## Department of Computer Science COSC 4P02 - Software Engineering II WINTER 2025

### AI-Powered Newsletter and Social Media Content Generator

# Release Planning Document

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#### 1 Introduction

Our goal is to develop a SaaS platform that enables users to generate personalized newsletters and social media content. By leveraging advanced AI techniques, we aim to automate content aggregation, summarization, and delivery with customizable templates, ensuring high relevance and multi-platform delivery. With these features and a robust platform design, our goal is to provide users with a user-friendly, reliable, and consistently available service. This document outlines the user stories, product backlogs, sprint backlogs, tools that are used, and contributions of the team members. We aim to provide a comprehensive outline of the release planning document. Lastly, we will discuss the challenges and necessary next steps for the first sprint.

#### 2 User Stories

#### 2.1 User Story 1

ID	Title	Description	Acceptance Criteria	Priority
Scrum - 1	Content Man- agement Dashboard	As a user, I want to be able to access a dashboard to view and manage generated content, track performance, and update preferences, so that I have complete control over my content.	<ul> <li>Display generated content in an organized manner.</li> <li>Allow modification or deletion of generated contents</li> <li>Enable editing of preferences for content generation.</li> <li>Track metrics like views and likes.</li> </ul>	High

#### 2.2 User Story 2

ID	Title	Description	Acceptance Criteria	Priority
Scrum - 2	Custom Content Aggrega- tion	put my preferred news sources, topics, and keywords, so that the		High

# 2.3 User Story 3

ID	Title	Description	Acceptance Criteria	Priority
Scrum - 3		be able to generate email newsletters tai-	• Templates display the contents properly	Medium

# 2.4 User Story 4

ID	Title	Description	Acceptance Criteria	Priority
Scrum - 4	(Pro- Feature) Multi- lingual	As a user, I want to be able to generate content in multiple languages (Pro Feature), so that I can cater to a global audience.	<ul> <li>Content languages are changed to the selected language</li> <li>The UI displays content in correct format and</li> </ul>	Low
			1 · · · · · · · · · · · · · · · · · · ·	

# 2.5 User Story 5

ID	Title	Description	Acceptance Criteria	Priority
Scrum - 5	Summarize Lengthy Articles	the platform to sum- marize lengthy news articles, so that the	<ul> <li>The platform can process a news article and provide a summary.</li> <li>Summarization is accurate and reduces content size.</li> <li>Works across diverse content types.</li> </ul>	High

# 2.6 User Story 6

ID	Title	Description	Acceptance Criteria	Priority
Scrum - 6	(Pro- Feature) API Inte- gration	to integrate the service into my own ap-	<ul><li>API accepts valid input and output parameters</li></ul>	Low

# 2.7 User Story 7

ID	Title	Description	Acceptance Criteria	Priority
Scrum - 7	Multi- Channel Delivery	to be able to send newsletters to email	<ul> <li>Accepts list of emails to share newsletter content</li> <li>Delivers the content properly to emails</li> <li>Able to share within various social media services</li> </ul>	Medium

# 2.8 User Story 8

ID	Title	Description	Acceptance Criteria	Priority
Scrum - 8	Landing Page with Trending Topics	As a user, I want to be able to view trending topics and keywords based on preference so that I can stay updated on the latest news.	the home page  System keeps track	Medium

# 2.9 User Story 9

ID	Title	Description	Acceptance Criteria	Priority
Scrum - 9	User Login and Reg- istration System	As a user, I want to be able to register and login to the system so that I can save my payment information and details.	Database updates prop-	High

# 2.10 User Story 10

ID	Title	Description	Acceptance Criteria	Priority
Scrum - 10	tents to	archive past newslet- ters and social media	• Users can delete saved	Low

# 2.11 User Story 11

ID	Title	Description	Acceptance Criteria	Priority
Scrum - 11	Multi- Format Content Generation	As a user, I want to be able to generate content in different formats so that I can use them for different SNS platforms.	<ul> <li>Content is tailored to platform-specific requirements (e.g., Twitter, LinkedIn)</li> <li>Includes automatic adjustments for word count, tone, and style.</li> <li>Allows preview of generated content for each format.</li> </ul>	Low

