6		DONE ▾
 FNDJL-17	Create Login page		4		DONE ▾
 FNDJL-18	Test Cases		5		DONE ▾
 FNDJL-19	Burndown Chart		5		DONE ▾
 FNDJL-20	Architecture Diagram		-1		DONE ▾
 FNDJL-21	Create Register Page		5		DONE ▾
 FNDJL-22	Create About us Page		-		DONE ▾
 FNDJL-24	Create Verify News Page		-		DONE ▾
 FNDJL-25	Finalize MVP Requirements		-		DONE ▾
 FNDJL-26	Upload source_code on github		-		DONE ▾
 FNDJL-27	Create Product Backlog		-		DONE ▾



Stories not completed

▼ Backlog (3 issues)

 FNDJL-29 Front end to Back end connection

TO DO ▼

 FNDJL-31 History Functionality on home page

TO DO ▼

 FNDJL-32 Backend testing

DELIVERABLE 2

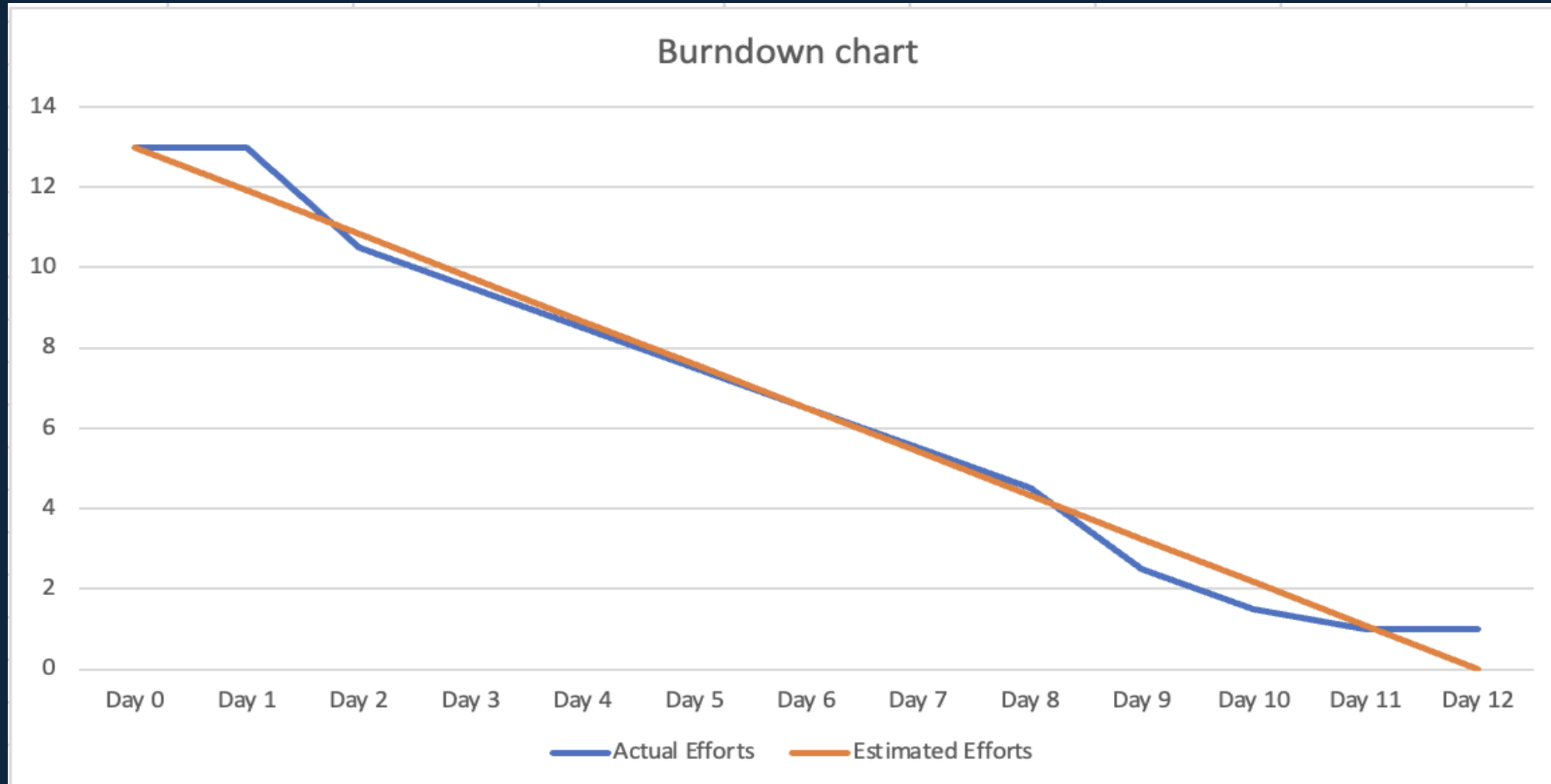
TO DO ▼



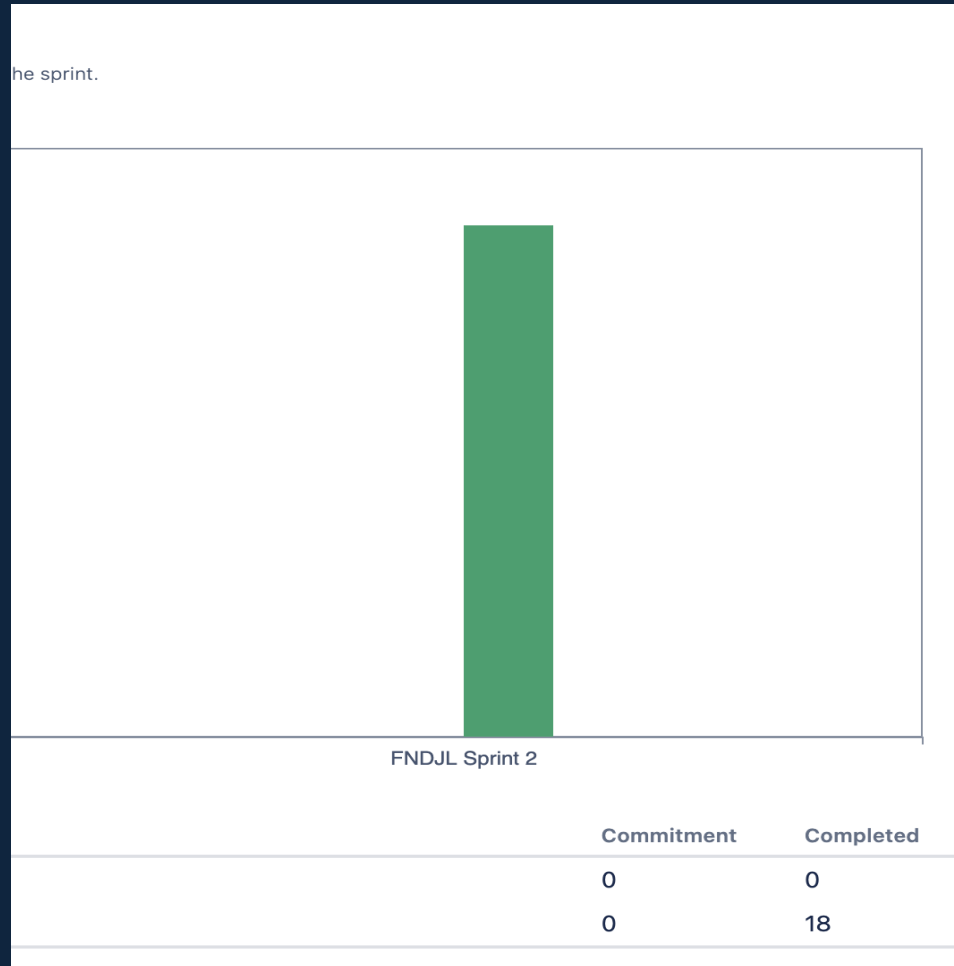
Metrics



Burndown Chart



Team Velocity



Completed/Committed Ratio: 82.01%

MVP(Minimum Valuable Product):

