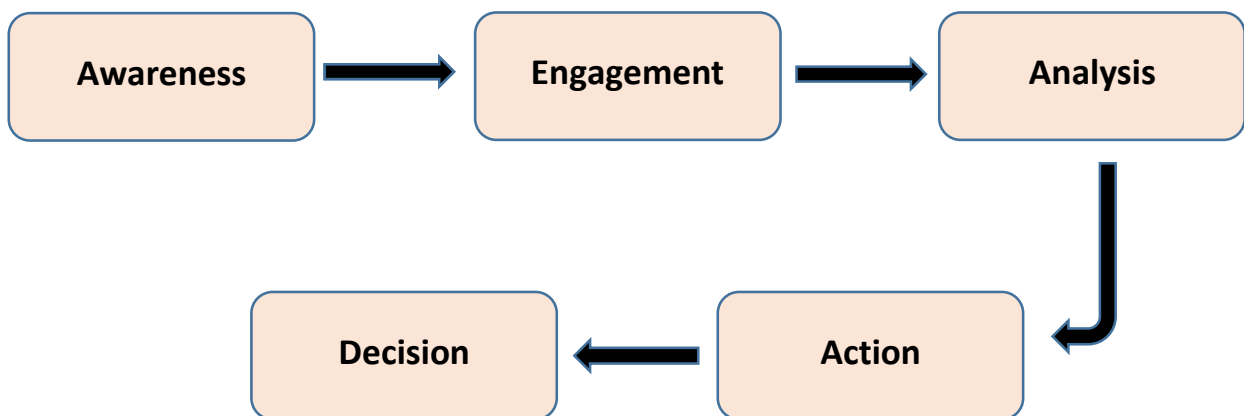# FINAL REPORT
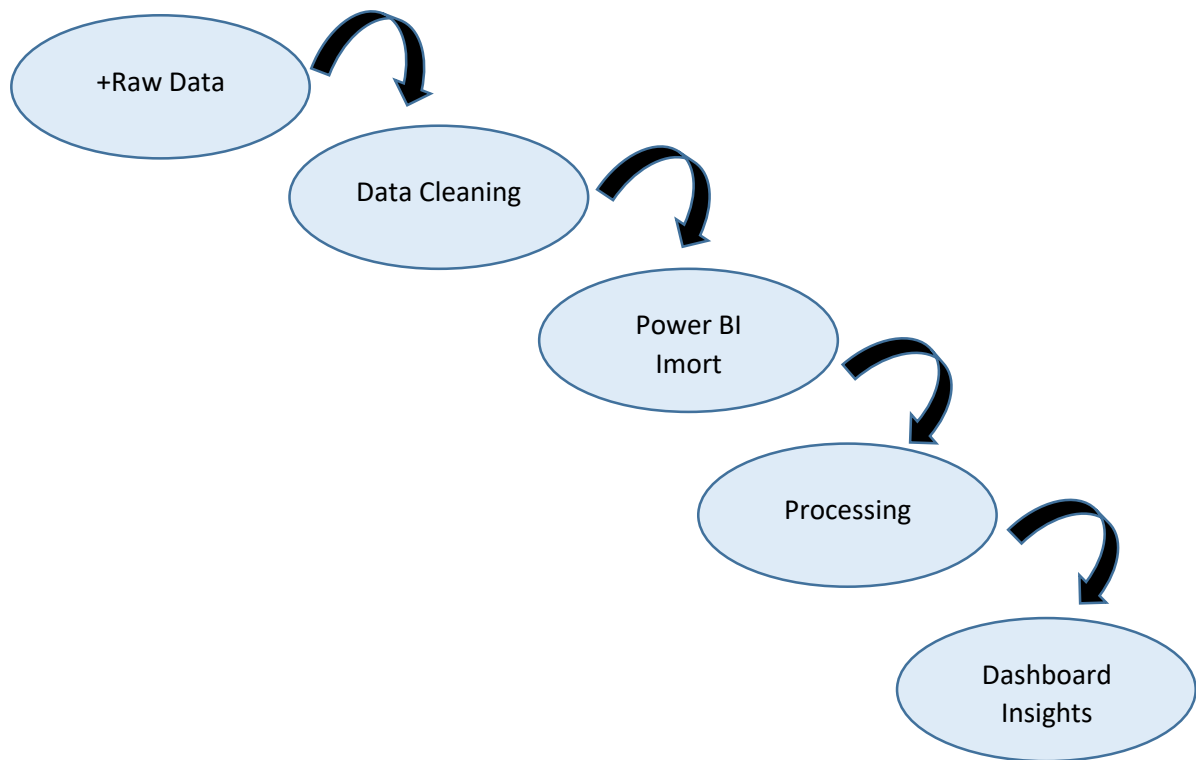
Customer Journey Map

