

Final Project Proposal
Team 3

NewsVerse

Software Engineering
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CS 673 A1



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Title

NewsVerse

Purpose

The purpose of this application is to create an unbiased news platform where users can access a diverse array of sources, ensuring they receive a well-rounded view of current events. It can be referred to as unbiased as we are deriving the news from different sources. We plan to use AI semantic analysis on the news and filter it on the basis of biased or unbiasedness. By aggregating content from different APIs, the app delivers comprehensive news coverage across various categories such as national headlines, business, sports, international relations, weather, stock markets, technology, and art. With live updates and personalized content, users can stay informed on the topics that matter most to them, fostering deeper engagement with the news in a balanced and inclusive way.

Benefits

Staying up to date with the latest happenings around is of imperative importance to people of all age groups and sections of society. The web app offers several key benefits for users seeking an unbiased and diverse news experience:

1. **Balanced Perspective:** By aggregating content from multiple sources, the platform reduces the influence of individual biases, giving users a more balanced understanding of current events.
2. **Comprehensive Coverage:** Users can access a wide variety of news categories, from national and international news to business, technology, sports, and more, ensuring they are well-informed on topics that matter to them.
3. **Real-Time Updates:** With real time APIs and live news updates, users stay informed with the latest developments, never missing crucial stories as they unfold.
4. **Time Efficiency:** The centralized platform allows users to access multiple news sources in one place, saving time and effort that would otherwise be spent navigating through different websites or apps.
5. **Convenient Categorization:** Clear organization by category makes it easy for users to navigate and find specific news topics quickly, ensuring a seamless and user-friendly experience.

6. **(Optional) Preference Related News Experience:** The app provides a tailored news feed based on user preferences, commonly used keywords and summarizes to enhance engagement by allowing users to focus on topics of personal interest.

Features and Functionality - Scope

The purpose of this application is to provide a user-friendly, unbiased news platform, ensuring a diverse range of perspectives. Key features include:

1. **News Aggregation:**

- The platform will aggregate news from multiple APIs and sources, providing users with comprehensive coverage across various categories.
- Categories include live national news, business, sports, international relations, technology, weather, and more.

2. **Real-Time Updates:**

- The platform will offer live updates for breaking news and important developments. We will accomplish this by scraping off of each news API once every ~10 minutes while outputting a news summary every ~20 minutes.

3. **Search and Filter Functionality:**

- Users will be able to search for specific news topics and filter results based on categories, publication dates, or sources.
- A robust search engine will ensure quick access to relevant articles.

4. **Multi-Source Comparison:**

- The app will enable users to view the same news topic from different sources, providing various perspectives to reduce bias.
- Side-by-side comparisons will allow for critical analysis of news stories.
- AI semantic analysis will help to filter the news on the basis of biased or unbiasedness, providing users with a variety of perspectives.

5. **Third-Party Integrations:**

- APIs for news aggregation and real-time data will be sourced from reliable third-party providers.
 - i. NewsAPI, Google News API, and Bing News Search API

6. **(Optional) Personalized News Feed:**

- Users can customize their feed by selecting categories or topics of interest.
- Personalized recommendations will keep users engaged with content tailored to their preferences.

Target Users

This application targets a wide range of individuals who would be interested in a conglomerate of news from different sources including, but not limited to-

1. Individual News Consumers:

- Ideal for those who seek daily news updates from a variety of sources to gain a well-rounded, unbiased perspective.
- Users who value balanced reporting and want access to diverse viewpoints will find this platform especially useful.

2. Busy Professionals:

- Designed for professionals who need to stay informed but don't have time to sift through multiple sources.
- The platform offers a centralized hub for quick, non-biased news, helping them stay up to date without experiencing information overload.
- No information overload will be achieved by designing the UI in a manner that has a section at the top of the web page with rolling live news with at most 6-10 rows of news.
- Users can receive concise, relevant updates tailored to their specific interests, ensuring they remain well-informed efficiently.

3. News Enthusiasts and Analysts:

- People who actively engage with news, enjoy comparing stories from multiple sources, and analyze media biases.
- The multi-source comparison feature allows them to critically evaluate reporting on key topics.

4. Content Creators and Bloggers:

- Writers, bloggers, and content creators who rely on up-to-date news and diverse sources for generating content.
- The platform can be an essential tool for gathering news quickly and efficiently from multiple categories and perspectives.

List of Technologies

We plan to use the following technologies which may vary on the basis of technical changes or complexities.