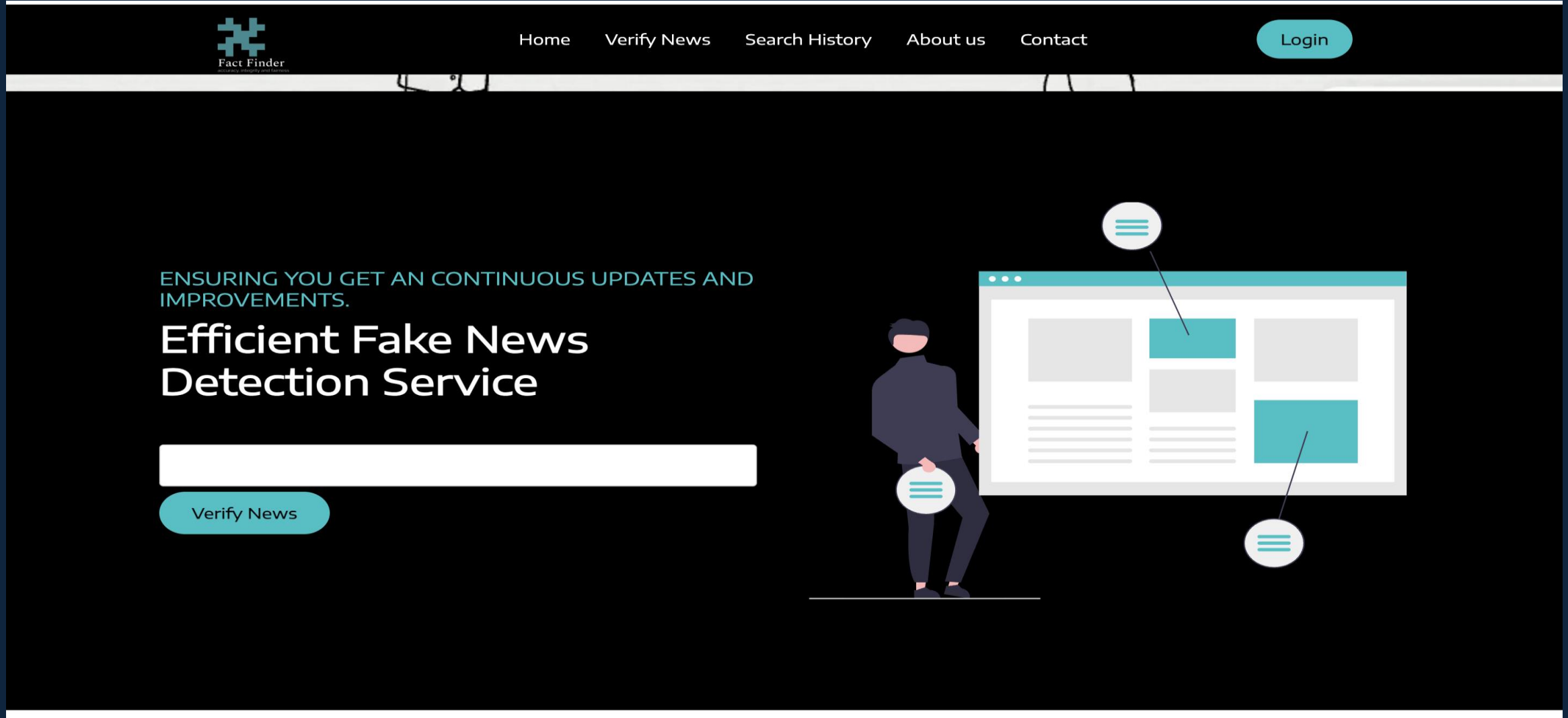
- 1)The user will be able to "Register" before "Login" in the FactFinder website.
- 2) The user will also be able to check news without having Account in FactFinder unless user wants to check his search News History.
- 3) The user can Register with First name, Last name and email-ID and password and should able click on submit button to get register successfully.
- 4) The user should Login with email-ID and password.
- 5) The "Homepage" tab will display a short video of what the Fake news is.
- 6) The user should navigate to "Verify News" tab and post news as a text in the Textbox.
- 7) The user will click on verify news button.
- 8) The system will then generate a response based on our ML model.
- 9) The user will be able to get a response if the news/text posted was Fake or Real.
- 10)The "About us" tab will display explanation of the website, what it does and how it works.



