

# Ideation Phase

## Brainstorm & Idea Prioritization Template

Date	31 January 2025
Team ID	LTVIP2026TMIDS42870
Project Name	electric motor temperature prediction using machine learning
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

The screenshot shows a digital template for a brainstorming session. On the left, there's a vertical sidebar labeled "Template". The main area has three columns:

- Before you collaborate:** A lightbulb icon. Description: To identify, brainstorm, and prioritize the best approach for solving the electric motor overheating problem using Machine Learning. Time: 10 minutes.
- Define your problem statement:** A lightbulb icon. Description: How might we predict electric motor temperature accurately using machine learning techniques to prevent overheating and reduce unexpected failures? Time: 5 minutes.
- Key rules of brainstorming:** A lightbulb icon. Description: To run a smooth and productive session. Rules:
  - Stay in topic.
  - Defer judgment.
  - Go for volume.
  - Encourage wild ideas.
  - Listen to others.
  - If possible, be visual.Icons at the bottom include a smiley face, a green speech bubble with "YH", a hand, a thumbs up, and a magnifying glass.

### 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 tap the pencil [switch to sketch] icon to start drawing!

**Person 1**  
Use Linear Regression  
Use Random Forest  
Try XGBoost

**Person 2**  
Try Neural Networks  
Collect sensor data  
Analyze sensor data

**Person 3**  
Remove outliers  
Create alert system  
Build a dashboard

**Person 4**  
Compute model performance  
Use cross-validation  
Hyperparameter tuning

**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 quickly filter, find, organize and categorize important ideas as themes within your mindmap.

After brainstorming, similar ideas were clustered.

**Cluster A – Data Preparation**  
Data cleaning  
Handling missing values  
Outlier removal  
Feature scaling  
Feature selection

**Cluster B – Model Development**  
Linear Regression  
Random Forest  
XGBoost  
Neural Networks

**Cluster C – Evaluation**  
MSE  
RMSE  
 $R^2$  Score  
Cross-validation  
Hyperparameter tuning

**Cluster D – Deployment**  
Dashboard visualization  
Alert system  
Web app deployment

Each cluster was labeled with a clear sentence-style theme as recommended in the template.

## Step-3: Idea Prioritization

**1 Prioritize**

Data preprocessing  
✓ Random Forest Regressor  
✓ Model comparison  
✓ Evaluate using MSE and  $R^2$   
✓ Basic visualization

⌚ 20 minutes

**TIP**  
Participants can use their computer keyboard to type since notes should go on the board. To type, participants can confirm the word by pressing the key on the keyboard.

**2 After you collaborate**

Develop and compare regression-based Machine learning models (primarily Random Forest) to predict electric motor temperature using sensor data, with performance evaluation and visualization support.

**Quick add-ons**

- Share the model**  
Share a view link to the model with stakeholders to keep them in the loop about the outcomes of the session.
- Export the model**  
Export a copy of the model as a PPT or PDF to attach to emails, reports, or files, or save in your drive.

**Keep moving forward**

- Strategy blueprint**  
Define the components of a new idea or strategy.  
[Open the template](#)
- Customer experience journey map**  
Map the customer's needs, emotions, and obstacles for an experience.  
[Open the template](#)
- Strengths, weaknesses, opportunities & threats**  
Identify strengths, weaknesses, opportunities, and threats (SWOT) to develop a plan.  
[Open the template](#)