COOKBOOK: YOUR VIRTUAL KITCHEN ASSISTANT

NAANMUDHALVAN PROJECT REPORT

SUBMITTED BY

TEAM LEADER

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DEPARTMENTOFCOMPUTER APPLICATIONS

TAGORECOLLEGEOF ARTSANDSCIENCE

(AffiliatedtotheUniversityofMadras)

CLCWORKSROAD,CHROMPET,
CHENNAI–600044
MARCH-2025

CookBook: Your Virtual Kitchen Assistant
Ideation Phase
Brainstorm & Idea Prioritization

Date	9 March 2025
Team ID	SWTID1741241311151730
Project Name	Your Virtual Kitchen Assistant
Maximum Marks	4 Marks

Team Size	5	
Team leader	Swathy S	swathyswathy20051@gmail.com
Team member 1	Akshaya A	akshayaanbu2005@gmail.com
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Brainstorm & Idea Prioritization Template:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

Reference: https://www.mural.co/templates/brainstorm-and-idea-prioritization

Step-1: Team Gathering, Collaboration and Select the Problem Statement

Step-2: Brainstorm, Idea Listing and Grouping

2

Brainstorm

Write down any ideas that come to mind
that address your problem statement.

⏱ 10 minutes

Person 1	Person 2	Person 3	Person 4
Users can input available ingredients to find recipes they can cook.	Provide detailed cooking instructions along with images or videos.	Display calorie and nutrition breakdown for each recipe.	Allow users to bookmark and organize their favorite recipes.

3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all
sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is
bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

⏱ 20 minutes

Recipe Discovery & Search	Cooking Assistance	User Preferences & Nutrition

Step-3: Idea Prioritization

4

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

⏱ 20 minutes

Importance

If each of these tasks could get done without any difficulty or cost, which would have the most positive impact?

Feasibility

Regardless of their importance, which tasks are more feasible than others? (Cost, time, effort, complexity, etc.)

- Ingredient-Based Search
- Nutritional Information
- Save & Favorite Recipes
- Step-by-Step Instructions
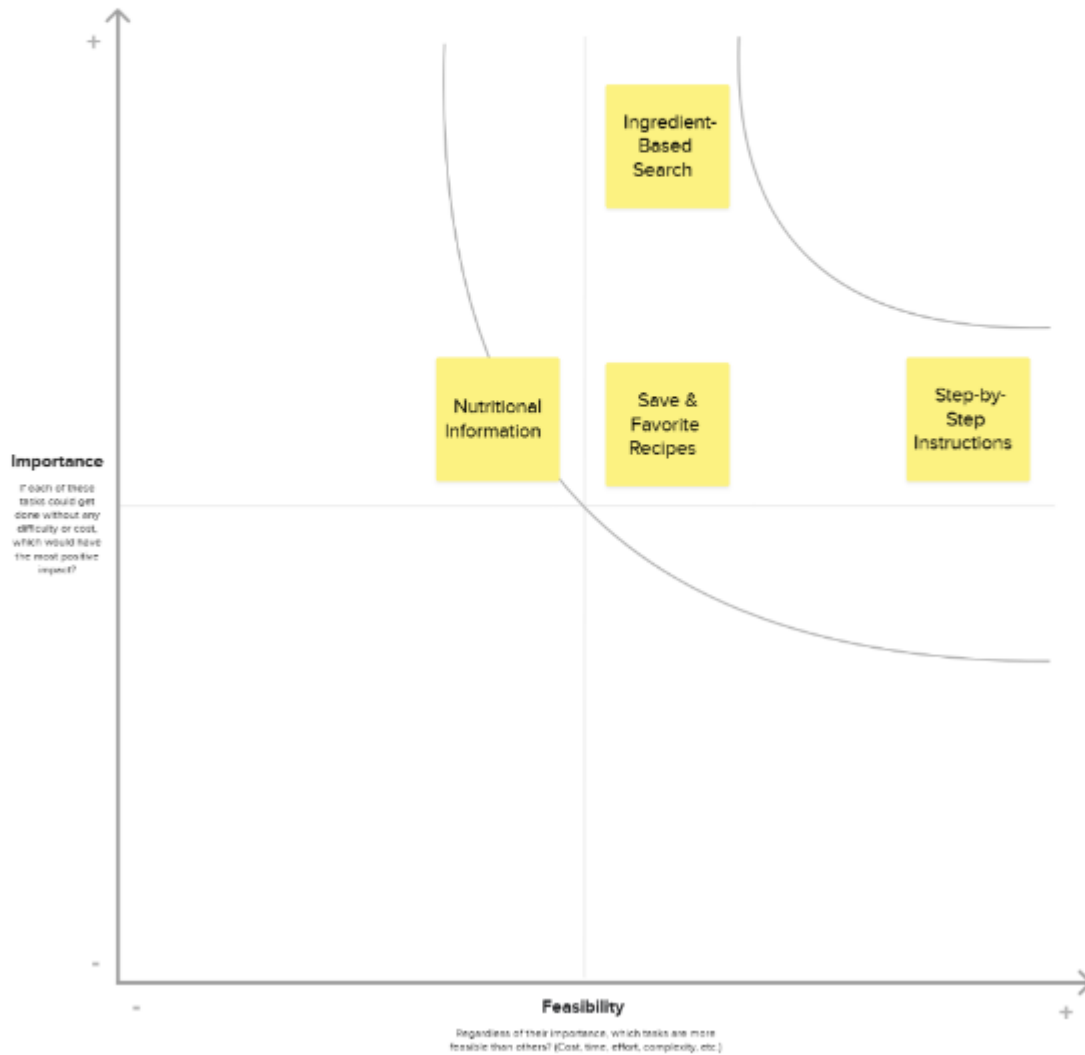
CookBook: Your Virtual Kitchen Assistant
Ideation Phase
Define the Problem Statements

