Ideation Phase
Brainstorm & Idea Prioritization Template

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI enhanced software developer life cycle
Maximum Marks	4 Marks

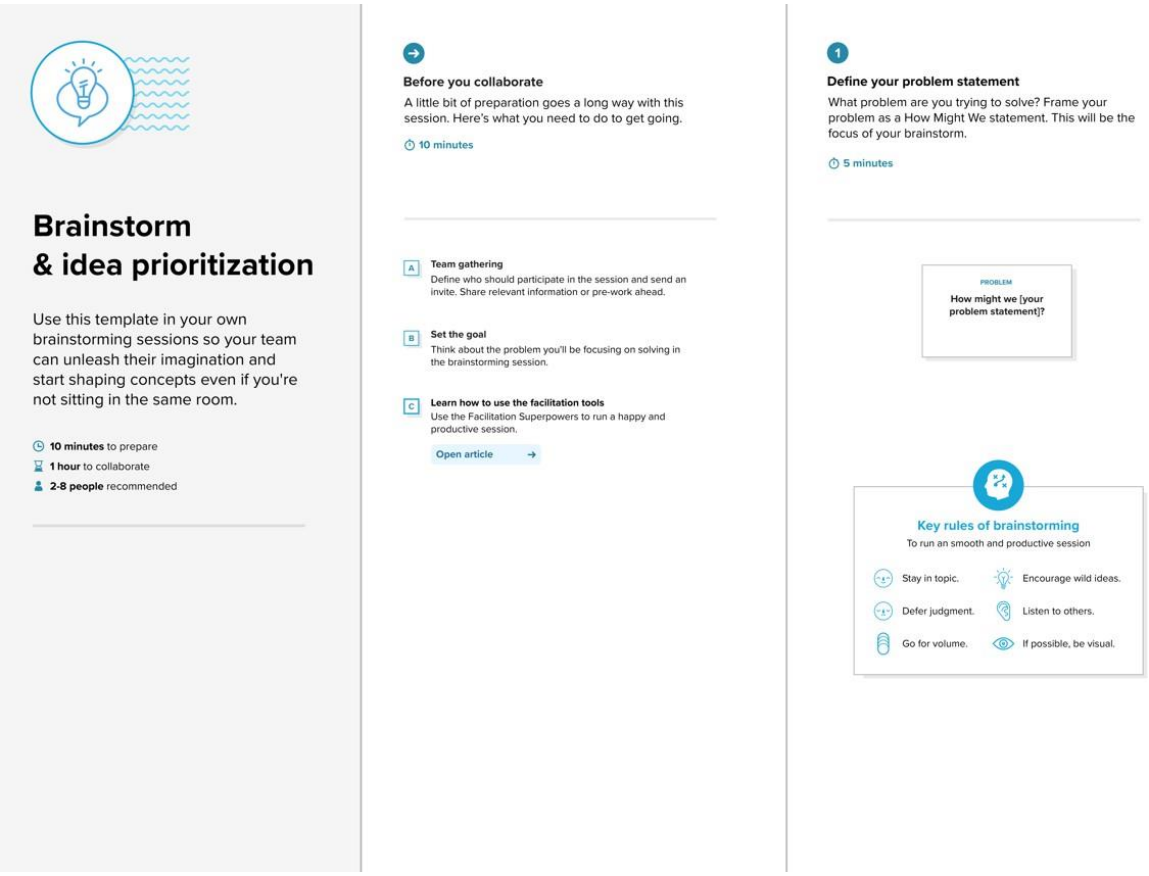
Brainstorm & Idea Prioritization Template:

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.

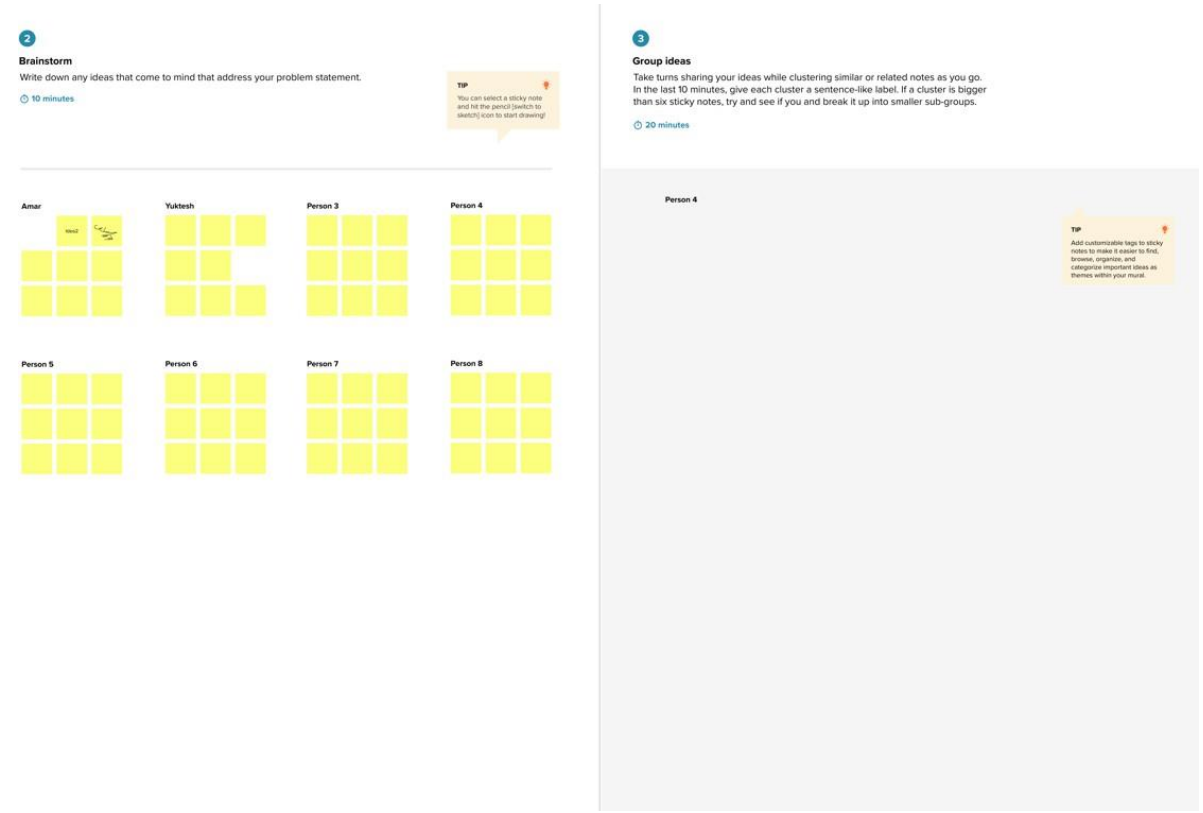
Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

