

Ideation Phase

Brainstorm & Idea Prioritization Template

Date	31 January 2025
Team ID	LTVIP2026TMIDS90283
Project Name	rising waters: a machine learning approach to flood prediction

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

The screenshot displays the 'Brainstorm & Idea Prioritization' template interface. It is divided into three main vertical sections:

- Before you collaborate:** This section includes a lightbulb icon and a brief introduction: "A little bit of preparation goes a long way with this session. Here's what you need to do to get going." It specifies a duration of 10 minutes. Below this, there are three steps:
 - 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.
- Define your problem statement:** This section features a large input field labeled "PROBLEM" containing the placeholder text "How might we [your problem statement]?".
- Key rules of brainstorming:** This section lists six rules with corresponding icons:
 - 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

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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!

3

Group Ideas

Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, 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 your notes as themes within your mural.

Step-3: Idea Prioritization

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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 they want their idea to go on the grid. The facilitator can confirm the spot by using the laser pointer holding the H key on the keyboard.

Importance

If each of these tasks could get done without any support from others, which would have the most positive impact?

Feasibility

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

Step-1: Team Gathering, Collaboration and Selection of Problem Statement

Floods are one of the most destructive natural disasters affecting human life, agriculture, infrastructure, and the economy. Early prediction of floods is essential to minimize damage and improve disaster preparedness.

After team discussion and collaboration, we identified the following real-world problem:

“How can we use Machine Learning techniques to predict flood occurrence based on environmental and rainfall data?”

The team discussed multiple environmental problems such as drought prediction, rainfall forecasting, and climate change analysis. After evaluation, flood prediction was selected because:

- It has strong real-world impact
- It directly relates to disaster management
- It can be solved using supervised machine learning
- Dataset availability was feasible

Thus, we finalized the problem statement:

To develop a Machine Learning model that predicts the possibility of flood occurrence based on rainfall and climatic features.

Step-2: Brainstorming, Idea Listing and Grouping

During brainstorming, all team members shared ideas without restrictions. The following ideas were generated:

Idea List

1. Build a flood prediction model using rainfall data
2. Use temperature, humidity, and cloud cover as features
3. Compare multiple classification algorithms
4. Build a web-based application for prediction
5. Deploy the model on cloud platform
6. Create real-time prediction system
7. Use data visualization for analysis
8. Save trained model for reuse

Grouping of Ideas

The ideas were grouped into three main categories:

Data & Analysis

- Collect flood dataset
- Perform univariate, bivariate, multivariate analysis
- Preprocess and clean dataset
- Handle missing values
- Perform feature scaling

2 Model Development

- Train multiple classification models
- Compare Decision Tree, Random Forest, KNN, XGBoost
- Evaluate performance
- Select best-performing model
- Save model using joblib

3 Application Development

- Build Flask backend
- Create HTML & CSS frontend
- Integrate model with UI
- Display prediction results
- Deploy locally and optionally on cloud

Step-3: Idea Prioritization

After evaluating feasibility, complexity, and impact, ideas were prioritized as follows:

Priority Task

High Data collection and preprocessing

High Model training and evaluation

High Model integration with Flask

Medium Data visualization improvements

Medium UI enhancement

Low Cloud deployment (IBM)

⑤ Final Selected Approach

After prioritization, the team decided to:

- Use supervised classification algorithms
- Train multiple models
- Compare performance
- Select best model
- Develop Flask-based web application
- Provide user-friendly prediction interface

