Report

Date	24 dec 2025
Team ID	SWUID20250236463
Project Name	Predicting Plant Growth Stages with Environmental and Management Data Using Power BI
Maximum Marks	5 Marks

Report and Observations

A report is a comprehensive and structured document that presents detailed analysis, findings, and insights derived from data. In the Plant Growth Analysis project, the Power BI report serves as a key communication tool for presenting the impact of environmental and management factors on plant growth milestones. The report is designed to support decision-makers, agricultural analysts, and greenhouse managers by providing clear visual representations and well-organized insights.

The report was developed in Power BI by connecting to the plant growth dataset, creating relevant visualizations such as bar charts, column charts, pie charts, and KPI cards, and arranging them logically on the report canvas. Consistent formatting, appropriate color themes, and interactive elements such as filters and drill-downs were applied to enhance clarity and usability. The design ensures that users can easily explore the data and interpret insights based on their specific requirements.

Observations derived from the Power BI report provide valuable insights into plant growth performance, environmental influences, and optimal agricultural practices.

Observations from Power BI Reports

1. Growth Trends Across Environmental Conditions

- Analysis of growth milestone counts across different temperature and humidity ranges shows that plants achieve higher growth milestones under moderate temperature conditions (20–30°C) and balanced humidity levels (50–70%).
- This indicates that stable environmental conditions play a crucial role in supporting consistent plant growth.

2. Performance Comparison by Soil Type

- Comparison across soil types reveals that loam soil consistently records higher growth milestone counts compared to sandy and clay soils.
- This insight highlights the importance of soil quality in agricultural planning and soil selection.

3. Impact of Water Frequency on Growth

- The report shows that daily and bi-weekly watering schedules result in better growth milestone percentages than irregular or infrequent watering.
- Proper irrigation management is therefore essential for maximizing plant growth outcomes.

4. Fertilizer Effectiveness Analysis

- Growth milestone counts are higher for plants using organic fertilizer compared to chemical or no fertilizer options.
- This suggests that organic fertilizers contribute positively to plant health and growth performance.

5. Overall Growth Performance Summary

- The total growth milestone count and average environmental indicators displayed through KPI cards provide a clear summary of overall plant growth performance.
- These metrics help stakeholders quickly assess the effectiveness of current agricultural practices.

Key Insights from the Report

1. **Optimal Environmental Ranges Identified**
   Plants show improved growth under moderate temperature and humidity conditions, emphasizing the need for controlled environmental management.
2. **Soil Type as a Critical Growth Factor**
   Loam soil emerges as the most favorable soil type for achieving higher growth milestones.
3. **Importance of Consistent Watering**
   Regular and well-planned watering schedules significantly improve plant growth success rates.
4. **Organic Farming Benefits**
   The use of organic fertilizers positively impacts growth milestones, supporting sustainable farming practices.
5. **Data-Driven Decision Support**
   The Power BI report enables users to make informed decisions by visually exploring relationships between environmental factors and plant growth outcomes.