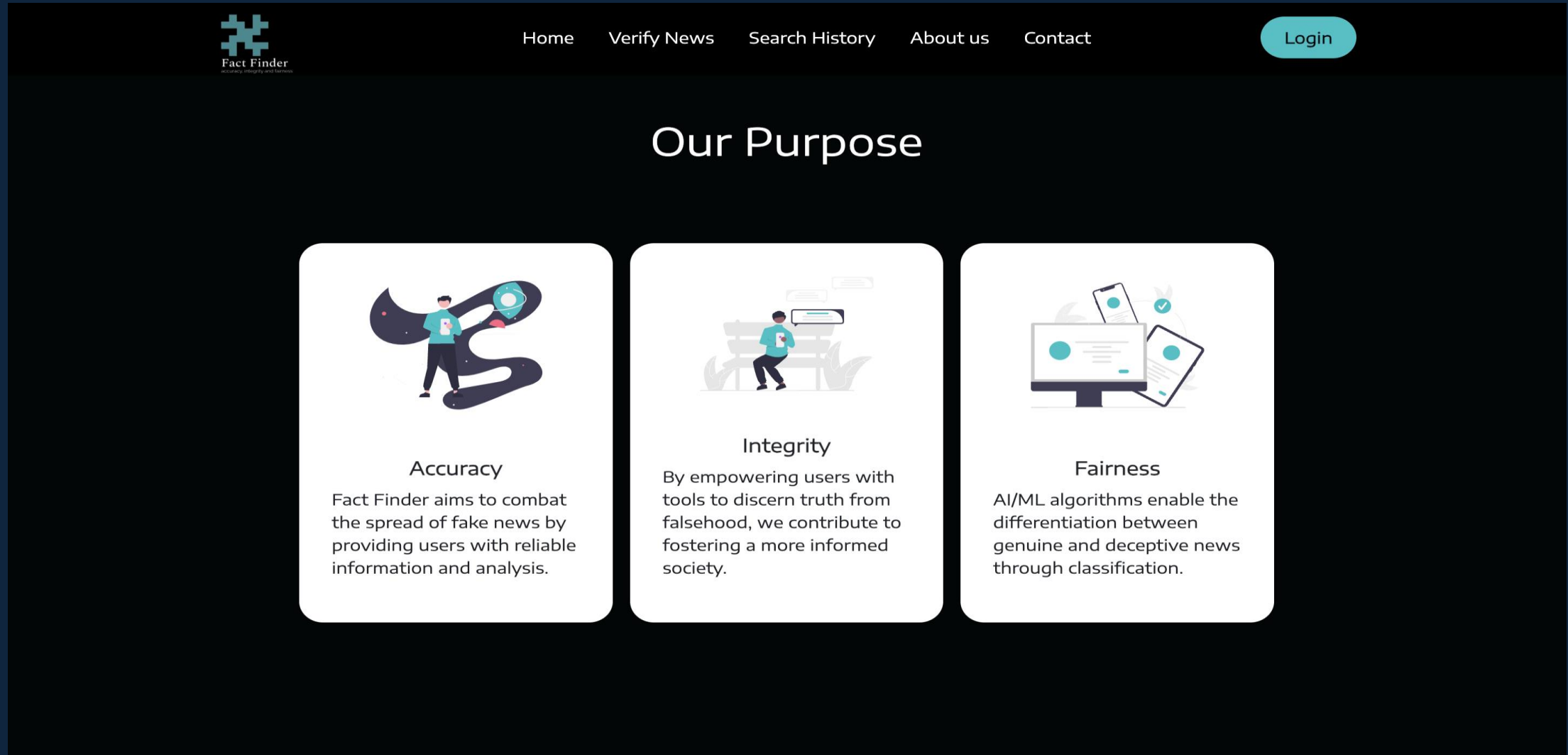
FactFinder website screenshots:




FactFinder website screenshots:



FactFinder website screenshots:



FactFinder website screenshots:



Home Verify News Search History About us Contact [Login](#)

[Close](#)

Register

First Name

Last Name

Email

Password

[Register](#)

Registered Already? [Login](#)

FactFinder website screenshots:

[Home](#)[Verify News](#)[Search History](#)[About us](#)[Contact](#)[Login](#)[Close](#)

Login

Email

Password

Login

New User? [Register](#)

