Project Concept: Data-Driven Crop Yield Forecasting

1. The Problem:
Agricultural planning is challenging due to unpredictable factors like weather, soil conditions, and farming practices. This leads to inefficient resource use and uncertain harvests, impacting food security and farmers' livelihoods.

2. The Project Objective:
To develop a accurate computer model that forecasts crop yields. This model helps farmers and local officials make better decisions by predicting harvest outcomes based on specific conditions.

3. The Approach:
The model uses **Machine Learning** to analyze historical data on three key factors:

- **Genetic (G):** Crop seed varieties.
- **Environmental (E):** Local weather and soil data.
- **Management (M):** Farming practices like irrigation and fertilization.

The core of the project is analyzing how these factors interact with each other to influence the final yield.

4. The Outcome:
The research produced a highly accurate predictive model. This tool provides reliable yield forecasts for the different areas of Sta. Lucia, enabling:

- **Improved Decision-Making:** For planting and resource allocation.
- **Enhanced Agricultural Planning:** For farmers and local government units.
- **Increased Food Security:** Through better predictability of harvests.