# 2.12 User Story 12

ID	Title	Description	Acceptance Criteria	Priority
Scrum - 12		be able to set custom intervals to gener-	• Users can set a cus-	Medium

# 3 Product Backlogs

## 3.1 Scrum - 1

Task	Associated User Stories	Priority
Create Profile page, Dashboard view, Archive News (HTML Pages)	Scrum-1	High
Create backend logic for managing generated content	Scrum-1	High
Create backend logic for updating preferences	Scrum-1	High
Store preferences to the database	Scrum-1	High
Store generated content to database for later use	Scrum-1	Medium

### 3.2 Scrum - 2

Task	Associated User Stories	Priority
Create input fields for sources, topics, and keywords	Scrum-2	High
Scrap relevant keywords and topics-based news from the news sources or default sources	Scrum-2	High
Develop backend logic for content aggregation	Scrum-2	High
Implement a database to store user preferences	Scrum-2	Medium

### 3.3 Scrum - 3

Task	Associated User Stories	Priority
Design and develop the template selection interface (grid/list view with preview options)	Scrum-3	High
Allow users to select content preferences, including topics, tone, and layout styles	Scrum-3	Medium
Implement functionality to apply selected templates to generated content dynamically	Scrum-3	Medium
Create an option to save and reuse custom templates	Scrum-3	Low
Conduct testing to ensure templates are correctly applied and formatted	Scrum-3	High
Display personalized content within the templates	Scrum-3	Medium

### 3.4 Scrum - 4

Task	Associated User Stories	Priority
Create a menu section to select language	Scrum-4	Low
Users selects languages from selection menu to generate content in selected language	Scrum-4	Low
Test language selection working properly	Scrum-4	Low

### 3.5 Scrum - 5

Task	Associated User Stories	Priority
Implement article summarization using LLM by prompt	Scrum-5	High
Integrate summarization LLM API into the backend	Scrum-5	High
Test summarization for samples	Scrum-5	Medium
Develop UI for summarization	Scrum-5	Medium

### 3.6 Scrum - 6

Task	Associated User Stories	Priority
Design and Document API endpoints	Scrum-6	Medium
Develop an authentication mechanism for authorized use only	Scrum-6	High
Develop API backend logic	Scrum-6	High
Test and validate API functionality	Scrum-6	High

### 3.7 Scrum - 7

Task	Associated User Stories	Priority
Create a form to send the newsletter content using a list of emails	Scrum-7	Medium
Create options for users to modify emails, such as add or remove	Scrum-7	Medium
Create an option to share it with social media	Scrum-7	Medium
Develop backend logic to send emails and to share it with social media	Scrum-7	Medium

## 3.8 Scrum - 8

Task	Associated User Stories	Priority
Create logic to get trending topics from one of the social media/valid online sources	Scrum-8	Medium
Store the trending topics in a database	Scrum-8	Medium
Generate news using the trending topics	Scrum-8	Medium
Show the trending topics in the home page / landing page	Scrum-8	Medium

### 3.9 Scrum - 9

Task	Associated User Stories	Priority
Create a registration and login web interface	Scrum-9	High
Create form fields for login and registration	Scrum-9	High
Validate inputs for the forms	Scrum-9	High
Create database to store users data	Scrum-9	High
Create authentication system for users to login	Scrum-9	High

### 3.10 Scrum - 10

Task	Associated User Stories	Priority
Create an archive section in the dashboard.	Scrum-10	Low
Allow users to search and filter archived content.	Scrum-10	Low
Provide an option to export archived content.	Scrum-10	Low

### 3.11 Scrum - 11

Task	Associated User Stories	Priority
Investigate SNS formatting requirements	Scrum-11	Low
Create content templates for different SNS	Scrum-11	Medium
Implement preview function for contents	Scrum-11	Medium
Create content sharing functionality	Scrum-11	Medium