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

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

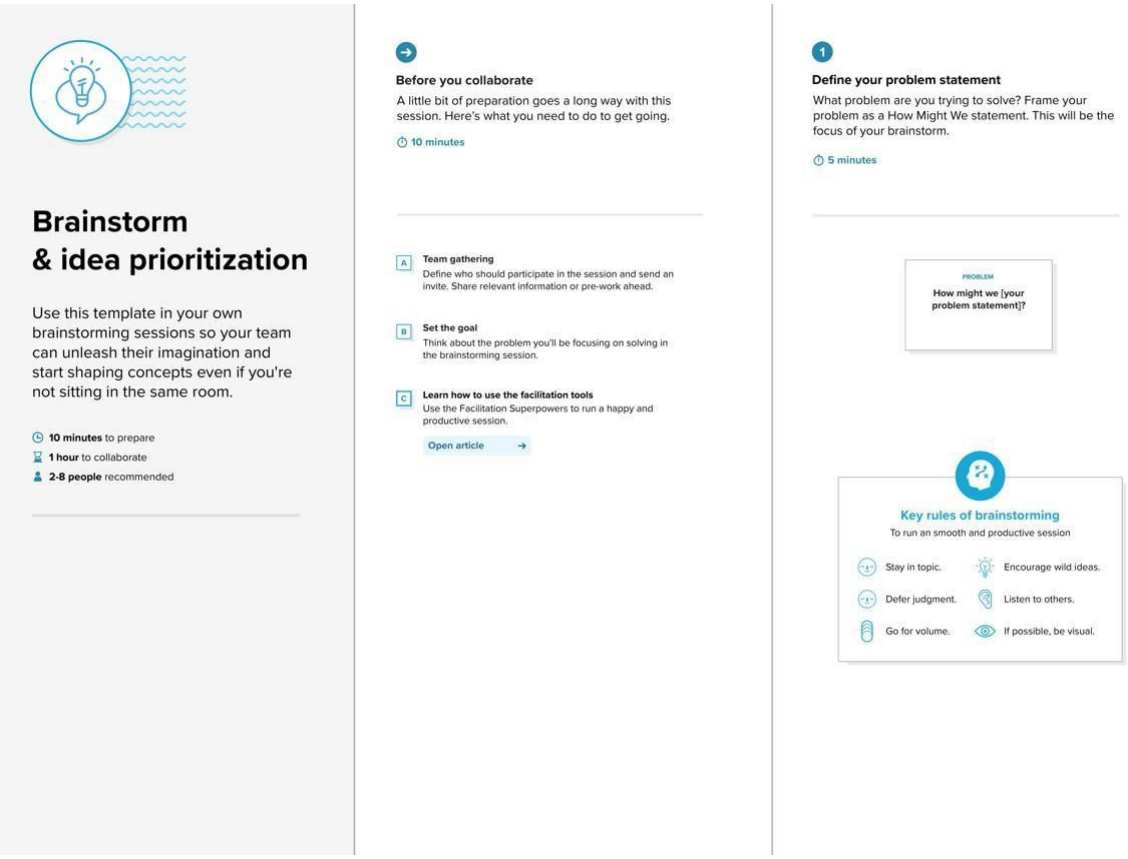


Step-2: Brainstorm, Idea Listing and Grouping



Step-3: Idea Prioritization

Ideation Phase
Brainstorm & Idea Prioritization Template



Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	4 Marks

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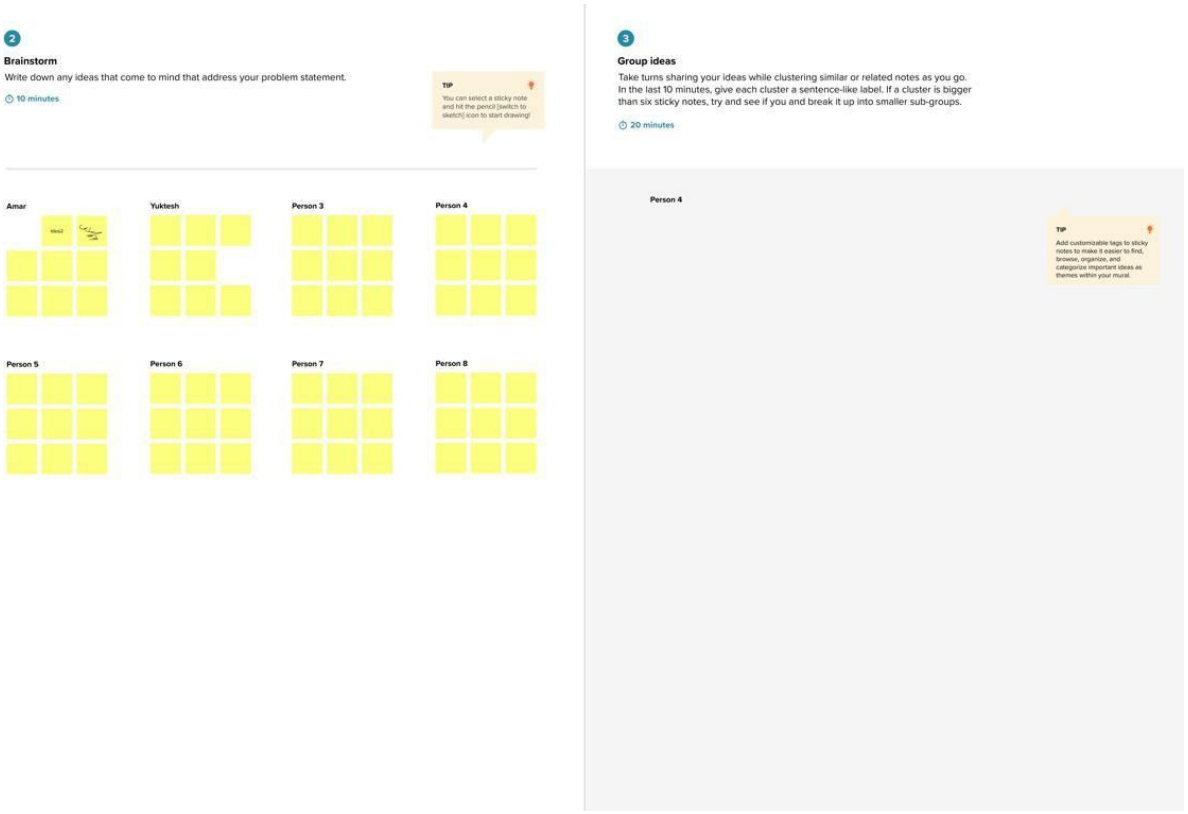

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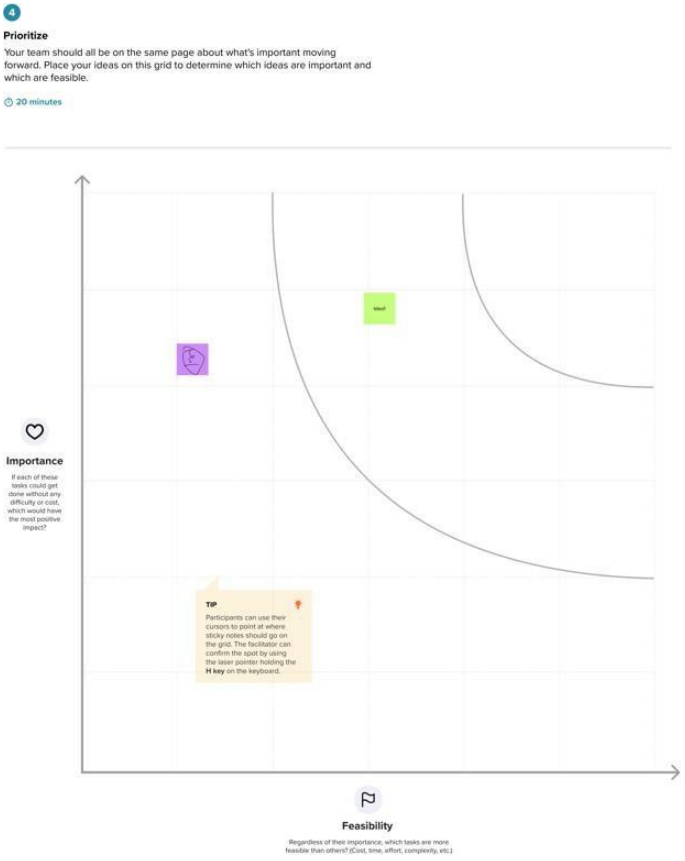

Ideation Phase
Define the Problem Statements

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
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:

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1					
PS-2					

Ideation Phase
Define the Problem Statements

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	2 Marks

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PS-2					

Ideation Phase
Empathize & Discover

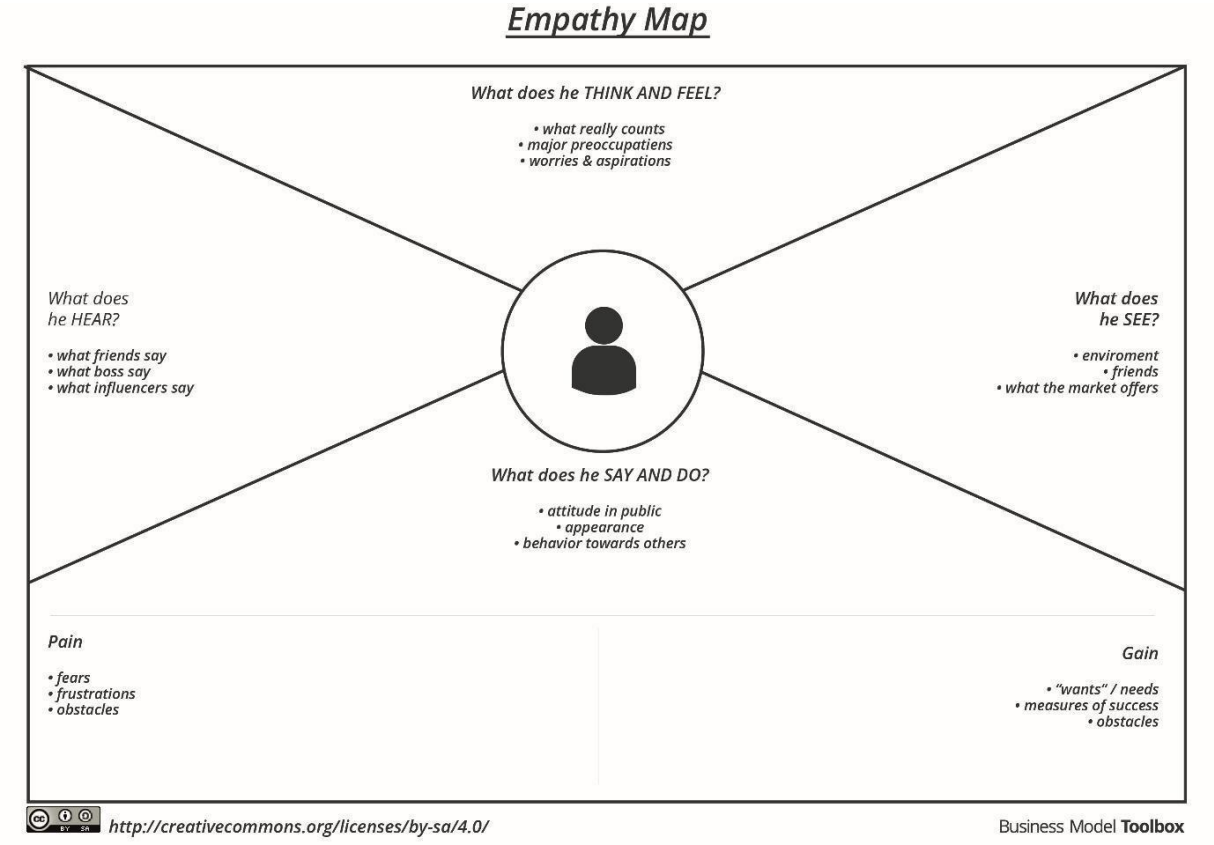
Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	4 Marks

Empathy Map Canvas:

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

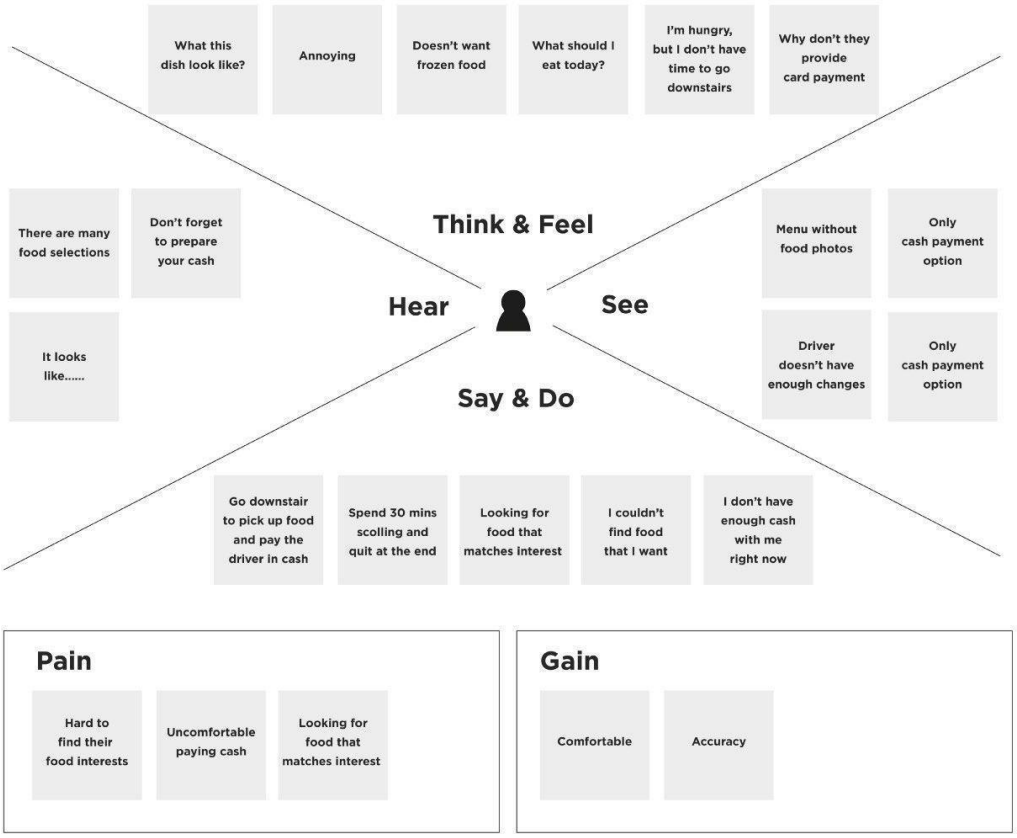
It is a useful tool to helps teams better understand their users.
Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

Example:



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

Example: Food Ordering & Delivery Application



Ideation Phase
Empathize & Discover

Date	25 June 2025
Team ID	LTVIP2025TMID34571
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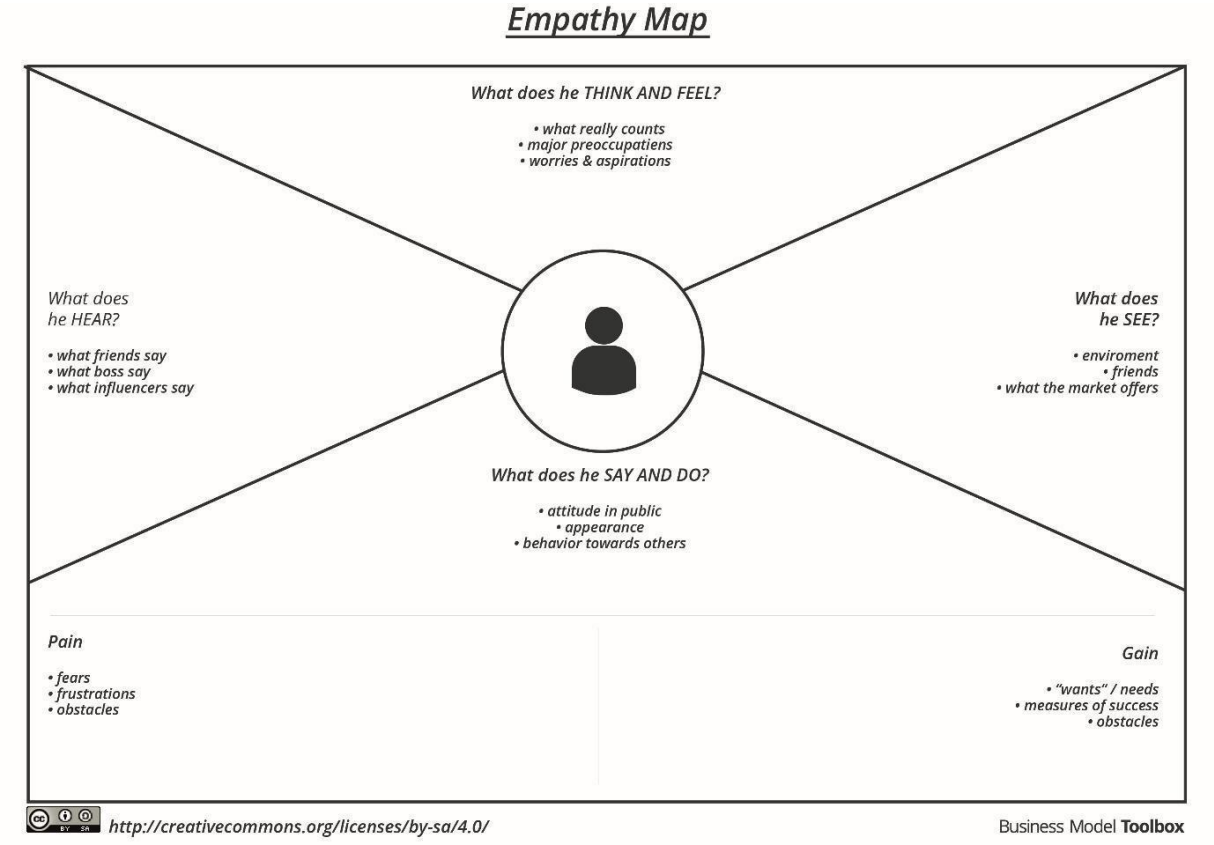

