Frontend Development with React.js

Project Documentation for InsightStream

INTRODUCTION:

Project Title: **InsightStream:** Your News Companion

Team Members:

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Project Overview:

InsightStream is a cutting-edge web application designed to revolutionize news discovery and consumption. Featuring an intuitive interface, dynamic search, and a broad range of news categories, it provides users with a seamless and engaging news experience.

Description:

InsightStream offers an innovative approach to staying informed

Dynamic News Feed: Access real-time news across multiple categories.

User-Friendly Interface: Designed for seamless navigation and readability.

Community Engagement: Encourages collaboration and news sharing.

Scenario-Based Use Case

Imagine you just finished a long day and need a quick news update. With a single tap, InsightStream provides breaking headlines, in-depth articles, and categorized news—making it effortless to stay informed..

Technical Architecture

InsightStream is a React.js application leveraging external APIs through Rapid API to fetch and display news dynamically. It includes:

Frontend: Built using React.js or Vue.js for a smooth single-page experience.

Backend & API Client: Uses Axios to fetch news data from third-party sources

Project Goals & Objectives

Key Goals

✔ User-Friendly Experience – Simple navigation, saving, and sharing features.

✔ Comprehensive News Management – Advanced search and personalized content.

✔ Modern Tech Stack – Built with React.js for efficiency and **scalability.Project Goals and Objectives:**

✔ **Core Features**

✔ News from API Sources – Global news updates across various categories.

✔ Visual News Exploration – Enhanced readability with image galleries.

✔ Advanced Search – Tailored news content based on keywords and interests.

✔ Subscription Feature – Users can opt-in for newsletters.Exercises from Fitness API:

Development Prerequisites

Required Tools & Technologies

Node.js & npm – JavaScript runtime and package manager.

React.js – JavaScript library for UI development.

React Router Dom – Navigation system.

Axios – API data fetching.

Bootstrap/Tailwind CSS – Styling framework.

Version Control – Git & GitHub for code management.

Development Environment – Recommended: Visual Studio Code.

Installation & Setup

Clone the Repository

git clone <repository_url>

cd news-app-react

Install Dependencies

npm install

Start the Development Server

npm start

Access the App

Open browser: http://localhost:3000

Project Structure

The project is divided into:Intuitive and User-Friendly Design:

Components – UI elements.

Pages – Different application views.

Context – API & state management.

Styles – CSS styling files.

Project Development Milestones

Milestone 1: Setup & Configuration

Install React.js, Router, Axios, Bootstrap/Tailwind CSS.

Configure initial project structure.

Milestone 2: Feature Development

Routing Paths – Set up navigation.

Navbar & Hero Components – Display trending news & search bar.

Category & Trending News – Fetch and display categorized news.

Newsletter & Footer – User subscriptions for updates.

Technical Architecture

The user experience starts with the InsightStream web application's UI, likely built with a framework like React or Vue.js for a smooth, single-page experience. This UI interacts with an API client specifically designed for InsightStream. This client handles communication with the backend, but with a twist: it leverages Rapid API, a platform providing access to various external APIs. This suggests InsightStream might integrate external data feeds or functionalities through Rapid API, enriching the user experience without building everything from scratch

Features of InsightStream:

✔ News from API Sources: Access a vast library of global news spanning various categories and interests, ensuring a well-rounded coverage of current affairs.

✔ Visual News Exploration: Discover breaking stories and explore different news categories through curated image galleries, enhancing the visual appeal of news discovery.

✔ Intuitive Design: Navigate the application seamlessly with a clean, modern interface designed for optimal user experience and clarity in information presentation.

✔ Advanced Search Feature: Easily access news articles on specific topics through a powerful search feature, providing users with tailored news content based on their interests.

Setup Instructions:

PRE-REQUISITES: Here are the key prerequisites for developing a frontend application using React.js:

✔ **Node.js and npm**: Node.js is a powerful JavaScript runtime environment that allows you to run JavaScript code on the local environment. It provides a scalable and efficient platform for building network applications. Install Node.js and npm on your development machine, as they are required to run JavaScript on the server-side.

● Download: https://nodejs.org/en/download/

● Installation instructions: https://nodejs.org/en/download/package-manager/

✔ **React.js: React**.js is a popular JavaScript library for building user interfaces. It enables developers to create interactive and reusable UI components, making it easier to build dynamic and responsive web applications. Install React.js, a JavaScript library for building user interfaces.

