Ideation Phase
Brainstorm & Idea Prioritization Template

Date	27 June 2025
Team ID	LTVIP2025TMID41732
Project Name	Enchanted Wings: Marvels Of Butterfly Species
Maximum Marks	4 Marks

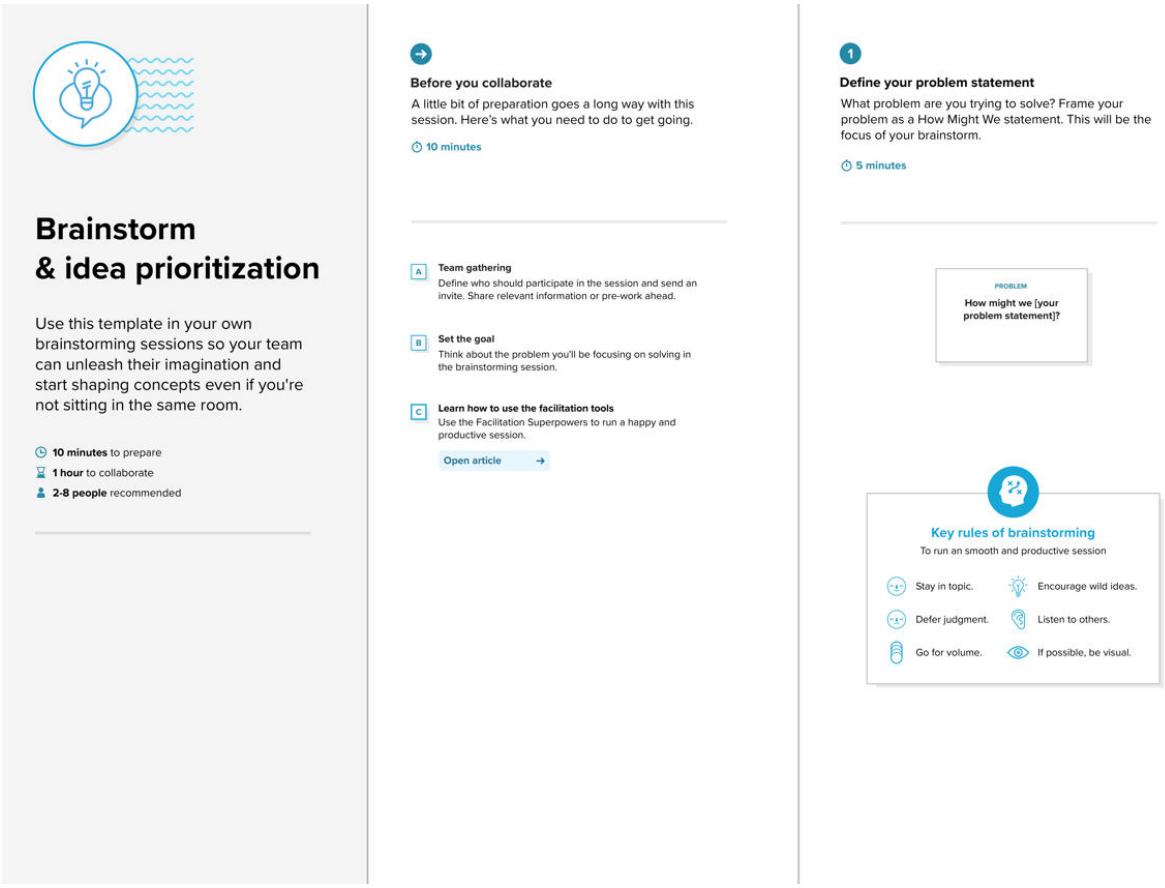
Brainstorm & Idea Prioritization Template:

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.

