

# Navigate The News Landscape

## Introduction

A news app is a software-based database that provides news, videos, and updates on a user's device. News apps can be used to access local, national, and international news, as well as entertainment, science, and politics.

## Project Title:

**InsightStream: Navigate the News Landscape**

**Team ID : NM2025TMID36927**

## Team Members:

Team Leader : SOWNDHAR RAJAN M

Team Member: SRI SATHIYAN J

TeamMember: STEPHEN RAJ S

Team Member : SUBASH P

## 2. Project Overview

### \*Purpose:

Businesses do not operate in a vacuum. They need to interact with customers, vendors, and partners while competing directly with competitors. Together, these interactions form a competitive landscape.

By proactively looking for negative news in their competitive landscape companies can make strategic decisions and strengthen their operations against potential risks.

## \*Features

### 1. Seamless Integration

News content blends naturally into platforms (social media, search engines, news aggregators).

### 2. AI-driven Personalization

News is curated based on user behavior and preferences.

### 3. Mobile-first Experience

Optimized for smartphones with fast-loading formats (AMP, Instant Articles).

### 4. Native Advertising s Sponsored Content

Ads appear as news stories without disrupting user experience.

### 5. Multimedia-rich Content

Includes videos, podcasts, infographics, and live updates.

## 2. Architecture

### 1. Content Creation s Publishing Layer

News Sources: Traditional media (CNN, BBC), digital-first publishers (BuzzFeed, Vox), and independent journalists.

**Formats: Articles, videos, podcasts, infographics, live streams.**

Publishing Platforms: CMS (WordPress, Medium), social media (Facebook, X, TikTok), news aggregators (Google News, Apple News).

### 2. Content Distribution Layer

Social Media Platforms: Facebook, X, LinkedIn, Reddit distribute news natively.

News Aggregators C Apps: Google News, Flipboard, Apple News personalize content feeds.

Search Engine Indexing: Google, Bing optimize news visibility via SEO C AI-driven ranking.

### 3. Personalization s AI Layer

Recommendation Engines: AI curates news based on user behavior, location, and interests.

Machine Learning Algorithms: Predicts trending topics and user engagement.

Real-time Updates: Push notifications and live news feeds.

#### **4. Monetization & Advertising Layer**

Native Ads & Sponsored Content: Blends ads into editorial content (e.g., branded articles).

Subscription & Paywall Models: Premium news access (e.g., NYT, The Washington Post).

Affiliate & Membership Models: Some platforms rely on donations or memberships (e.g., Patreon, Substack).

#### **5. Fact-checking & Moderation Layer**

AI-powered Misinformation Detection: Automated tools flag fake news.

Human Moderation: Fact-checking organizations (e.g., Snopes, Reuters Fact Check) verify claims.

Community-based Verification: Platforms like Reddit allow user moderation and fact-checking.

#### **6. User Interaction & Engagement Layer**

Comments & Discussions: Users can engage via comments, likes, and shares.

Live & Interactive Features: Q&A sessions, polls, and real-time discussions (e.g., Twitter Spaces, YouTube Live).

Cross-platform Sharing: News can be shared across apps and devices.

## **4. Setup Instructions** Prerequisites

- \* Node.js (v16 or higher)

- \* npm (v8 or higher)

- \* Git

### **1. Choose the Technology Stack**

#### **Frontend (User Interface)**

Frameworks: React.js, Next.js

#### **Backend (Data Processing & API)**

Languages: Python (Django, Flask), Node.js (Express.js).

Databases: PostgreSQL, MongoDB (for news storage).

## Hosting & Deployment

Cloud Services: AWS, Google Cloud, DigitalOcean.

CI/CD: GitHub Actions, Docker, Kubernetes.

## Set Up Database (MongoDB/PostgreSQL)

Create a database in MongoDB Atlas or PostgreSQL.

Define news schema (title, content, source, timestamp).

# Installation:

## 1. Manual Installation (Step-by-Step Setup) [Recommended]

This method involves installing all dependencies manually and setting up the project from scratch.

### Steps

#### Install Required Software

Install Node.js ([Download](#))

Install MongoDB ([Download](#))

Install VS Code ([Download](#))

# Folder Structure

A well-structured folder system helps maintain scalability, readability, and easy maintenance. Below is the recommended folder structure for a Native News Landscape Project with React (frontend) and Node.js + Express (backend).

