Frontend Development with React.js

InsightStream: Navigate the News

Introduction

Project Title: InsightStream:Navigation the News

Team Members:

- S.Keethana –Team Leader
- S.Sandhiya –Team Member
- R.Sahanamary – Team Member
- K.Srikanth – Team Member

Project Overview

Purpose

InsightStream is an innovative **web-based news application** designed to revolutionize the way users access, explore, and consume news. By leveraging **cutting-edge technologies** and an intuitive user interface, it provides a seamless and highly interactive experience.

Unlike traditional news platforms, InsightStream goes beyond static articles by offering **dynamic search features, categorized news exploration, and personalized content**. Whether users are casual readers, journalists, or researchers, the platform ensures **quick access to the latest updates from credible sources** through **real-time API integrations**.

Features

- **News from API Sources**: Fetches news articles from external APIs using Rapid API integration.
- **Visual News Exploration**: Presents news with images and categorized sections for easy navigation.
- **Advanced Search Feature**: Enables users to find news articles based on keywords and specific topics.
- **User-Friendly Design**: Provides an intuitive UI for smooth browsing and interaction.
- **Subscription Feature**: Users can subscribe to receive daily news updates.
- **Dark Mode**: Allows users to switch between light and dark themes for better readability.
- **Commenting System**: Users can engage in discussions on news articles.
- **User Authentication**: Enables personalized news feeds and saved articles.

Architecture

Component Structure

- **Pages Folder**: Stores files for different routes, such as Home, Categories, Search Results, and Article Pages.
- **Components Folder**: Contains reusable components like Navbar, Hero Section, News Cards, Search Bar, and Footer.
- **Context Folder**: Handles global state management using Context API.
- **Styles Folder**: Contains CSS files for styling the application.
- **Assets Folder**: Stores images, icons, and static resources.

State Management

- **Global State**: Managed using Context API to ensure efficient data sharing across components.
- **Local State**: Managed using React's useState and useEffect hooks to optimize rendering.

Routing

- Uses **React Router Dom** to navigate between different pages seamlessly.

Setup Instructions

Prerequisites

To run the InsightStream application, install the following:

- **Node.js & npm**: [Download here](#)
- **Git**: [Download here](#)
- **Code Editor** (Recommended: Visual Studio Code): [Download here](#)

Installation Steps

1. **Clone the repository**:

   git clone [repository link]

2. **Navigate to the project directory**:

   cd news-app-react

3. **Install dependencies**:

npm install

4. **Run the application**:

npm start

Open a browser and visit https://github.com/Keerthanaselvam26/News_app.git

---

Component Documentation

Key Components

- **Navbar**: Provides easy navigation across the application.
- **Hero Section**: Displays trending news and a search bar.
- **Category Cards**: Highlights different news categories for quick access.
- **News List**: Fetches and displays relevant news articles dynamically.
- **Article Page**: Presents full news articles fetched from the API.
- **Subscription Section**: Allows users to subscribe to daily updates.

Reusable Components

Reusable Components

1. **Button**
   - A standard button component for interactive elements.
   - Used across different pages for actions like **"Read More," "Subscribe," and "Search."**
   - Supports different styles and sizes.

     Stored in: **/components/Button.js**
     Image Reference: **/folder_name/button.png**

2. **SearchBar**
   - Provides search functionality to find articles quickly.
   - Allows users to enter keywords and fetch relevant news.
   - Works in sync with **News List and Category Pages**.

     Stored in: **/components/SearchBar.js**
     Image Reference: **/folder_name/search_bar.png**

3. **NewsCard**
   - Displays individual news articles in a structured format.
   - Includes **title, thumbnail image, summary, and a "Read More" button**.
   - Enhances user experience with an interactive layout.

*Stored in: **/components/NewsCard.js***
*Image Reference: **/folder_name/news_card.png***

Styling

CSS Frameworks and Libraries

- **Tailwind CSS**: For modern and responsive styling. [Learn more](#)
- **React Icons**: Provides a collection of UI icons.

Testing Strategy

Unit Testing

- Uses **Jest** and **React Testing Library** to validate individual components and functionalities.