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Customer Problem Statement Template:

Create a problem statement to understand your customer's point of view. The Customer Problem Statement template helps you focus on what matters to create experiences people will love.

A well-articulated customer problem statement allows you and your team to find the ideal solution for the challenges your customers face. Throughout the process, you'll also be able to empathize with your customers, which helps you better understand how they perceive your product or service.

Reference: https://miro.com/templates/customer-problem-statement/

Example:

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A home cook	Find easy and quick recipes to cook at home	Most recipe websites are filled with ads and lengthy descriptions	I want a clean, simple interface with step-by-step instructions	Frustrated and discouraged from exploring new recipes
PS-2	A beginner in cooking	Learn how to cook different meals	Many recipe platforms assume prior knowledge	I need clear instructions, ingredient measurements, and cooking tips	Overwhelmed and unsure about trying new recipes
PS-3	A health-conscious user	Discover healthy recipes based on my diet	Most apps don't filter recipes based on dietary needs	I need an easy way to find recipes that fit my preferences (e.g., vegan, keto)	Limited in my choices and frustrated with manual searching
PS-4	A busy professional	Plan meals for the week efficiently	Many apps don't offer meal planning features	I need a way to save and organize recipes for quick access	Disorganized and unsure about what to cook daily

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Data Flow Diagrams:
A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.
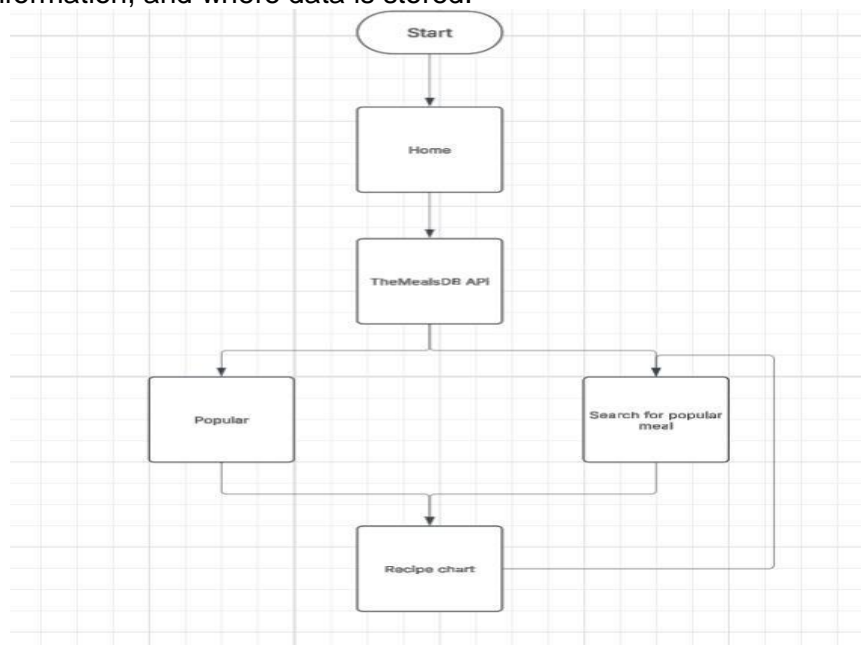
User Stories
Use the below template to list all the user stories for the product.

