

# **HKBK COLLEGE OF**

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# **ENGINEERING**

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**PROJECT TITLE: NEWSHUB**

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**USN: 1HK22IS022**

**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 Management:**

```

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=${category}`;
    // ... 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>
```

## 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

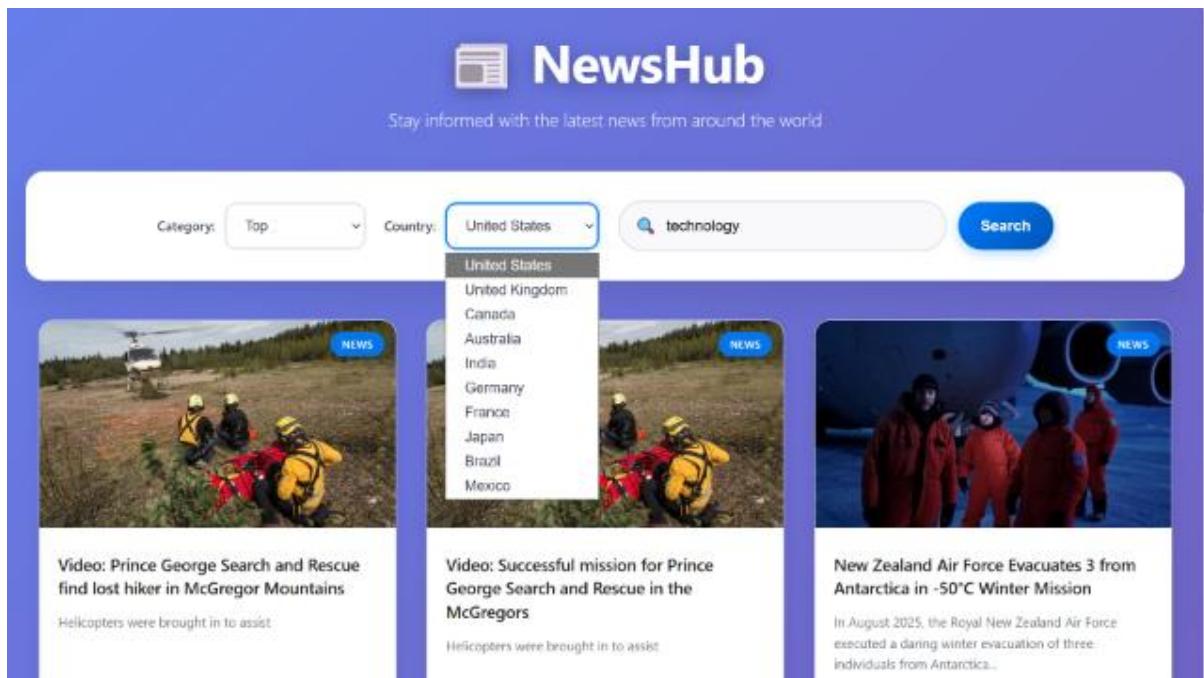
2. Build Process:

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

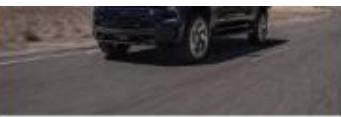
```
npm run preview # Preview production build
```

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:



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