Integration Testing

- Tests API calls and UI interactions to ensure smooth user experience.

Project Execution Plan

Milestone 1: Project Setup

- Install necessary tools and dependencies.
- Set up the project structure and routing paths.

Milestone 2: Development

- Develop **Navbar** and **Hero** components.
- Fetch and display trending news.
- Implement category-based news navigation.
- Add the subscription section and footer.
- Build the category page to filter news articles.

API Integration

Fetching Trending News

```
const fetchTopNews = async () => {
  try {
    const response = await
axios.get('https://newsapi.org/v2/everything?q=popular&apiKey=YOUR_API_KEY');
    return response.data.articles;
  } catch (error) {
    console.error('Error fetching news:', error);
  }
};
```

Fetching News by Category

```
const fetchCategoryNews = async (category) => {
  try {
    const response = await axios.get(`https://newsapi.org/v2/top-
headlines?category=${category}&apiKey=YOUR_API_KEY`);
    return response.data.articles;
  } catch (error) {
    console.error('Error fetching news:', error);
  }
};
```

Future Enhancements

- **User Authentication**: Enabling personalized news feeds.
- **AI-based News Summarization**: Automatically generating summaries for lengthy articles.
- **Enhanced User Interactions**: Implementing features like likes, comments, and social sharing.
- **Offline Mode**: Allowing users to save articles for offline reading.

