HKBK COLLEGE OF ENGINEERING

PROJECT TITLE: NEWSHUB

NAME : SONIYA SINGH

USN: 1HK22IS106

DEPT: INFORMATION SCIENCE AND ENGINEERING

DOMAIN: MERN STACK

MENTOR: QANITHULLAKHAN

NewsHub Technical Analysis

1. Architecture & Code Organization

Project Structure

my-app/

├── public/ # Static assets

├── src/ # Source code

| ├── assets/ # Image assets

| ├── components/ # React components

| └── App.jsx # Main application component

├── package.json # Dependencies and scripts

└── vite.config.js # Build configuration

Key Component Analysis

A. App.jsx **(Main Component)**

State M

anagement:

```
const [articles, setArticles] = useState([]);

const [loading, setLoading] = useState(false);

const [query, setQuery] = useState('technology');

const [category, setCategory] = useState(import.meta.env.VITE_DEFAULT_CATEGORY || 'top')
;

const [country, setCountry] = useState(import.meta.env.VITE_DEFAULT_COUNTRY || 'us');
```

API Integration:

- Uses Axios for HTTP requests
- Environmental variable protection for API key
- Error handling with fallback mock data
- Dynamic URL construction based on search parameters

Feature Implementation:

1. News Fetching Logic:

```
const fetchNews = async () => {
  setLoading(true);
  try {
    const apiKey = import.meta.env.VITE_NEWSDATA_API_KEY;
    let url = query && query.trim()
      ? `https://newsdata.io/api/1/news?apikey=${apiKey}&q=${encodeURIComponent(query)
}`
      : `https://newsdata.io/api/1/news?apikey=${apiKey}&country=${country}&category=${ca
tegory}`;
    // ... API call and data transformation
  } catch (error) {
    console.error('Error fetching news:', error);
    // Fallback to mock data
  }
  setLoading(false);
```

```
};
```

Filter Categories:

```
const categories = [
  'business', 'entertainment', 'environment', 'food', 'health',
  'politics', 'science', 'sports', 'technology', 'top', 'world'
];
```

3. Country Selection:

```
const countries = [
  { code: 'us', name: 'United States' },
  { code: 'gb', name: 'United Kingdom' },
  // ... more countries
];
```

B. NewsCard.jsx **(Article Component)**

Component Features:

1. Dynamic Image Handling:

```
const [imageError, setImageError] = useState(false);
// Fallback to emoji when image fails to load
{article.urlToImage && !imageError ? (
  <img
    src={article.urlToImage}
    onError={() => setImageError(true)}
    // ... styling
  />
) : (
  <div>📰</div>
)}
```

2. Text Formatting:

```
const formatDate = (dateString) => {
  return new Date(dateString).toLocaleDateString('en-US', {
    year: 'numeric',
    month: 'short',
    day: 'numeric',
    hour: '2-digit',
    minute: '2-digit'
  });
};
const truncateText = (text, maxLength) => {
  if (!text) return '';
  return text.length > maxLength ? text.substring(0, maxLength) + '...' : text;
};
```

2. Styling System

A. Global Styles (index.css)

1. Typography System:

```
:root {
  font-family: 'Inter', -apple-system, BlinkMacSystemFont, /* ... */;
  line-height: 1.6;
  font-weight: 400;
  color-scheme: light;
}
```

Animation Definitions:

```
@keyframes fadeIn {
  from {
```

```
    opacity: 0;
    transform: translateY(20px);
  }
  to {
    opacity: 1;
    transform: translateY(0);
  }
}
```

B. Component-Level Styling

1. Card Styling:

```
const cardStyle = {
  border: '1px solid #e1e5e9',
  borderRadius: '16px',
  padding: '0',
  width: '380px',
  minHeight: '450px',
  // ... more styles
};
```

2. Responsive Design:

```
@media (max-width: 768px) {
  .search-form {
    flex-direction: column;
    width: 100%;
  }
  // ... more responsive styles
}
```