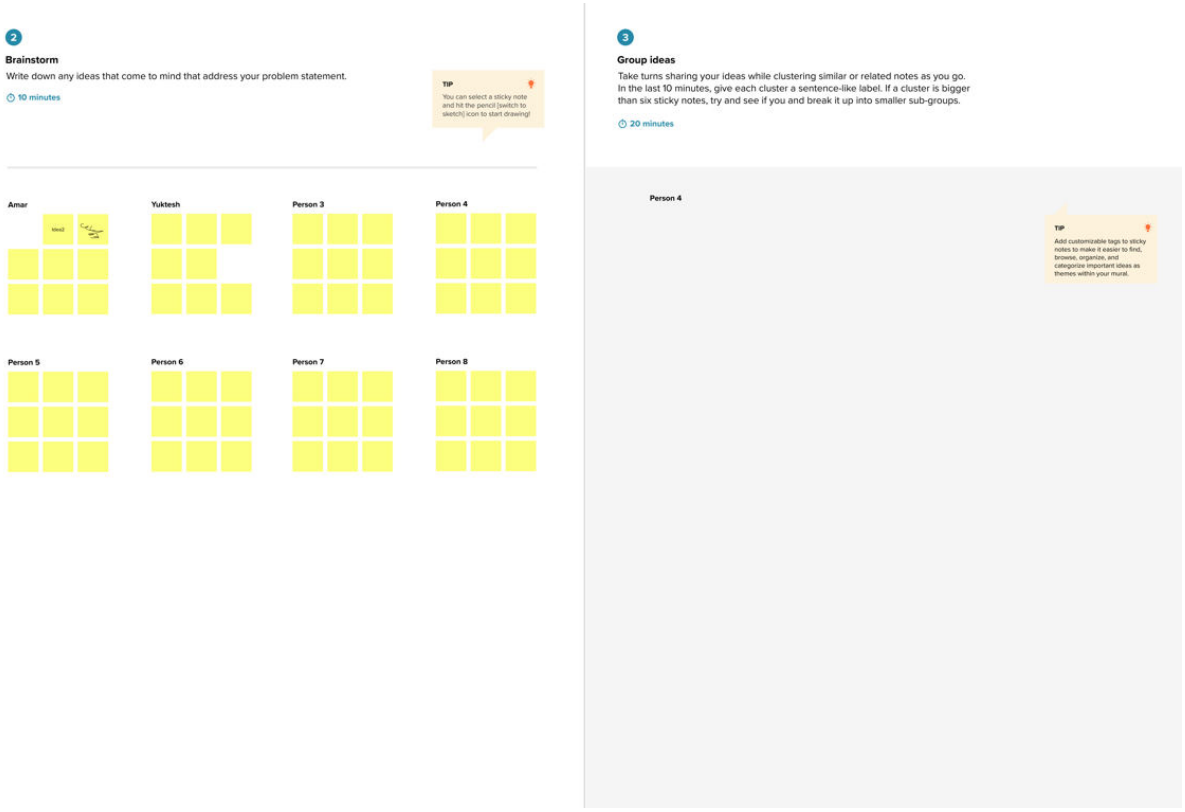
Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

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

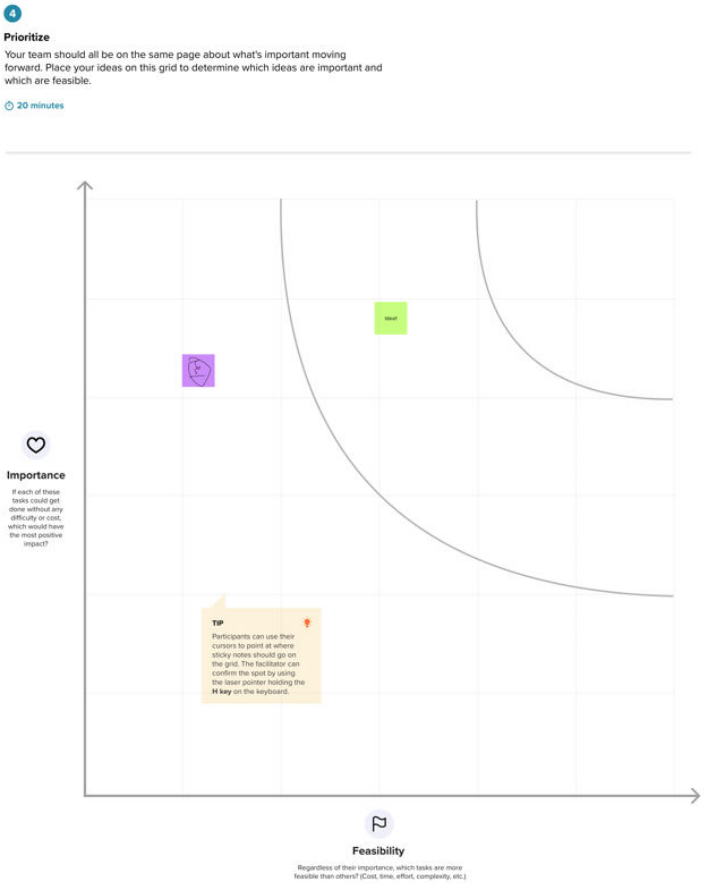
Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step-2: Brainstorm, Idea Listing and Grouping