Known Issues

- **API Rate Limits**: Some articles may be unavailable due to API restrictions.
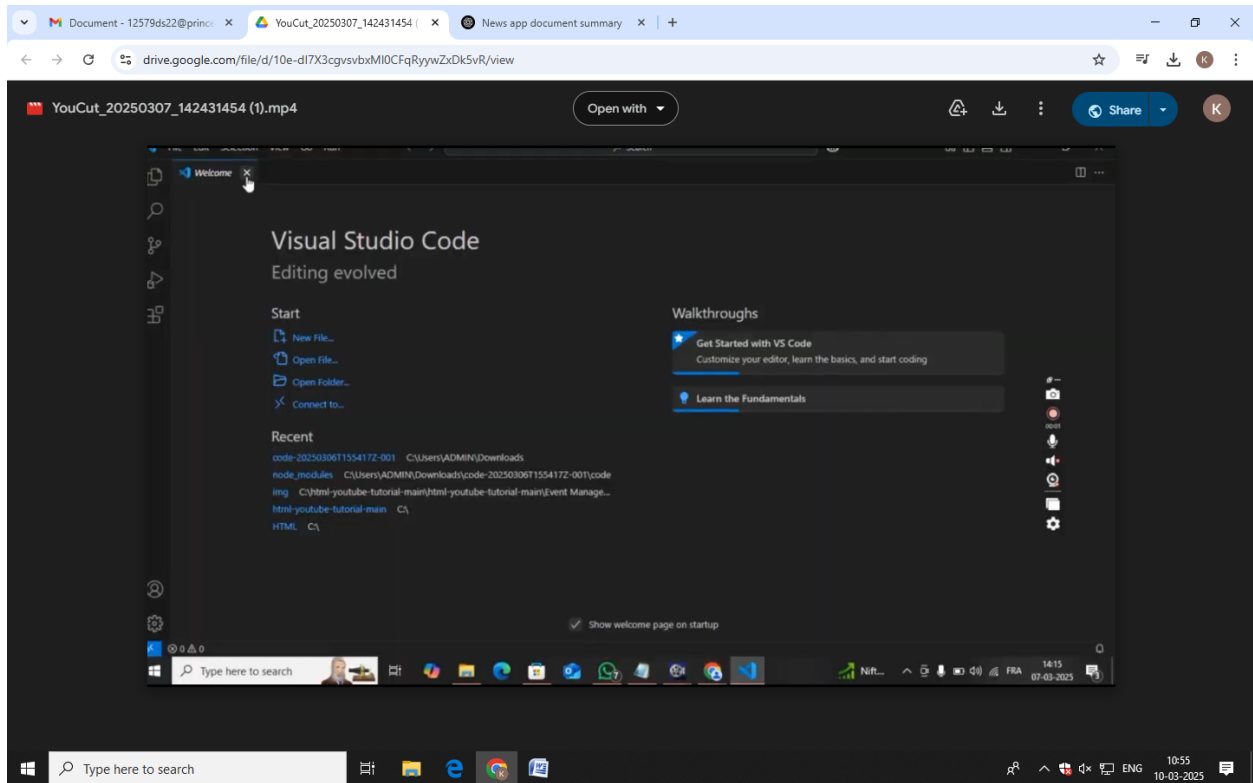