## 3.12 Scrum - 12

Task	Associated User Stories	Priority
Design the scheduling interface for content generation settings	Scrum-12	High
Implement UI to display, edit, and delete scheduled intervals	Scrum-12	High
Implement backend logic to store and manage user-defined scheduling intervals	Scrum-12	High
Develop automation logic to generate content at the specified intervals	Scrum-12	Medium
Conduct testing to ensure proper scheduling and content generation	Scrum-12	Medium

# 4 Sprint Backlogs

# 4.1 Sprint 1

Sprint 1	Tasks
Create a registration and login page	Scrum-9
Create form fields for login and registration	Scrum-9
Validate inputs for the forms	Scrum-9
Create database to store users data	Scrum-9
Create authenticate system for users to login	Scrum-9
Create Profile page, Dashboard view, Archive News (HTML Pages)	Scrum-1
Create backend logic for managing generated content	Scrum-1
Create backend logic for updating preferences	Scrum-1
Store preferences to the database	Scrum-1
Store generated content to database for later use	Scrum-1
Create input fields for sources, topics, and keywords	Scrum-2
Scrap relevant keywords and topics-based news from the news sources or default sources	Scrum-2
Develop backend logic for content aggregation	Scrum-2
Implement a database to store user preferences.	Scrum-2

#### 4.1.1 Sprint 1 Testing

After every sprint we will be testing each functionality. In sprint 1 we will be testing functionalities like, input validation, user registering properly, user are authenticated before login, landing on correct user profile after login, and various other front-end and back-end functionalities.

#### 4.2 Sprint 2

Sprint 2	Tasks
Design and develop the template selection interface (grid/list view with preview options).	Scrum-3
Allow users to select content preferences, including topics, tone, and layout styles.	Scrum-3
Implement functionality to apply selected templates to generated content dynamically.	Scrum-3
Create an option to save and reuse custom templates.	Scrum-3
Conduct testing to ensure templates are correctly applied and formatted	Scrum-3
Display personalized content within the templates.	Scrum-3
Implement article summarization using LLM by prompt	Scrum-5
Integrate summarization LLM API into the backend	Scrum-5
Test summarization for samples	Scrum-5
Develop UI for summarization	Scrum-5

#### 4.2.1 Sprint 2 Testing

In this sprint, we will conduct unit testing for web page routing to ensure that the web pages display correctly. We will also test functionalities such as template selection and verify that templates are dynamically populated as expected. Additionally, we will test the summarization capabilities of the LLMs sample. Finally, UI testing will be performed to ensure proper user interface functionality.

#### 4.3 Sprint 3

Sprint 3	Tasks
Create logic to get trending topics from one of the social media/valid online sources.	Scrum-8
Store the trending topics in a database	Scrum-8
Generate news using the trending topics	Scrum-8
Show the trending topics in the home page / landing page	Scrum-8
Create a form to send the newsletter content using a list of emails	Scrum-7
Create options for users to modify emails, such as add or remove	Scrum-7
Create an option to share it with social media	Scrum-7
Develop backend logic to send emails and to share it with social media.	Scrum-7

#### 4.3.1 Sprint 3 Testing

Sprint 3 testing will focus on ensuring that trending topics are successfully retrieved, form validation works correctly, newsletters are properly received based on email lists, and content is correctly shared on social media. We will also verify that trending topics are stored and retrieved properly, with content validation based on these topics. All tests will be conducted using unit testing, unless otherwise specified.

#### 4.4 Sprint 4

Sprint 4	Tasks
Investigate SNS formatting requirements	Scrum-11
Create content templates for different SNS	Scrum-11
Implement preview function for contents	Scrum-11
Create content sharing functionality	Scrum-11
Design the scheduling interface for content generation settings	Scrum-12
Implement UI to display, edit, and delete scheduled intervals.	Scrum-12
Implement backend logic to store and manage user-defined scheduling intervals	Scrum-12
Develop automation logic to generate content at the specified intervals	Scrum-12
Conduct testing to ensure proper scheduling and content generation.	Scrum-12

#### 4.4.1 Sprint 4 Testing

Sprint 4 testing will focus on validating correct formatting, ensuring templates are visible, testing the preview functionality, and verifying content sharing. Additionally, it will include testing for scheduled content sharing and generation, as well as other back-end functionalities.

