

InsightStream: Navigate the News Landscape - Documentation

1.Introduction:

- **Project Title:** InsightStream
- **Team Id:** NM20025TMID38357
- **Team Leader :**

Vetrivel N & vetrivel2647@gmail.com

➤ **Team Members:**

Brindha K & brindhakavimani22@gmail.com

Afrin Begum R & afrinbegum023@gmail.com

Egavarshini B & egavarshini2020@gmail.com

Sharmila S & sharmikalpana2006@gmail.com

➤ **Scenario-Based Introduction**

Imagine you are rushing home after work, unaware of the day's events. Opening InsightStream, you are greeted with a visually engaging interface, breaking headlines, and access to diverse categories. Unlike traditional apps, InsightStream immerses you in an interactive and customizable news experience.

2.Project Overview:

➤ **Purpose:**

The purpose of InsightStream is to provide a smarter and more engaging way to discover, explore and consume news. It helps users stay informed by offering personalized, well-organized and real-time updates across diverse topics, making news consumption more interactive, efficient and insightful.

➤ **Features:**

- **Dynamic Search** – Quickly find the latest and most relevant stories across categories.
- **Personalized Feeds** – News tailored to user preferences and reading history.

- **Wide Range of Categories** – Covering politics, science, technology, sports, lifestyle, and more.
- **User-Friendly Interface** intuitive design for easy navigation.
- **Community Engagement** – Options to share, comment, and discuss articles.
- **Multi-Platform Support** – Accessible on desktop, tablet, and mobile devices.
- **API Integration** – Uses Rapid API and other services for enriched and real-time content.
- **Bookmarking & Saving** – Allows users to save articles for later reading.
- **Multilingual Support** – Access to news in different languages.
- **Security & Privacy** – Safe browsing with secure authentication and data protection.

Objectives:

- To provide users with a seamless and engaging way to discover and consume news.
- To deliver real-time updates from trusted and diverse sources.
- To personalize news feeds based on user interests and preferences.
- To integrate multiple APIs for enriched content without building everything from scratch.
- To foster a community where users can share, discuss, and engage with news.
- To ensure accessibility across devices with a user-friendly interface.
- To maintain security, privacy, and reliability for all users.

3.Architecture:

- **Frontend:** Built with React.js, using Bootstrap and Material UI for responsive design and modern UI components.
- **Backend:** Powered by Node.js with Express.js, handling server-side logic, API endpoints, and communication between frontend and database.
- **Database:** MongoDB is used to store user data, project details, applications, and chat messages efficiently with scalability in mind.

➤ Technical Architecture:

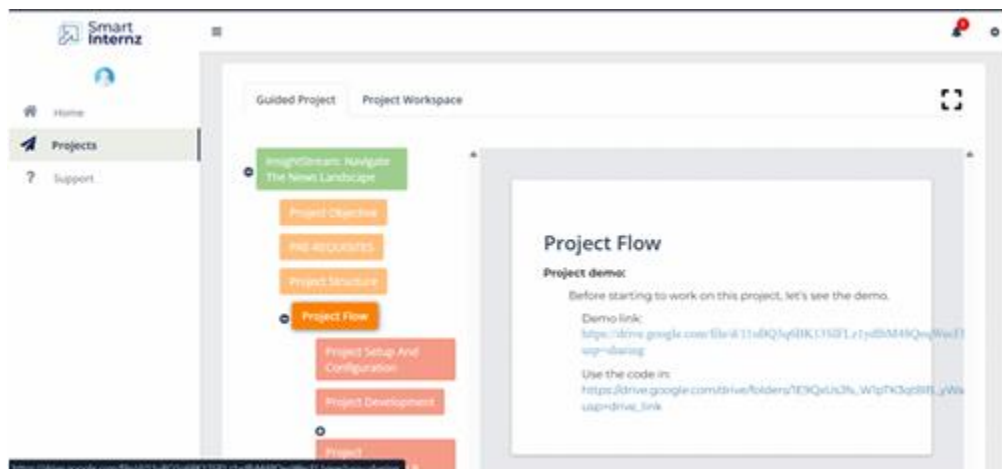
- a) Frontend: Built using React.js (or Vue.js), providing a Single Page Application (SPA) experience.
- b) API Client: Handles communication between frontend and backend.
- c) Backend: Manages user data, authentication, and requests.
- d) Rapid API Integration: Enriches content by pulling external data feeds.
- e) Database: Stores user preferences, bookmarks, and browsing history.

4.Setup Instruction:

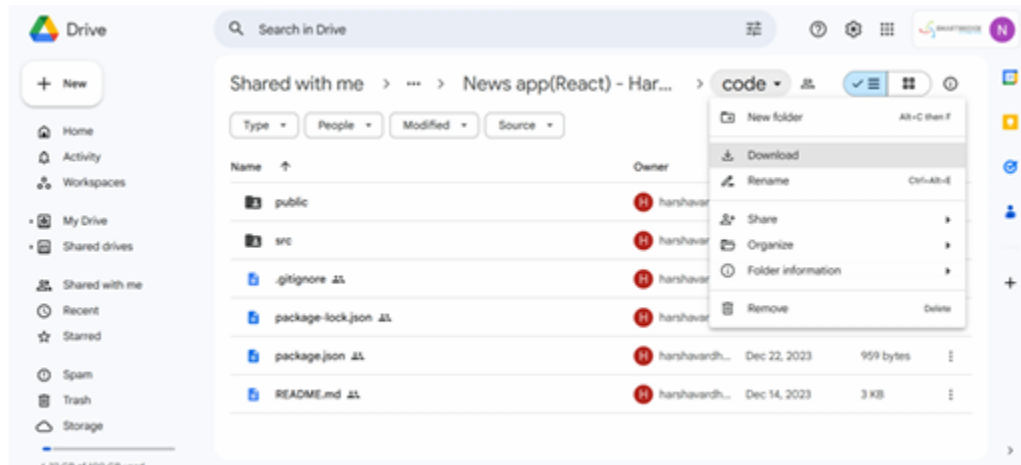
- Prerequisites:

- Node.js
- MongoDB
- Git
- React.js
- Express.js
- Mongoose
- Visual Studio Code

- Installation steps:
- Steps To Download And Execute Project:
- From your SmartInternz portal GoTo Projects → Access Resources → Guided Projects → Go To Workspace
- Inside Guided Project you can find Project Flow
- Now you can see two links one is the demo video and the other is the code drive link.
- Click on the code drive link or copy paste that link in your new chrome tab.

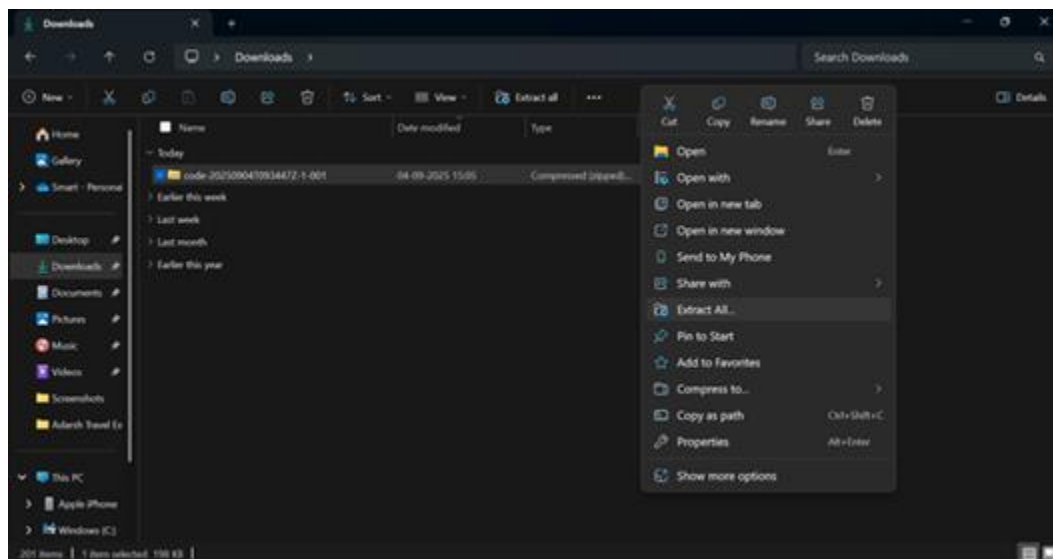


- Download the the code folder.