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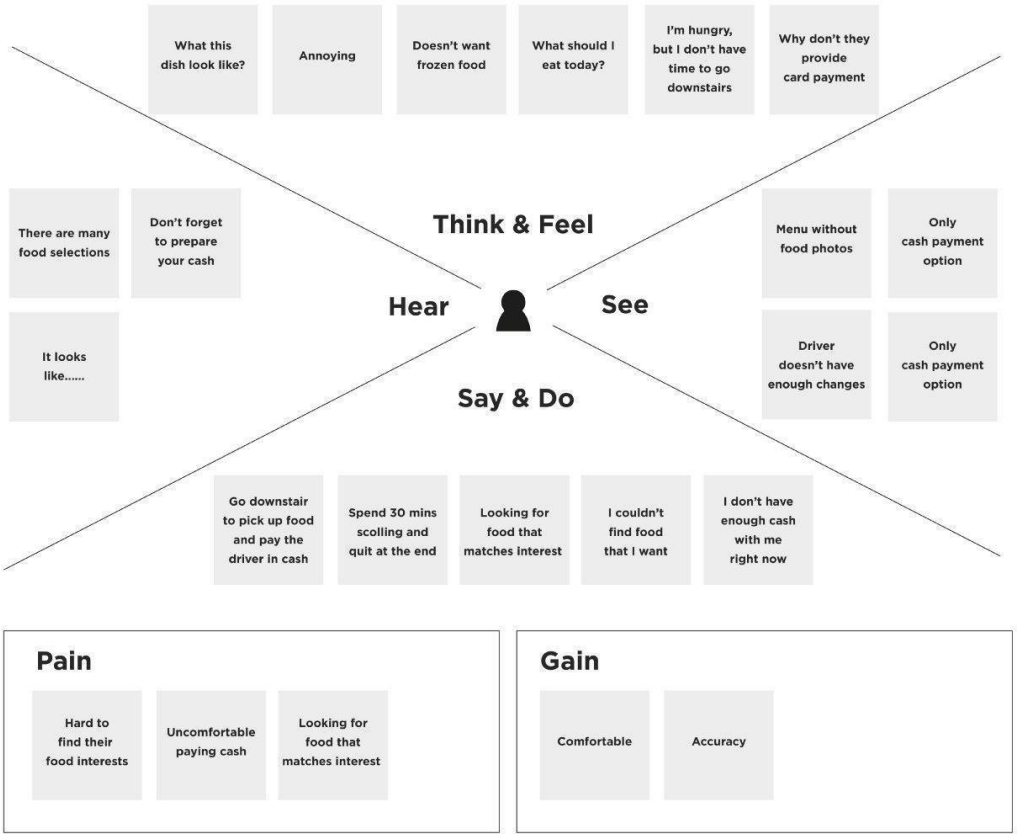

Ideation Phase
Empathize & Discover

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	4 Marks

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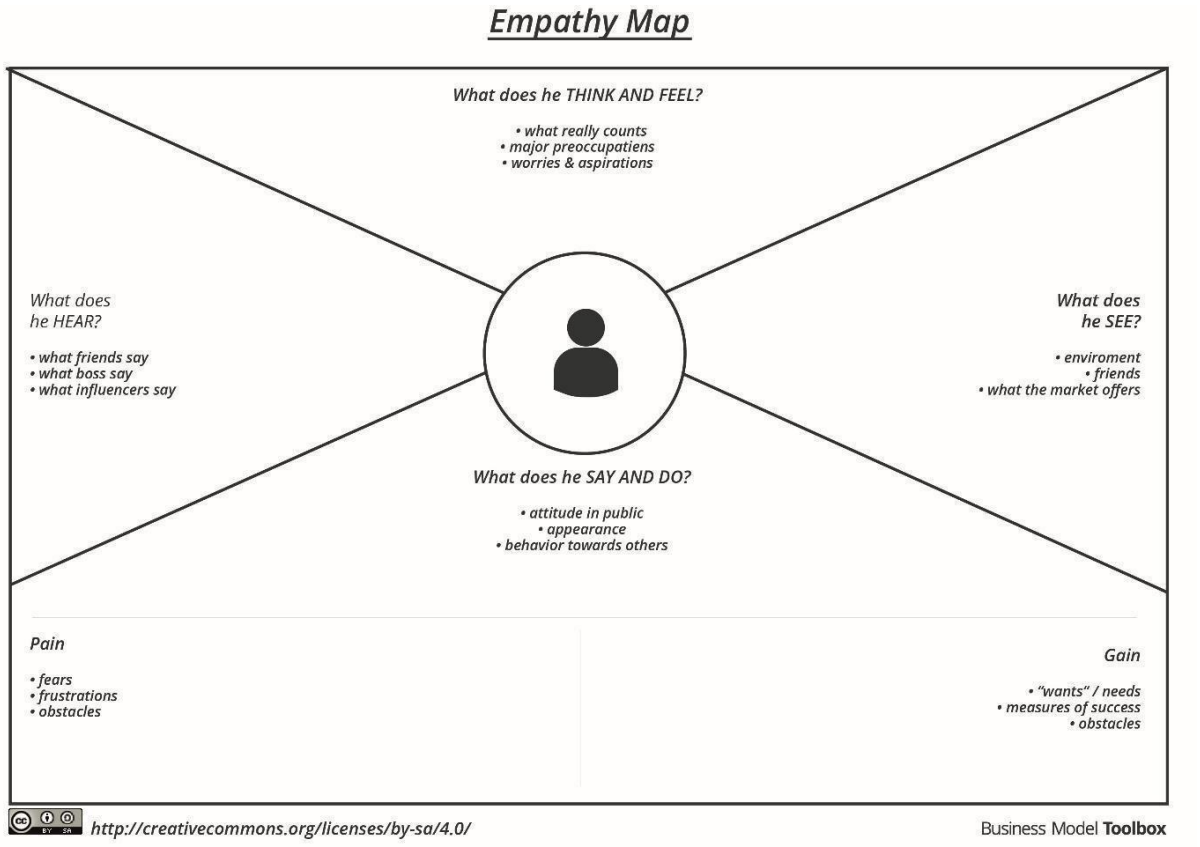

