

Ideation Phase

Brainstorm & Idea Prioritization Template

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| Date | 13 March 2025 |
| Team ID | PNT2025TMID06970 |
| Project Name | Predicting Plant Growth Stages with Environmental and Management Data |
| Maximum Marks | 4 Marks |

Brainstorm & Idea Prioritization Template:

The screenshot displays a three-page template for brainstorming and idea prioritization. The first page, titled 'Brainstorm & idea prioritization', includes a lightbulb icon and instructions to use the template in personal brainstorming sessions. It specifies a 10-minute preparation time, a 1-hour collaboration time, and recommends 2-8 people. The second page, 'Before you collaborate', outlines steps for team gathering, setting goals, and learning facilitation tools, with a 10-minute timer. The third page, 'Define your problem statement', provides a 'PROBLEM' statement: 'How might we use data classification to optimize plant growth under different environmental conditions?' and lists 'Key rules of brainstorming' such as staying on topic, encouraging wild ideas, deferring judgment, listening to others, going for volume, and being visual when possible.

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

Problem Statement:

Farmers and agritech companies struggle to **predict plant growth stages** accurately due to varying environmental conditions like **soil type, sunlight exposure, water frequency, temperature, and humidity**.

Project Goal:

Using **Power BI**, we aim to analyze plant growth patterns and provide **data-driven insights** to optimize farming strategies and improve **crop yield and sustainability**.

Step-2: Brainstorm, Idea Listing and Grouping

Brainstormed Ideas for the Project

1. Data Collection & Preparation:

- Collect environmental and management data (soil type, water frequency, etc.).

- Ensure data quality by handling missing values and inconsistencies.
- Import and transform data in **Power BI**.

2. Data Analysis & Key Metrics:

- Identify **growth trends based on different environmental conditions**.
- Use **DAX measures** to calculate insights like average growth, highest/lowest temperature impact, etc.
- Apply **data filters and slicers** to explore different growth conditions.

3. Visualization & Dashboard Creation:

- **Stacked Bar Chart:** Soil Type vs. Growth Milestone (stacked by Fertilizer Type).
- **Scatter Plot:** Sunlight Hours vs. Growth Milestone (colored by Soil Type).
- **Line Chart:** Temperature vs. Growth Milestone (to track environmental impact).
- **Pie Chart:** Distribution of Water Frequency or Fertilizer Type.
- **Card Visuals:** Total Plants, Average Growth Milestone, Most Common Soil Type.

4. Predictive Insights & Business Impact:

- Use a **Decomposition Tree** to break down **factors influencing growth milestones**.
- Provide insights on **optimal soil type, watering schedule, and environmental conditions**.
- Support **precision agriculture and smart farm management** using data analytics.

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!

Temperature trends

Line graph for trends

Irrigation schedules

Humidity Patterns

Fertilizer routines

Interactive Fertilizers

Soil moisture level

Paste control method

Forecasting tools

Sunlight Exposure

Crop rotation plans

Heat maps for hotspot

Step-3: Idea Prioritization

| Idea | Priority Level (High/Medium/Low) | Reason for Priority |
|---|----------------------------------|-------------------------------------|
| Data Cleaning & Transformation | High | Essential for accurate insights |
| Stacked Bar Chart (Soil Type vs Growth) | High | Shows key environmental impact |
| Scatter Plot (Sunlight vs Growth) | High | Helps find correlation |
| Decomposition Tree (Growth Analysis) | High | Breaks down key influencing factors |
| Card Visuals (Key Metrics) | High | Provides quick insights |
| Predictive Insights | Medium | Future enhancement |

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| Advanced AI-based Predictions | Low | Needs further data exploration |
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