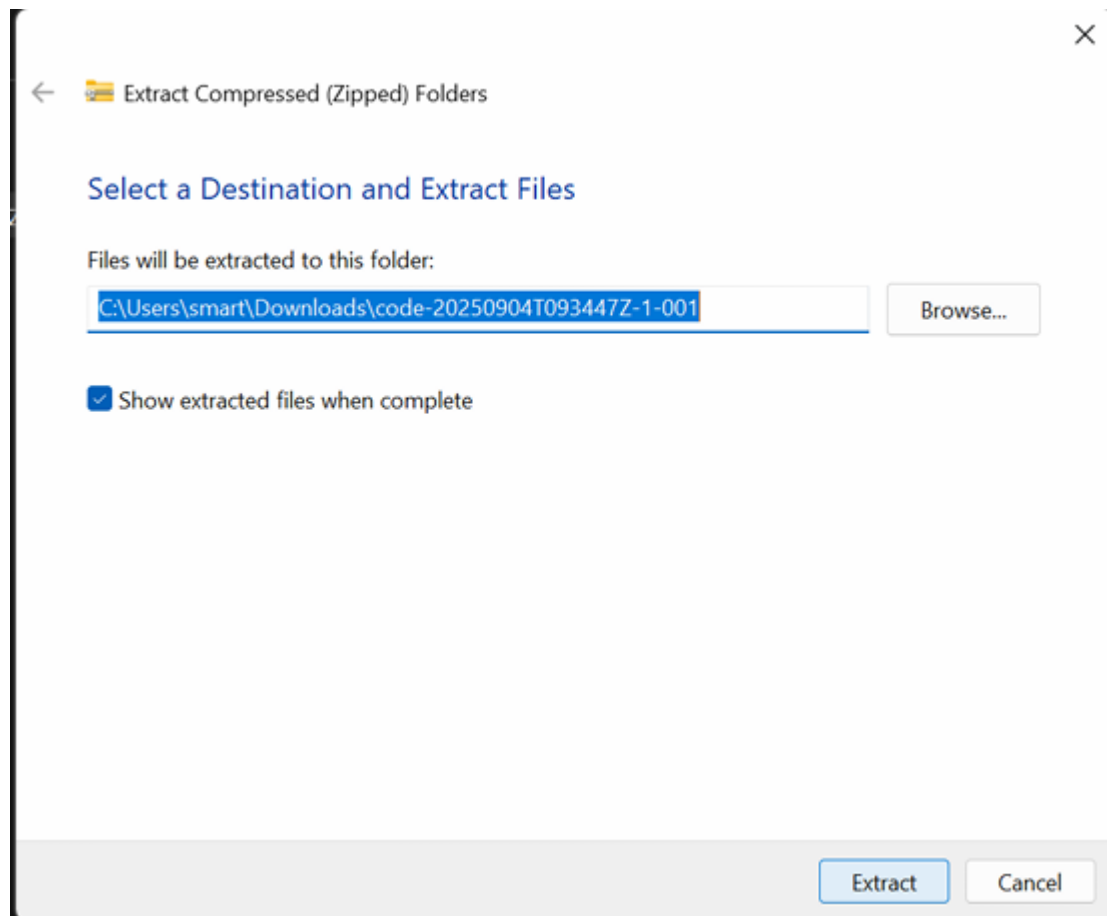


5.Folder Structure:

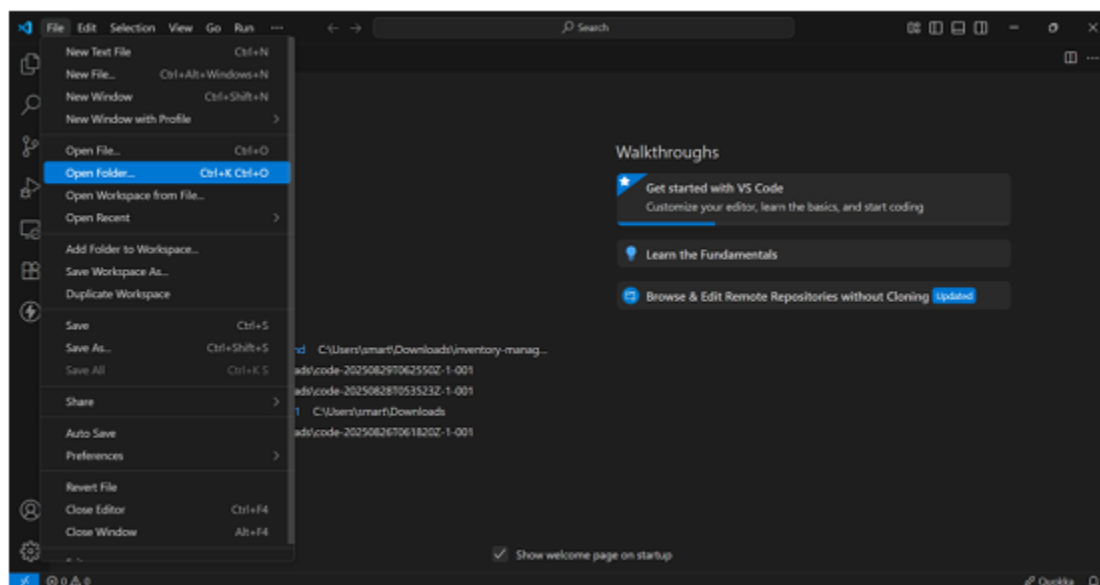
Now go to downloads and right click on the downloaded zip folder and click on extract all