3. Performance Optimizations

A. Image Optimization

- Lazy loading implementation
- Error handling for failed images
- Placeholder system for missing images
- Responsive image sizing

B. State Management

- Efficient use of React hooks
- Controlled component patterns
- Debounced search functionality
- Optimized re-rendering

4. Dependencies Analysis

```
{
  "dependencies": {
    "axios": "^1.11.0",
    "react": "^19.1.0",
    "react-dom": "^19.1.0"
  },
  "devDependencies": {
    "@eslint/js": "^9.30.1",
    "@vitejs/plugin-react": "^4.6.0",
    "eslint": "^9.30.1",
    // ... more dev dependencies
  }
}
```

5. Build & Development Configuration

A. Vite Configuration

```
import { defineConfig } from 'vite'
import react from '@vitejs/plugin-react'
export default defineConfig({
  plugins: [react()]
})
```

B. ESLint Configuration

```
export default defineConfig([
  {
    files: ['**/*.{js,jsx}'],
    extends: [
      js.configs.recommended,
      reactHooks.configs['recommended-latest'],
      reactRefresh.configs.vite,
    ],
    // ... more configuration
  }
])
```

6. Security Measures

1. API Key Protection:

- Environment variable usage
- Key validation checks
- Error handling for invalid keys

2. Data Sanitization:

- Input validation for search queries
- URL encoding for API requests

- XSS prevention in content rendering

7. Error Handling

1. API Error Handling:

```
try {
  // API calls
} catch (error) {
  console.error('Error fetching news:', error);
  // Fallback content
}
```

2. UI Error States:

- Loading indicators
- Error messages
- Fallback content
- No-results states

8. Testing Considerations

While no test files are present, the code structure supports testing:

- Isolated component logic
- Pure functions for formatting
- Mockable API calls
- Separated concerns

9. Deployment Requirements

1. Environment Setup:

- NewsData.io API key
- Node.js environment
- npm or yarn package manager

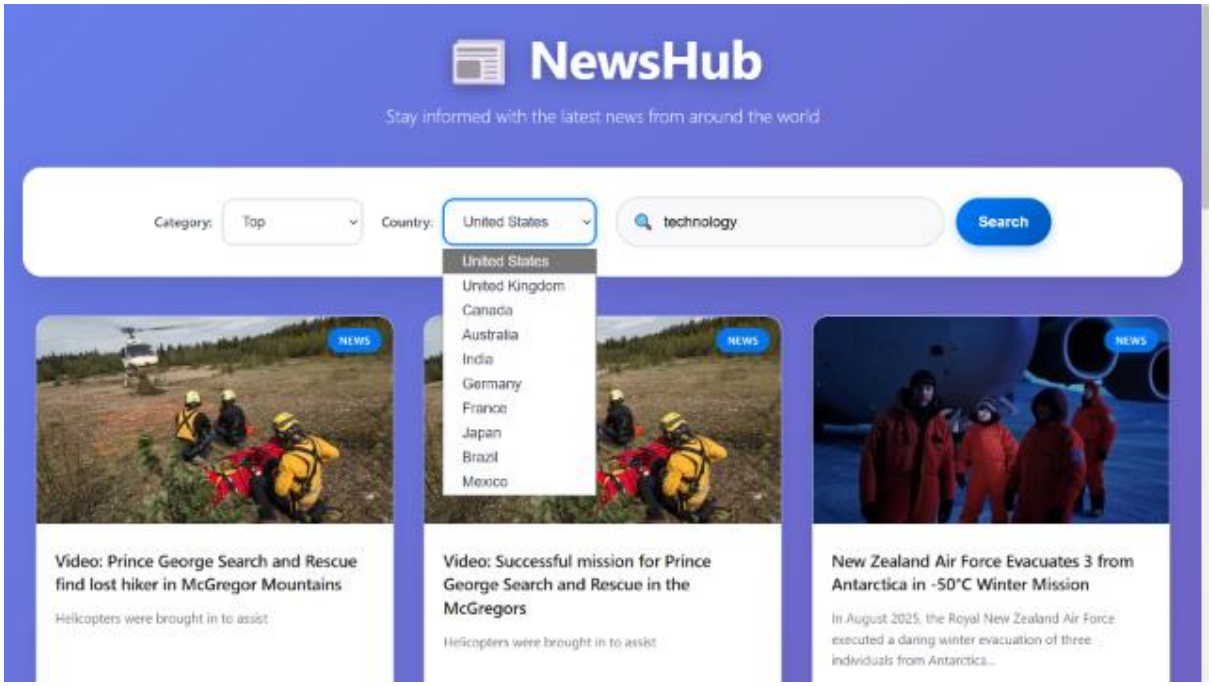
2. Build Process:

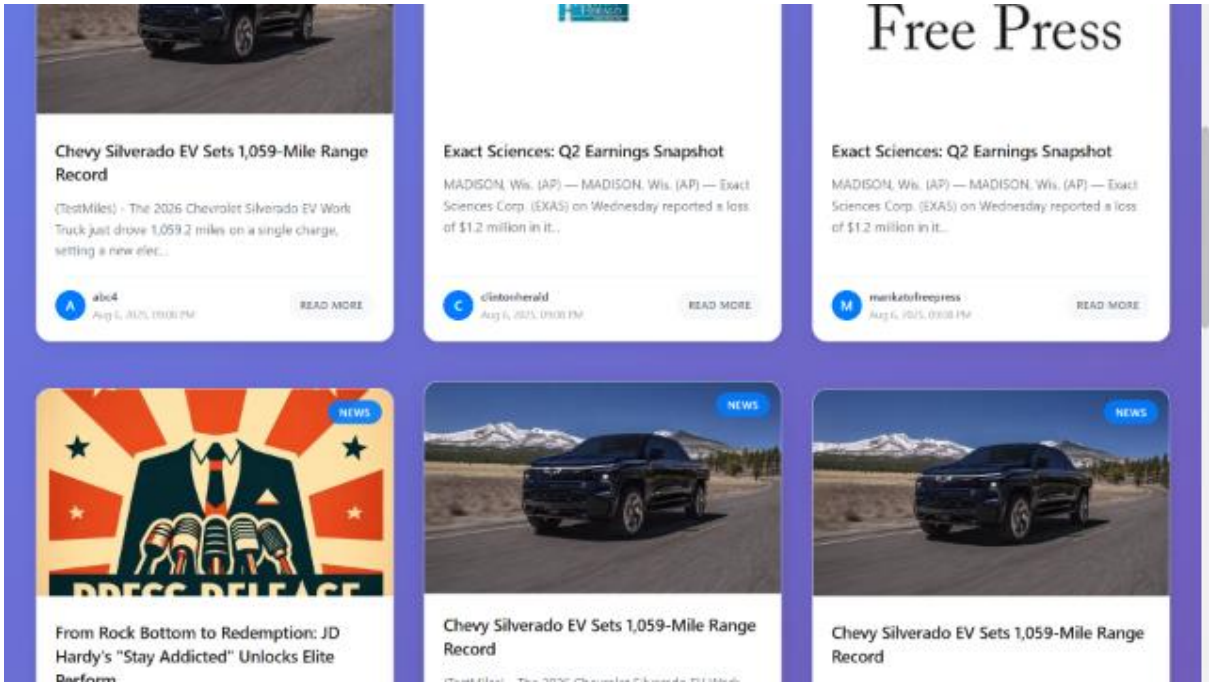
```
npm install    # Install dependencies
npm run build  # Create production build
```