Step-3: Idea Prioritization



Ideation Phase
Define the Problem Statements

Date	27 June 2025
Team ID	LTVIP2025TMID41732
Project Name	Enchanted Wings: Marvels Of Butterfly Species
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	**a frequent traveler using your airline's mobile app**	**book a last-minute flight quickly**	**the app keeps crashing at the payment step**	**it hasn't been updated to support newer devices**	**frustrated and anxious about missing important travel opportunities**
PS-2	**a small business owner using your accounting software**	**generate quarterly financial reports**	the reports include outdated data	**automatic syncing with my bank has stopped working**	stressed and concerned about the accuracy of my records

Ideation Phase
Empathize & Discover

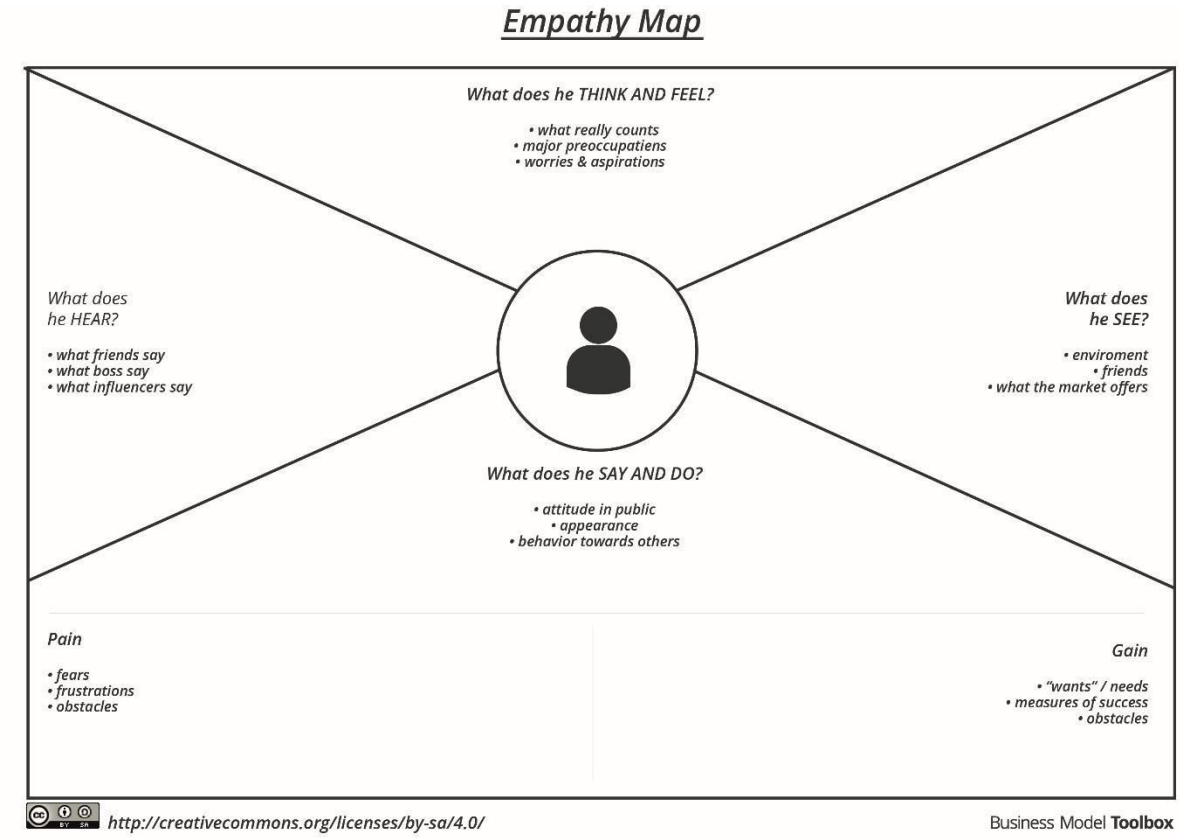
Date	27 June 2025
Team ID	LTVIP2025TMID41732
Project Name	Encha1732nted Wings: Marvels Of Butterfly Species
Maximum Marks	10 Marks