User Type	User Story Number	User Story / Task	Acceptance criteria	Priority	Releas
Customer (Web user)	USN-1	As a user, I can search for recipes, view detailed recipe instructions	I can access my account / dashboard	High	Sprint-
Customer (Web user)	USN-2	As a user, I can upload recipe images and manage my recipes	I can view uploaded images	High	Sprint-

Customer (Web user)	USN-3	As a user, I can receive personalized recipe recommendations based on preferences	I can register & access the dashboard with Google Login	Low	Sprint-2

**Project Design Phase-II
Solution Requirements (Functional & Non-functional)**

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Functional Requirements:
Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Frontend Interface	Interactive and responsive UI Recipe search functionality Display recipe lists and detailed views User-friendly navigation
FR-2	Recipe Management	Search for recipes based on ingredients
		View detailed recipe instructions

Non-functional Requirements:
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The app should have an intuitive and user-friendly interface, ensuring smoothness.
NFR-2	**Security**	API Requests must be secured. The app should prevent unauthorized use .

NFR-3	**Reliability**	The app should ensure a consistent and uninterrupted experience, minimizing crashes and downtime.
NFR-4	**Performance**	Recipe search results should be displayed within 2 seconds.

Project Design Phase-II
Technology Stack (Architecture & Stack)

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Technical Architecture:
The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2
Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Recipe listing, search, and user interactions	HTML, CSS, React
2.	Application Logic	Managing recipe data, user login, and registration forms	React.js, JavaScrip
3.	External API Integration	Fetching recipe information and nutrition data	ThemealsDB API
4.	UI Design	Responsive and interactive layout	Bootstrap, CSS Gri

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	F Frontend frameworks for UI development	React.js, Node.js, A
2.	Scalable Architecture	Securing API calls and access controls	HTTPS, API key aut (RapidAPI)

Project Planning Phase
Project Planning Template (Product Backlog, Sprint Planning, Stories, Story points)

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Technical Architecture:

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Project Tracker, Velocity & Burndown Chart

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority
Sprint-1	UI Setup	USN-1	Set up React.js project structure with necessary dependencies	7	High
Sprint-1	Home Page & Navigation	USN-2	Create a homepage displaying recipe categories & trending recipes	7	High
Sprint-1	API Integration	USN-3	Fetch and display recipe data from API	6	High
Sprint-2	Recipe Listing	USN-4	Dynamically list recipes with images and details	7	High

Sprint-2	Recipe Details Page	USN-5	Create a detailed page showing ingredients, instructions, and cooking time	7	High
Sprint-2	Filtering Feature	USN-6	Enable filtering of recipes based on category, ingredients, and time	6	High
Sprint-3	UI Enhancement	USN-7	Improve UI/UX with better styling and animations	10	Medium
Sprint-3	Error Handling	USN-8	Implement error handling for failed API requests	10	Medium
Sprint-4	Search Feature	USN-9	Allow users to search for recipes by name	10	High
Sprint-4	Responsive Design	USN-10	Ensure responsiveness for mobile & tablet views	10	Medium

Project Tracker, Velocity & Burndown Chart

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	
Sprint-1	20	6 Days	1 Mar 2025	2 Mar 2025	20	
Sprint-2	20	6 Days	3 Mar 2025	4 Mar 2025	20	
Sprint-3	20	6 Days	5 Mar 2025	6 Mar 2025	20	
Sprint-4	20	6 Days	7 Mar 2025	8 Apr 2025	20	

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Problem – Solution Fit Overview
The Problem-Solution Fit ensures that the identified problem aligns with the needs of users and that the proposed solution effectively addresses it. This concept helps developers, marketers, and business strategists validate the necessity and effectiveness of their solution before further development.

Purpose
• Address the lack of a structured and personalized recipe discovery platform for users who seek healthy, quick, or ingredient-based meal options.
• Provide an intuitive and engaging experience for users to search, save, and manage recipes based on dietary preferences and available ingredients.
• Offer seamless navigation and real-time data retrieval from a trusted recipe API to enhance user experience.
• Improve accessibility and engagement through an interactive UI, responsive design, and well-structured data flow.