● **Create a new React app**: npx create-react-app my-react-app Replace my-react-app with your preferred project name.

● **Navigate to the project directory:** cd my-react-app

● **Running the React App:** With the React app created, you can now start the development server and see your React application in action.

● **Start the development server**: npm start This command launches the development server, and you can access your React app at http://localhost:3000 in your web browser.

✔ **HTML, CSS, and JavaScript:** Basic knowledge of HTML for creating the structure of your app, CSS for styling, and JavaScript for client-side interactivity is essential.

✓**Version Control**: Use Git for version control, enabling collaboration and tracking changes throughout the development process. Platforms like GitHub or Bitbucket can host your repository.

• **Git**: Download and installation instructions can be found at: https://git-scm.com/downloads

✓ **Development Environment**: Choose a code editor or Integrated Development Environment (IDE) that suits your preferences, such as Visual Studio Code, Sublime Text, or WebStorm.

• **Visual Studio Code**: Download from https://code.visualstudio.com/download • Sublime Text: Download from https://www.sublimetext.com/download • WebStorm: Download from https://www.jetbrains.com/webstorm/download
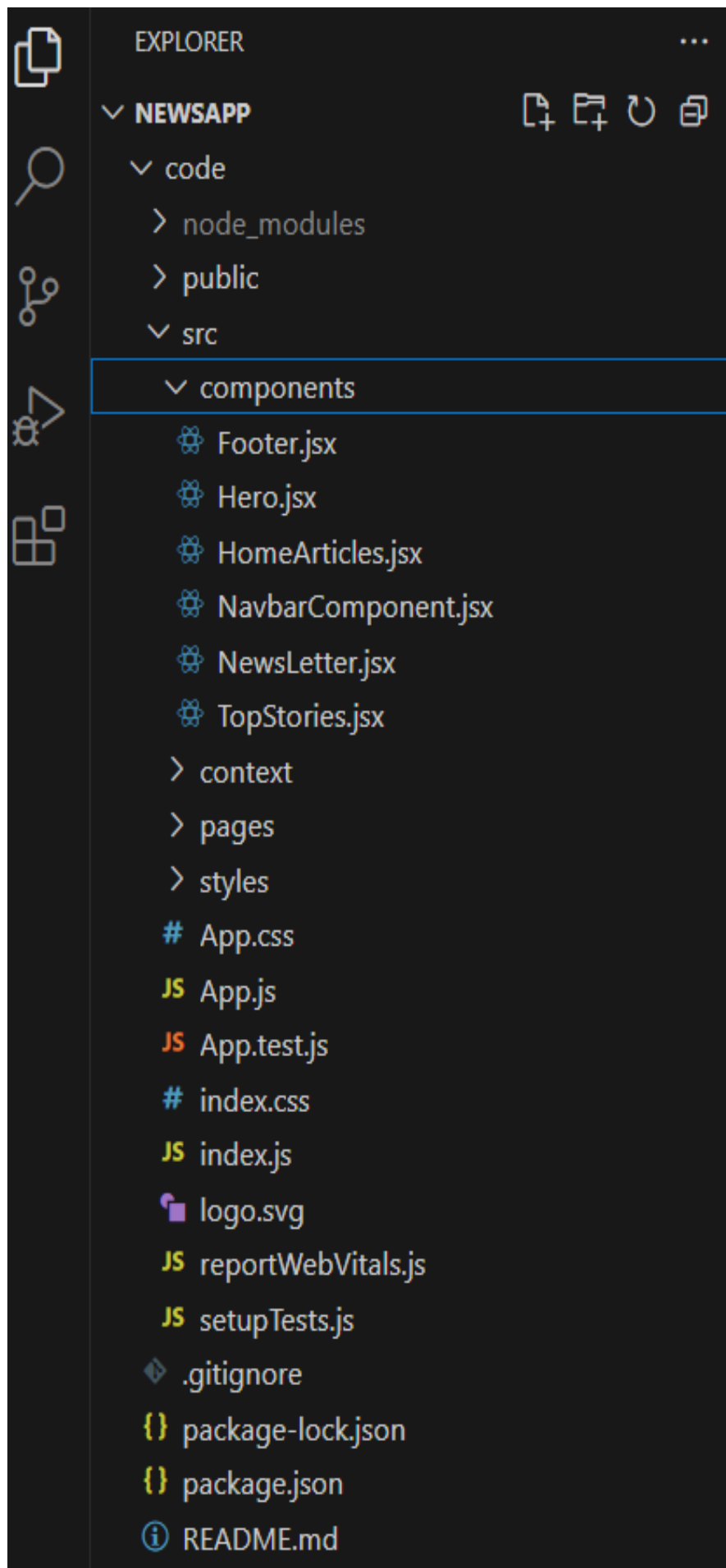
Project structure:

In this project, we've split the files into 4 major folders, Components, Context, Pages and
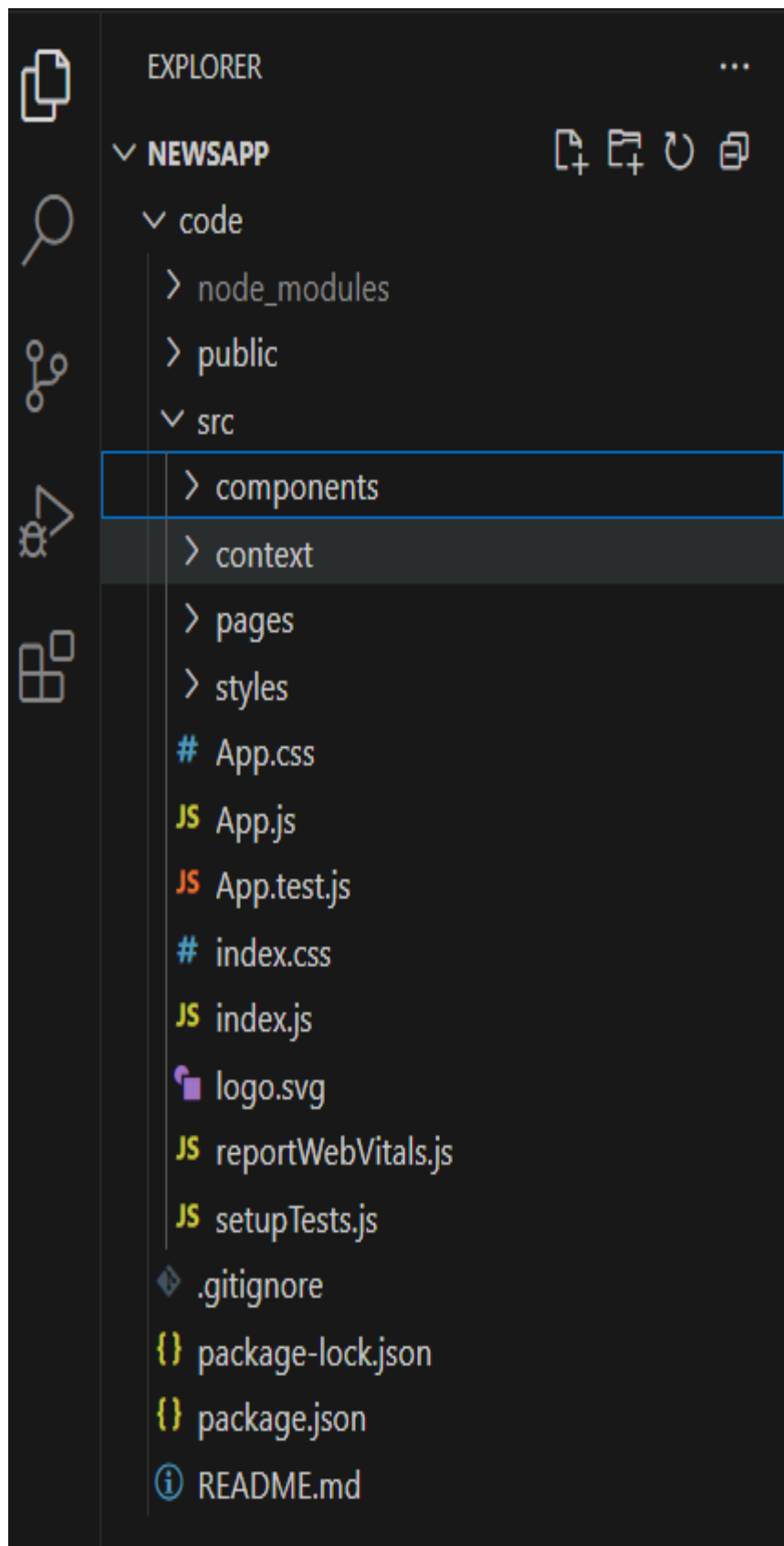Styles. In the pages folder, we store the files that acts as pages at different URLs in the