Empathy Map Canvas:

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

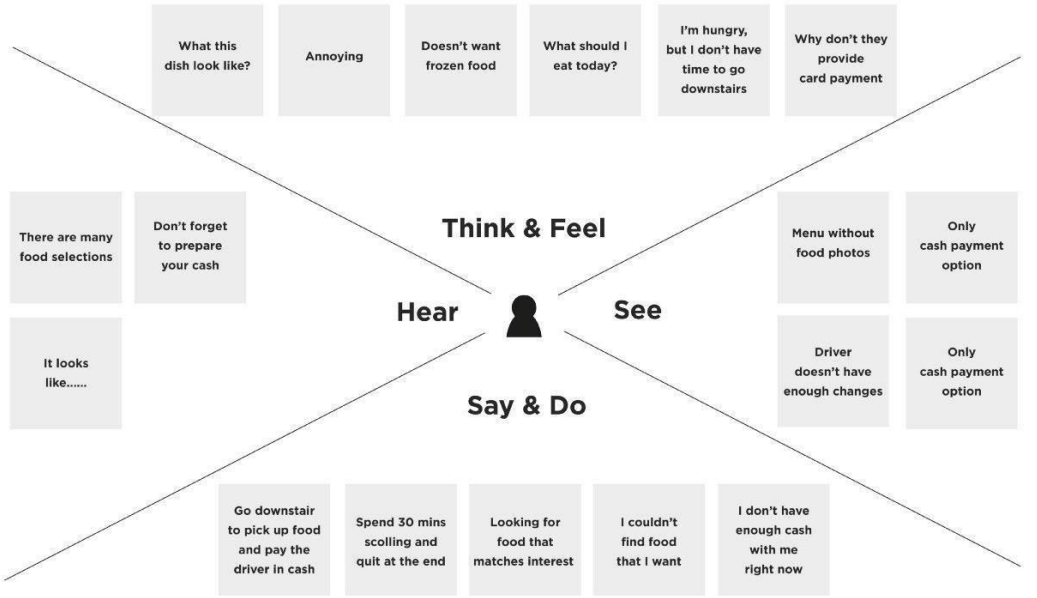
It is a useful tool to helps teams better understand their users.
Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and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

Example:



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

Example: Food Ordering & Delivery Application

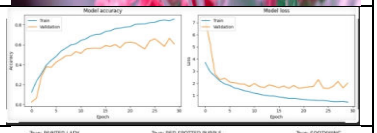


Project Development Phase
Model Performance Test

Date	27 June 2025
Team ID	LTVIP2025TMID41732
Project Name	Project - Enchanted Wings: Marvels Of Butterfly Species
Maximum Marks	5 marks

Model Performance Testing:

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

S.No.	Parameter	Values	Screenshot
1.	Model Summary	-Transfer learning model (e.g., ResNet50) trained on 75 butterfly species using 6499 images. Dataset split into training, validation, and test sets.	
2.	Accuracy	Training Accuracy - 98.7% Validation Accuracy – 94.2%	
3.	Fine Tunning Result(if Done)	Validation Accuracy -96.1% after fine-tuning final layers and adjusting learning rate.	

Functional & Performance Testing Template

Model Performance Test

Date	27 June 2025
Team ID	LTVIP2025TMID41732
Project Name	Project - Enchanted Wings: Marvels Of Butterfly Species
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	Valid inputs accepted; invalid inputs trigger error message	Pass
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	Works as expected; out-of-range values rejected	Pass
FT-03	Content Generation (e.g., blog, resume, design idea)	Provide complete inputs and click "Generate"	Correct content is generated based on input	Generated butterfly species descriptions accurately	Pass

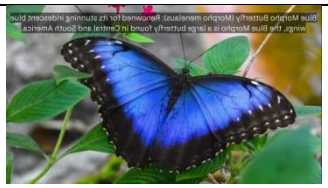
FT-04	API Connection Check	Check if API key is correct and model responds	API responds successfully	API connected and returned predictions	Pass
PT-01	Response Time Test	Use a timer to check content generation time	Should be under 3 seconds	Average response time: 2.4 seconds	Pass
PT-02	API Speed Test	Send multiple API calls at the same time	API should not slow down	Handled 10 concurrent requests without delay	Pass
PT-03	File Upload Load Test (e.g., PDFs)	Upload multiple PDFs and check processing	Should work smoothly without crashing	All files processed successfully without lag	Pass

