NAAN MUDHALVAN PROJECT REPORT

PROJECT TITLE: COOK BOOK –YOUR VIRTUAL KITCHEN ASSISTANT

TEAM ID: NM2025TMID47180

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2.PROJECT OVERVIEW:

A **Cookbook Virtual Kitchen Assistant** is a smart, interactive application designed to assist users in the kitchen. It acts like a digital sous-chef, helping with recipe management, meal planning, grocery shopping, and step-by-step cooking guidance. The assistant can be voiceenabled, app-based, or integrated with smart home devices like Alexa, Google Assistant, or kitchen appliances.

Features :

1. Smart Recipe Search & Suggestions

   Search recipes by ingredient, cuisine, dietary preference, or cooking time.

   - Get personalized suggestions based on past cooking history or available ingredients.

2. Step-by-Step Cooking Instructions (Voice & Visual)
   - Interactive, hands-free instructions with voice guidance.
   - Includes images, videos, timers, and tips for each cooking step.
3. Automatic Grocery List Generator
   - Creates a shopping list based on selected recipes or weekly meal plans.
   - Organizes items by category for easier shopping.
4. Meal Planning & Scheduling
   - Plan daily or weekly meals.
   - Sync meal plans with grocery lists and calendar reminders.

3.ARCHITECTURE:

This architecture supports a scalable, modern web application that provides interactive recipe guidance, meal planning, and pantry management through an intuitive interface.

Frontend: React.js + Bootstrap + Material UI

Role:

The user interface that delivers a smooth, responsive, and interactive experience.

Technologies Used:

- React.js: Component-based structure for dynamic UI.

- Bootstrap**:** Layout grid system, responsiveness, and basic styling.
- Material UI**:** Modern, sleek UI components (buttons, cards, modals, etc.).**Backend: Node.js + Express.js**

Role:

Handles business logic, API routing, user authentication, and connection with the database.

Technologies Used:

- **Node.js**: Event-driven, non-blocking backend runtime for handling high concurrency.
- **Express.js**: Lightweight framework to build RESTful APIs and manage server-side logic.

Database: MongoDB

Stores structured and unstructured data in flexible JSON-like documents.

[React.js (Frontend)]

|

| REST API Calls

↓

[Node.js + Express.js (Backend)]

|

| Mongoose Queries

↓

[MongoDB (Database)]

4.SETUP INSTRUCTIONS:

Prerequisites:

– Node.js

– MongoDB

– Git

– React.js

– Express.js – Mongoose – Visual Studio Code

Installation Steps

1. Clone the Repository

```
git clone <your-repo-url>
cd <repo-folder-name>
```

2. Install Client Dependencies

```
cd client
npm install
```

3. Install Server Dependencies

```
Cd ../server
npm install
```

Start the Application

Start Client (Frontend):

Bash

```
npm start
```

StartServer(Backend)

cd server

npm start

5. FOLDER STRUCTURE:

COOK BOOK

```
│
├── public/              # Static files (not processed by build tools)
│   ├── index.html       # Main HTML file
│   ├── favicon.ico      # Site icon
│   └── assets/          # Images, fonts, videos (static)
│
├── src/                 # Main source code
│   ├── assets/          # Processed assets (images, fonts, svgs, icons)
│   │   ├── images/
│   │   ├── fonts/
│   │   └── styles/      # Global styles (CSS/SCSS)
│   │
│   ├── components/      # Reusable UI components
│   │   ├── Button.jsx
│   │   └── Navbar.jsx
│   │
│   ├── pages/           # Page-level components (Home, About, etc.)
│   │   ├── Home.jsx
│   │   └── About.jsx
│   │
│   ├── layouts/         # Layouts for wrapping pages (Header/Footer)
│   │   └── MainLayout.jsx
```

```
│   │
│   ├── hooks/            # Custom React hooks (if using React)
│   │   └── useAuth.js
│   │
│   ├── services/         # API calls or external services
│   │   └── api.js
│   │
│   ├── context/          # Context API or global state (React/Vue)
│   │   └── AuthContext.jsx
│   │
│   ├── utils/            # Helper functions
│   │   └── formatDate.js
│   │
│   ├── App.js            # Root component
│   ├── index.js          # Entry point
│   └── routes.js         # Route definitions (if needed)
│
├── .gitignore            # Files ignored by Git
├── package.json          # Dependencies & scripts
├── README.md             # Project documentation
└── vite.config.js / webpack.config.js / next.config.js (depending on framework)
```

6. RUN THE APPLICATION:

frontend

cd client

npm start

backend

cd server

npm start

Access: visit http://localhost:3000

7. COMPONENT DOCUMENTATION:

Key Components:

- RecipeList: Displays recipe cards fetched from API. Props: recipes[].