application. The components folder stores all the files, that returns the small components in
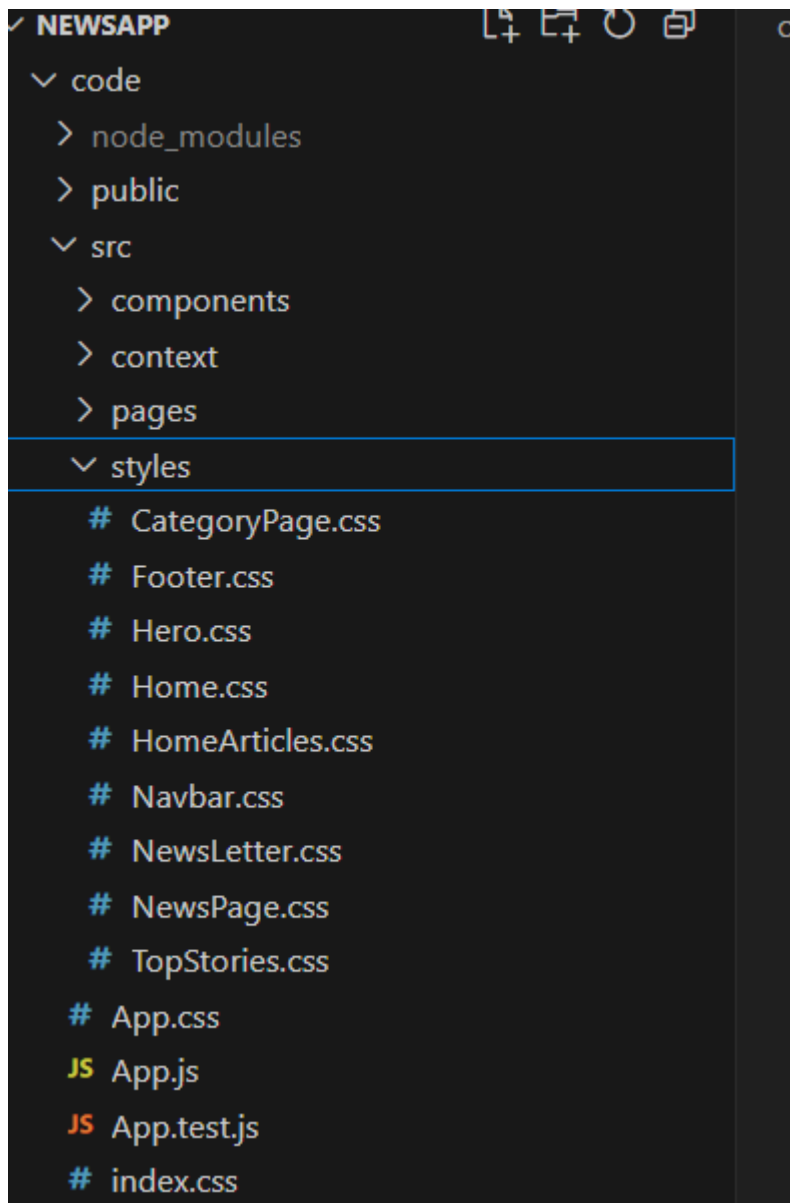the application. The context Api will be coded in the context folder. All the styling css files
will be stored in the styles folder

