# Frontend Development with React.js

Project Documentation

## Introduction

### Project Title: **InsightStream: Navigate the News Landscape**

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## Project Overview

Purpose: The purpose of this project is to build a Smart Campus Portal that allows students and faculty to manage schedules, announcements, and communication efficiently.

Features:

- User authentication and authorization  
- Dashboard for students and faculty  
- Real-time announcements  
- Timetable and event management  
- Chat and discussion forums

## Architecture

Component Structure: The application is divided into reusable components such as Navbar, Sidebar, Dashboard, Profile, and AnnouncementCard. These components interact through props and state management.

State Management: Redux Toolkit is used for global state management, while local states are handled using React’s useState.

Routing: React Router DOM is used to handle routing between different pages such as Home, Dashboard, Profile, and Announcements.

## Setup Instructions

Prerequisites: Node.js, npm

Installation:

1. Clone the repository: git clone https://github.com/example/smart-campus-portal.git  
2. Navigate to project folder: cd smart-campus-portal  
3. Install dependencies: npm install  
4. Configure environment variables in a .env file

## Folder Structure

Client: Organized into components, pages, assets, and styles.  
Utilities: Includes helper functions and custom hooks such as useAuth and useFetch.

## Running the Application

To start the application locally:  
Frontend: npm start in the client directory

## Component Documentation

Key Components:  
- Navbar: Provides navigation across pages  
- Dashboard: Displays schedules and announcements  
- Profile: Shows user information and settings

Reusable Components:  
- Button: Custom button with variants  
- Modal: Reusable modal for alerts and confirmations

## State Management

Global State: Managed with Redux Toolkit for authentication, announcements, and events.  
Local State: Managed within components using useState and useEffect.

## User Interface

The UI includes a responsive dashboard, interactive forms, and real-time updates for announcements.

## Styling

CSS Frameworks/Libraries: Tailwind CSS for utility-first styling.  
Theming: Custom theme with brand colors and typography.

## Testing

Testing Strategy: Unit testing with Jest and component testing with React Testing Library.  
Code Coverage: Ensured with Jest coverage reports.

## Screenshots or Demo

Demo Link: https://smart-campus-demo.example.com

## Known Issues

- Limited offline support  
- Some components need optimization for performance

## Future Enhancements

- Add mobile app integration  
- Implement push notifications  
- Add dark mode support