Naan Mudhalvan Project Documentation

# Project Title: InsightStream - Navigate the News Landscape

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## Abstract

InsightStream is a web-based application designed to help users seamlessly navigate the vast landscape of news. It provides categorized news articles, advanced search features, and an intuitive interface for readers. The project integrates external APIs to fetch live news and presents them with modern frontend technologies. Its purpose is to empower users with reliable, real-time news in an organized and user-friendly manner.

## Introduction

In today’s digital world, the news is scattered across multiple platforms, often making it difficult for readers to find reliable information efficiently. InsightStream solves this problem by creating a centralized news platform with a clean interface, enabling users to explore articles by category, search for specific topics, and engage with up-to-date news feeds.

## Existing System

Existing news platforms often lack personalization and intuitive search. Many sites are cluttered with advertisements, slow in performance, and fail to present news in a structured way. Users struggle to navigate easily between different categories and may face information overload.

## Proposed System

InsightStream proposes a structured, user-centric news portal with modular design. The system integrates live APIs, provides category-based filtering, advanced keyword search, and a responsive UI. Compared to existing systems, it improves navigation, user experience, and offers scalability for future enhancements like personalization and AI-driven recommendations.

## System Architecture

The architecture follows a client-server model. The frontend is developed using React.js with Bootstrap and Material UI for styling. The backend is powered by Node.js and Express.js, which serve API requests and integrate with external news providers via RapidAPI. MongoDB is used for user management and storing bookmarks or preferences.

Key Components:

* - Frontend: React.js, Material UI, Bootstrap
* - Backend: Node.js, Express.js
* - Database: MongoDB
* - External APIs: RapidAPI (News Data)

## Modules Description

1. User Authentication – Secure login and signup using JWT.

2. News Search & Filter – Search news articles by keyword, filter by category.

3. News Feed – Display latest news fetched from APIs.

4. Bookmarking – Save articles for later reading.

5. Admin Panel – Manage categories, monitor activity, handle API usage.

## Technology Stack

- Frontend: React.js, Bootstrap, Material UI

- Backend: Node.js, Express.js

- Database: MongoDB

- Tools: Git, Postman, VS Code, RapidAPI

## Setup Instructions

Prerequisites: Node.js, MongoDB, Git, VS Code

Steps:

1. 1. Clone repository from GitHub.
2. 2. cd client && npm install
3. 3. cd ../server && npm install
4. 4. Configure .env with MongoDB URI and API Keys.
5. 5. Run npm start in both client and server directories.

## Screenshots / Demo

Screenshots of Landing Page, Category Page, Search Results, and Admin Panel should be added here.

## Testing

Testing Strategy: Manual testing with Postman for backend APIs and Chrome Dev Tools for frontend.

Tools Used: Postman, Chrome Dev Tools, Jest/React Testing Library (for components).

## Results & Discussion

The application successfully fetches and displays real-time news. It allows users to search, filter, and bookmark articles with a responsive and simple UI. Compared to traditional portals, it reduces clutter and enhances navigation.

## Conclusion

InsightStream achieves its goal of providing a centralized, user-friendly platform for navigating the news landscape. The project demonstrates integration of modern web technologies, secure authentication, and external API usage.

## Future Enhancements

- AI-powered personalized news recommendations

- Mobile app version with push notifications

- Multi-language news support

- Integration with social media sharing features

## References

- React.js Documentation (https://react.dev)

- Node.js & Express.js Docs (https://expressjs.com)

- MongoDB Docs (https://www.mongodb.com/docs/)

- RapidAPI News APIs (https://rapidapi.com)