Insight Stream - The News: Project Documentation

1. Introduction

Project Title: Insight Stream - The News

Project Type: React-based news aggregation and streaming frontend

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Purpose: This project delivers a modern, responsive frontend that aggregates and displays news articles and live streams.

2. Project Overview

Purpose:
Insight Stream aims to provide users with a fast, accessible, and customizable way to follow news across categories. It aggregates headlines, full articles, and live news streams into a single React application.

Key Features:
- Home feed with top stories and category filters
- Article detail pages with related articles and tags
- Live streaming integration for breaking news or scheduled shows
- Search and saved articles/bookmarks
- Responsive layout for mobile and desktop
- Theming support (light/dark)
- Basic accessibility considerations (keyboard navigation, ARIA attributes)

3. Architecture

Component Structure:
The app follows a component-driven architecture. Major components include:
- App (root) — sets up routing and global providers
- NavBar — site navigation and category selectors
- HomeFeed — lists aggregated story cards
- StoryCard — reusable card for each article summary
- ArticlePage — full article view with metadata and related content
- StreamPlayer — component that wraps embedded live streams

- SearchResults — displays search output

State Management:
Use React Context for lightweight global state (user preferences, theme, bookmarks). For heavier data flows (caching feeds, optimistic updates), use a data-fetching library like React Query.

Routing:
Use react-router-dom. Routes example:
- / — HomeFeed
- /category/:name — Category filtered feed
- /article/:id — ArticlePage
- /search?q= — SearchResults
- /live — Live streams

4. Setup Instructions

Prerequisites:
- Node.js (v16+ recommended)
- npm or yarn

Installation:
1. Clone the repository: git clone <repo-url>
2. cd insight-stream-client
3. Install dependencies: npm install (or yarn)
4. Create a .env file and add required environment variables (REACT_APP_API_BASE, REACT_APP_STREAM_KEY, etc.)

Environment Variables (example):
- REACT_APP_API_BASE=https://api.example.com
- REACT_APP_STREAM_PROVIDER_URL=...

5. Folder Structure

Client (React app):

```
src/
├── components/     # Reusable UI components (StoryCard, Button, Inputs)
├── pages/          # Page-level components (HomeFeed, ArticlePage, LivePage)
├── hooks/          # Custom hooks (useFetchArticles, useBookmarks)
├── context/        # React Context providers (ThemeProvider, UserProvider)
├── services/       # API wrappers and streaming utilities
├── styles/         # Global styles, variables and themes
├── assets/         # Static assets (icons, fonts)
```

```
└── App.jsx
```

Utilities:
- helpers/ for small utility functions (date formatting, URL builders)
- constants/ for app constants and config

6. Running the Application

Development server:
1. cd insight-stream-client
2. npm start

Production build:
1. npm run build
2. Serve the build directory with a static server (e.g., serve -s build) or integrate with your hosting pipeline.

7. Component Documentation

Key Components:

App.jsx
- Purpose: App root, sets up Router and global providers
- Props: none

NavBar
- Purpose: Top navigation, category selection, search input
- Props: onSearch(query), activeCategory

HomeFeed
- Purpose: Fetch and render StoryCard list
- Props: category, page

StoryCard
- Purpose: Present article preview (title, snippet, source, timestamp)
- Props: story {id, title, snippet, source, publishedAt}

ArticlePage
- Purpose: Show full article content and related articles
- Props: articleId

StreamPlayer
- Purpose: Embed or wrap streaming provider SDKs/iframes

- Props: streamUrl, config

8. State Management

Global State:
- Theme (light/dark)
- User preferences (saved categories)
- Bookmarks

Local State:
- Component-level UI states (open modals, local form inputs)

Data Fetching:
Use React Query (or similar) to cache article feeds and simplify loading / error states. Keep server state in the query cache and local UI state in components.

9. User Interface

Design Approach:
- Responsive grid for lists and a single-column reading view on mobile
- Prioritize content readability: legible font sizes, adequate line-height

Accessibility:
- Use semantic HTML elements
- Include ARIA labels where needed
- Ensure keyboard navigation across interactive elements

10. Styling

CSS Frameworks/Libraries:
- Tailwind CSS recommended for utility-first styling and rapid iteration. Alternatively, use Styled-Components for component-scoped styles.