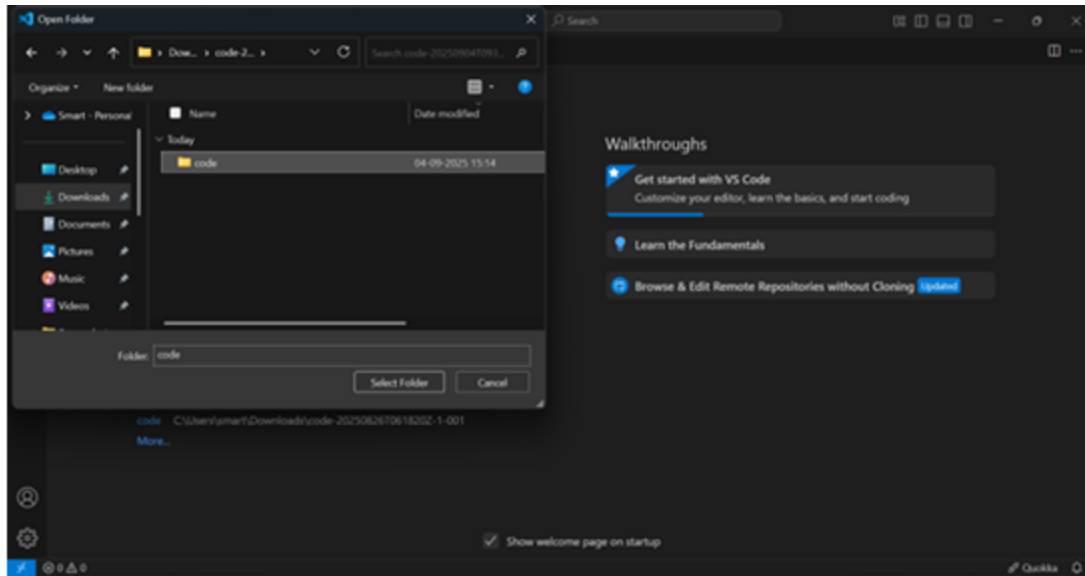


Now click on Extract

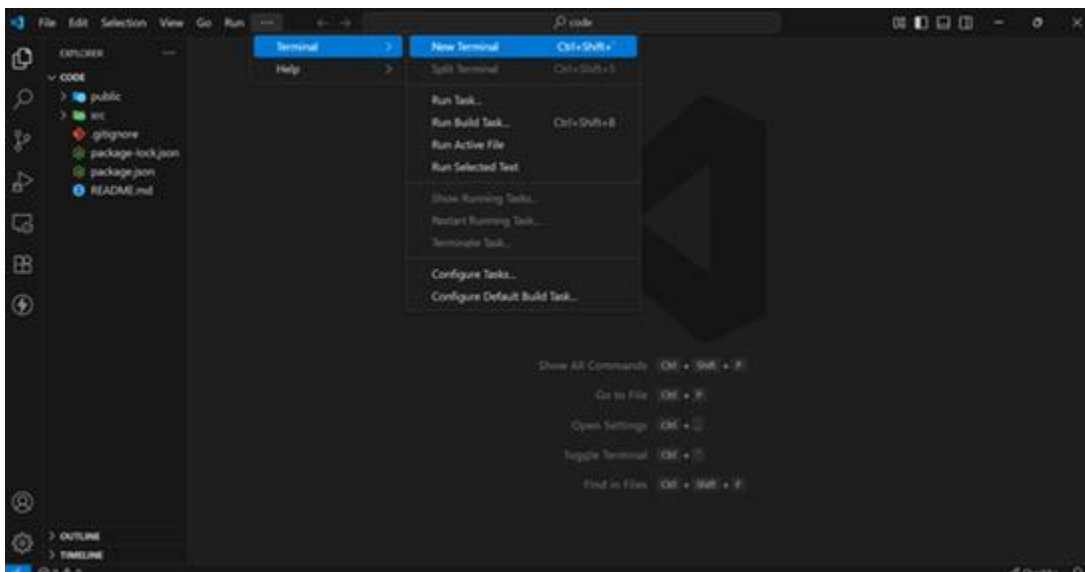


Now open VS code and open the code folder from the extracted folder.





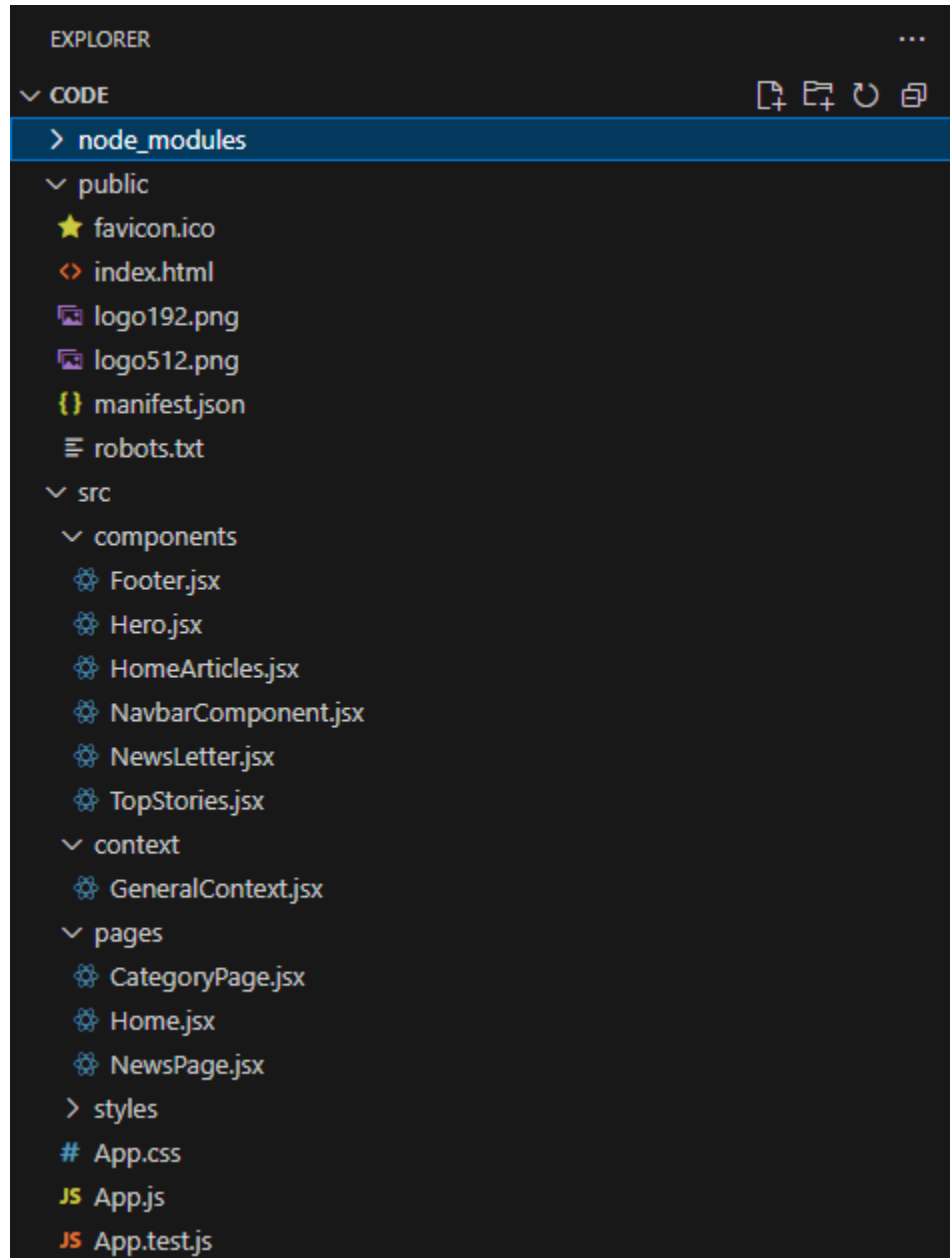
Now open a new terminal.



The **GeneralContextProvider** is a React functional component that:

1. Creates a **context object** called GeneralContext.
2. Fetches four categories of news from **NewsAPI.org**:
 - Top News
 - Business News
 - Technology News

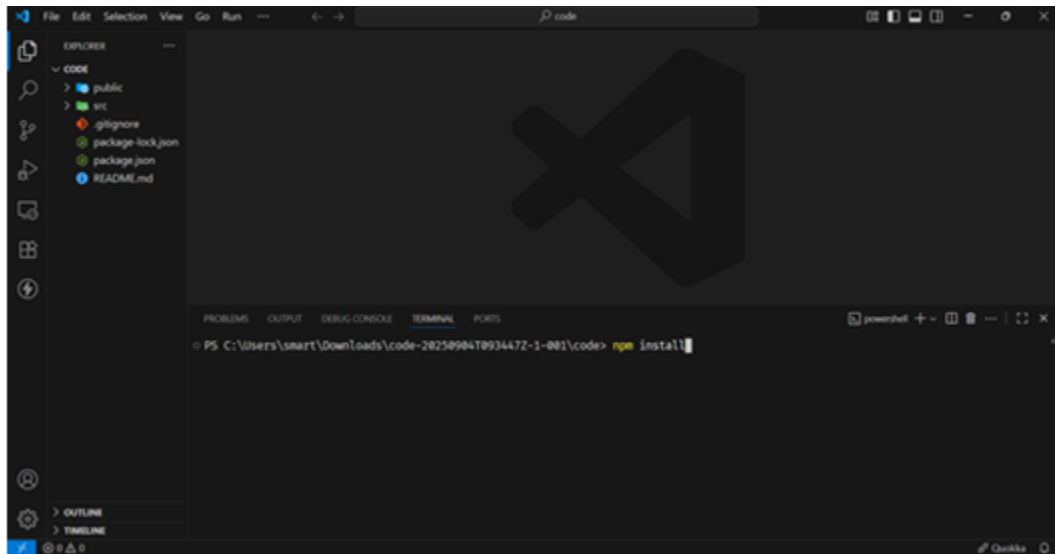
- Politics News
- 3. Stores the fetched data in **React state variables** (useState)
- 4. Uses the useEffect hook to trigger data fetching when the component mounts.
- 5. Provides the fetched data to its children through the GeneralContext.Provider.