- RecipeDetail: Shows full recipe details. Props: recipeId.

Reusable Components:

- RecipeCard – used in RecipeList and Favorites.

- Button – styled button component used throughout the app

8. STATE MANAGEMENT:

Global State:

Managed by RecipesContext for recipes, favorites, and user login status.

Local State:

Form input states managed inside AddRecipeForm.

9. USER INTERFACE:

Include screenshots or GIFs of:

- Home page showing recipes

- Recipe detail page

- Adding a recipe

10. STYLING:

CSS Frameworks/Libraries:

Tailwind CSS for styling; Styled Components for scoped styles.

Theming:

Dark and light mode toggle implemented via context.

11. TESTING:

Unit testing:

Testing individual components or functions in isolation to ensure they work correctly.

Integration testing:

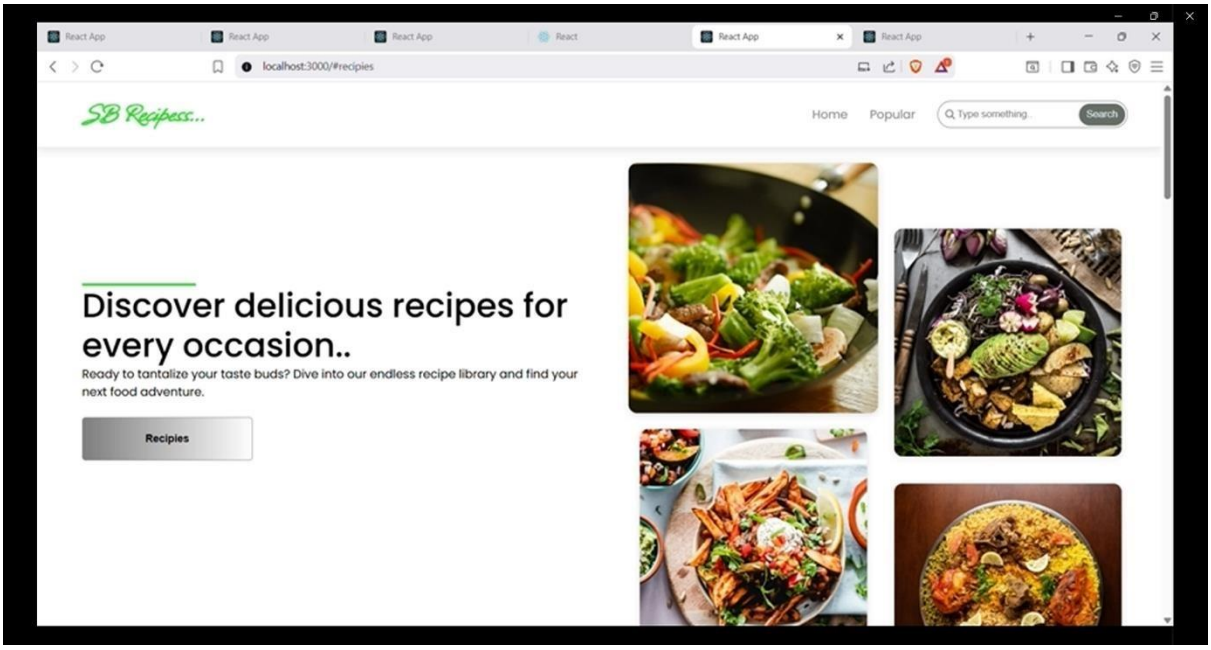
Testing how different components or modules work together as a whole

12. SCREENSHOTS OR DEMO:

Add actual screenshots or a demo link:

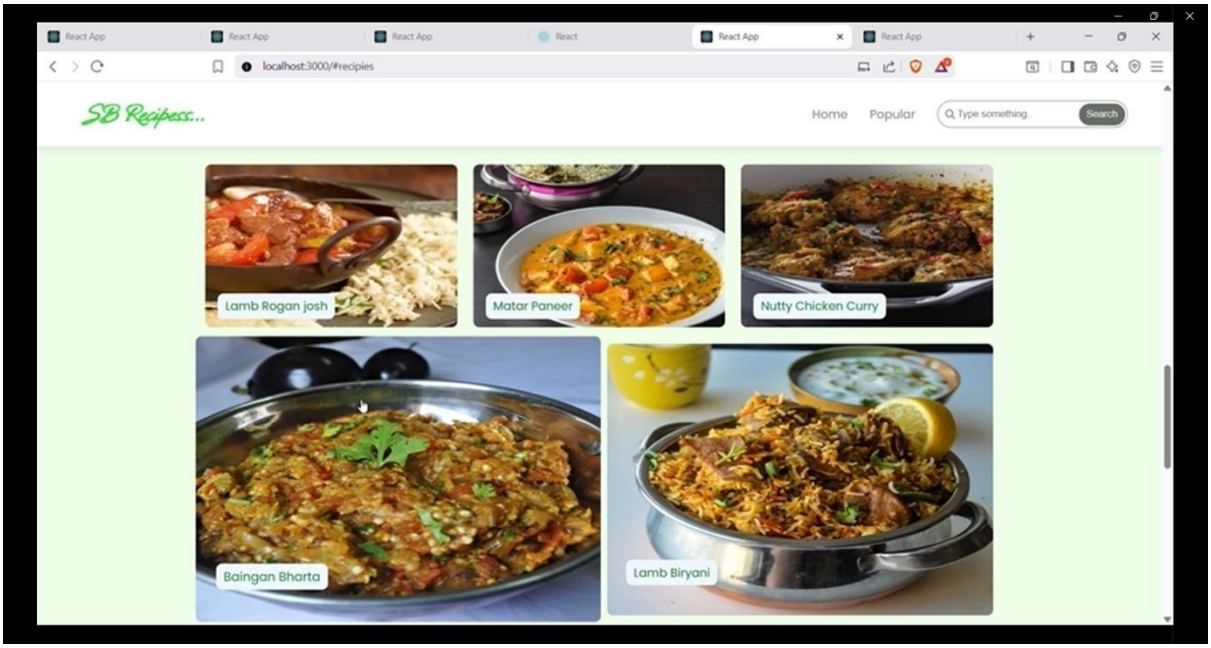
Hero components:

The hero component of the application provides a brief description about our application and a button to view more recipes.



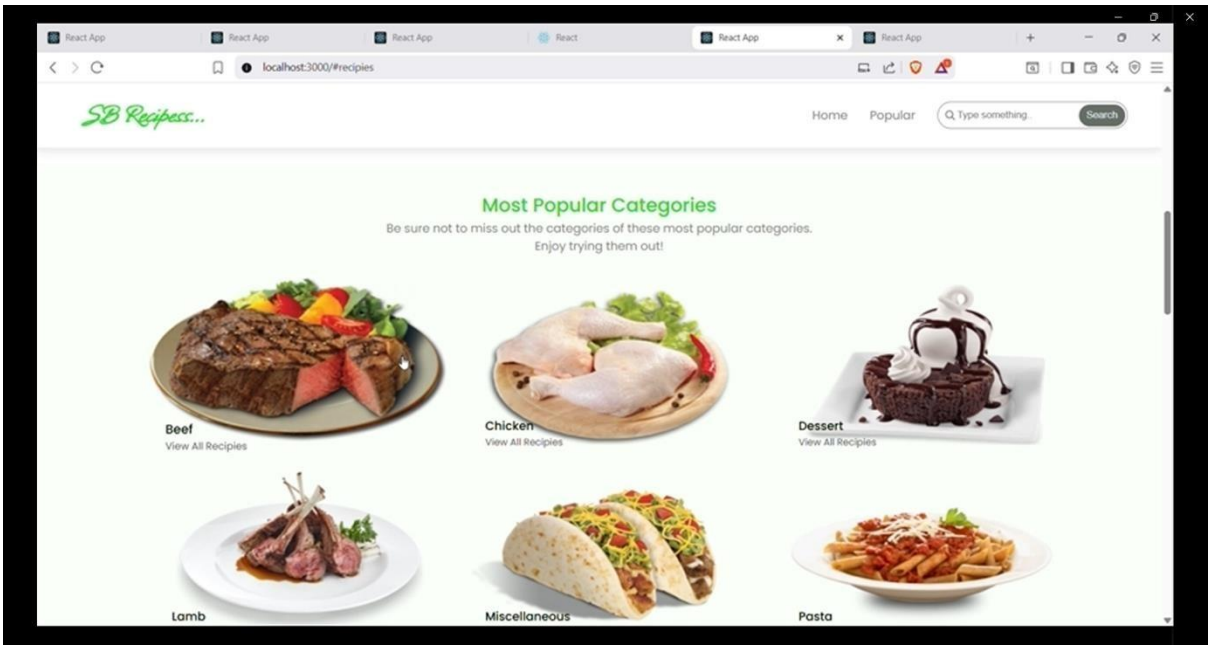
Trending Dishes :

This component contains some of the trending dishes in this application



Popular categories :

This component contains all the popular categories of recipes..



Demo Link: https://drive.google.com/file/d/13hEdzu6-G7NDgwELG16bbygyrTbcXLlR/view?usp=drive_link

13. KNOWN ISSUES :

Search filtering may be slow with very large recipe lists.

Image upload sometimes fails on slow networks.

14. FUTURE ENHANCEMENTS :

Add shopping list generation from recipe ingredients

Introduce push notifications for new recipes

Offline mode for saved recipes