NAAN MUDHALVAN PROJECT REPORT

PROJECT TITLE: COOK BOOK –YOUR VIRTUAL KITCHEN ASSISTANT

TEAM ID: NM2025TMID47179

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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 voice-enabled, 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

Start Server (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:

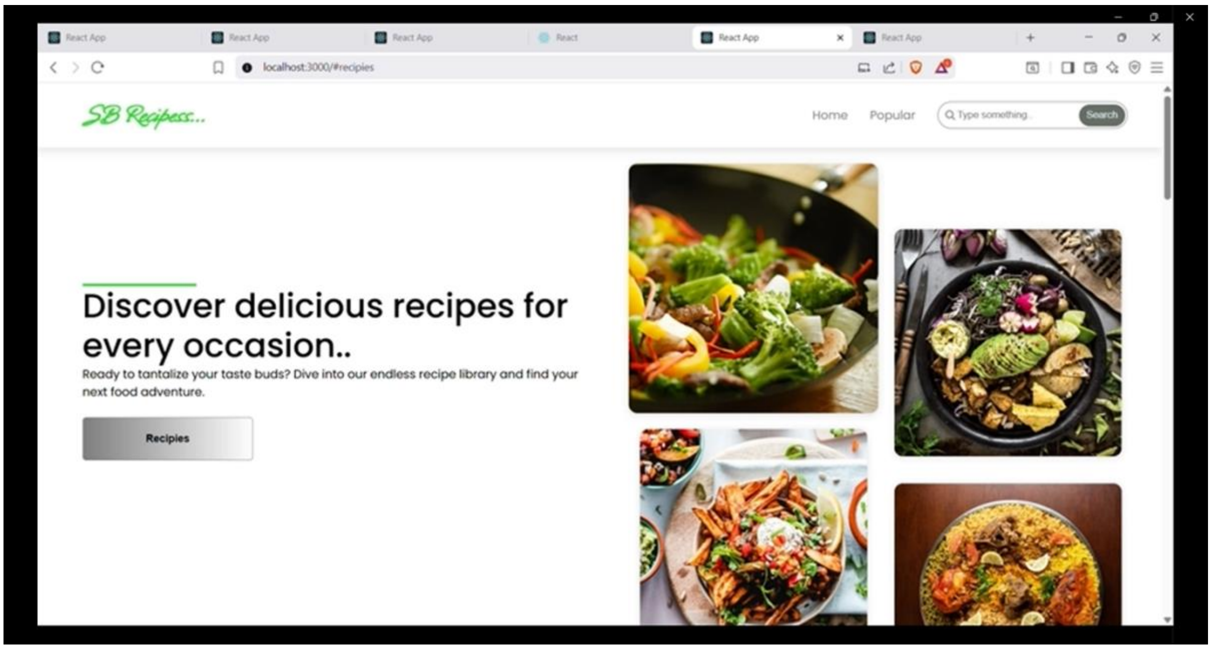
Testing how different components or modules work together as a whole

12. SCREENSHOTS OR DEMO:

Add actual screenshots or a demo link:

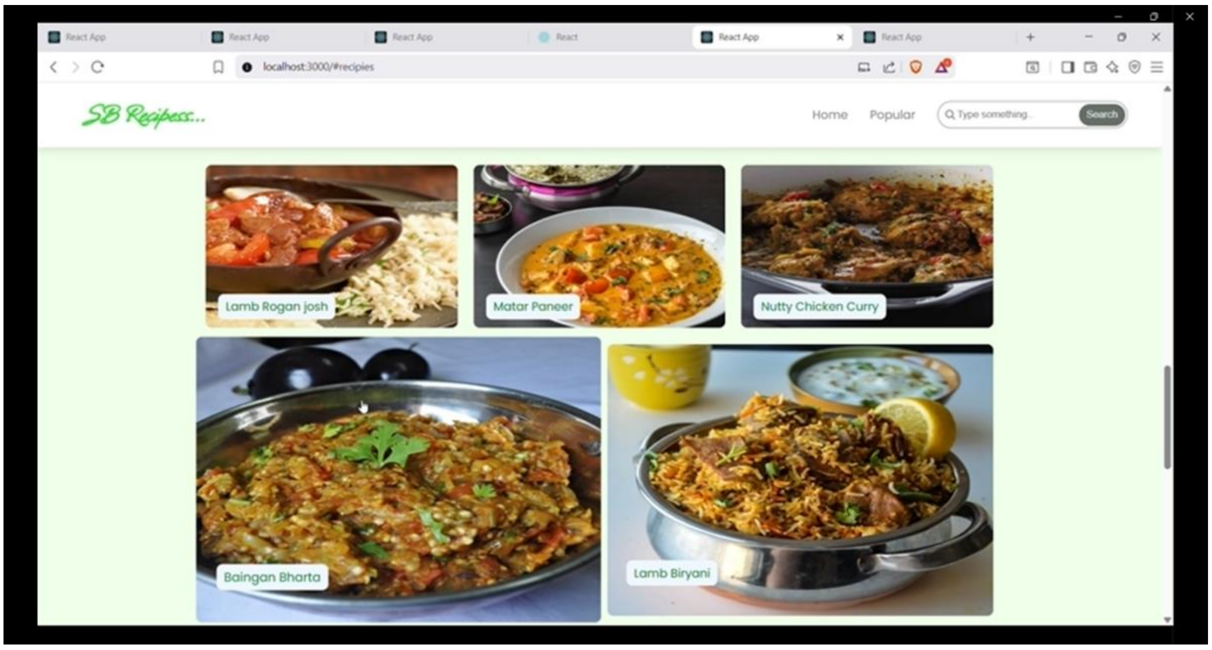
Hero components:

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


React App
localhost:3000/#recipies
SB Recipess...
Home
Popular
Type something..
Search
Discover delicious recipes for every occasion..
Ready to tantalize your taste buds? Dive into our endless recipe library and find your next food adventure.
Recipies

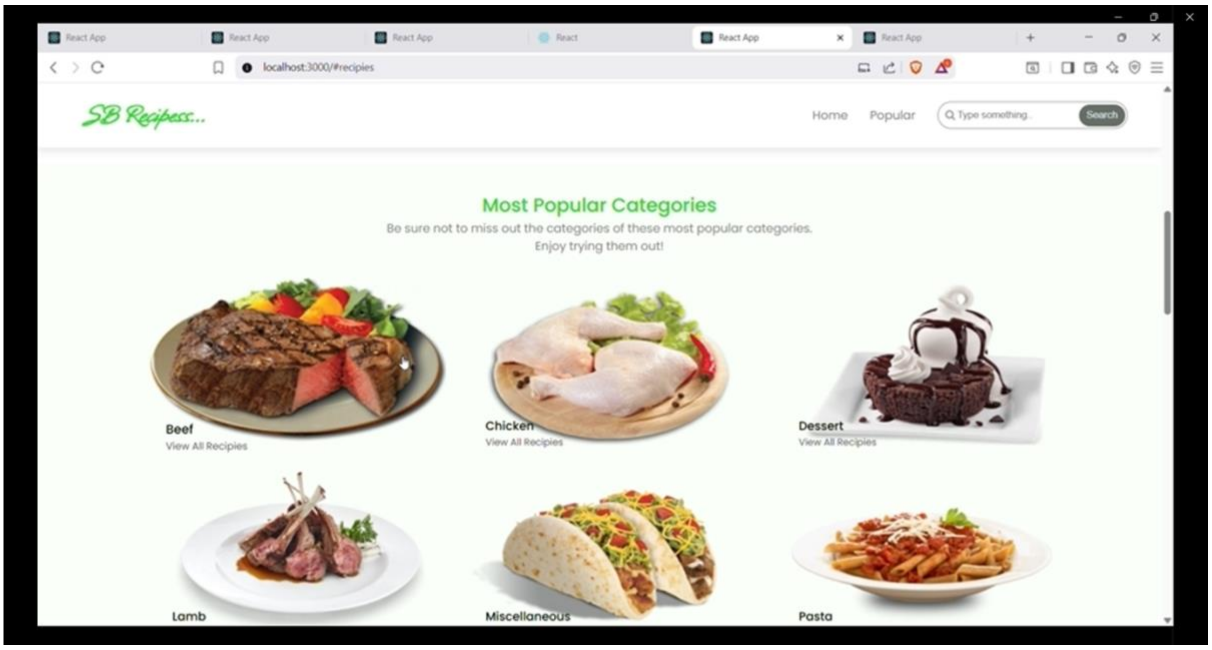
Trending Dishes :

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/13hEdzu6G7NDgwELG16bbygyrTbcXLlR/view?usp=drivesdk

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