#### 4.5 Sprint 5

Sprint 5	Tasks
Create a menu section to select language.	Scrum-4
Users selects languages from selection menu to generate content in selected language	Scrum-4
Test language selection working properly	Scrum-4
Create an archive section in the dashboard.	Scrum-10
Allow users to search and filter archived content.	Scrum-10
Provide an option to export archived content.	Scrum-10
Design and Document API endpoints	Scrum-6
Develop an authentication mechanism for authorized use only	Scrum-6
Develop API backend logic	Scrum-6
Test and validate API functionality	Scrum-6

#### 4.5.1 Sprint 5 Testing

Sprint 5 will focus on UI testing, API backend functionality testing, and verifying backend functions, such as ensuring that user searches generate correct outputs and content is properly exported.

#### 5 Tool Screenshots

#### 5.1 Story Backlogs

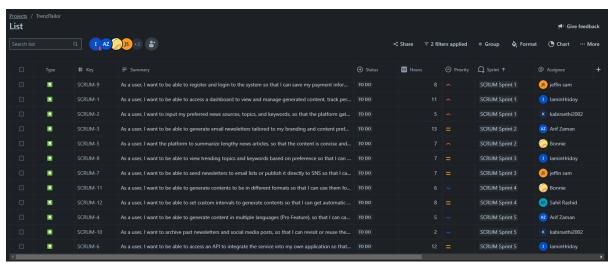


Figure 5.1: SCRUM Story Backlogs

#### 5.2 Sprint Backlogs

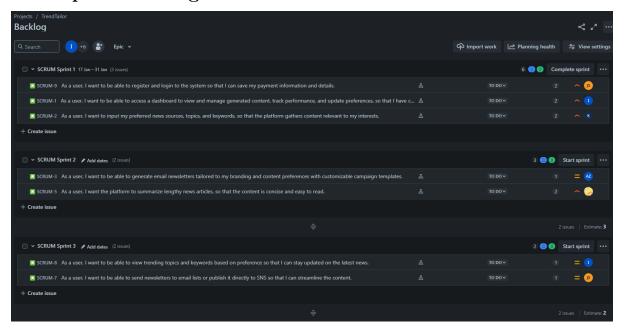


Figure 5.2: SCRUM Sprint Backlogs 1

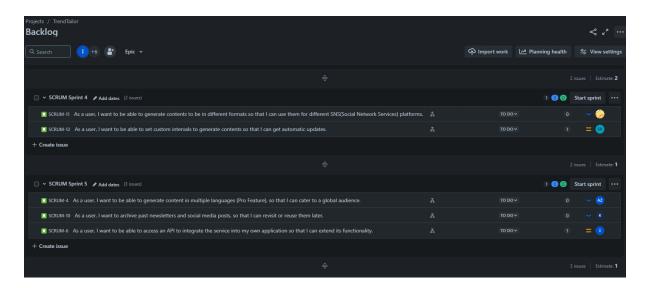


Figure 5.3: SCRUM Sprint Backlogs 2

#### 5.3 Product Backlogs

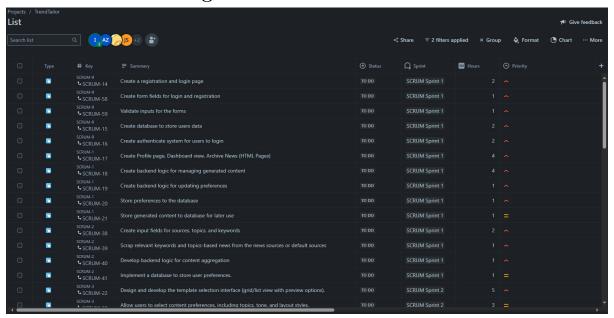


Figure 5.4: SCRUM Product Backlogs 1

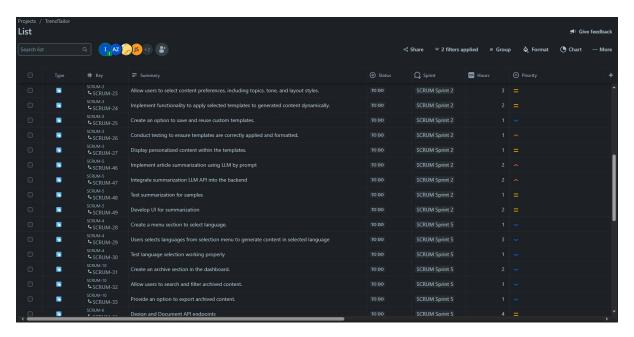


Figure 5.5: SCRUM Product Backlogs 2

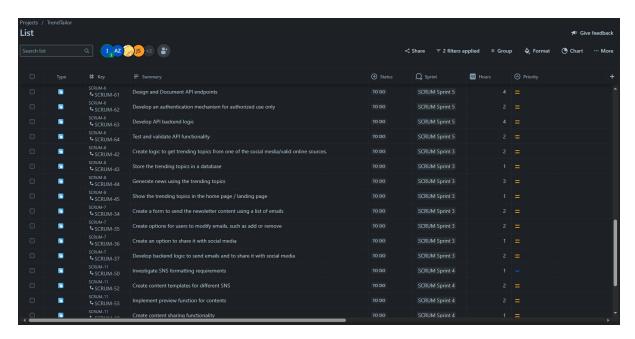


Figure 5.6: SCRUM Product Backlogs 3

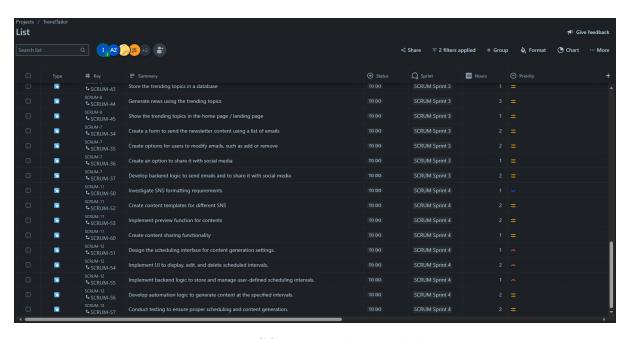


Figure 5.7: SCRUM Product Backlogs 4

### 5.4 Subtasks Priority Breakdown



Figure 5.8: SCRUM Subtasks Priority Breakdown

### 6 Team Contributions

Team Member	Contributions
Hridoy Rahman	Created GitHub repository, SCRUM board. Wrote proposal and release planning reports, managed SCRUM board, managed product backlogs, created user stories, substasks, and refined product backlog.