### Backend:

server.js → Starts the Express server.

db.js → Connects to MongoDB.

newsRoutes.js → Defines API endpoints.

newsController.js → Handles logic for fetching and storing news.

### Frontend:

NewsList.js → Fetches and displays news from the backend.

newsApi.js → Handles API requests.

App.js → Main UI structure.

## Running The Application:

### Frontend:

\*To start the frontend server,run the following command in the client directory:npm start

\*npm install

\*npx json-server./db/db.json

\*npm run dev

\*The application will be available at <http://localhost:3000>

## Component Document:

### Key Components

#### Newslist.js(Display News Articles)

✦ **Purpose:** Fetches and displays multiple news articles.

✦ **Location:** src/components/NewsList.js

#### 2 .NewsItem.js (Single News Article Component)

✦ **Purpose:** Displays a single news article.

✦ **Location:** src/components/NewsItem.js

#### 3. Navbar.js (Navigation Component)

✦ **Purpose:** Provides navigation links.

✦ **Location:** src/components/Navbar.js

### Reusable Components:

#### 1. Button.js (Reusable Component)

✦ **Purpose:** A reusable button for different actions.

📄 **Location:** src/components/Button.js

## 2. SearchBar.js (Search Input Component)

📄 **Purpose:** Allows users to search for news articles.

📄 **Location:** src/components/SearchBar.js

## 3. Modal.js (Reusable Modal/Popup)

📄 **Purpose:** Displays a pop-up message.

📄 **Location:** src/components/Modal.js

# State Management:

## \*Global State:

The choice of state management depends on the tech stack:

**Flutter:** Riverpod, Provider, Bloc, or GetX

**React Native:** Redux, Recoil, Zustand, or Context API

**Swift (iOS):** Combine, SwiftUI State, or Redux for Swift

**Kotlin (Android):** Jetpack Compose + ViewModel, LiveData, or Flow

**Android (Kotlin/Jetpack Compose)**

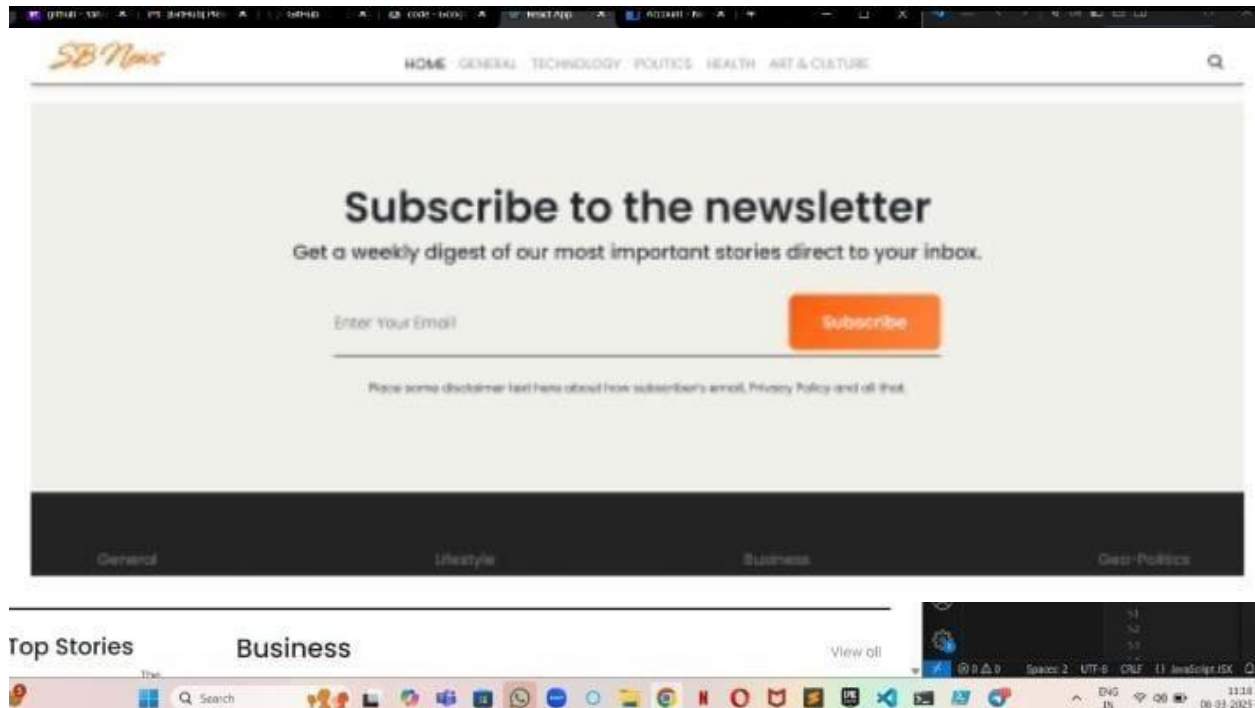
**State Hoisting** → Lift state up to a parent composable.