Problem Statement
Many home cooks and food enthusiasts struggle to find organized, reliable, and customizable recipe recommendations. Existing platforms either require paid memberships, lack filtering options, or provide unstructured data, making it difficult for users to find meals that match their preferences, available ingredients, or dietary restrictions.

Solution
• A React.js-based Recipe Web Application that provides users with an easy-to-navigate interface to explore and save recipes.
• Integration with a recipe API (TheMealsDB API) ensures users get up-to-date and detailed information on various recipes, ingredients, and nutritional values.
• Axios-powered API requests ensure smooth data retrieval with minimal delays.
• Categorization, filtering, and search functionalities improve accessibility and user engagement.
• A scalable and responsive UI design ensures a seamless experience across different devices, catering to both home cooks and professional chefs.

Project Design Phase
Proposed Solution Template

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Proposed Solution Template:
Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Many users struggle to find well-structured, personalized, and easy-to-follow recipes. Existing platforms either require paid memberships, lack filtering options, or provide unstructured data, making meal planning and cooking difficult.
2.	Idea / Solution description	A React.js-based Recipe Web Application that allows users to search, filter, and save recipes based on ingredients, dietary preferences, and meal type. The application integrates with a recipe API (e.g., ThemealsDB, Edamam) to provide real-time access to recipe details, nutritional values, and ingredient substitutions.
3.	Novelty / Uniqueness	Free and structured access to categorized, diet-friendly, and ingredient-based recipes with an intuitive and user-friendly interface. Features include personalized meal planning, AI-based recommendations, and interactive cooking guides to enhance user engagement.
4.	Social Impact / Customer Satisfaction	Encourages healthier eating habits by making nutritional information and diet-based filtering easily accessible. Helps users reduce food waste by providing recipes based on available ingredients, promoting sustainability and cost-effective cooking.

Project Design Phase
Solution Architecture

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Solution Architecture:
The solution architecture for the Recipe Application ensures a scalable, efficient, and user-friendly platform for discovering, saving, and managing recipes with real-time ingredient suggestions and nutritional information.
Goals of the Solution Architecture:
 Identify the Best Tech Solution:
• Utilize modern front-end frameworks (React.js) and APIs (TheMealsDB API) to provide a seamless and interactive recipe discovery experience.
 **Define Structure & Characteristics:**
• Ensure a modular, scalable, and maintainable software architecture that supports future feature enhancements like personalized meal planning and AI-based recipe recommendations.
 Outline Features & Development Phases:
• Clearly define project milestones, including UI/UX design, API integration, database structuring, and deployment strategy.
 Establish Specifications for Development & Delivery:
• Provide well-defined guidelines for system architecture, API integrations, data flow, and recipe data handling.
• Implement a high-performance backend to support large-scale user requests for recipe searches, filtering, and personalized recommendations without delays.
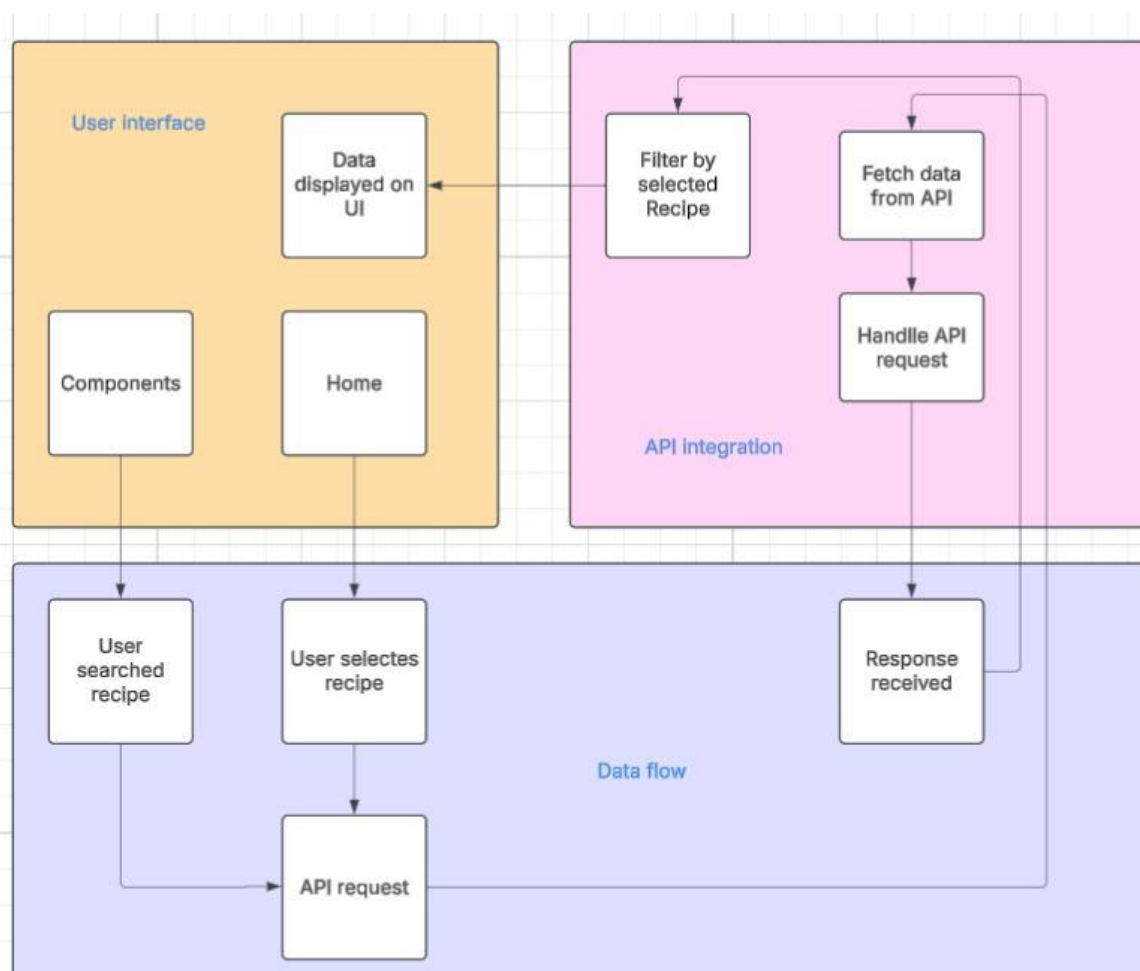
User Acceptance Testing (UAT) Template