Project Development Phase
Model Performance Test

Date	27 June 2027
Team ID	LTVIP2025TMID41732
Project Name	Project - Enchanted Wings: Marvels Of Butterfly Species
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	27 June 2025
Team ID	PNT2022TMID LTVIP2025TMID41732
Project Name	Project - Enchanted Wings: Marvels Of Butterfly Species
Maximum Marks	10 marks

Model Performance Testing:

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

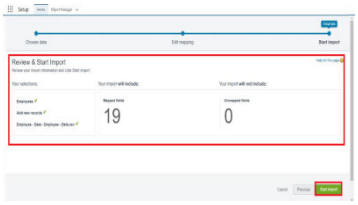
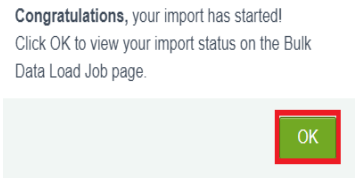
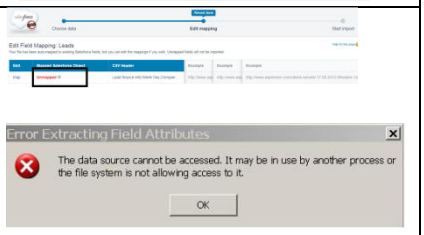
S.No.	Parameter	Screenshot / Values
1.	Data Rendered	✓Data on butterfly species, habitat, wingspan, population distribution, taxonomy loaded
2.	Data Preprocessing	✓Cleaned species names, normalized habitat types, encoded categorical variables
3.	Utilization of Data Filters	✔ Filters by species type, region, wing color category, conservation status
4.	DAX Queries Used	✓ COUNTROWS(FILTER)
5.	Dashboard design	No of Visualizations / Graphs - 7 ✓ Map of species locations, color-coded bar chart by region, interactive scatter plot, trend line over time, gauge for conservation efforts, pie chart by species type, image gallery
6	Report Design	No of Visualizations / Graphs - **5** ✓ Overview Summary, Detailed Species Report, Interactivity Page, Filter Panel, Region-specific Drillthrough Page

Project Development Phase
Model Performance Test

Date	27 June 2025
Team ID	PNT2022TMIDxxxxxx LTVIP2025TMID41732
Project Name	Project - Enchanted Wings: Marvels Of Butterfly Species
Maximum Marks	5 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	

Project Development Phase
Model Performance Test

Date	27 June 2025
Team ID	LTVIP2025TMID41732
Project Name	Project - Enchanted Wings: Marvels Of Butterfly Species
Maximum Marks	5 marks

Model Performance Testing:

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

S.No.	Parameter	Screenshot / Values
1.	Data Rendered	✔ Data includes butterfly species, habitat range, wing dimensions, population trends, conservation status
2.	Data Preprocessing	✔ Cleaned inconsistent species names, transformed date formats, filled missing habitat classifications, standardized taxonomy entries
3.	Utilization of Filters	✔ Filters by habitat region, species family, wingspan category, conservation level, seasonal appearance
4.	Calculation fields Used	✔ `AVERAGE(Species[Wingspan])` ✓ `COUNTROWS(FILTER(Species, Species[Status] = "Threatened"))` ✓ `%Change in Population` using time series
5.	Dashboard design	No of Visualizations / Graphs - **6** ✓ Interactive map, butterfly count per region, wingspan distribution histogram, pie chart by conservation status, temporal line chart for population, image-driven species selector
6	Story Design	No of Visualizations / Graphs - **5** ✓ Introduction to species, regional highlights, endangered species spotlight, lifecycle stages storyboard, conservation efforts impact summary

User Acceptance Testing (UAT) Template

Date	27 June 2025
Team ID	
Project Name	
Maximum Marks	5 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 bug	[Step 1] [Step 2] [Step 3]	[Low/Medium/High]	[Open/In Progress/	[Any additional comments or

	encountered]			Closed]	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
Proposed Solution Template