EXPLORER   ···

∨ **NEWSAPP**

∨ code
  > node_modules
  > public
  ∨ src
    ∨ components
        ⚛ Footer.jsx
        ⚛ Hero.jsx
        ⚛ HomeArticles.jsx
        ⚛ NavbarComponent.jsx
        ⚛ NewsLetter.jsx
        ⚛ TopStories.jsx
    > context
    > pages
    > styles
    # App.css
    JS App.js
    JS App.test.js
    # index.css
    JS index.js
    🔖 logo.svg
    JS reportWebVitals.js
    JS setupTests.js
  ◈ .gitignore
  {} package-lock.json
  {} package.json
  ⓘ README.md

EXPLORER ···

∨ NEWSAPP

∨ code
  › node_modules
  › public
  ∨ src
    › components
    › context
    › pages
    › styles
    # App.css
    JS App.js
    JS App.test.js
    # index.css
    JS index.js
    🔖 logo.svg
    JS reportWebVitals.js
    JS setupTests.js
  ◈ .gitignore
  {} package-lock.json
  {} package.json
  ⓘ README.md

Milestone 1: Project setup and configuration.

● Installation of required tools:

 To build InsightStream, we'll need a developer's toolkit. We'll use React.js for the interactive interface, React Router Dom for seamless navigation, and Axios to fetch news data. For visual design, we'll choose either Bootstrap or Tailwind CSS for pre-built styles and icons. Open the project folder to install necessary tools. In this project, we use:

- **React Js**

- **React Router Dom**

● **React Icons o Bootstrap/tailwind css o**

● **Axios ●**

For further reference, use the following resources o

● [**https://react.dev/learn/installation**](https://react.dev/learn/installation)

● **https://react-bootstrap-v4.netlify.app/getting-started/introduction/**

● **https://axios-http.com/docs/intro**

● **https://reactrouter.com/en/main/start/tutorial Styling:**

CSS Frameworks/Libraries

- Tailwind CSS: Used for consistent styling.
- React Icons: Used for scalable icons. Theming
- Supports dark/light mode with custom CSS variables**.**

Project Execution:

- After completing the code, run the react application by using the command "npm
- start" or "npm run dev" if you are using vite.js
- Here are some of the screenshots of the application.
- **Hero component**

In the hero component, the trending news articles are displayed. It is to highlight them. Apart from that, the search bar is also available to search for various articles

Popular categories

In the hero component, the trending news articles are displayed. It is to highlight them. Apart from that, the search bar is also available to search for various articles and categories.

Newsletter

Staying informed is key! This section would act as a magnet for users whowant to stay up-to-date on the latest news. A brief signup form with an email field would be presented, along with a clear call to action button like "Subscribe Now" or "Get Daily News Updates." With a simple click, users can join the InsightStream community and receive curated news delivered straight to their inbo


Category/Search

result page Finding the news you crave is effortless with InsightStream. This page displays a neatly organized list of articles matching your chosen categoryor specific search query. Each entry would provide a clear headline, a concise summary, and if available, an image to give you a quick glimpse into the story. To further refine your exploration, filters or sorting options might be available. Imagine narrow down results by date, source, keyword, or other relevant criteria

to pinpoint exactly what you're looking for.
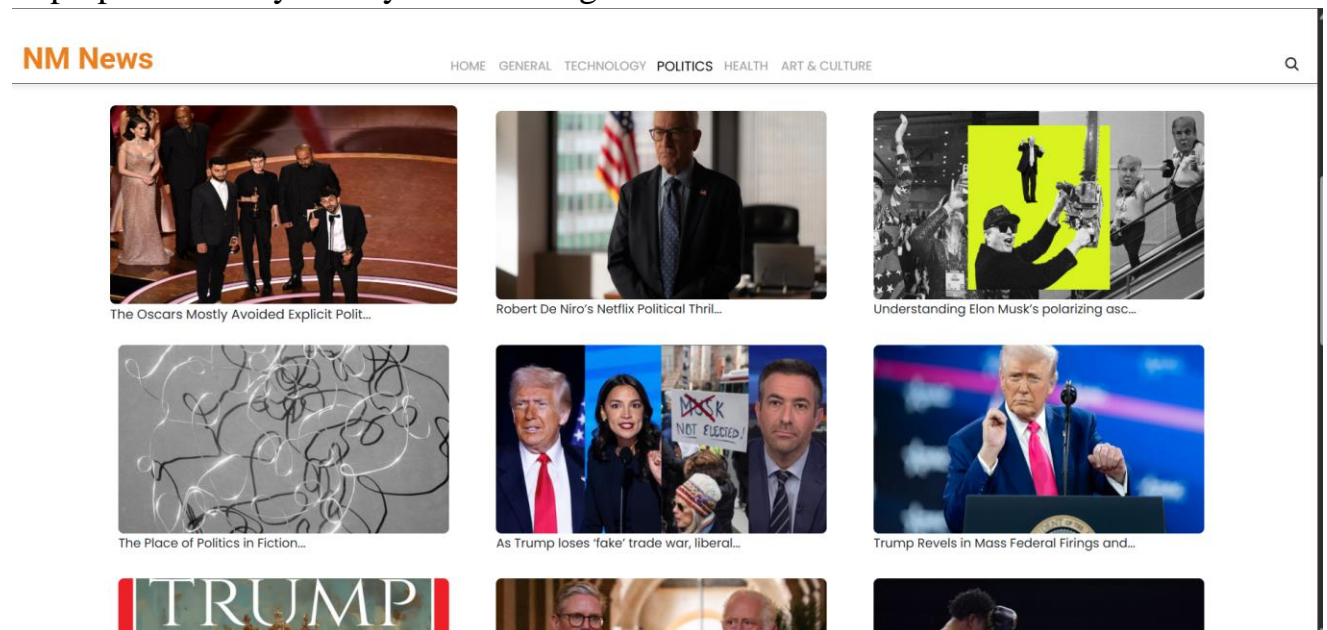
Redirected Article