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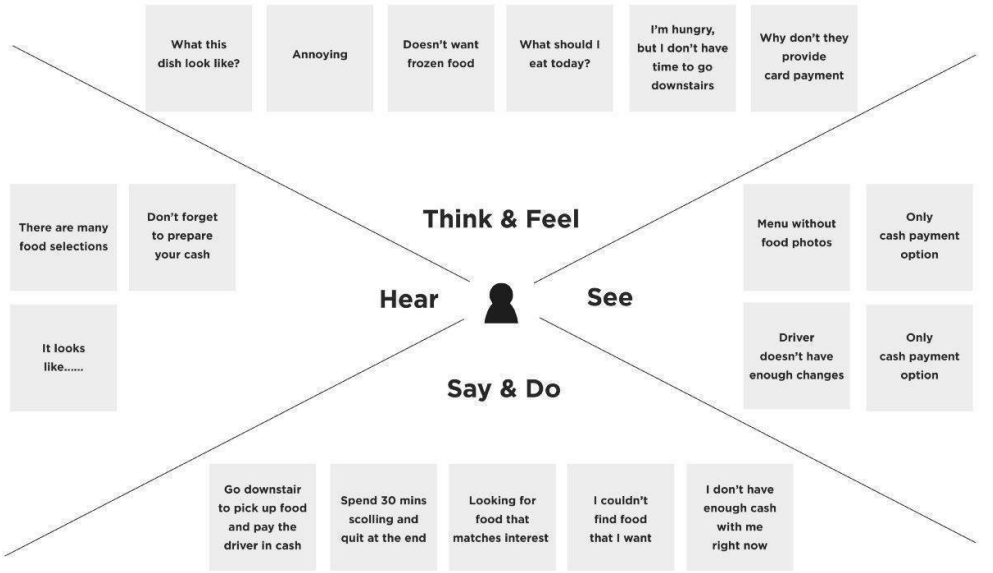
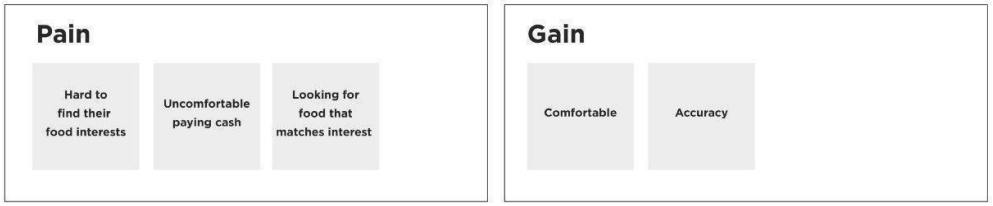




Project Development Phase
Model Performance Test

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot
1.	Model Summary	-	
2.	Accuracy	Training Accuracy - Validation Accuracy -	
3.	Fine Tunning Result(if Done)	Validation Accuracy -	

Functional & Performance Testing Template

Model Performance Test

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	

Test Scenarios & Results

Test Case ID	Scenario (What to test)	Test Steps (How to test)	Expected Result	Actual Result	Pass/Fail
FT-01	Text Input Validation (e.g., topic, job title)	Enter valid and invalid text in input fields	Valid inputs accepted, errors for invalid inputs		
FT-02	Number Input Validation (e.g., word count, size, rooms)	Enter numbers within and outside the valid range	Accepts valid values, shows error for out-of-range		
FT-03	Content Generation (e.g., blog, resume, design idea)	Provide complete inputs and click "Generate"	Correct content is generated based on input		
FT-04	API Connection Check	Check if API key is correct and model responds	API responds successfully		
PT-01	Response Time Test	Use a timer to check content generation time	Should be under 3 seconds		
PT-02	API Speed Test	Send multiple API calls at the same time	API should not slow down		

PT-03	File Upload Load Test (e.g., PDFs)	Upload multiple PDFs and check processing	Should work smoothly without crashing		

Project Development Phase
Model Performance Test

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	10 Marks

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot
1.	Metrics	**Regression Model:** MAE - , MSE - , RMSE - , R2 score - **Classification Model:** Confusion Matrix - , Accuray Score- & Classification Report -	
2.	Tune the Model	Hyperparameter Tuning - Validation Method -	

Project Development Phase
Model Performance Test

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

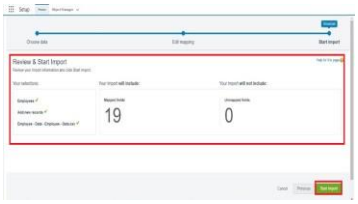
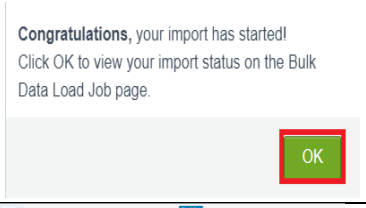
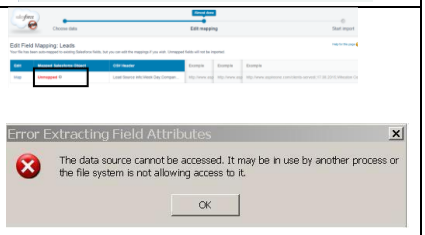
S.No.	Parameter	Screenshot / Values
1.	Data Rendered	
2.	Data Preprocessing	
3.	Utilization of Data Filters	
4.	DAX Queries Used	
5.	Dashboard design	No of Visualizations / Graphs -
6	Report Design	No of Visualizations / Graphs -

Project Development Phase
Model Performance Test

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot
1.	Model Summary	Salesforce automation setup for Data management using Object, Fields and Reports. **Note :** Import Records if data Match Correctly then Records will Created or Else it will Show Error	
2.	Accuracy	Training Accuracy - 98% Validation Accuracy - 98%	
3.	Confidence Score (Only Yolo Projects)	Class Detected - If detecting Object and fields name if wrong and other activity Confidence Score - If the model is 92% sure the object is correctly detected	

User Acceptance Testing (UAT) Template

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	

Project Overview:

Project Name: [Enter Project Name]

Project Description: [Brief Description of the Project]

Project Version: [Version Number]

Testing Period: [Start Date] to [End Date]

Testing Scope:

[List of Features and Functionalities to be Tested]

[List of User Stories or Requirements to be Tested]

Testing Environment:

URL/Location: [Web URL or Application Location]

Credentials (if required): [Username/Password]

Test Cases:

Test Case ID	Test Scenario	Test Steps	Expected Result	Actual Result	Pass/Fail
TC-001	[Describe the scenario to be tested]	[Step 1] [Step 2] [Step 3]	[Describe the expected outcome]	[Record the actual outcome]	[Pass/Fail]
...	...	...	...	...	...

Bug Tracking:

Bug ID	Bug Description	Steps to reproduce	Severity	Status	Additional feedback
BG-001	[Describe the issue or	[Step 1] [Step 2]	[Low/Medi	[Open/In Progress/	[Any additional

	bug encountered]	[Step 3]	um/High]	Closed]	comments or feedback]
...	...	...	...	...	...

Sign-off:

Tester Name: [Name of Tester]

Date: [Date of Test Completion]

Signature: [Tester's Signature]

Notes:

- Ensure that all test cases cover both positive and negative scenarios.
- Encourage testers to provide detailed feedback, including any suggestions for improvement.
- Bug tracking should include details such as severity, status, and steps to reproduce.
- Obtain sign-off from both the project manager and product owner before proceeding with deployment.