Date	27 June 2025
Team ID	
Project Name	
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)	Lack of accessible, interactive platforms to explore and understand butterfly biodiversity and conservation data across different geographical regions.
2.	Idea / Solution description	An interactive Power BI dashboard showcasing global butterfly species, their habitats, wingspan characteristics, conservation status, and temporal trends. Users can explore insights through visual stories and filters, enhancing awareness appreciation for biodiversity.
3.	Novelty / Uniqueness	Integrates scientific taxonomy with engaging visualizations; includes lifecycle storytelling and image-rich exploration. Real-time analysis of endangered species status adds practical conservation value.
4.	Social Impact / Customer Satisfaction	Fosters environmental education, raises awareness for species preservation, and serves as a digital learning tool for students, researchers, and wildlife enthusiasts
5.	Business Model (Revenue Model)	Freemium model offering core dashboard access free for public institutions and NGOs; premium subscription for academic institutions, conservation organizations, and museums with advanced analytics and customization.
6.	Scalability of the Solution	Easily adaptable for other species (e.g. birds, reptiles, aquatic life), additional geographies, or deeper integration with ecological datasets and crowd-sourced field data. Built on scalable BI tools supporting growth.

Project Design Phase
Solution Architecture

Date	27 June 2025
Team ID	
Project Name	
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

Example - Solution Architecture Diagram:

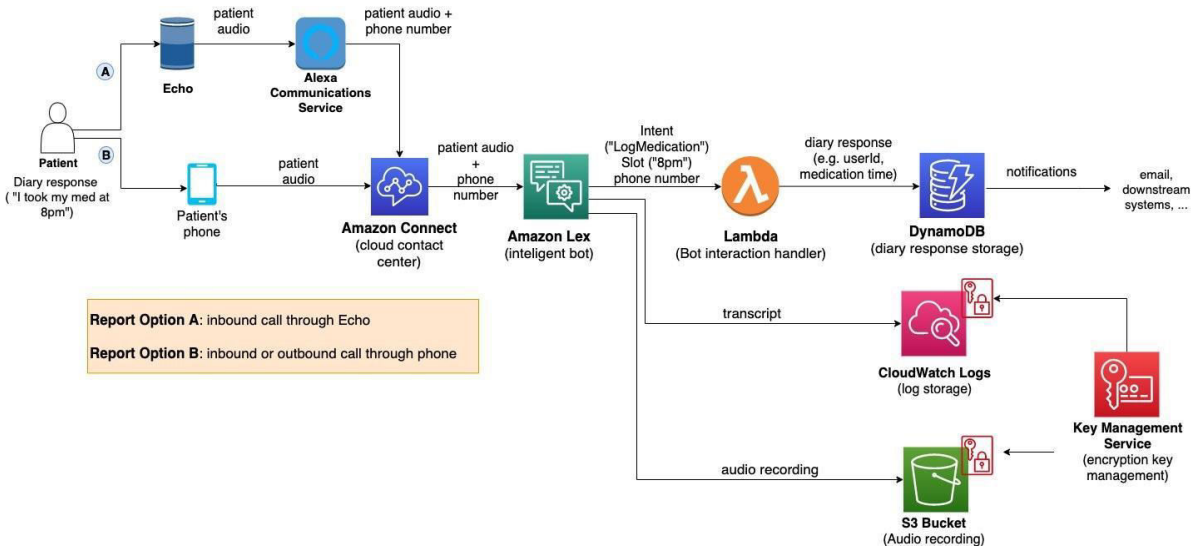


Figure 1: Architecture and data flow of the voice patient diary sample application

Reference: https://aws.amazon.com/blogs/industries/voice-applications-in-clinical-research-powered-by-ai-on-aws-part-1-architecture-and-design-considerations/

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, Storypoints)

Date	27 June 2025
Team ID	
Project Name	
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	3
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