6. Running the Application:

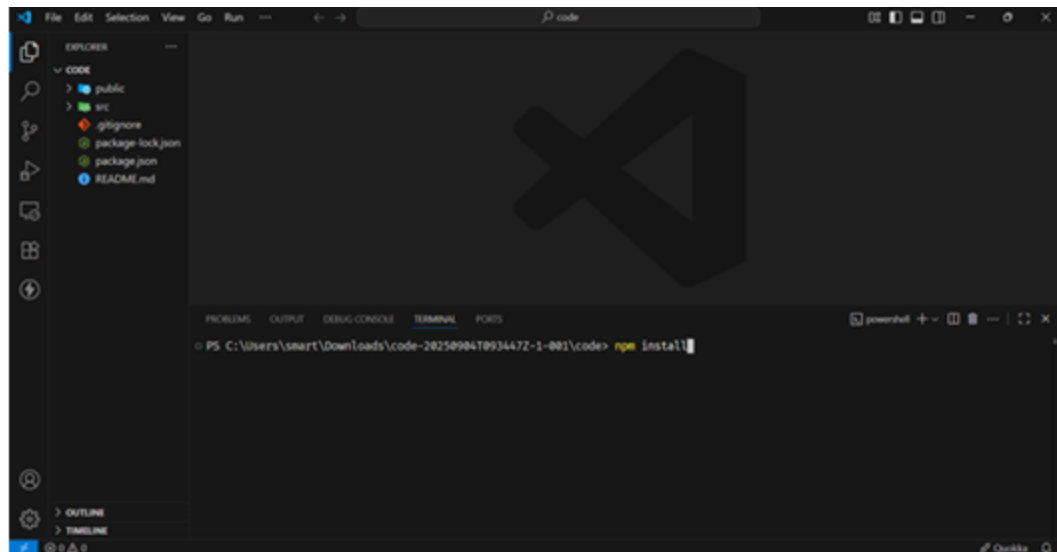
Fronted:

Type `npm install` in your terminal and press Enter and wait till all the dependencies gets download



`npm start`

After all the downloads finishes, now type `npm start` and press Enter



Backend:

Access:

Visit: <http://localhost:3000>

7. API Documentation:

User:

[News API – Search News and Blog Articles on the Web](#)

RRrr



[Get started](#)

[Documentation](#)

[Pricing](#)

vetrivel2647@gmail.com

Search worldwide news with code

Locate articles and breaking news headlines from news sources and blogs across the web with our JSON API

[Get API Key →](#)

Registration:

Account

Email

vetrivel2647@gmail.com

Update email address

Password

Change password

API key

d6c0f5de309447b0813abfdbae454cd3

Subscription

Plan: Developer

You should only use the Developer plan if your project is in development.

If your project is being used in production, please upgrade to a paid plan.

WE first entered the project name and found that then

We got an Inshight stream so where there is new reading

Then the api we got in newsapi.org

Chats:

<https://newsapi.org/v2/everything?q=apple&from=2025-09-16&to=2025-09-16&sortBy=popularity&apiKey=d6c0f5de309447b0813abfdbae454cd3>

All articles mentioning Apple from yesterday, sorted by popular publishers first →

GET

```
https://newsapi.org/v2/everything?q=apple&from=2025-09-16&to=2025-09-16&sortBy=popularity&apiKey=d6c0f5de309447b0813abfdbae454cd3
```

```
{
  status: "ok",
  totalResults: 1937,
  articles: [
    - {
      - source: {
        id: "wired",
        name: "Wired"
      },
      author: "Parker Hall",
      title: "How to Clean AirPods (and Other Earbuds)",
      description: "Got gunky earbuds or over-ears? Here is how to clean them without ruining them.",
      url: https://www.wired.com/story/how-to-clean-earbuds-and-airpods/,
      urlToImage: https://media.wired.com/photos/68c899d86ad017045dc6bf6e/191:100/w_1280,c_limit/How%20To%20Clean%20AirPods%20(and%20other%20Earbuds).png,
      publishedAt: "2025-09-16T13:36:00Z"
    }
  ]
}
```

```
https://newsapi.org/v2/everything?q=tesla&from=2025-08-17&sortBy=publishedAt&apiKey=d6c0f5de309447b0813abfdbae454cd3
```

```
{
```

←

All articles about Tesla from the last month, sorted by recent first

→

GET

https://newsapi.org/v2/everything?q=tesla&from=2025-08-17&sortBy=publishedAt&apiKey=d6c0f5de309447b0813abfdbae454cd3

```
{
  status: "ok",
  totalResults: 7193,
  - articles: [
    - {
      - source: {
        id: "the-times-of-india",
        name: "The Times of India"
      },
      author: "ET Online",
      title: "Sleep, wake up, work, repeat: Billionaire Elon Musk's ruthless routine for Tesla, Neuralink & Optimus",
      description: "Elon Musk's relentless work ethic, characterized by a seven-day-a-week grind, fuels his ambitious ventures like Tesla, Neuralink, and Optimus. While his hands-on approach drives innovation and production milestones, experts caution against the risks of burnou...",
      url: https://economictimes.indiatimes.com/news/international/global-trends/sleep-wake-up-work-repeat-billionaire-elon-musks-ruthless-routine-for-tesla-neuralink-optimus/articleshow/123938399.cms.
```

<https://newsapi.org/v2/top-headlines?country=us&category=business&apiKey=d6c0f5de309447b0813abfdbae454cd3>

←

Top business headlines in the US right now

→

GET

https://newsapi.org/v2/top-headlines?country=us&category=business&apiKey=d6c0f5de309447b0813abfdbae454cd3

```
{
  status: "ok",
  totalResults: 48,
  - articles: [
    - {
      - source: {
        id: "bloomberg",
        name: "Bloomberg"
      },
      author: null,
      title: "China Lifts Wells Fargo Banker's Exit Ban in US Trade Talks - Bloomberg.com",
      description: "China has released a Wells Fargo & Co. banker it earlier blocked from leaving the country, according to a person familiar with the matter, ahead of a potential in-person meeting between US President Donald Trump and Chinese President Xi Jinping.",
      url: https://www.bloomberg.com/news/articles/2025-09-17/china-lifts-exit-ban-on-wells-fargo-banker-amid-us-trade-talks,
      urlToImage: https://assets.bwbx.io/images/users/iqjWHBFdfxIU/iIn_gTcxWbOo/v1/1200x
```

<https://newsapi.org/v2/top-headlines?sources=techcrunch&apiKey=d6c0f5de309447b0813abfdbae454cd3>

←

Top headlines from TechCrunch right now

→

GET

<https://newsapi.org/v2/top-headlines?sources=techcrunch&apiKey=d6c0f5de309447b0813abfdbae454cd3>

```
{
  status: "ok",
  totalResults: 10,
  - articles: [
    - {
      - source: {
        id: "techcrunch",
        name: "TechCrunch"
      },
      author: "Lauren Forristal",
      title: "Bye-bye bots: Altera's game-playing AI agents get backing from Eric Schmidt | TechCrunch",
      description: "Autonomous, AI-based players are coming to a gaming experience near you, and a new startup, Altera, is joining the fray to build this new guard of AI Research company Altera raised $9 million to build AI agents that can play video games alongside other player...",
      url: https://techcrunch.com/2024/05/08/bye-bye-bots-alteras-game-playing-ai-agents-get-backing-from-eric-schmidt/,
      urlToImage: https://techcrunch.com/wp-content/uploads/2024/05/Minecraft-kevirt.in
```

<https://newsapi.org/v2/everything?domains=wsj.com&apiKey=d6c0f5de309447b0813abfdbae454cd3>

← All articles published by the Wall Street Journal in the last 6 months, sorted by recent first

GET	https://newsapi.org/v2/everything?domains=wsj.com&apiKey=d6c0f5de309447b0813abfdbae454cd3
-----	---

```

{
  status: "ok",
  totalResults: 22,
  - articles: [
    - {
      - source: {
        id: "the-wall-street-journal",
        name: "The Wall Street Journal"
      },
      author: "Gareth Vipers",
      title: "Tesla Shares Rise on Elon Musk's $1 Billion Stock Purchase",
      description: "The move signals Musk's commitment to the electric-vehicle maker as its board prepares what could be a $1 trillion pay package.",
      url: https://www.wsj.com/tech/tesla-shares-rise-on-elon-musks-1-billion-stock-purchase-ca78b00c,
      urlToImage: https://s.yimg.com/ny/api/res/1.2/Ggk.hoBanI5jk91rXoL71g--/YXBwawQ9aGl naGxhbmRlcj t3PTEyMDA7aD02MDA-/https://media.zenfs.com/en/the_wall_street_journal_h

```

HERE WE GOT AN NEWS CODE WHICH WE HELP IN OUT LASTEST NEWS

8.Authentication:

Email + Password (Traditional Auth)

- **Pros:** Familiar, simple to implement, no third-party dependency.
- **Cons:** Requires strong password policies, secure storage, and recovery flows.
- **Implementation:**
 - Store passwords hashed with bcrypt/argon2.
 - Use JWT or session-based authentication.
 - Add email verification + password reset flow.