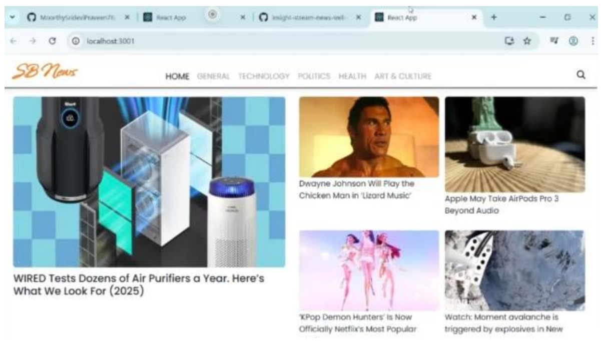
Theming:
- Provide CSS variables or a theme provider to toggle light/dark modes.

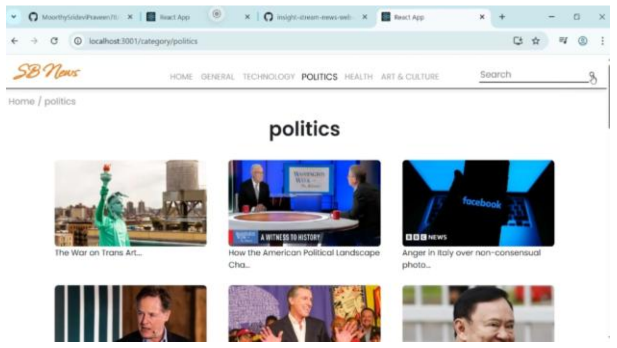
11. Testing

Testing Strategy:
- Unit tests: Jest + React Testing Library for components
- Integration tests: React Testing Library for page flows
- End-to-end: Cypress (or Playwright) for critical user journeys (view article, search, bookmark)

Code Coverage:
- Use coverage reports from Jest and enforce thresholds in CI (e.g., 80% lines, 75% functions)

12. Screen shorts


localhost:3001
SB News
HOME GENERAL TECHNOLOGY POLITICS HEALTH ART & CULTURE
WIRED Tests Dozens of Air Purifiers a Year. Here's What We Look For (2025)
Dwayne Johnson Will Play the Chicken Man in 'Lizard Music'
Apple May Take AirPods Pro 3 Beyond Audio
'KPop Demon Hunters' Is Now Officially Netflix's Most Popular
Watch: Moment avalanche is triggered by explosives in New


localhost:3001/category/politics
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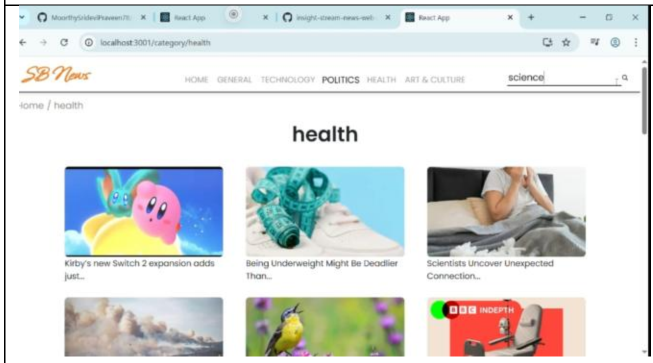
HOME GENERAL TECHNOLOGY POLITICS HEALTH ART & CULTURE
Search
Home / politics
politics
The War on Trans Art...
How the American Political Landscape Cha...
Anger in Italy over non-consensual photo...


localhost:3001/category/health
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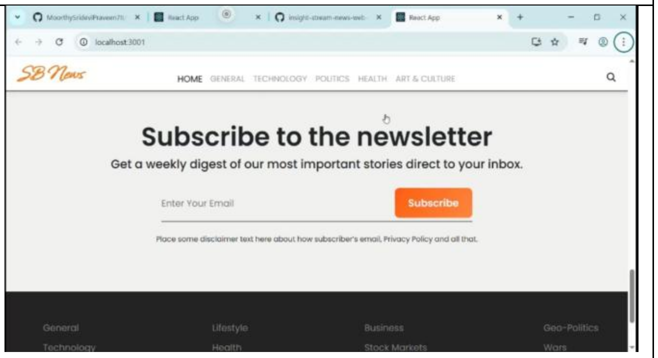
science
Home / health
health
Kirby's new Switch 2 expansion adds just...
Being Underweight Might Be Deadlier Than...
Scientists Uncover Unexpected Connection...


localhost:3001
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12. Known Issues

- Streaming provider may have CORS restrictions in some environments.
- Some older browsers may require polyfills for modern JS features.
- Rate-limiting from third-party news APIs could affect feed freshness.

13. Future Enhancements

- Personalization: ML-driven recommended articles
- Offline reading: service worker + local cache
- Multi-lingual support
- Improved analytics and A/B testing for feed ranking

Appendix: Useful Commands & Links

- Start dev server: npm start
- Build: npm run build
- Run tests: npm test