page This is where you dive deep! The article page proudly displays the complete news story, retrieved directly from the original source. To keep you engaged and exploring related topics, the page might also suggest additional articles based on the current story. These suggestions can open doors to a world of interconnected information, allowing you to become a well-rounded news connoisseur
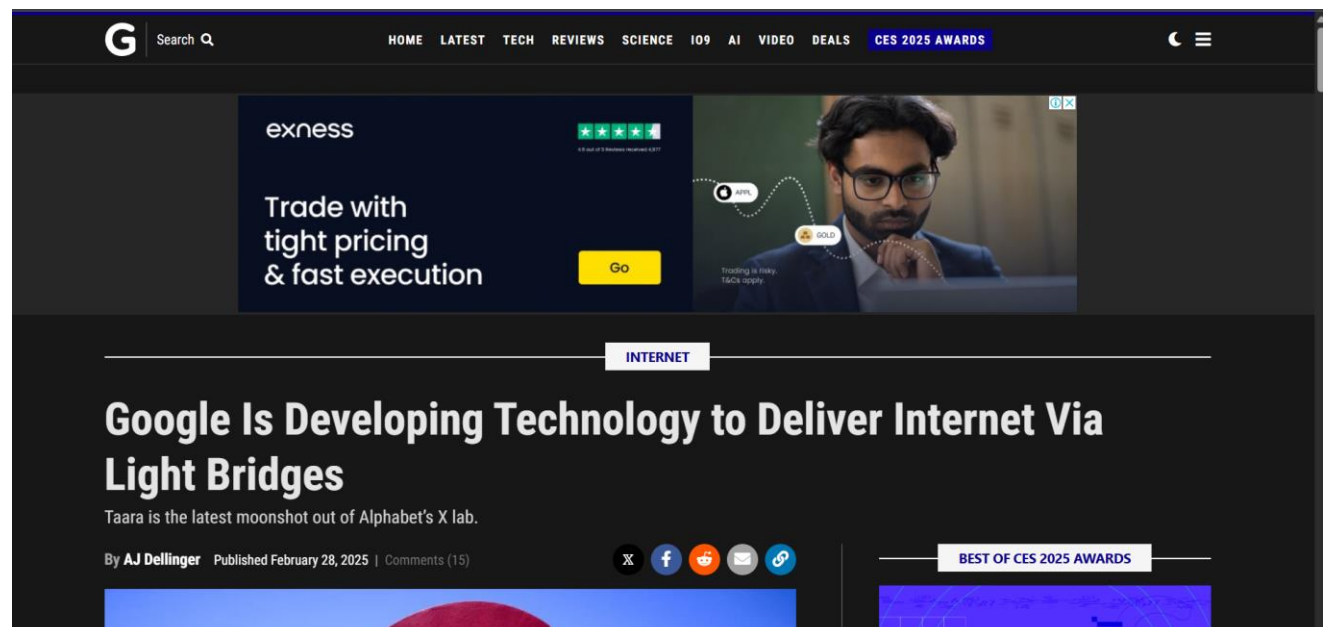
Related Youtube videos:

Testing:

Testing Strategy

- Unit Testing: Performed using Jest and React Testing Library.
- Integration Testing: Ensuring API calls work correctly.
- End-to-End Testing: Conducted with Cypress. Code Coverage ▢ Coverage is monitored using Jest.

Known Issues:

- API rate limits may affect data fetching. ▢ Some exercises may not have related YouTube videos.

Future Enhancements:

- Real-Time Analytics.
- Personalization.
- Improve animations and transitions.

Project Demo:

https://drive.google.com/file/d/1Yk6JudSk9NTn9bulDwocx9RFDD_8PF0h/view?usp=drivesdk

THANK YOU