

Dashboard Design

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

Activity 1: Interactive and Visually Appealing Dashboards

Creating an effective dashboard is a critical step in transforming analyzed data into meaningful insights. For the Plant Growth Analysis project, the dashboard was designed to present environmental and agricultural data in a clear, interactive, and visually engaging manner. The focus was on ensuring ease of understanding, usability, and actionable insights for stakeholders such as farmers, greenhouse managers, and agricultural analysts.

The dashboard design follows established best practices, including a clean layout, appropriate visual selection, consistent color themes, and interactive features that enhance user engagement and data exploration.

Dashboard Design Considerations

- Clear and Intuitive Layout**
The dashboard layout is structured logically, with key performance indicators placed at the top, followed by detailed visualizations. This ensures users can quickly grasp overall plant growth performance before exploring deeper insights.
- Use of Appropriate Visualizations**
Bar charts, column charts, pie charts, and cards are used based on the type of data being represented. Growth milestone counts, percentages, and averages are displayed using visuals best suited for comparison and trend analysis.
- Colour and Theming**
A consistent and minimal color palette is applied throughout the dashboard. Natural colors such as green and blue are used to align with the agricultural theme and improve visual clarity.
- Interactive Filters and Slicers**
Slicers are implemented for soil type, water frequency, fertilizer type, temperature range, and humidity level. These allow users to dynamically filter data and observe changes in visualizations instantly.

- **Drill-Down Capabilities**
Drill-down functionality enables users to explore data at different levels, such as analyzing growth milestone counts by soil type and further breaking them down by water frequency or fertilizer type.
 - **Responsive Design**
The dashboard is designed to adapt well across different screen sizes, ensuring usability on laptops and large display screens without loss of readability.
 - **Custom Visuals and Icons**
Icons and custom visuals are used to represent environmental factors like sunlight, water, and temperature, making the dashboard more intuitive and visually engaging.
 - **Use of Infographics**
Infographic-style cards are used to display key metrics such as total growth milestone count, average temperature, average humidity, and average sunlight hours.
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Major Outcomes from the Dashboard

1. **Growth Milestone Distribution Insight**
The dashboard clearly shows the total count of growth milestones achieved across different environmental conditions, helping identify favorable growth patterns.
2. **Impact of Soil Type on Plant Growth**
Visualizations indicate that certain soil types, particularly loam soil, consistently achieve higher growth milestone counts compared to other soil types.
3. **Water Frequency Optimization**
The analysis highlights how water frequency directly influences growth milestone percentages, enabling better irrigation planning.
4. **Environmental Condition Analysis**
Average temperature, humidity, and sunlight hour visuals reveal the optimal environmental ranges that support healthy plant growth.
5. **Interactive Decision Support**
The use of slicers and drill-down features allows stakeholders to interact with the data, compare scenarios, and make informed agricultural decisions efficiently.