OAuth / Social Login (Google, Facebook, GitHub, LinkedIn)

- **Pros:** Fast onboarding, fewer credentials to manage, higher trust.
- **Cons:** Dependency on providers, extra complexity.

- **Implementation:**
 - Use libraries like **NextAuth.js** (if Next.js), **Passport.js**, or **Firebase Auth**.
 - Store minimal user profile info + access tokens.

Passwordless / Magic Link

- **Pros:** No password fatigue, better UX, reduced risk of stolen credentials.
- **Cons:** Users must have email/phone access each time.
- **Implementation:**
 - Send one-time login link or OTP via email/SMS.
 - Verify and issue JWT/session token.

Multi-Factor Authentication (MFA)

- **Optional but recommended for sensitive actions (e.g., commenting, admin panel).**
- **Methods:**
 - Email/phone OTP
 - Authenticator apps (TOTP)
 - WebAuthn (biometrics, security keys)

9. User Interface:

Landing Page:

- **Hero Section:**
 - App tagline (“Navigate the News Landscape”).
 - Search bar (prominent, central).
 - Call-to-Action (Sign in / Get Started).
- **Top Headlines Carousel:** Highlight trending/global stories.
- **Category Grid / Quick Access:** Cards for Tech, Business, Politics, Entertainment, etc.

Freelance Dashboard :

- **Navigation Bar (Top or Side):**
 - Logo (InsightStream).
 - Search bar with filters (date, relevance, publisher).
 - Categories dropdown.
 - Profile avatar → settings, saved articles, logout.
- **News Feed (Center):**
 - Card-based layout (2–3 columns grid).

- Each card → headline, thumbnail, source, snippet, “Save” button.
 - Infinite scroll or pagination.
 - Option to switch to **list view** (denser for power users).
- **Sidebar (Optional):**
 - Trending topics (hashtags, keywords).
 - Recommended articles based on history.
 - Personalized “For You” section.

Admin Panel :

- Manage categories, sources, and content curation.
- Analytics (article reach, engagement).
- User management (roles: admin, editor, reader).

Project Details Page:

- You see a **grid of news cards** with trending stories.
- A **personalized feed** tab for your chosen categories.
- A **minimal search bar** always accessible.
- Clicking an article gives a **distraction-free reader mode**.

10. Testing:

Features to Test Manually:

- ✓ User can sign up with email/password.
- ✓ Social login (Google/GitHub) works.
- ✓ Login rejects invalid credentials.
- ✓ Email verification link works.
- ✓ Logout clears session.
- ✓ Forgot password flow sends email.

Postman :

InsightStream will rely heavily on APIs (fetching news, authentication, user profiles). Postman is your go-to tool for **manual API testing** before wiring up the frontend.

Use Cases in InsightStream:

- **Authentication API**
 - Send POST request to /auth/login with email/password.
 - Verify JWT/refresh token in response.
- **News Fetching API**
 - GET /news/top?category=technology → returns tech news.
 - Validate response schema (title, description, source, image).
- **User Profile API**

- GET /users/me with valid JWT → returns user profile & preferences.
 - Invalid/expired token → should return 401 Unauthorized.
- **Admin API**
 - POST /admin/source → add new news source.
 - Only works with admin role.

Postman Features to Use:

- Collections → group InsightStream endpoints (Auth, News, Users, Admin).
- Environment Variables → baseURL, tokens, category names.
- Tests Tab → write small JS assertions (e.g., check status code 200, schema validation).
- Automation → run entire suite (login → fetch news → save article) before deployments.

Chrome DevTools :

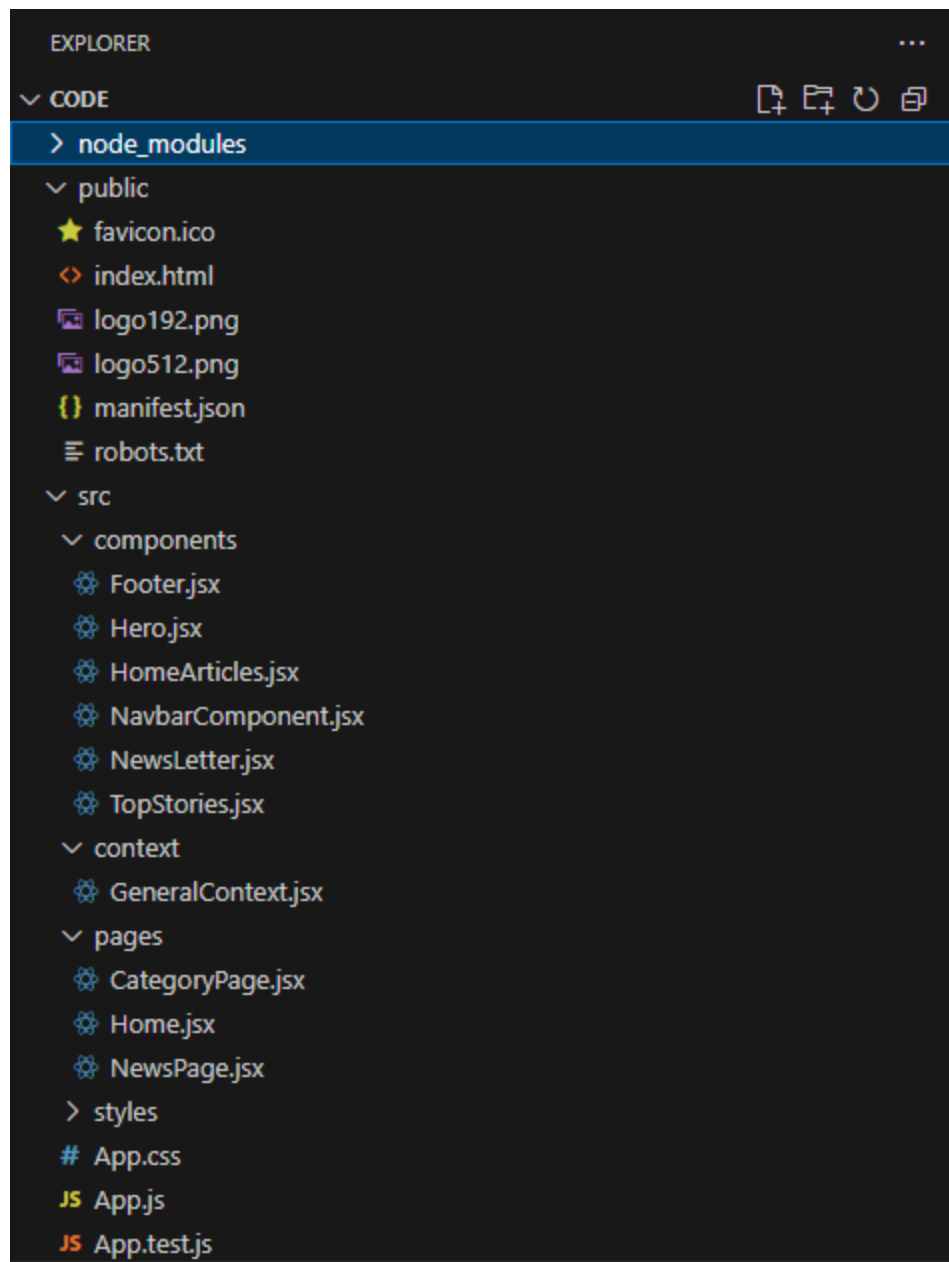
Since InsightStream is React + API-driven, Chrome DevTools helps you debug **UI and performance**.

