

Project Design Phase
Problem – Solution Fit Template

Date	6 March 2025
Team ID	153806
Project Name	CookBook Your Virtual Kichen Assistant
Maximum Marks	2 Marks

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.

User Acceptance Testing (UAT) Template

Date	6 March 2025
Team ID	153806
Project Name	CookBook :Your Virtual Kitchen Assistant
Maximum Marks	

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

Test Case ID	Test Scenario	Test Steps	Expected Result	Actual Result	Pass/Fail
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TC-001	Load Homepage	1. Open the application 2. Homepage loads	Homepage should display popular recipes and search functionality	[Actual Result]	[Pass/Fail]
TC-002		1. Enter a recipe name in search 2. Click search	Matching recipes should be displayed	[Actual Result]	[Pass/Fail]
TC-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]
TC-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

Project Design Phase
Solution Architecture

Date	6 March 2025
Team ID	153806
Project Name	CookBook :Your Virtual Kitchen Assistant
Maximum Marks	4 Marks

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:

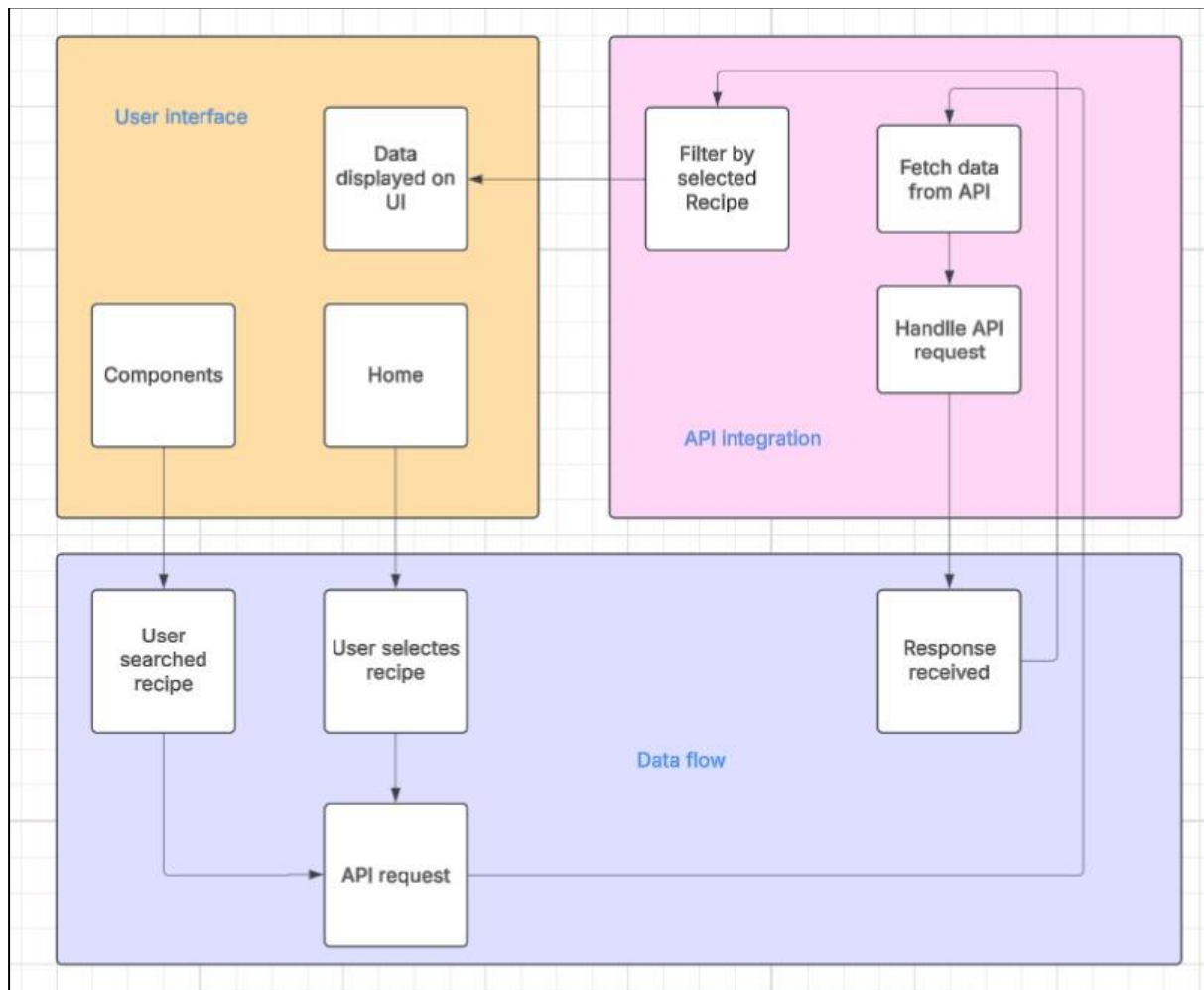
- Ensure a modular, scalable, and maintainable software architecture that supports future feature enhancements like personalized meal planning and AI-based recipe recommendations.