Arifuzzaman	Wrote and refined proposal and release planning reports, helped with SCRUM board setup, scheduled meetings, communications, managed product backlogs, refined product backlog, proof-read reports, ensured agile methodology followed.
Kabir Sethi	Contributed to project proposal writing and project release planning, story writing, task creations, Managed Jira boards.
Sahil Rashid	Contributed to project release planning, story writing, task creations, Added subtask to Jira Board.
Yuanhan Huang	Contributed to project release planning, story writing, task creations, refined stories, Added subtask to Jira Board.
Jeffin Sam Joji	Contributed to project release planning, story writing, task creations, refined stories, Added subtask to Jira Board.

#### 7 Challenges and Next Steps

One of the greatest challenges for this project is consistently scraping websites. However after researching, we found that python's scrapy and beautifulsoup library will be helpful for consistent data scraping. Furthermore, we will use a few default websites, we also intend to integrate connecting API endpoints with others, getting free allocated API calls. One of the unclear requirements was developing an API backend, however after researching a bit we found we can develop an API endpoints for our web app.

Our next course of action is to follow the plan we created. Create a base for our project and develop Sprint 1 within the allocated time and if needed we will be refining our sprint backlog. Additionally, we will be performing unit testing after each of the Sprints. Based on first sprint we will be deciding our team's velocity for the project and adjust the upcoming sprints accordingly. After ending Sprint 2, we should be able to develop the base idea of the project. Furthermore, Sprint 3, 4, and 5 mostly garnishes the base website.