Use Cases in InsightStream:

- **Network Tab**
 - Inspect API calls when loading homepage/news feed.
 - Verify correct headers (JWT in Authorization).
 - Simulate **slow 3G/Offline** to test caching & loading states.
- **Console Tab**
 - Catch JS errors (e.g., null props in NewsCard).
 - Debug React component warnings.
- **Application Tab**
 - Check **LocalStorage** / **SessionStorage** (tokens, saved articles).
 - Inspect **Cookies** (httpOnly refresh token).
- **Performance Tab**
 - Measure feed loading speed.
 - Check rendering bottlenecks with heavy news grids.
- **Lighthouse Audit**
 - Run accessibility, performance, SEO audits.
 - Useful for ensuring news articles render well in search/discovery.

11.Screenshots or Demo:

Input:



```
JS App.js  X  Home.jsx  # index.css  GeneralContext.jsx  ...
src > JS App.js > App
1  import { Route, Routes } from 'react-router-dom';
2  import './App.css';
3  import Home from './pages/Home';
4  import CategoryPage from './pages/CategoryPage';
5  import NewsPage from './pages/NewsPage';
6  import NavbarComponent from './components/NavbarComponent';
7  import Footer from './components/Footer';
8
9  function App() {
10
11    return (
12      <div className="App">
13        <NavbarComponent />
14        <Routes>
15          <Route exact path="/" element={<Home/>} />
16          <Route exact path="/category/:id" element={<CategoryPage/>} />
17          <Route exact path="/news/:id" element={<NewsPage/>} />
18        </Routes>
19        <Footer />
20      </div>
21    );
22  }
23
24  export default App;
25
```

```
JS App.js | Home.jsx | # index.css | GeneralContext.jsx X
src > context > GeneralContext.jsx > GeneralContextProvider > useEffect() callback
1  import axios from 'axios';
2  import React, { useEffect, useState } from 'react'
3
4
5  export const GeneralContext = React.createContext();
6
7  const GeneralContextProvider = ({children}) => {
8
9      const [topNews, setTopNews] = useState([])
10
11      const [businessNews, setBusinessNews] = useState([]);
12      const [technologyNews, setTechnologyNews] = useState([]);
13      const [politicsNews, setPoliticsNews] = useState([]);
14
15      useEffect(() => {
16          fetchTopNews()
17          fetchBusinessNews()
18          fetchPoliticsNews()
19          fetchTechnologyNews()
20      }, [])
21
22      const fetchTopNews = async () => {
23          try {
24              const response = await axios.get("https://newsapi.org/v2/everything?q=apple&from=2025-01-01");
25              setTopNews(response.data.articles);
26          } catch (error) {
27              console.error(error);
28          }
29      }
30
31      const fetchBusinessNews = async () => {
32          try {
33              const response = await axios.get("https://newsapi.org/v2/everything?q=apple&from=2025-01-01");
34              setBusinessNews(response.data.articles);
35          } catch (error) {
36              console.error(error);
37          }
38      }
39
40      const fetchPoliticsNews = async () => {