Project Design Phase
Problem – Solution Fit Template

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	2 Marks

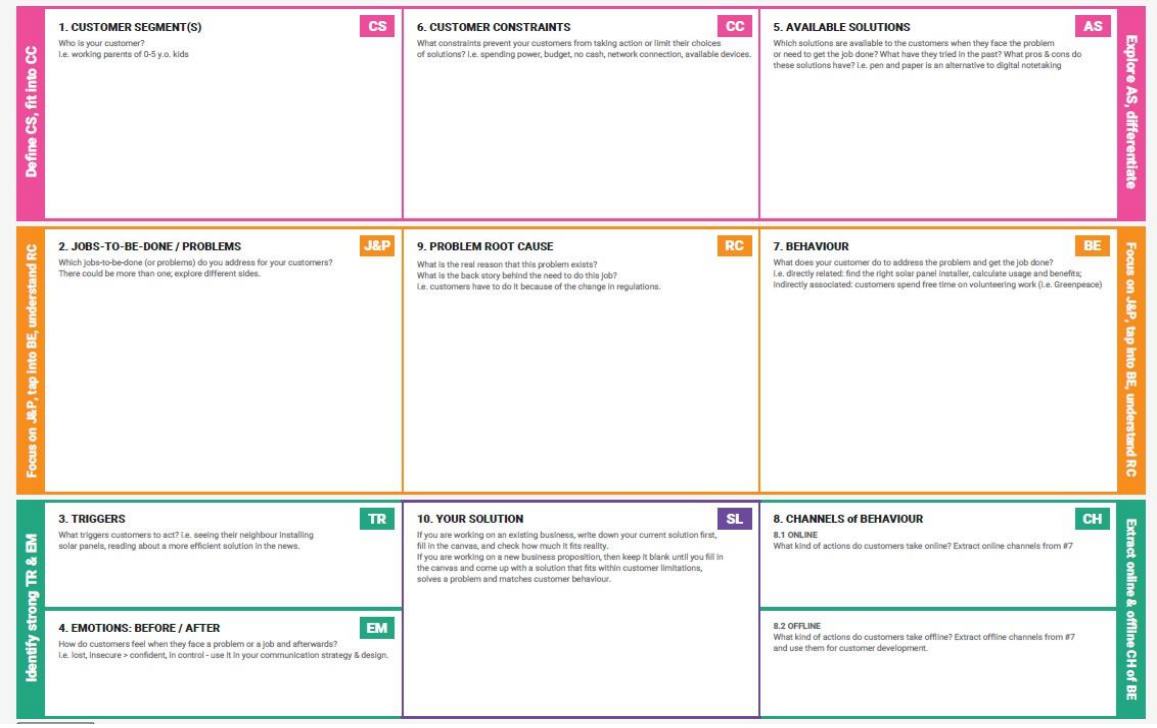
Problem – Solution Fit Template:

The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem. It helps entrepreneurs, marketers and corporate innovators identify behavioral patterns and recognize what would work and why

Purpose:

- ❑ Solve complex problems in a way that fits the state of your customers.
- ❑ Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.
- ❑ Sharpen your communication and marketing strategy with the right triggers and messaging.
- ❑ Increase touch-points with your company by finding the right problem-behavior fit and building trust by solving frequent annoyances, or urgent or costly problems.
- ❑ **Understand the existing situation in order to improve it for your target group.**

Template:



References:

1. https://www.ideahackers.network/problem-solution-fit-canvas/
2. https://medium.com/@epicantus/problem-solution-fit-canvas-aa3dd59cb4fe

Problem-Solution fit canvas 2.0

Purpose / Vision

1. CUSTOMER SEGMENT(S) — CS

Who is your customer?

6. CUSTOMER — CC

What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.

5. AVAILABLE SOLUTIONS — AS

Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS — J&P

Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.

9. PROBLEM ROOT CAUSE — RC

What is the real reason that this problem exists? What is the back story behind the need to do this job?
i.e. customers have to do it because of the change in regulations.

7. BEHAVIOUR — BE

What does your customer do to address the problem and get the job done?
i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)

Focus on J&P, tap into BE, understand RC

Identify strong TR & EM

3. TRIGGERS — TR

What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.

4. EMOTIONS: BEFORE / AFTER — EM

How do customers feel when they face a problem or a job and afterwards?
i.e. lost, insecure > confident, in control - use it in your communication strategy & design.

10. YOUR SOLUTION — SL

If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality.
If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.

8. CHANNELS of BEHAVIOUR — CH

8.1 ONLINE

What kind of actions do customers take online? Extract online channels from #7

8.2 OFFLINE

What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.

Extract online & offline CH of BE

Problem-Solution it canvas is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 license Created by Daria Nepriakhina / Amaltama.com

AMALTAMA

A Sprint fixed period or duration in which a team works to complete a set of tasks

An **Epic** is a **big task or project** that is too large to complete in one sprint. It is broken down into **smaller tasks (stories)** that can be completed over multiple sprints.

A **Story** is a small task . It is part of an **Epic**.

A **Story Point** is a number that represents how much effort a story takes to complete. (usually in form of Fibonacci series)

- **1-** Very Easy task
- **2-** Easy task
- **3-** Moderate task
- **5-** Difficult task

Sprint 1: (5 Days)

Data Collection

- Collection of Data **2**
- Loading Data **1**

Data Preprocessing

- Handling Missing Values **3**
- Handling Categorical values **2**

Sprint 2 (5 Days)

Model Building

- Model Building **5**
- Testing Model **3**

Deployment

- Working HTML Pages **3**
- Flask deployment **5**

Total Story Points

Sprint 1 = 8

Sprint 2 = 16

Velocity= Total Story Points Completed/ Number of Sprints

Total story Points= 16+8 =24

No of Sprints= 2

Velocity = (16+8)/2= 24/2

12 (Story Points per Sprint)

Your team's velocity is 12 Story Points per Sprint.

Project Planning Phase

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

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	5 Marks

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

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	
Sprint-2		USN-3	As a user, I can register for the application through Facebook	2	Low	
Sprint-1		USN-4	As a user, I can register for the application through Gmail	2	Medium	
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email & password	1	High	
	Dashboard					

Project Tracker, Velocity & Burndown Chart: (4 Marks)

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	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022		
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022		
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022		

Velocity:

Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$

Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.

https://www.visual-paradigm.com/scrum/scrum-burndown-chart/

https://www.atlassian.com/agile/tutorials/burndown-charts

Reference:

https://www.atlassian.com/agile/project-management

https://www.atlassian.com/agile/tutorials/how-to-do-scrum-with-jira-software

https://www.atlassian.com/agile/tutorials/epics

https://www.atlassian.com/agile/tutorials/sprints

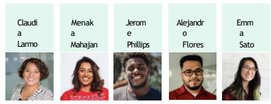
https://www.atlassian.com/agile/project-management/estimation

https://www.atlassian.com/agile/tutorials/burndown-charts

FAIRPLANE

Guided city tours

Based on ten customer interviews and observations from the Fairplane Guided City Tours team



SCENARIO

Browsing, booking, attending, and rating a local city tour

Entice

How does someone initially become aware of this process?

Enter

What do people experience as they begin the process?

Engage

In the core moments in the process, what happens?

Exit

What do people typically experience as the process finishes?

Extend

What happens after the experience is over?

Steps

What does the person (or group) typically experience?

- Booking other travel
- Visit website or app
- Choose a city, dates, and number of people
- Browse available tours
- View detail on a single tour
- Start purchase of a tour
- Complete payment information
- Confirm payment & book tour
- Email confirmation
- Email reminder
- Arrive at tour location
- Meet the guide & group
- Experience the tour
- Leave the guide & group
- Prompt for review
- Writing & submitting review
- Tour appears in the user profile
- Personalized recommendations
- Personalized tour offers
- Personalized tour suggestions after new

Most customers discover city tours as they are booking other Fairplane travel

A customer navigates to the city tours section of our website or app

The customer types a city, dates, and the number of people who will attend the tour to see what tours are available

The customer sees available tours for their dates, city, and number of people

After seeing a tour that interests them, the custom er clicks or taps to view more. They see information about what and where the tour will cover, plus its price, time of day, and tour guide.

After deciding to go on this tour, they click the Purchase button

They fill out their contact and credit card information, then continue

They see a summary of what they are about to purchase, then they confirmand the tour is booked!

An email immediately sends to confirm their tour and provide details about where and when to meet their guide

One day before the tour begins, a reminder email is sent to all tour participants. T he em ail emphasizes w here and w hen to meet, and w hat to bring (if applicable).

Using their own means of transportation, the customer makes their way to the tour location at

Tour participants meet the guide and other people who have joined the same tour

The guide brings the group around the area, explaining things as they go. Typically this lasts

The guide wraps up the tour and everyone heads their separate ways

One hour after the tour finishes, an email and in-app notification prompt the tour participant for a review

The tour participant writes a review and gives the tour a star-rating out of 5.