#### 8 Appendices

#### 8.1 Brief Meeting Discussions:

We held two meetings to plan and refine the release planning of our product. On January 13th, we convened to outline the initial release plan. The following day, we met with the professor and TA to review our initial plan. Afterward, each team member was tasked with breaking down the user stories into tasks and subtasks.

Our next meeting took place on January 17th, where we collaboratively reviewed all the user stories and subtasks. We brainstormed to ensure the user stories and subtasks were actionable and aligned with Agile Scrum Methodology, which has been and will continue to be followed throughout the development process. During this meeting, we finalized the user stories and subtasks and discussed testing strategies and potential challenges, which are included in this document.

#### 8.2 Screenshots

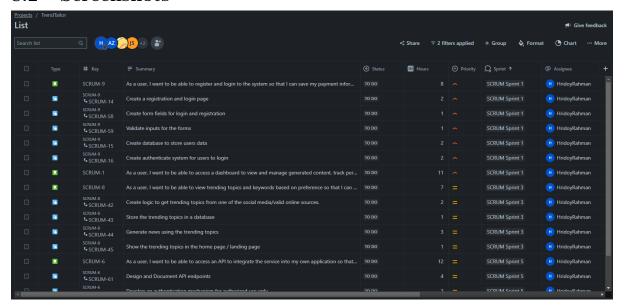


Figure 8.1: Contribution from Hridoy

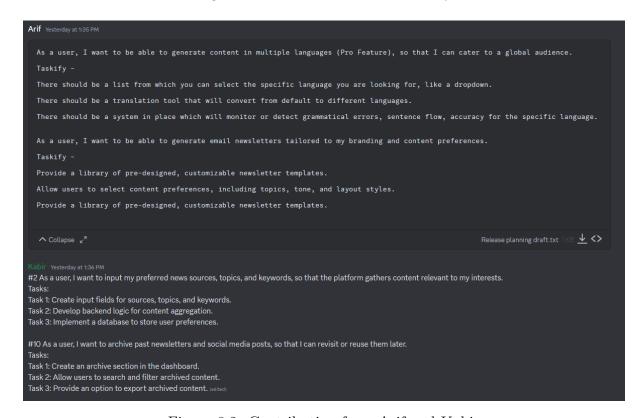


Figure 8.2: Contribution from Arif and Kabir

```
User Story 12: As a user, I want to be able to set custom intervals to generate content so that I can get automatic updates.
Task 1: Design the scheduling interface for content generation settings.
Task 2: Implement backend logic to store and manage user-defined scheduling intervals.
Task 3: Develop automation logic to generate content at the specified intervals.
Task 4: Implement UI to display, edit, and delete scheduled intervals.
Task 5: Conduct testing to ensure proper scheduling and content generation.
User Story 13: As a user, I want to be able to generate content using custom templates so that I can select the most suitable design.
Task 1: Design and develop the template selection interface (grid/list view with preview options).
Task 2: Implement functionality to apply selected templates to generated content dynamically.
Task 3: Create an option to save and reuse custom templates.
Task 4: Conduct testing to ensure templates are correctly applied and formatted.
S-5 As a user, I want the platform to summarize lengthy news articles, so that the content is concise and easy to read.
T1: Implement article summarization using LLM by prompt. (high)
T2: Integrate summarization LLM API into backend. (high)
T3: Test summarization for samples. (medium)
T4: Develop UI for summarization. (low)
S-11 As a user, I want to be able to generate content in different formats so that I can use them for different SNS platforms.
T1: Investigate SNS formatting requirements. (high)
T2: Create templates for different SNS. (high)
T3: Implement preview function for contents. (medium) (edited)
Sorry guys i'm in libarary now it's a little noisy, i will mute but im here
1. As a user, I want to be able to register and login to the system so that I can save my payment information and details.
Task: Create or update the User model/schema to include payment information (e.g., credit card number, billing address, etc.).
Task: Implement registration endpoint/controller (e.g., /register).
Task: Implement login endpoint/controller (e.g., /login).
Task: Develop HTML/CSS/JavaScript pages for registration and login.
```

Figure 8.3: Contribution of User Stories from Sahil, Yuanhan, Jeffin