**MutableState** / **remember** → Store local UI state.

**ViewModel** + **LivData/StateFlow** → If state needs to survive configuration changes.

**Room Database** → For local caching.

## Screenshots:



## Stylish

1. General Styling (Base CSS for Consistency)
2. Header C Navigation (Top Bar Styling)
3. News Cards (Main Article Styling)
4. Headlines C Breaking News (Attention-Grabbing Styling)
5. Footer (Copyright C Links)

Theme: 1. Classic News Theme – Uses a newspaper-style layout with serif fonts, a black-and-white color scheme, and a multi-column format for a professional look. (Example: The New York Times)

Modern Digital News Theme – Features a sleek, interactive design with dark mode, card-based layouts, and animated elements for a futuristic feel. (Example: CNN, The Verge)

Minimalist News Theme – Focuses on clean, fast-loading content, soft colors, and simple typography to enhance readability and speed. (Example: Medium, Axios)

Breaking News Theme – Designed for real-time updates with bold headlines, live tickers, and red-black color schemes to create urgency. (Example: Reuters, ESPN)

## Testing:

For a software testing mini project, you can consider topics like: automated ticket booking, a basic bug tracker, a library management system, usability testing of a simple website, e-commerce website testing, weather app testing, security testing of a login system, and exploring Agile testing methodologies with a small application.

Key areas to focus on:

Functional Testing:

Simple calculator application testing

To-do list app functionality testing

Basic login/registration form testing

Usability Testing:

Navigation flow on a small e-commerce site

User interface testing for a mobile app

Form validation testing on a contact page

Performance Testing:

Load testing a simple web page

Response time analysis of an API endpoint

Regression Testing:

Testing updates to a small application

Verifying existing features after code changes

Automation Testing:

Creating automated test scripts for a simple web form

Using Selenium to automate UI interactions

Testing

- Testing Strategy:

- Unit Testing: Using Jest and React Testing Library.

- Integration Testing: Is performed to ensure that components work together As expected.

- End-to-End Testing: Cypress is used for end-to-end testing of user flows.



- Code Coverage:

Code coverage is monitored using Jest's built-in coverage tool. The current Coverage is 85%.

## Screenshots & Demo:

\*Demo Link :

## Known Issues:

### Performance & Load Time Issues

#### Performance & Load Time Issues

News websites often contain high-resolution images, videos, and live updates, which can slow down performance.

**Solution:** Use lazy loading, optimize media files, and implement efficient caching techniques.

#### Content Credibility & Misinformation

Managing fake news and biased reporting is a challenge, as misinformation can spread quickly.

**Solution:** Implement fact-checking mechanisms, use trusted sources, and highlight verified content with badges.

## Feature Enhancement:

### 1. AI-Powered News Recommendations

Implement machine learning to personalize news feeds based on user interests and reading history.

### **Voice s Audio Integration**

**Add text-to-speech functionality for users who prefer listening to news instead of reading.**

### **Augmented Reality (AR) News**

**Use AR to provide interactive news experiences, such as 3D visualizations of major events.**

### **Blockchain for News Verification**

**Utilize blockchain to track and verify sources, preventing the spread of misinformation.**

**This Document provides a comprehensive overview of the Navigate the News Landscape (React Application) project including its architecture, setup instructions, and future plan**