- **Front-end:** React.js, TailwindCSS, Material-UI
- **Backend:** API Integration
- **Cloud Hosting:** AWS EC2
- **Containerization:** Docker

Team Members, Roles and Responsibilities

We have assigned the tasks in a way so that each member has some development role and is responsible for a vertical they are comfortable with.

| Members | Roles | Responsibility |
|----------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Damanjit Singh | Full Stack Developer, UI-UX design | Design and develop the architecture of the product on the basis of functionality requirements. Review code and integrate components. |
| Abby Gualda | Scrum Master, UI-UX design, Documentation | Schedules team meetings and manages Jira stories and tasks. Oversees user experience design while ensuring a smooth application development process. Prepares software documentation, including design plans, requirements, and analysis. |
| Stephen Yang | Back-End Developer, QA | Git version control. Implement the usage of robust API's and functionalities using Python. Database development and storage. Quality assurance and testing. |
| Dewei Wang | Front-End Developers | Create a responsive web interface using React, Tailwind and Material-UI |
| Yuhang Wang | | |

Documentation - The entire team will contribute to the weekly documentation report, detailing the work completed. This report will include all essential software engineering documents, such as design specifications, project plans, requirements, and analysis.

Software Configuration Management Plan (SCMP):

The Software Configuration Management Plan will ensure that the development process remains organized, versioned, and traceable. The plan includes the following key elements:

1. Version Control:

- GitHub supports version control through Git which will be used as the version control tool in this project, with all code repositories hosted on it. Each team member will maintain a dedicated branch, and all changes will go through push requests to the main branch for review and approval. Regular commits will be required to track progress.

i. GitHub Repository: https://github.com/stephenyang0215/CS673_Project

2. Issue Tracking:

- [Jira](#) will be utilized to manage tasks, stories, and issues. Each task will be assigned to team members based on roles and capabilities, ensuring accountability for deliverables.
- Each team member will be responsible for tracking the progression of their assigned tasks from the backlog. They are required to update and estimate the time an assigned task will take to complete.

3. Build and Deployment Management:

- The app will be hosted on AWS EC2, with automated deployment pipelines using GitHub Actions. Regular builds will be triggered after each successful merge to the main branch, with automated tests running to ensure quality.

4. Documentation Management:

- All software documentation (design, requirements, analysis) will be stored in a shared google folder for easy access and collaborative editing. Weekly updates will be documented to reflect the project's progress.

i. (e.g., Google Drive –  CS673 Team 3: NewsVerse WebApp)

5. Environment Configuration:

- Development environments will be standardized with Docker to ensure consistency across team members. Separate environments for development, staging, and production will be maintained on AWS to avoid conflicts.

6. Backup and Recovery:

- Regular backups of data in the database hosted on AWS will be scheduled using system tools to ensure recovery in case of any failure or data loss.

Risk Identification:

Several potential risks could impact the development and deployment of the project:

1. Technical Debt:

- There is a risk that rapid development could lead to insufficient attention to long-term code maintainability, creating technical debt that becomes difficult to resolve later.

2. APIs Availability and Reliability:

- The news aggregation depends heavily on third-party APIs. If any of these services experience downtime, data retrieval could be affected.

3. Scope Creep:

- The plan to incorporate AI semantic analysis as a stretch goal could lead to scope creep if not properly managed, potentially delaying the project timeline.

4. Team Coordination:

- With multiple team members working on different components, there is a risk of miscommunication or integration issues between front-end, back-end, and API functionality.
- With multiple team members working from different parts of the world it can be difficult to connect with each other and allot the work equally and effectively.

5. Security Vulnerabilities:

- Ensuring data privacy and security, especially with user authentication and external API integrations, presents a potential risk.

Risk Mitigation Strategies:

1. Addressing Technical Debt:

- Implement code reviews and regular refactoring sessions. Ensure that tasks related to code quality are added to the Jira backlog to avoid delays in addressing technical debt.

2. API Reliability:

- Identify alternative APIs as backup options and implement robust error handling to ensure graceful degradation of service if a primary API becomes unavailable.

3. Managing Scope Creep:

- Clearly define the scope of work for the MVP (Minimum Viable Product) and prioritize features. The AI semantic analysis feature will only be pursued if the core functionality is completed on time. Weekly SCRUM sprints will help in managing incremental progress and keeping the scope under control.

4. Improving Team Coordination:

- Weekly check-ins with teammates to ensure workflow is consistent and there is no burnout.
- Regular daily standups, weekly team meetings, and the use of Jira will ensure that all team members are aligned on tasks and deadlines. Additionally, holding integration testing sessions after each major development sprint will help identify and fix integration issues early.

Conclusion:

Our team is ready and excited to get started on this project. We intend to deliver a high-quality unbiased news platform that meets our targeted audiences eyes and interests. We are committed to producing quality work, hone in on transparent communication, provide ongoing support and by any means get a functioning web app produced.