The completed tour appears on the "past experiences" area of a customer'sprofile with a few details on where the group went

Participation in the tour informs our backend recommendation systems, which the customer may experience via further

The customer receives an email 14 days after their tour with personalized recommendations for other tours

When a past tour participant books new travelwith us, we show them personalized tour recommendations in their armsalcity.

Interactions

What interactions do they have at each step along the way?

- **People:** Who do they see or talk to?
- **Places:** Where are they?
- **Things:** What digital touchpoints or physical objects would they use?

- Travel booking section of the website, iOS app, or
- City tours section of the website, iOS app, or Android app
- City tours section of the website, iOS app, or Android app
- City tours section of the website, iOS app, or Android app
- City tours section of the website, iOS app, or Android app
- The tour guide makes first appearance at this point, although the customer doesn't interact with themyet.
- City tours section of the website, iOS app, or Android app
- Payment overlay within the website, iOS app, or Android app
- Payment overlay within the website, iOS app, or Android app
- Customer's email (software like Outlook or website like Gmail)
- Customer's email (software like Outlook or website like Gmail)
- Tour locations tend to start in a specific public space (e.g. the steps of a statue in a town square)
- The customer looks for the group or guide, often from a distance as they walk closer
- Direct interactions with shopkeepers or restaurant staff (e.g. on a food-oriented tour)
- Direct interactions with the guide, and potentially other
- Some tours include interactions with shopkeepers or restaurant staff (e.g. on a food-oriented tour)
- Most common objects people interact with on tours are bikes, Segways, food, and beverages.
- Direct interactions with the guide, and potentially other
- Customer's email (software like Outlook or website like Gmail)
- Direct interactions with the guide, and potentially other
- Often takes place at the same place where the group met the guide, but not always
- Depending on the tour participant and guide, tipping/cash may be involved
- "Leave a review" modal window within the profile on the website, iOS app, or Android app
- To some degree, this is communicating indirectly with the tour guide, who will see their review
- Completed experiences section of the profile on the website, iOS app, or Android app
- If other users interact with this person, they will see these completed tours also
- Recommendations span across website, iOS app, or Android app
- Customer's email (software like Outlook or website like Gmail)
- Post-purchase screens website, iOS app, or Android app

Goals & motivations

At each step, what is a person's primary goal or motivation? ("Help me..." or "Help me avoid...")

- Help me get this flight or hotel booked
- Help me have more fun or learn new things on my trip
- Help me avoid seeing tours for the wrong dates, locations, or numbers of people
- Help me see what they have to offer
- Help me understand what this tour is all about
- Help me commit to going on this tour
- Help me get through this payment part without too much hassle
- Help me feel confident that my purchase is finalized and tell me what to do next
- Help me feel confident that my purchase is finalized and tell me what to do next
- Help me make sure I don't forget about my tour so that I don't waste money or get disappointed
- Help me feel confident about where to go and which one of these people is my guide
- Help me feel good about my decision to go on this tour and to feel welcome
- Help me make the most of my trip to this new place
- Help me leave the tour with good feelings and no
- Help me spread the word about a great tour or provide watch-outs and feedback for one that was not so good
- Help me see what I've done before
- Help me see what I could be doing next
- Help me see ways to enhance my new trip

Positive moments

What steps does a typical person find enjoyable, productive, fun, motivating, delightful, or exciting?

- It's fun to look at options and imagine doing each tour, like e-shopping for experiences
- Tour photos, videos, and explanations are exciting to see
- It's reassuring to red reviews written by past travelers
- Excitement about the purchase ("Here we go!")
- Current payment flow is very bare-bones and simple
- We've heard from several people that the reminder emails were essential, especially if they booked way in advance
- Our guides tend to be so good that people are reassured when they meet their guide
- People love the tour itself, we have a 98% satisfaction rating
- People generally leave tours feeling refreshed and inspired
- People like looking back on their past trips
- We think people like these recommendations because they have an extremely high engagement rate

Negative moments

What steps does a typical person find frustrating, confusing, angering, costly, or time-consuming?

- People sometimes forget to put in their date or number of people, which leads them to discover tours they can't actually attend
- Several people expressed "information overload" as they browse
- People express a bit of fear of commitment at this step
- Trepidation about the purchase ("I hope this will be worth it!")
- People expressed awkwardness about finding their guide in a public place
- Sometimes people are matched up with tour participants that they don't really like
- People are unclear whether a tip is necessary, especially for non-Americans on an American tour
- People feel peer pressure to tip a guide when someone else on the tour tips, leaving them feeling weird and bad if they don't
- Customers report feeling review fatigue
- We have very low review rates (15% of people review experiences and tours)
- People describe leaving a review as an arduous process

Areas of opportunity

How might we make each step better? What ideas do we have? What have others suggested?

- If you don't follow this path immediately after your booking, could we send a follow-up?
- Could we automatically carry over the city from your booking? (e.g. via a cookie)
- Make it easier to compare and shop for experiences without having to click on them
- Provide a simpler summary to avoid information overload
- Show highlights or common phrases from reviews, or Uber style "great guide" badges!
- How might we make our guides easily identifiable (via a distinctive hat or shirt color, for example)?
- How might we make it clear that tipping is appreciated but not necessary!
- How might we equip people to tip after the tour! (e.g. via Venmo or equivalent app)
- How might we totally eliminate this awkward moment?
- Could we A/B test different language to see what changes response rates?
- How might we progressively disclose the full review so that each step feels more simple!
- How might we help people celebrate and remember things they've done in the past?
- How might we extend the personal connection to the guide long after the tour is over?

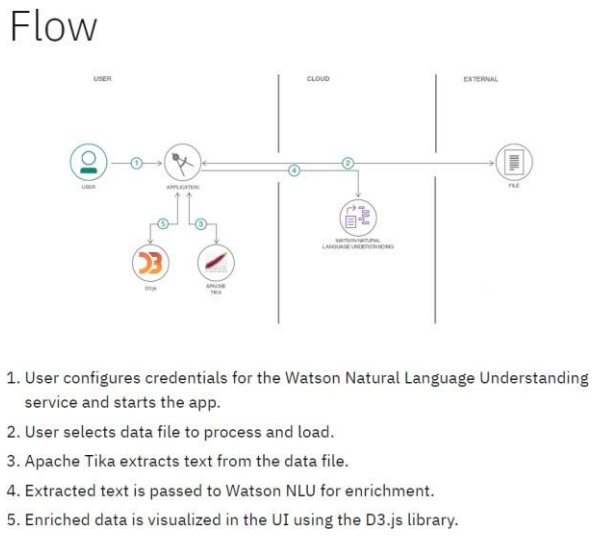
Project Design Phase-II
Data Flow Diagram & User Stories

Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	4 Marks

Data Flow Diagrams:

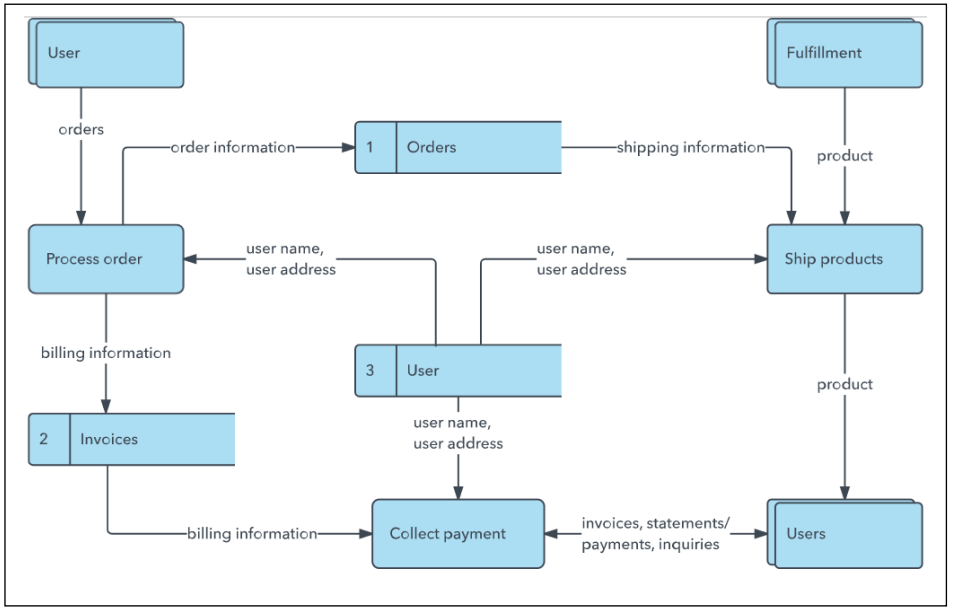
A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

Example: (Simplified)



1. User configures credentials for the Watson Natural Language Understanding service and starts the app.
2. User selects data file to process and load.
3. Apache Tika extracts text from the data file.
4. Extracted text is passed to Watson NLU for enrichment.
5. Enriched data is visualized in the UI using the D3.js library.