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Project Overview

Project Name: Recipe book

Project Description: A React-based recipe discovery application that allows users to search, filter, and save recipes using a third-party API. Features include ingredient-based search, meal categorization, nutritional information, and a user-friendly UI/UX.

Project Version: v1.0

Testing Period: March 1, 2025 - March 8, 2025

Testing Scope

Features and Functionalities to be Tested

✓ Home Page & Navigation

✓ Recipe Search & Discovery

✓ API Integration for Recipe Data

✓ Filtering Recipes by Ingredients, Cuisine, and Meal Type

✓ Viewing Recipe Details with Cooking Instructions & Nutritional Info

✓ UI/UX Testing (Responsiveness, Icons, Styling)

✓ Error Handling & Performance Testing

User Stories or Requirements to be Tested

☐ Searching & Viewing Recipes
☐ Filtering Recipes by Ingredients, Cuisine, and Dietary Preferences
☐ Displaying Recipe Details with Step-by-Step Instructions & Nutritional Facts
☐ Responsive UI across Mobile, Tablet, and Desktop
☐ Handling API Errors Gracefully

Test Cases

Case	Test Scenario	Test Steps	Expected Result	Actual Result	Pass/Fail
001	Load Homepage	1. Open the application 2. Homepage loads	Homepage should display popular recipes and search functionality	[Actual Result]	[Pass/Fail]
002		1. Enter a recipe name in search 2. Click search	Matching recipes should be displayed	[Actual Result]	[Pass/Fail]
003	View Recipe Details	1. Click on a recipe 2. View details (ingredients, instructions, nutritional facts)	Recipe details should be displayed correctly	[Actual Result]	[Pass/Fail]
004	Mobile Responsiveness	1. Open the app on a mobile device 2. Navigate through pages	UI should be responsive and properly displayed	[Actual Result]	[Pass/Fail]

Bug Tracking

Bug ID	Bug Description	Steps to Reproduce	Severity	Status	Additional Feedback
BG-001	Search results take too long to load	1.Search for a recipe 2. Observe slow response time	High	Open	Need API response optimization
BG-002	Filtering feature not working correctly	1. Select a filter option 2. Observe incorrect results	Medium	In Progress	Filtering logic needs debugging
BG-003	UI overlaps on small screen devices	1. Open app on small devices (iPhone SE) 2. Observe UI distortion	Low	Open	Adjust CSS for better responsiveness