Report

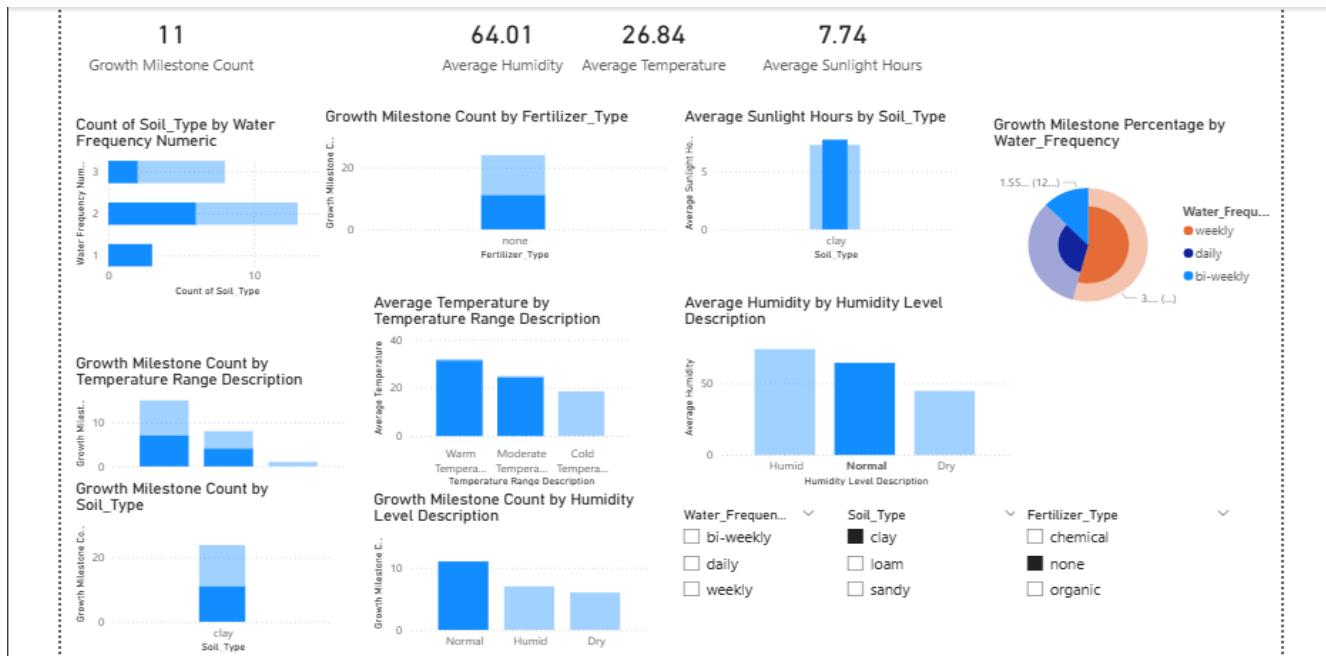| Date	13 January 2026
Team ID	
Project Name	Predicting Plant Growth Stages with Environmental and Management Data Using Power BI
Maximum Marks	5 Marks

A report is a comprehensive document that provides a detailed and structured account of data analysis, findings, and insights. In this project, the Power BI report is designed to present plant growth analysis results in a clear and meaningful way for stakeholders such as farmers, greenhouse managers, and agricultural decision-makers.

The report connects to the plant growth dataset and uses visualizations such as bar charts, column charts, pie charts, KPI cards, and decomposition trees to analyze environmental and management factors influencing plant growth milestones. The report layout is logically organized, with summary metrics at the top and detailed analytical visuals below, ensuring clarity and ease of interpretation.

Observations drawn from reports in Power BI

Observations derived from the Power BI report provide valuable insights into plant growth performance under different environmental and management conditions.

1. Growth Performance Across Soil Types

The report shows that **loam soil** has the highest growth milestone count compared to sandy and clay soils. This indicates that loam soil provides optimal conditions for plant growth due to its balanced texture and nutrient retention capability.

2. Impact of Water Frequency on Plant Growth

Plants that receive **daily watering** achieve the highest growth milestone percentage. This observation highlights the importance of consistent water supply in supporting healthy plant development.

3. Temperature Influence on Growth Milestones

The report indicates that **warm and moderate temperature ranges (20–30°C)** positively impact plant growth, while cold temperature ranges result in reduced growth milestones. This emphasizes the critical role of temperature control in agriculture and greenhouse environments.

4. Effect of Humidity Levels

Growth milestone counts are highest under **humid conditions (50–70%)**, suggesting that adequate humidity is essential for optimal plant growth. Low humidity levels negatively affect plant development.

5. Fertilizer Type Performance

The analysis reveals that **chemical fertilizers** contribute to the highest growth milestone count compared to organic fertilizers and no fertilizer usage. This indicates their effectiveness in promoting faster and more consistent plant growth.

6. Sunlight Exposure Analysis

The report shows that **moderate sunlight hours (6–8 hours per day)** support better plant growth outcomes. Sandy soil receives higher average sunlight hours, which can enhance growth when combined with proper watering and temperature conditions.

7. Overall Environmental Averages

KPI cards in the report display average environmental conditions:

- **Average Temperature:** 25.08°C

- **Average Humidity:** 58.10%

- **Average Sunlight Hours:** 6.83 hours

These averages indicate a balanced and favorable environment for plant growth.

Conclusion from Report Analysis

The Power BI report successfully identifies the environmental and management factors that significantly influence plant growth milestones. By analyzing soil type, water frequency, temperature, humidity, fertilizer usage, and sunlight exposure, the report provides actionable insights that can help improve crop yield, optimize resource usage, and support sustainable agricultural practices.