Example: DFD Level 0 (Industry Standard)



User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail		Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password		High	Sprint-1
	Dashboard					
Customer (Web user)						
Customer Care Executive						
Administrator						

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

Date	25 June 2025
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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	User Registration	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3		
FR-4		

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	
NFR-2	**Security**	
NFR-3	**Reliability**	
NFR-4	**Performance**	
NFR-5	**Availability**	
NFR-6	**Scalability**	

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

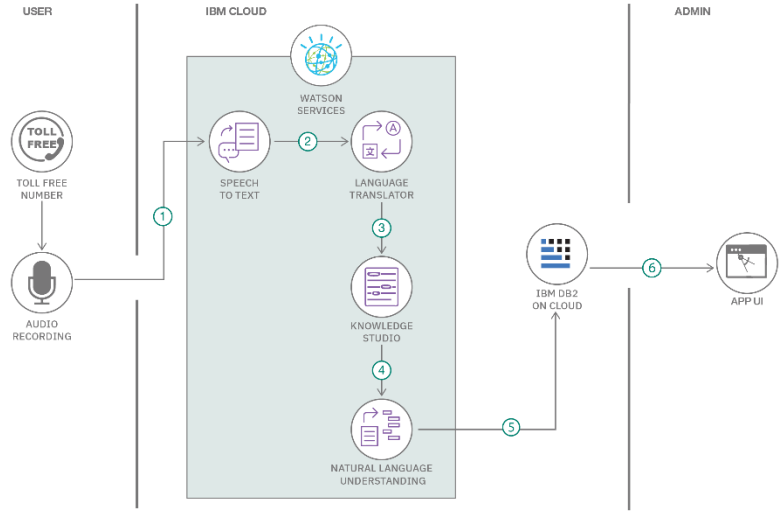
Date	25 June 2025
Team ID	LTVIP2025TMID34571
Project Name	AI ENHANCED SOFTWARE DEVELOPER LIFE CYCLE
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Example: Order processing during pandemics for offline mode

Reference: https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/



Guidelines:

Include all the processes (As an application logic / Technology Block)
Provide infrastructural demarcation (Local / Cloud)
Indicate external interfaces (third party API's etc.)
Indicate Data Storage components / services
Indicate interface to machine learning models (if applicable)

S.No	Component	Description	Technology

1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Logic for a process in the application	Java / Python
3.	Application Logic-2	Logic for a process in the application	IBM Watson STT service
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Database	Data Type, Configurations etc.	MySQL, NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	Purpose of External API used in the application	IBM Weather API, etc.
9.	External API-2	Purpose of External API used in the application	Aadhar API, etc.
10.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Technology of Opensource framework
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	Technology used
4.	Availability	Justify the availability of application (e.g. use of load balancers, distributed servers etc.)	Technology used

S.No	Characteristics	Description	Technology
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Technology used

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture

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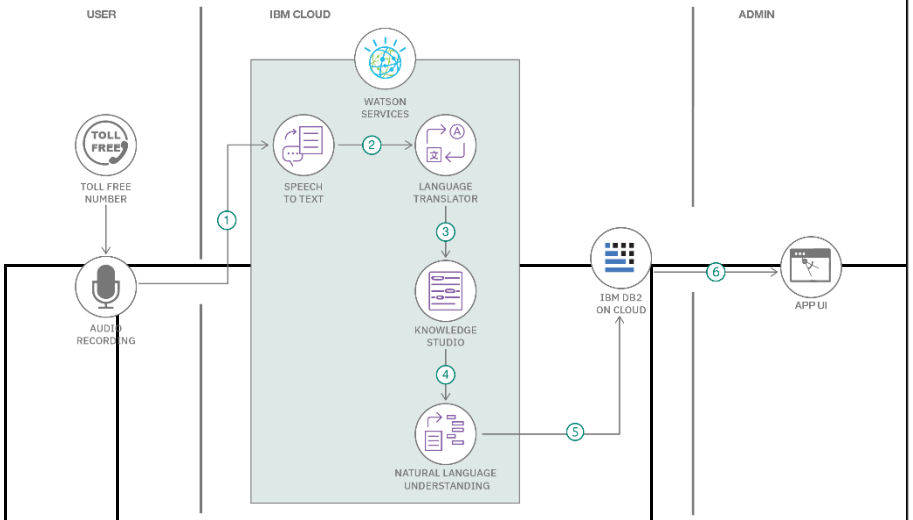

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S.No	Characteristics	Description	Technology
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References:

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https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d

Project Report Format

1. **INTRODUCTION**
   - 1.1 Project Overview
   - 1.2 Purpose
2. **IDEATION PHASE**
   - 2.1 Problem Statement
   - 2.2 Empathy Map Canvas
   - 2.3 Brainstorming
3. **REQUIREMENT ANALYSIS**
   - 3.1 Customer Journey map
   - 3.2 Solution Requirement
   - 3.3 Data Flow Diagram
   - 3.4 Technology Stack
4. **PROJECT DESIGN**
   - 4.1 Problem Solution Fit
   - 4.2 Proposed Solution
   - 4.3 Solution Architecture
5. **PROJECT PLANNING & SCHEDULING**
   - 5.1 Project Planning
6. **FUNCTIONAL AND PERFORMANCE TESTING**
   - 6.1 Performance Testing
7. **RESULTS**
   - 7.1 Output Screenshots
8. **ADVANTAGES & DISADVANTAGES**
9. **CONCLUSION**
10. **FUTURE SCOPE**
11. **APPENDIX**

    Source Code(if any)

    Dataset Link

    GitHub & Project Demo Link

Full Stack Development with MERN

Project Documentation format

1. Introduction

- **Project Title:** [Your Project Title]
- **Team Members:** List team members and their roles.

2. Project Overview

- **Purpose:** Briefly describe the purpose and goals of the project.
- **Features:** Highlight key features and functionalities.

3. Architecture

- **Frontend:** Describe the frontend architecture using React.
- **Backend:** Outline the backend architecture using Node.js and Express.js.
- **Database:** Detail the database schema and interactions with MongoDB.

4. Setup Instructions

- **Prerequisites:** List software dependencies (e.g., Node.js, MongoDB).
- **Installation:** Step-by-step guide to clone, install dependencies, and set up the environment variables.

5. Folder Structure

- **Client:** Describe the structure of the React frontend.
- **Server:** Explain the organization of the Node.js backend.

6. Running the Application

- Provide commands to start the frontend and backend servers locally.
    - **Frontend:** `npm start` in the client directory.
    - **Backend:** `npm start` in the server directory.

7. API Documentation

- Document all endpoints exposed by the backend.
- Include request methods, parameters, and example responses.

8. Authentication

- Explain how authentication and authorization are handled in the project.
- Include details about tokens, sessions, or any other methods used.

9. User Interface

- Provide screenshots or GIFs showcasing different UI features.

10. Testing

- Describe the testing strategy and tools used.

11. Screenshots or Demo

- Provide screenshots or a link to a demo to showcase the application.

12. Known Issues

- Document any known bugs or issues that users or developers should be aware of.

13. Future Enhancements

- Outline potential future features or improvements that could be made to the project.