41          try {
42              const response = await axios.get("https://newsapi.org/v2/everything?q=apple&from=2025-01-01");
43              setPoliticsNews(response.data.articles);
44          } catch (error) {
45              console.error(error);
46          }
47      }
48
49      const fetchTechnologyNews = async () => {
50          try {
51              const response = await axios.get("https://newsapi.org/v2/everything?q=apple&from=2025-01-01");
52              setTechnologyNews(response.data.articles);
53          } catch (error) {
54              console.error(error);
55          }
56      }
57
58      return (
59          <GeneralContext.Provider value={{
60              topNews,
61              businessNews,
62              technologyNews,
63              politicsNews,
64          }}>
65              {children}
66          </GeneralContext.Provider>
67      );
68  }
```

```
JS App.js    Home.jsx    # index.css    GeneralContext.jsx X
src > context > GeneralContext.jsx > [x] GeneralContextProvider > useEffect() callback
7   GeneralContextProvider = ({children}) => {
31   const fetchBusinessNews = async () => {
32     // ...
35   } catch (error) {
36     console.error(error);
37   }
38 }
39 const fetchPoliticsNews = async () => {
40   try {
41     const response = await axios.get("https://newsapi.org/v2/top-headlines?country=us&category-
42     setPoliticsNews(response.data.articles);
43   } catch (error) {
44     console.error(error);
45   }
46 }
47 const fetchTechnologyNews = async () => {
48   try {
49     const response = await axios.get("https://newsapi.org/v2/top-headlines?sources=techcrunch&
50     setTechnologyNews(response.data.articles);
51   } catch (error) {
52     console.error(error);
53   }
54 }
55
56
57 return (
58   <GeneralContext.Provider value={{topNews, businessNews, technologyNews, politicsNews}} >{children}
59
60
61
62   < default GeneralContextProvider
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Warning: PowerShell detected that you might be using a screen reader and has disabled PSReadLine for compatibility purposes. If you want to re-enable it, run 'Import-Module PSReadLine'.

PS C:\Users\admin\Downloads\code-20250912T093045Z-1-001\code> npm i

up to date, audited 1558 packages in 8s

248 packages are looking for funding
  run `npm fund` for details

35 vulnerabilities (6 low, 12 moderate, 16 high, 1 critical)

To address issues that do not require attention, run:
  npm audit fix

To address all issues (including breaking changes), run:
  npm audit fix --force

Run `npm audit` for details.
PS C:\Users\admin\Downloads\code-20250912T093045Z-1-001\code> npm start

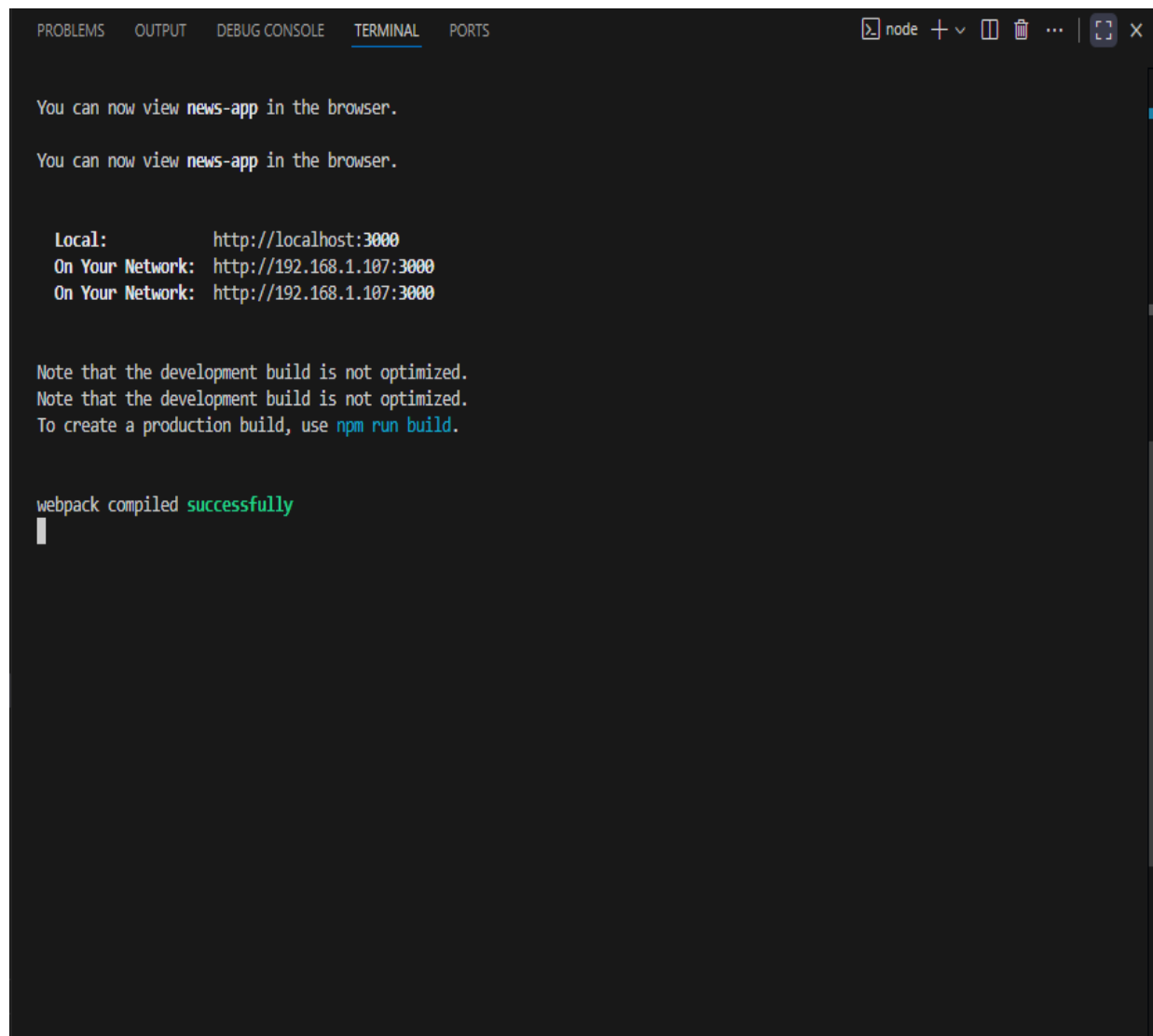
> news-app@0.1.0 start
> react-scripts start

Browserslist: caniuse-lite is outdated. Please run:
  Compiled successfully!

You can now view news-app in the browser.

You can now view news-app in the browser.

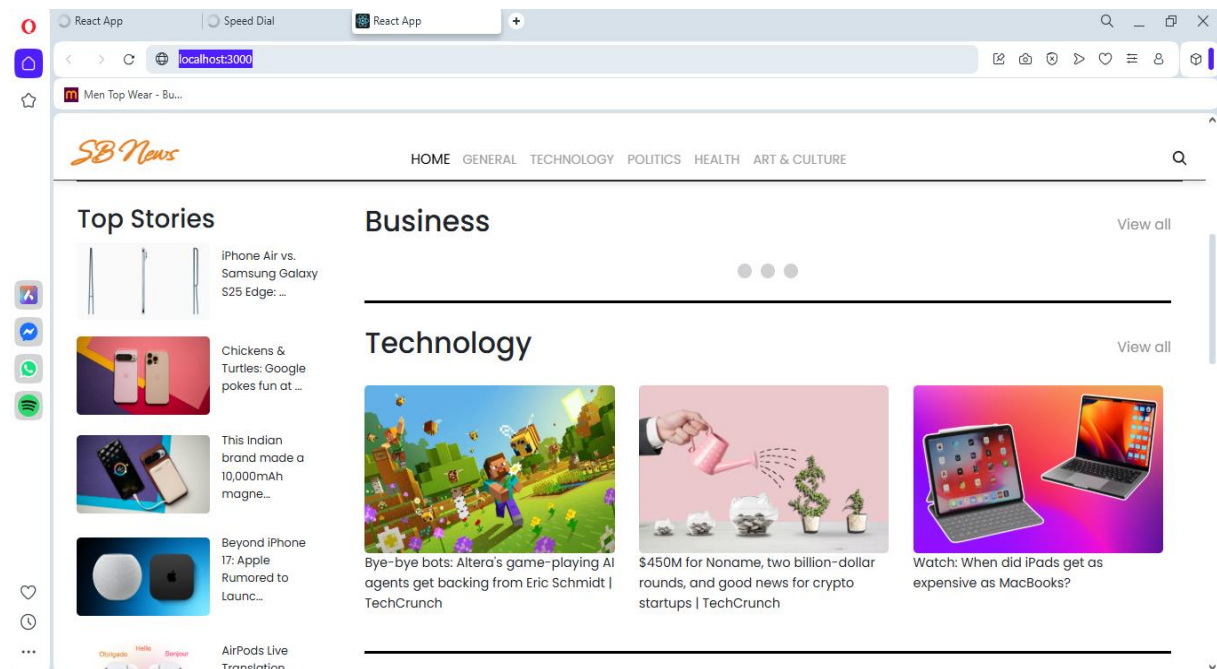
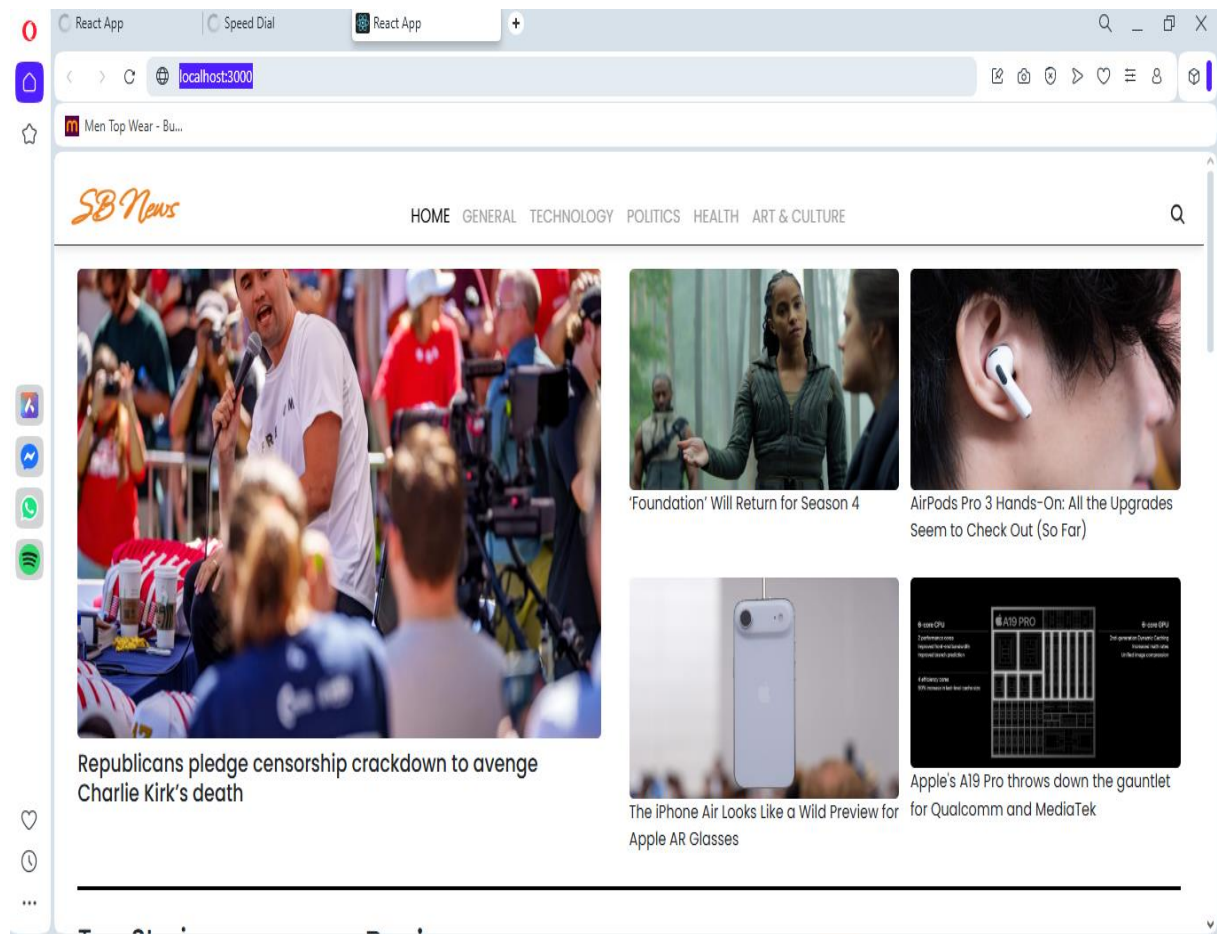
You can now view news-app in the browser.
```