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.



Project Design Phase
Proposed Solution Template

Date	6 March 2025
Team ID	153806
Project Name	CookBook :Your Virtual Kitchen Assistant
Maximum Marks	2 Marks

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 Planning Phase

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

Date	15 February 2025
Team ID	153806
Project Name	CookBook Your Virtual Kichen Assistant
Maximum Marks	5 Marks

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	Team Members
Sprint-1	UI Setup	USN-1	Set up React.js project structure with necessary dependencies	7	High	Pratiksha
Sprint-1	Home Page & Navigation	USN-2	Create a homepage displaying recipe categories & trending recipes	7	High	Pratiksha
Sprint-1	API Integration	USN-3	Fetch and display recipe data from API	6	High	Pratiksha
Sprint-2	Recipe Listing	USN-4	Dynamically list recipes with images and details	7	High	Pratiksha
Sprint-2	Recipe Details Page	USN-5	Create a detailed page showing ingredients, instructions, and cooking time	7	High	Pratiksha

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

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 Release Date (Actual)
Sprint-1	20	6 Days	1 Mar 2025	2 Mar 2025	20	2 Mar 2025
Sprint-2	20	6 Days	3 Mar 2025	4 Mar 2025	20	4 Mar 2025
Sprint-3	20	6 Days	5 Mar 2025	6 Mar 2025	20	6 Mar 2025
Sprint-4	20	6 Days	7 Mar 2025	8 Apr 2025	20	8 Apr 2025

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

Date	6 March 3035
Team ID	153806
Project Name	CookBook :Your Virtual Kitchen Assistant
Maximum Marks	4 Marks

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.js, Bootstrap
2.	Application Logic	Managing recipe data, user login, and registration forms	React.js, JavaScript
3.	External API Integration	Fetching recipe information and nutrition data	ThemealsDB API
4.	UI Design	Responsive and interactive layout	Bootstrap, CSS Grid, Flexbox

Table-2: Application Characteristics:

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

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

Date	06 March 2025
Team ID	153806
Project Name	CookBook Your Virtual Kichen Assistant
Maximum Marks	4 Marks

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.