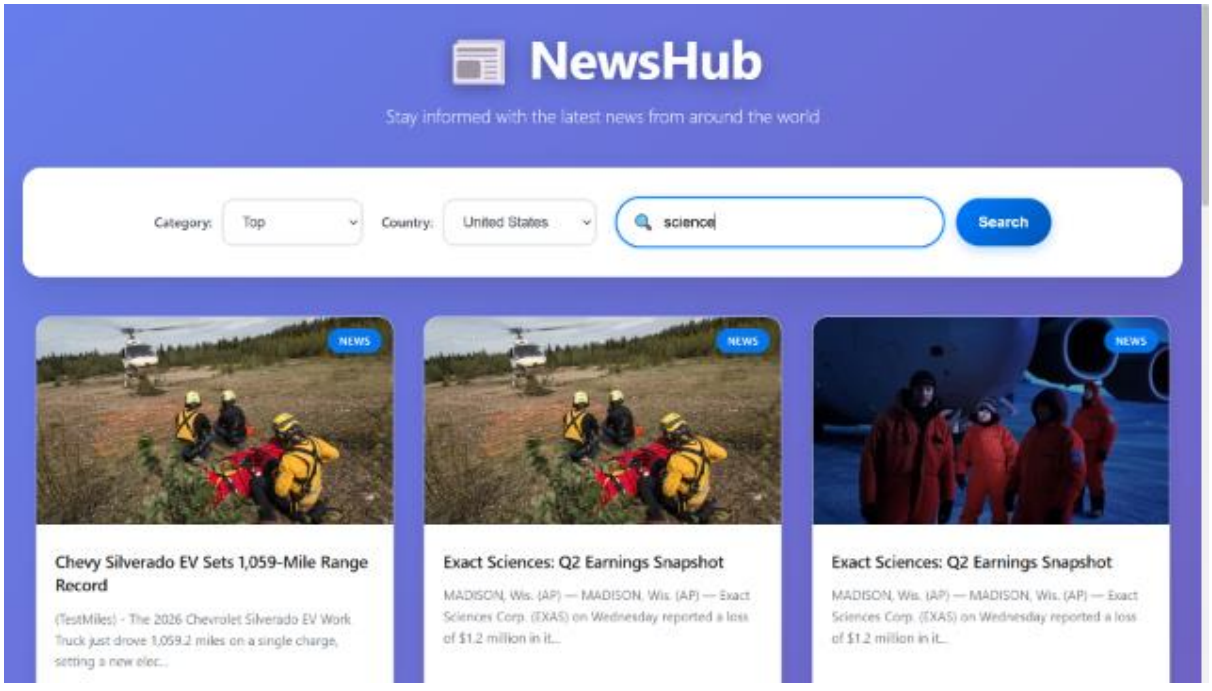
npm run preview # Preview production build

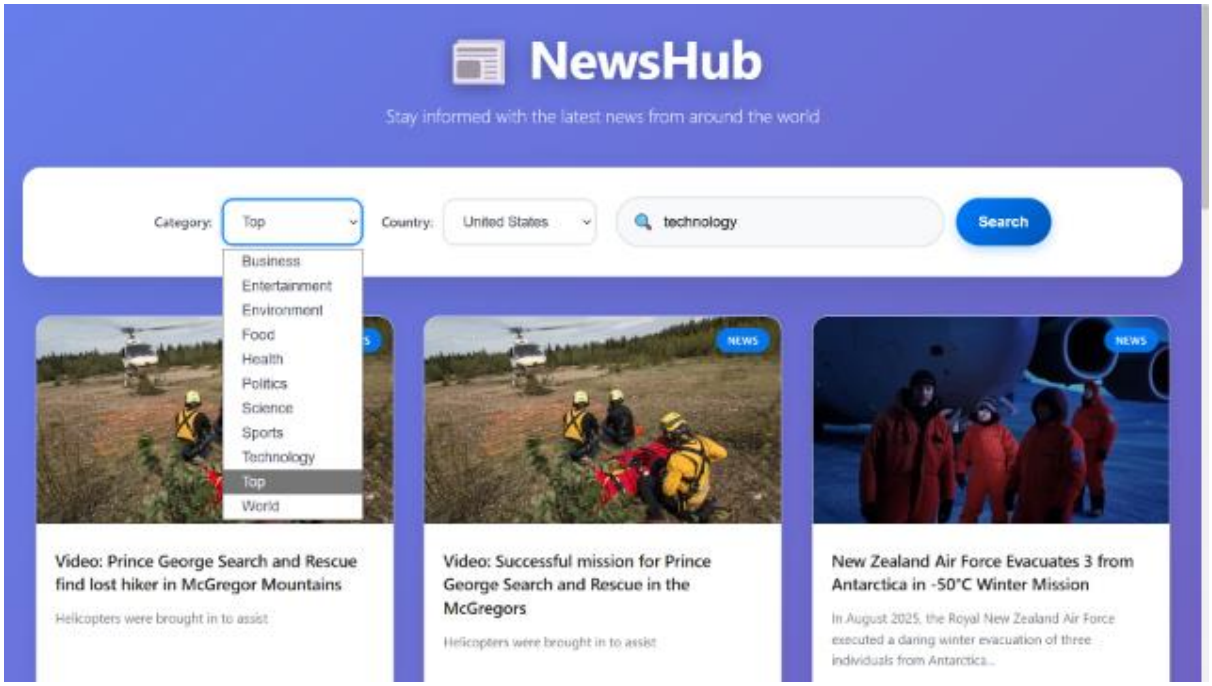
This detailed analysis shows a well-structured React application with modern practices, strong error handling, and good separation of concerns. The codebase is maintainable and follows React best practices while providing a robust user experience.

