Dashboard Design

Date	28-07-2025
Team ID	HK
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

Description:

This Power BI dashboard provides an interactive, data-driven insight into how various factors—such as soil type, irrigation frequency, temperature, humidity, sunlight, and fertilizer type—affect plant growth.
It helps farmers, agriculture officers, and consultants to make smarter irrigation and soil management decisions by analysing environmental data and plant performance metrics.

Dashboard Components Used:

Component	Description / Purpose
Table	Displays detailed data by soil type, watering frequency, humidity, sunlight, an temperature. This allows users to scan raw values and understand environmental conditions per soil type.
Waterfall Chart – Avg Temperature by Temperature	Illustrates how changes in temperature affect total plant growth. The increas decrease bars show how growth varies across temperature bands.
Key Influencers Visual	Automatically identifies the most significant factor influencing Total_Growth In this case, it shows that when temperature drops below 60.59, growth decreases by 1.76 units on average.
Donut Chart – Growth Milestone by Fertilizer Type	Represents the distribution of plant growth milestones across fertilizer types organic, chemical, or none. This helps users compare fertilizer effectiveness.
Bar Chart – Avg Humidity by Humidity	Displays average humidity distribution, giving an overview of environmental moisture levels across the dataset.
Decomposition Tree	Breaks down Total Growth by Soil type (clay, sandy, loam), allowing users to visually drill into which soil performs best in terms of growth.

Insights Gained:

- **Clay soil** shows the highest total growth, followed by sandy and loam.

- **Temperature** has a direct impact on growth—lower temps significantly reduce performance.

- **Organic and chemical fertilizers** perform much better than using none.

- **Daily watering** appears to work better in certain soil types like clay.

- **Clay soil** showed the **highest total plant growth (67 units)** compared to sandy (64) and loam
  (62).

- **Daily watering frequency** provided more consistent growth results, especially in clay and sandy soils.

- **Temperature** plays a **crucial role**:

- When the **sum of temperature drops below 60.59**, the average plant growth **decreases by 1.76 units**.

- **Humidity** and **sunlight** levels were more optimal in clay soils, contributing to better growth performance.

- **Organic and chemical fertilizers** led to the **majority of growth milestones**:

- Organic: **39.58%**

- Chemical: **37.5%**

- No fertilizer: **22.92%**

Use Cases:

- **Farmers** can determine the ideal soil and watering conditions.

- **Agri-scientists** can research environmental impact on growth.

- **Government planners** can support data-driven farming policies.