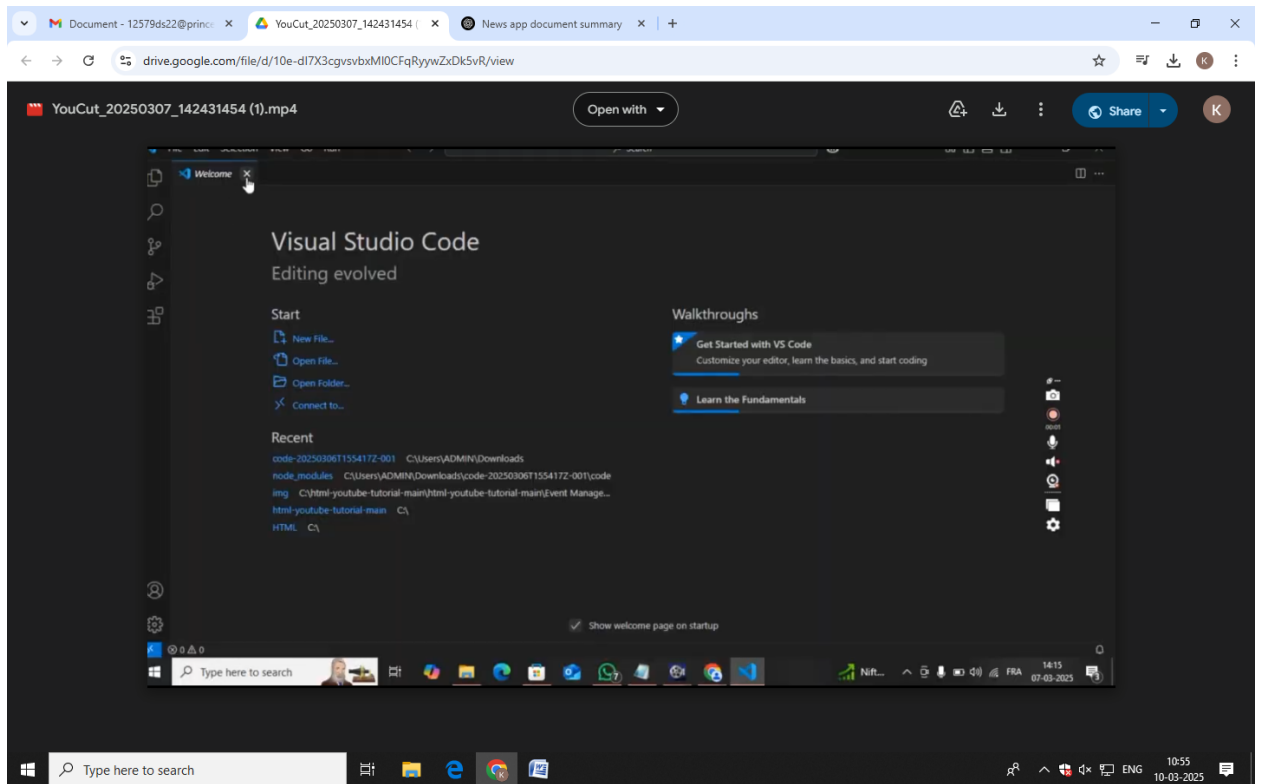- **Image Loading Issues**: Certain news sources may not provide images.
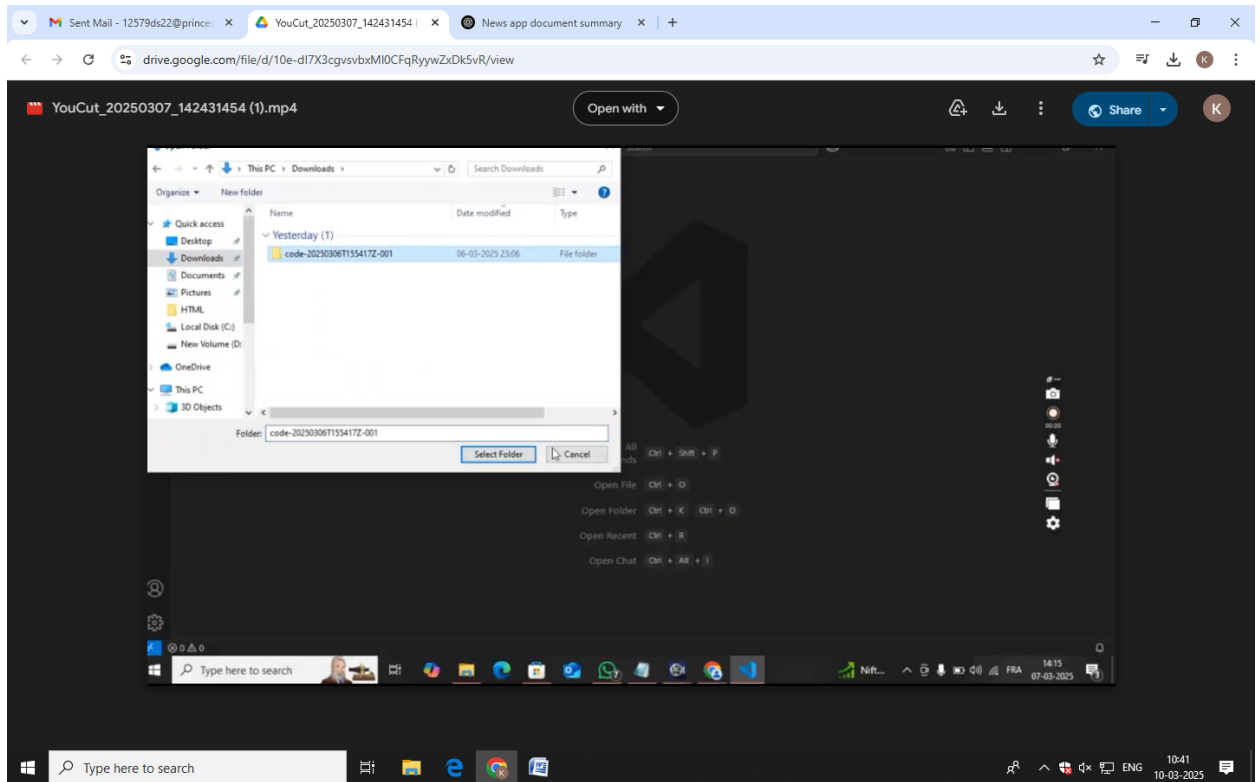