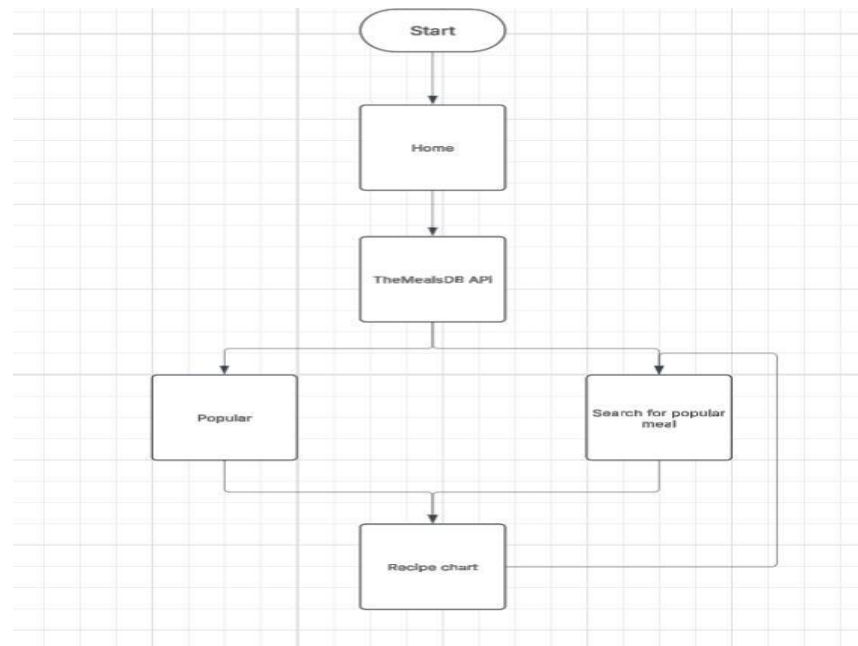
Project Design Phase-II

Data Flow Diagram & User Stories

Date	6 March 2025
Team ID	
Project Name	Recipe book
Maximum Marks	4 Marks

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	Release
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-1
Customer (Web user)	USN-2	As a user, I can upload recipe images and manage my recipes	I can view uploaded images	High	Sprint-1
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

CookBook: Your Virtual Kitchen Assistant

Ideation Phase

Empathize & Discover

Date	31 January 2025
Team ID	153806
Project Name	CookBook: Your Virtual Kitchen Assistant
Maximum Marks	4 Marks

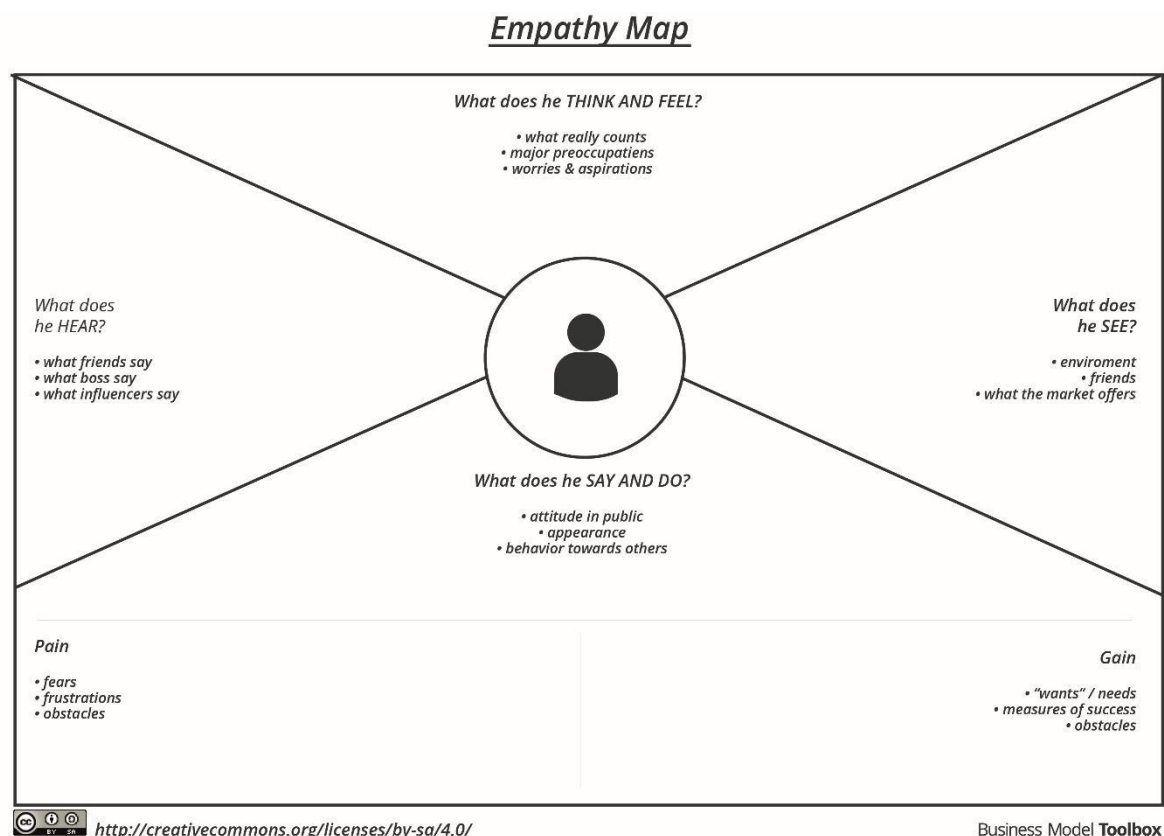
Empathy Map Canvas:

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes.

It is a useful tool to help teams better understand their users.

Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

Example:



Reference: <https://www.mural.co/templates/empathy-map-canvas>



Says

What have we heard them say?
What can we imagine them saying?

I need quick recipes.



Thinks

What are their wants, needs, hopes, and dreams?
What other thoughts might influence their behavior?

Do I have the right ingredients?



Shivani Kapoor
Home Cook

Searches for simple meal ideas.

Happy when a recipe is easy to follow.



Does

What behavior have we observed?
What can we imagine them doing?



Feels

What are their fears, frustrations, and anxieties?
What other feelings might influence their behavior?

[See an example](#)

CookBook: Your Virtual Kitchen Assistant

Ideation Phase

Define the Problem Statements

Date	5 March 2025
Team ID	
Project Name	
Maximum Marks	2 Marks

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.

I am	Describe customer with 3-4 key characteristics - who are they?	Describe the customer and their attributes here
I'm trying to	List their outcome or "job" the care about - what are they trying to achieve?	List the thing they are trying to achieve here
but	Describe what problems or barriers stand in the way - what bothers them most?	Describe the problems or barriers that get in the way here
because	Enter the "root cause" of why the problem or barrier exists - what needs to be solved?	Describe the reason the problems or barriers exist
which makes me feel	Describe the emotions from the customer's point of view - how does it impact them emotionally?	Describe the emotions the result from experiencing the problems or barriers

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

Example:

I am	I'm trying to	But	Because	Which makes me feel
I am	I'm trying to	But	Because	Which makes me feel
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

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

CookBook: Your Virtual Kitchen Assistant

Ideation Phase

Brainstorm & Idea Prioritization

Date	31 January 2025
Team ID	153806
Project Name	CookBook: Your Virtual Kitchen Assistant
Maximum Marks	4 Marks


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



Brainstorm & idea prioritization

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.

🕒 10 minutes to prepare
🕒 1 hour to collaborate
👤 2-8 people recommended

Before you collaborate
A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

🕒 10 minutes

- A Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.
- B Set the goal**
Think about the problem you'll be focusing on solving in the brainstorming session.
- C Learn how to use the facilitation tools**
Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#) →

1 Define your problem statement
What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

🕒 5 minutes

PROBLEM

How might we [your problem statement]?

Key rules of brainstorming

To run an smooth and productive session

- Stay in topic.
- Defer judgment.
- Go for volume.
- Encourage wild ideas.
- Listen to others.
- If possible, be visual.

Step-2: Brainstorm, Idea Listing and Grouping

2

Brainstorm

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

🕒 10 minutes

TIP

You can select a sticky note and hit the pencil (switch to sketch) icon to start drawing!

Person 1

Users can input available ingredients to find recipes they can cook.

Person 2

Provide detailed cooking instructions along with images or videos.

Person 3

Display calorie and nutrition breakdown for each recipe.

Person 4

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 can break it up into smaller sub-groups.

🕒 20 minutes

TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

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

TIP

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the H key on the keyboard.