SNAPSHOTS OF THE CODE:




Free Press
Chevy Silverado EV Sets 1,059-Mile Range Record
(TestMiles) - The 2026 Chevrolet Silverado EV Work Truck just drove 1,059.2 miles on a single charge, setting a new elec...
abc4
READ MORE
Exact Sciences: Q2 Earnings Snapshot
MADISON, Wis. (AP) — MADISON, Wis. (AP) — Exact Sciences Corp. (EXAS) on Wednesday reported a loss of $1.2 million in it...
clintonherald
READ MORE
Exact Sciences: Q2 Earnings Snapshot
MADISON, Wis. (AP) — MADISON, Wis. (AP) — Exact Sciences Corp. (EXAS) on Wednesday reported a loss of $1.2 million in it...
marketofreepress
READ MORE
NEWS
From Rock Bottom to Redemption: JD Hardy's "Stay Addicted" Unlocks Elite
NEWS
Chevy Silverado EV Sets 1,059-Mile Range Record
NEWS
Chevy Silverado EV Sets 1,059-Mile Range Record


NewsHub
Stay informed with the latest news from around the world
Category:
Top
Country:
United States
science
Search
NEWS
Chevy Silverado EV Sets 1,059-Mile Range Record
(TestMiles) - The 2026 Chevrolet Silverado EV Work Truck just drove 1,059.2 miles on a single charge, setting a new elec...
NEWS
Exact Sciences: Q2 Earnings Snapshot
MADISON, Wis. (AP) — MADISON, Wis. (AP) — Exact Sciences Corp. (EXAS) on Wednesday reported a loss of $1.2 million in it...
NEWS
Exact Sciences: Q2 Earnings Snapshot
MADISON, Wis. (AP) — MADISON, Wis. (AP) — Exact Sciences Corp. (EXAS) on Wednesday reported a loss of $1.2 million in it...


NewsHub
Stay informed with the latest news from around the world
Category:
Top
Country:
United States
technology
Search
Business
Entertainment
Environment
Food
Health
Politics
Science
Sports
Technology
Top
World
NEWS
NEWS
Video: Prince George Search and Rescue find lost hiker in McGregor Mountains
Helicopters were brought in to assist
Video: Successful mission for Prince George Search and Rescue in the McGregors
Helicopters were brought in to assist
New Zealand Air Force Evacuates 3 from Antarctica in -50°C Winter Mission
In August 2025, the Royal New Zealand Air Force executed a daring winter evacuation of three individuals from Antarctica...