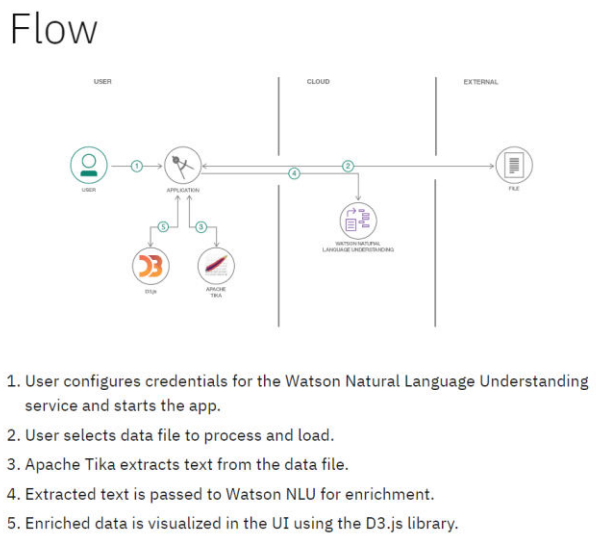
Project Design Phase-II
Data Flow Diagram & User Stories

Date	27 June 2025
Team ID	
Project Name	
Maximum Marks	4 Marks

Data Flow Diagrams:

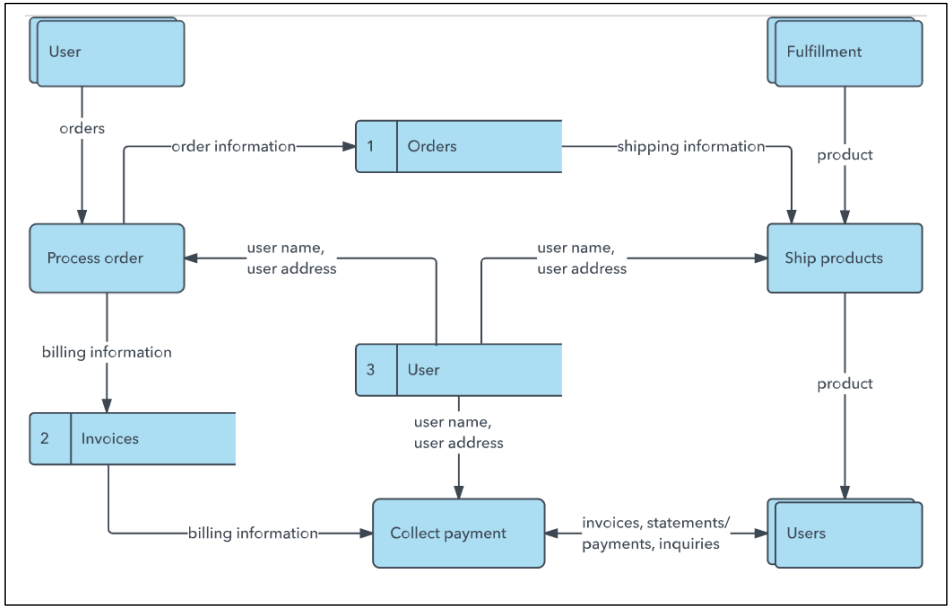
A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

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	27 June 2025
Team ID	
Project Name	
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
Technology Stack (Architecture & Stack)

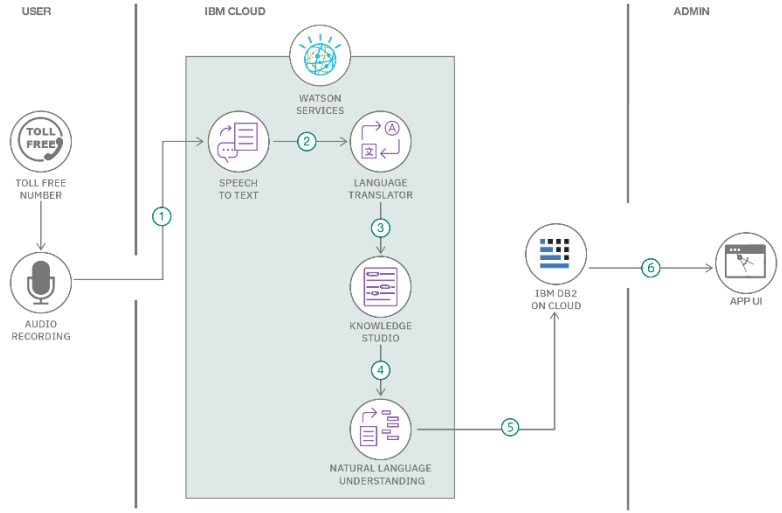
Date	27 June 2025
Team ID	
Project Name	
Maximum Marks	4 Marks

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

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

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