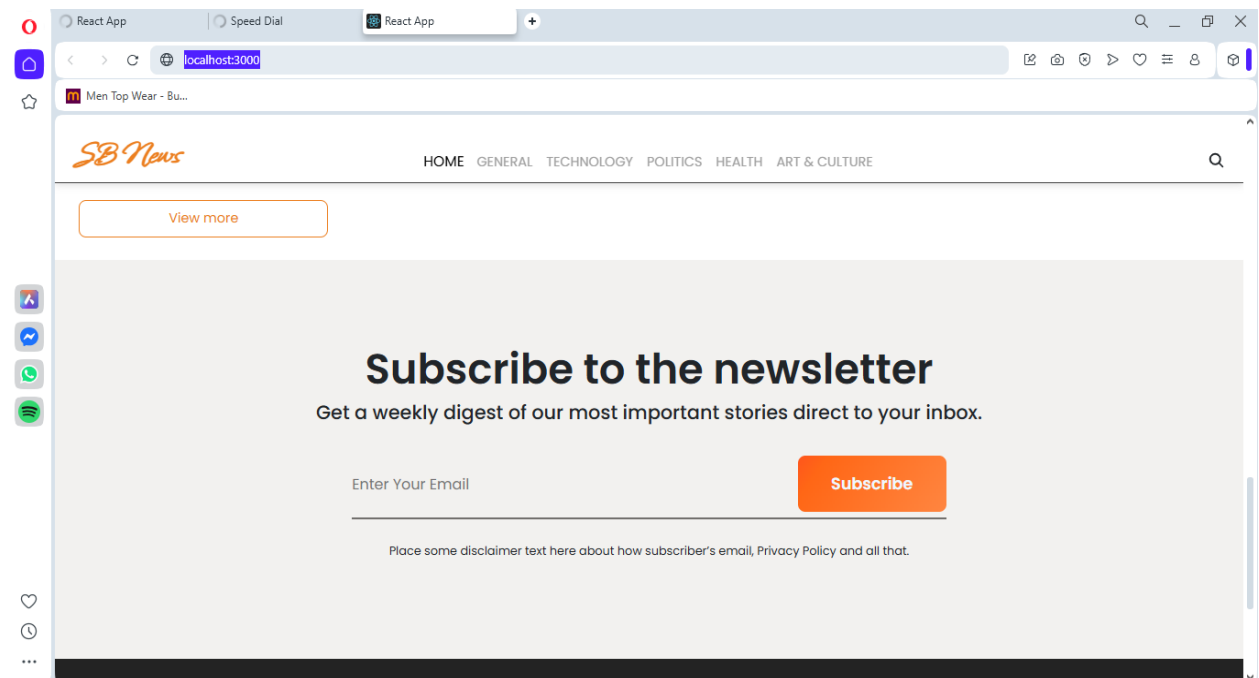
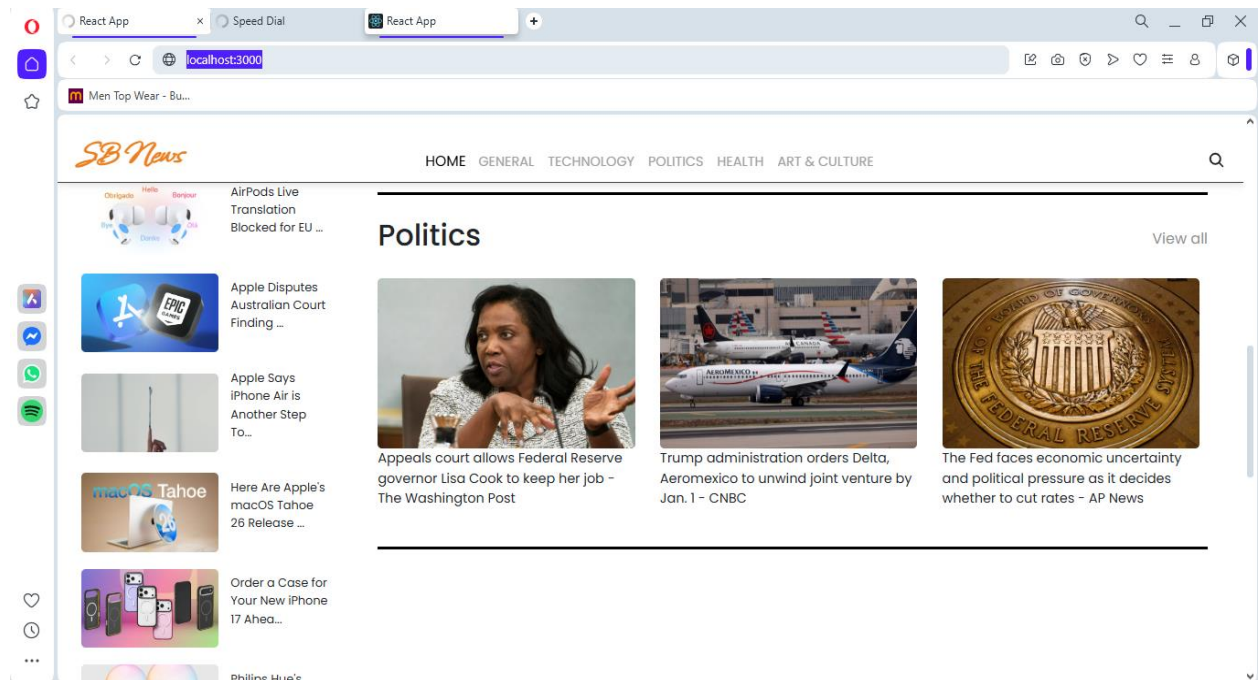



The image shows a terminal window from a code editor. The terminal has tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is active), and PORTS. The output text is as follows:

```
You can now view news-app in the browser.  
  
You can now view news-app in the browser.  
  
Local:      http://localhost:3000  
On Your Network: http://192.168.1.107:3000  
On Your Network: http://192.168.1.107:3000  
  
Note that the development build is not optimized.  
Note that the development build is not optimized.  
To create a production build, use npm run build.  
  
webpack compiled successfully
```

Demo Output:





Conclusion:

Insight Stream is more than just a news aggregation platform—it is a comprehensive ecosystem designed to redefine the way individuals consume, interpret, and interact with information. By addressing the limitations of traditional news platforms and leveraging modern web technologies, it provides a seamless, user-centric experience that empowers users to access diverse perspectives, discover relevant content, and stay informed in an ever-changing world. The platform's scalable architecture, robust categorization, and intuitive interface make it adaptable to different user needs, whether casual browsing, in-depth research, or professional analysis. Its emphasis on real-time updates, personalized feeds, and interactive engagement ensures that users not only receive news but also connect with it meaningfully. Beyond functionality, Insight Stream contributes to the larger vision of fostering digital literacy, critical thinking, and global awareness. It bridges the gap between information overload and meaningful insight, helping users navigate today's complex media landscape with clarity and confidence. As the platform evolves, opportunities for innovation—such as advanced AI-driven recommendations, multilingual support, and deeper personalization—can further strengthen its impact. Ultimately, Insight Stream positions itself as a forward-looking solution that not only informs but also inspires, setting the stage for a smarter, more connected, and more informed society.

12.Known Issues:

- ☐ ☐ Sometimes JWT **refresh tokens don't renew properly**, forcing users to log in again.
- ☐ ☐ **Social login callbacks** (Google/GitHub) fail intermittently due to misconfigured redirect URIs.
- ☐ ☐ Password reset emails sometimes land in **spam folder** (needs better email provider config).

13.Future Enhancements:

AI-driven personalized recommendations.

- Voice-enabled search.
- Advanced analytics dashboard.
- Offline news reading mode.