Project Demo

Watch the project demo here:

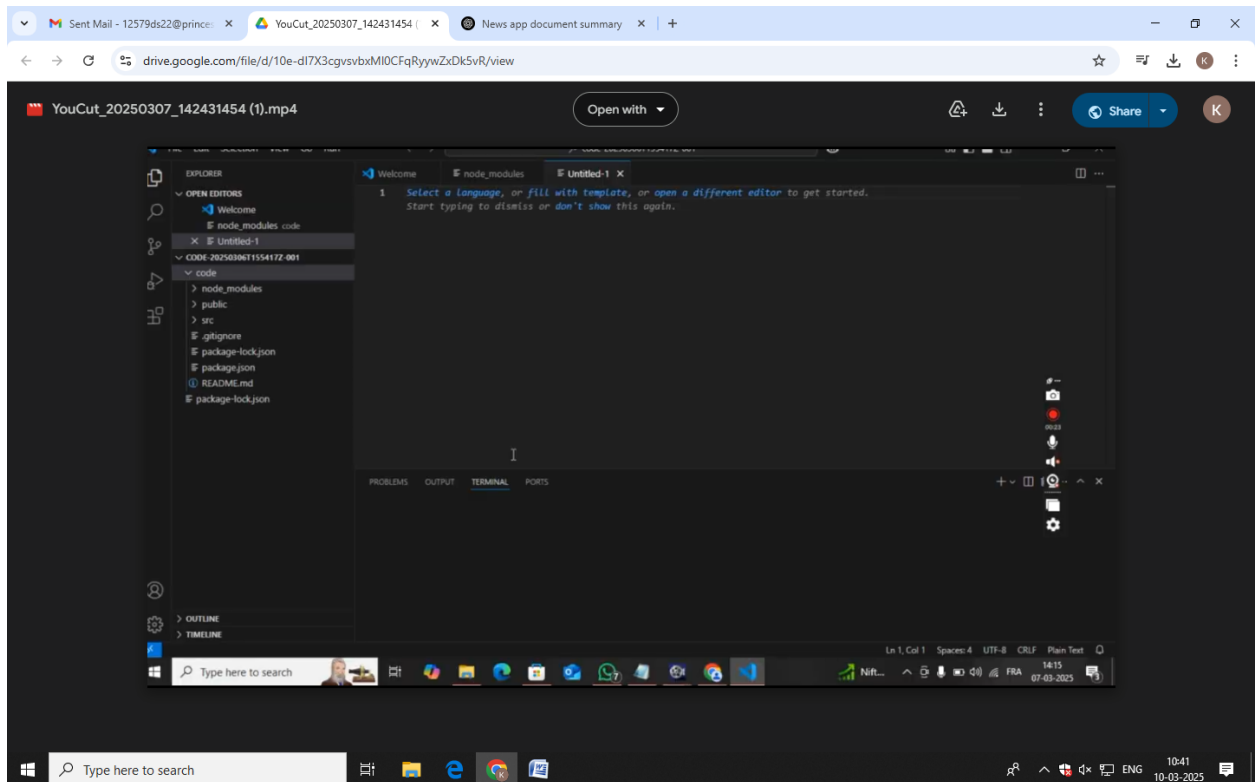https://drive.google.com/file/d/1GyWvFN1Ch_VnN6MbD2DB2ESRIeLX0QMl/view?usp=drivesdk

SCREEN SHOT:

STEP 1
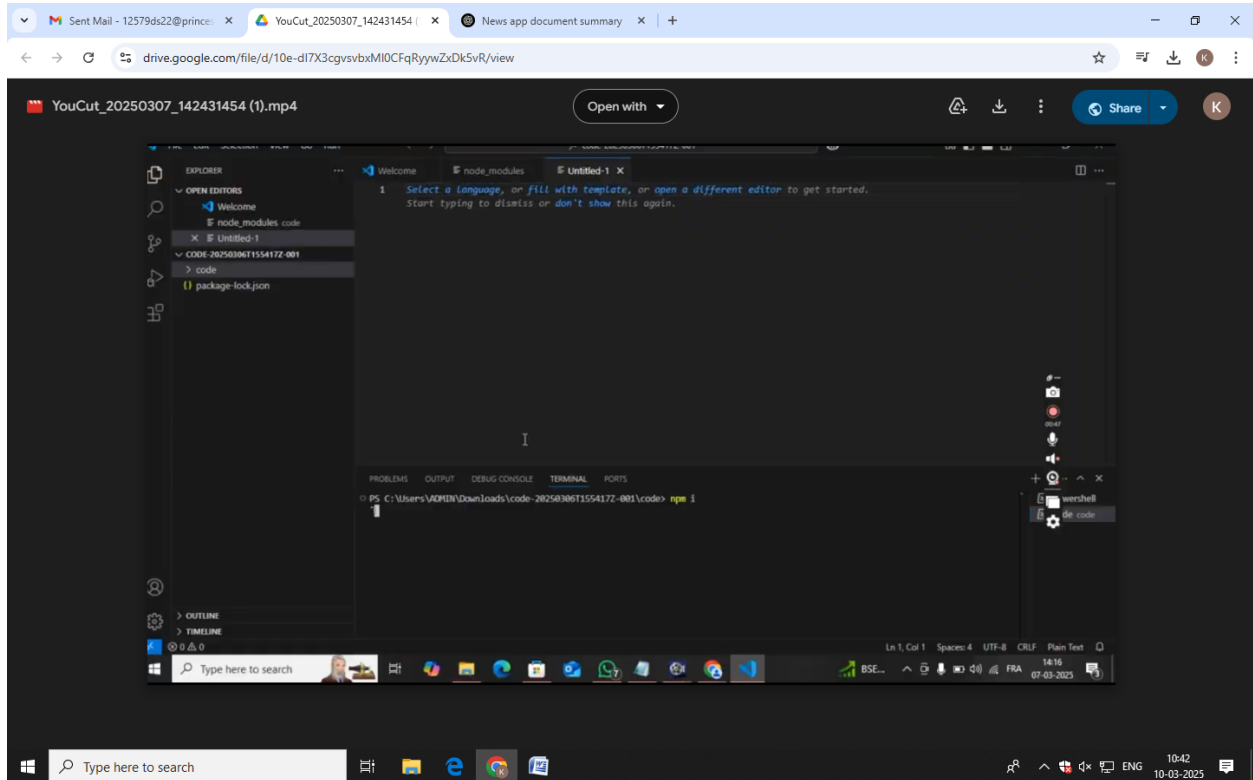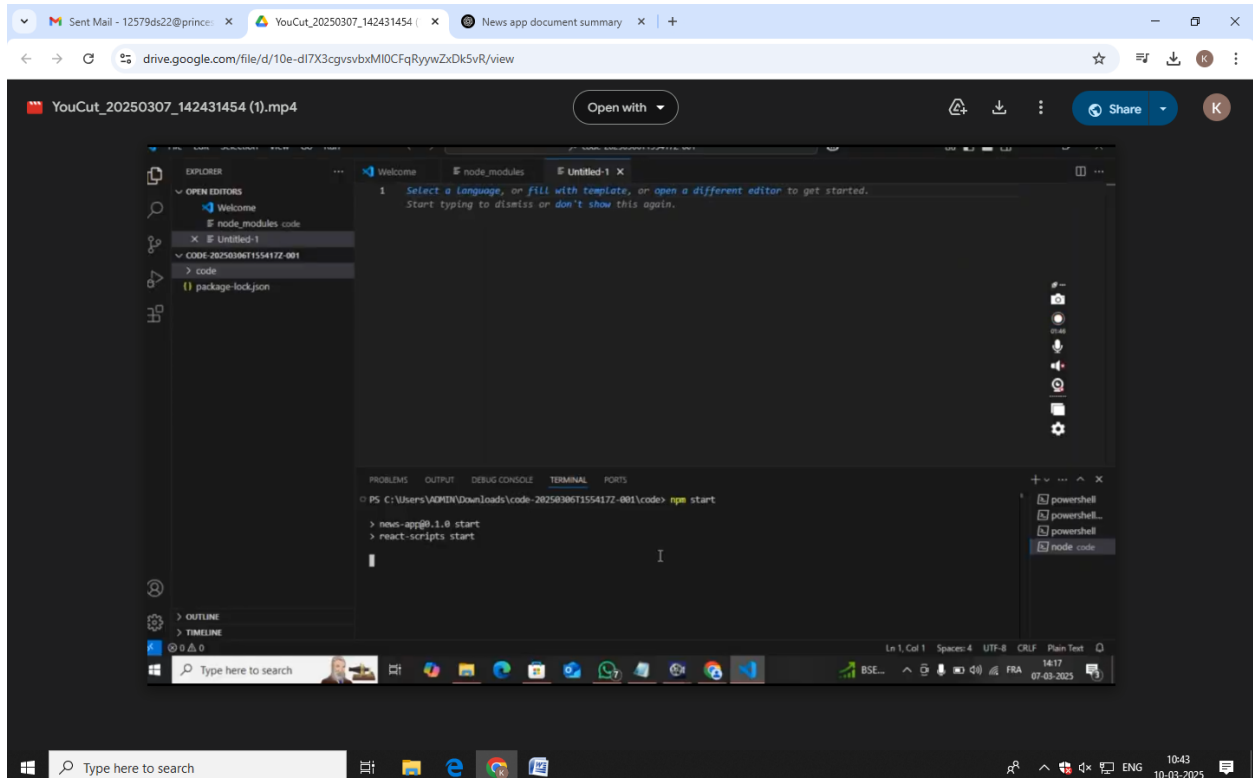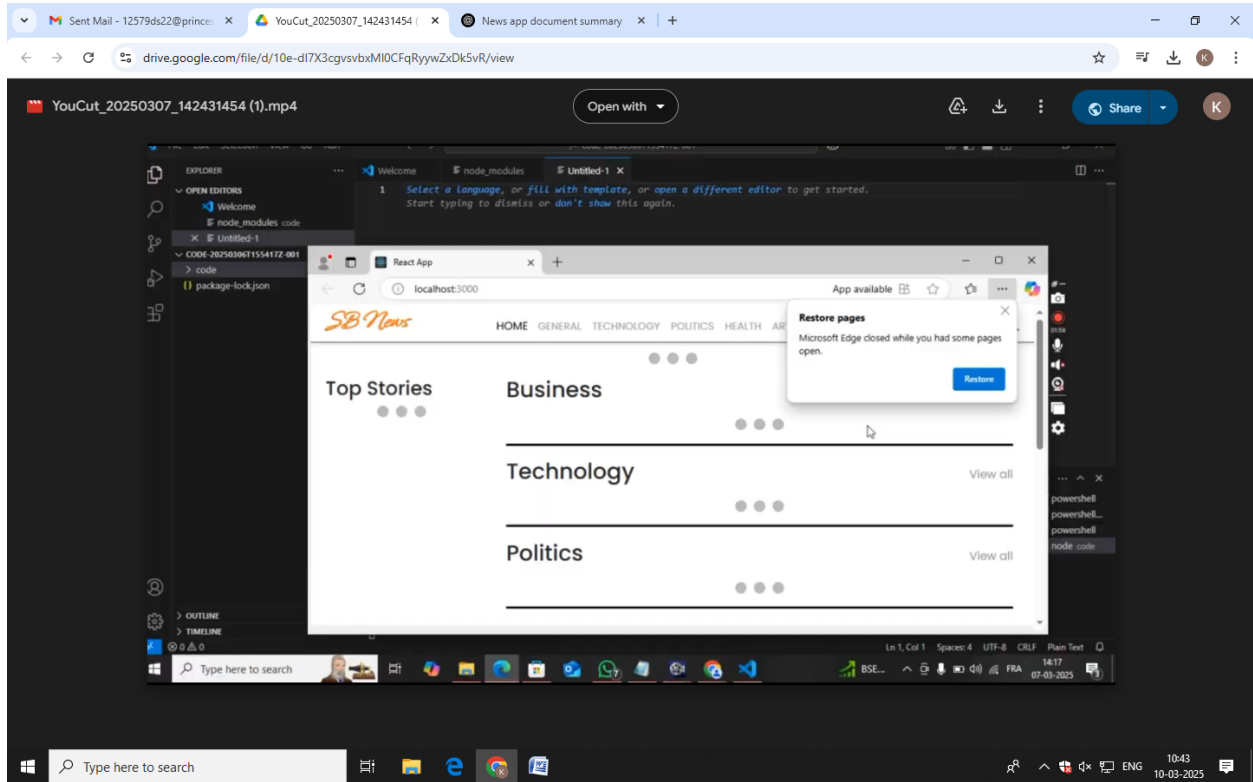
STEP 3:

STEP 3:

STEP 4:

STEP 5:

Conclusion

InsightStream is a next-generation news platform that provides a seamless, user-friendly, and dynamic news consumption experience. With ongoing enhancements, it aims to be the go-to application for staying informed in real-time.