Retrospective



What Went Well

Good Progress on each User Stories

classification model is working

Team meetings

UI problem solving using team collaboration

Development team collaboration

Encouraged new ideas



What Can be improved

Sprint Planning

Everyone should be on same page

Availability of all team members in meeting

Documentation



Actions for the next sprint

frequent team meeting










Keep track of deadlines

Should start working on backend connectivity

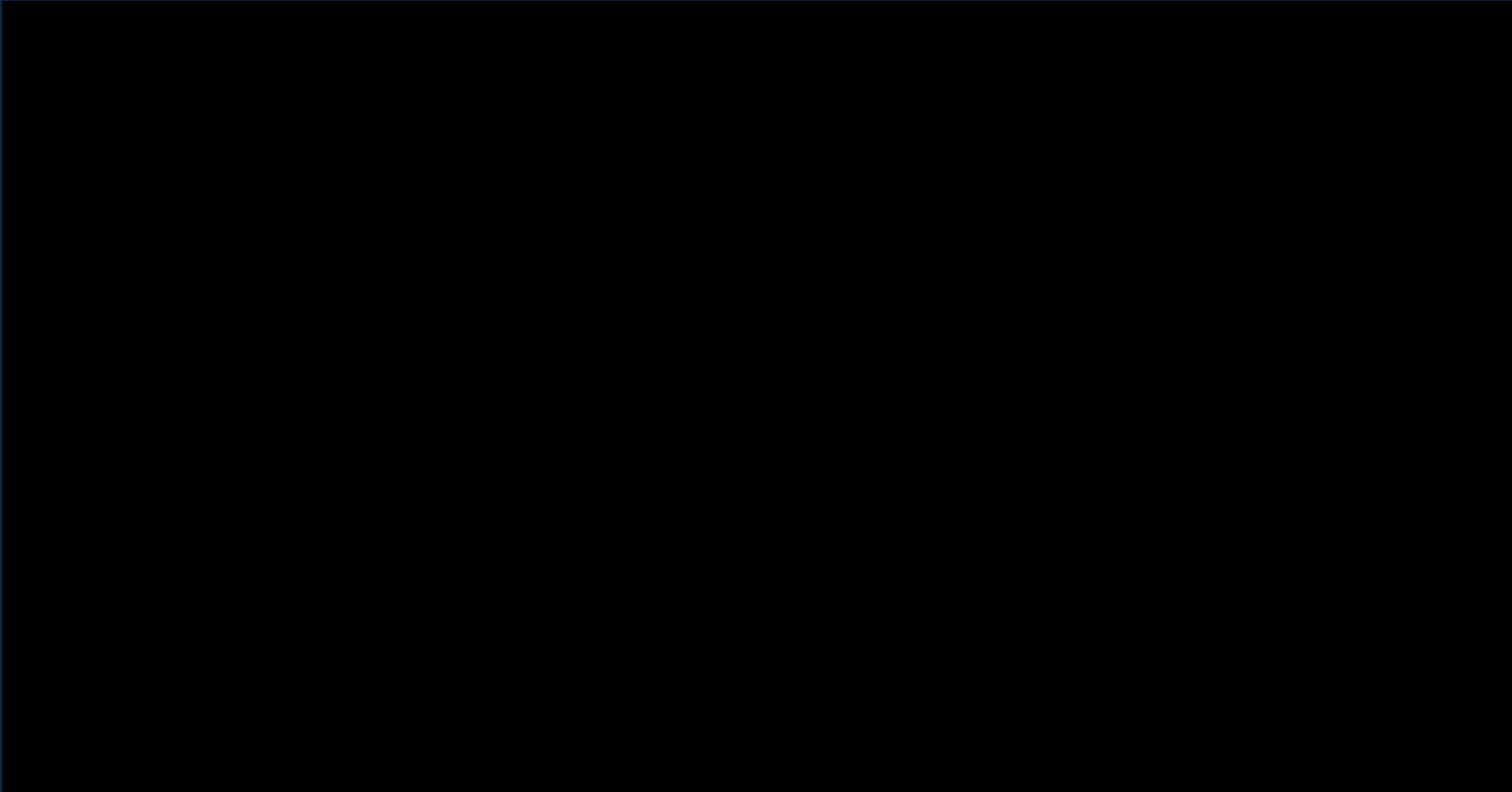
everyone's involvement in meeting for at least 10mins

Need to focus on Web deployment

Sprint 3 planning

 FNDJL-29 Front end to Back end connection	TO DO ▼	-	SS	...
 FNDJL-31 History Functionality on home page	TO DO ▼	-	SS	
 FNDJL-32 Backend testing	TO DO ▼	-	SS	
 FNDJL-33 Implementation of Neural Network model	TO DO ▼	-	SS	
 FNDJL-34 User Database	TO DO ▼	-	SS	
 FNDJL-35 History Database	TO DO ▼	-	SS	
 FNDJL-36 Training Data for model	TO DO ▼	-	SS	
 FNDJL-37 UI updates	TO DO ▼	-	SS	
 FNDJL-38 Home page testing	TO DO ▼	-	SS	

Live Application Demo



Git Hub link:

<https://github.com/htmhw/2024S-JusticeLeague/wiki>



Thank you

Team Justice League