A Customer Journey Map (CJM) helps visualize how users interact with the Global Food Production Trends and Analysis project. It tracks the experience from discovering the dashboard to making insights-driven decisions.

```
 Awareness ──▶ Engagement ──▶ Analysis
                                  │
                                  ▼
 Decision  ◀── Action
```

Data Flow Diagram (DFD)

A Data Flow Diagram (DFD) illustrates how data moves through the system, from raw data collection to visual representation in Power BI.

```
  +Raw Data
        ↓
    Data Cleaning
            ↓
        Power BI
        Imort
              ↓
          Processing
                ↓
            Dashboard
            Insights
```

Solution Requirement

This section defines the requirements needed for the project, including data, functionality, and outputs.

Key Requirements

✓ Data Requirements

▫ Global food production dataset (1961-2023)

▫ Country-wise & category-wise data

✓ Functional Requirements

▫ Data visualization in Power BI

▫ Filters & slicers for interactive analysis

▫ Export & report generation

✓ Performance Requirements

▫ Quick loading of large datasets

▫ Real-time interactivity without lags

✓ Security Requirements

☑ Read-only access for users
☑ Data integrity maintained

Technology Stack :

A Technology Stack defines the tools & technologies used in the project.

Component	Technology Used
Data Storage	Excel / CSV Dataset
Data Processing	Power BI (Data Model, DAX, Queries)
Visualization	Power BI (Bar Chart, Line Graphs, Maps)
Deployment	GitHub (for sharing project)

Problem Solution Fit

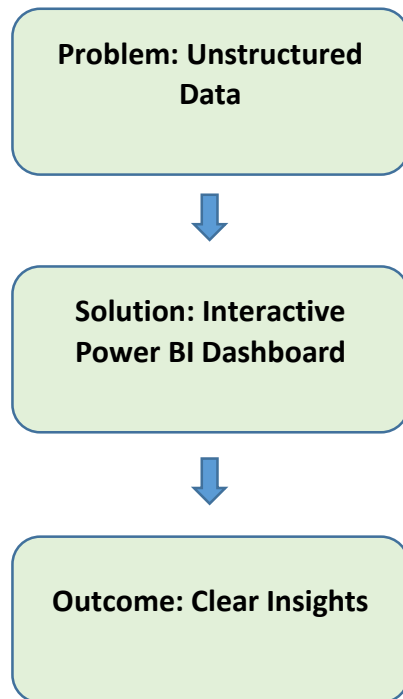Problem-Solution Fit refers to how well the proposed solution addresses the identified problem.

Problem Statement

• Food production data is scattered and difficult to analyze.

• Researchers, policymakers, and analysts lack a centralized, interactive tool for analysis.

• No visual insights to identify trends, top food-producing countries, or food security challenges.

Solution Fit

✓ Centralized Power BI Dashboard for easy data visualization.

✓ Interactive charts & filters to explore trends over time.

✓ Data-driven insights for decision-making in agriculture and food policies.

Problem-Solution Fit Diagram:

```
┌─────────────────────────┐
│   Problem: Unstructured  │
│          Data            │
└─────────────────────────┘
             ⬇
┌─────────────────────────┐
│   Solution: Interactive  │
│   Power BI Dashboard     │
└─────────────────────────┘
             ⬇
┌─────────────────────────┐
│  Outcome: Clear Insights │
└─────────────────────────┘
```

Proposed Solution

This section explains the approach to solving the problem using Power BI. Proposed Steps

1. Data Collection: Gather global food production data from FAO & government sources.

2. Data Cleaning: Remove errors, duplicates & format the dataset.

3. Data Processing: Load into Power BI and apply DAX formulas & transformations.

4. Dashboard Creation: Build interactive visualizations (bar charts, line graphs, maps).

5. Interactivity: Add filters (year, country, food type) for dynamic insights.

6. Deployment: Share reports via GitHub, Google Drive, or Power BI service. Proposed Solution Benefits

✓ Real-time insights for users.

✓ Easy-to-use, no coding needed for analysis.
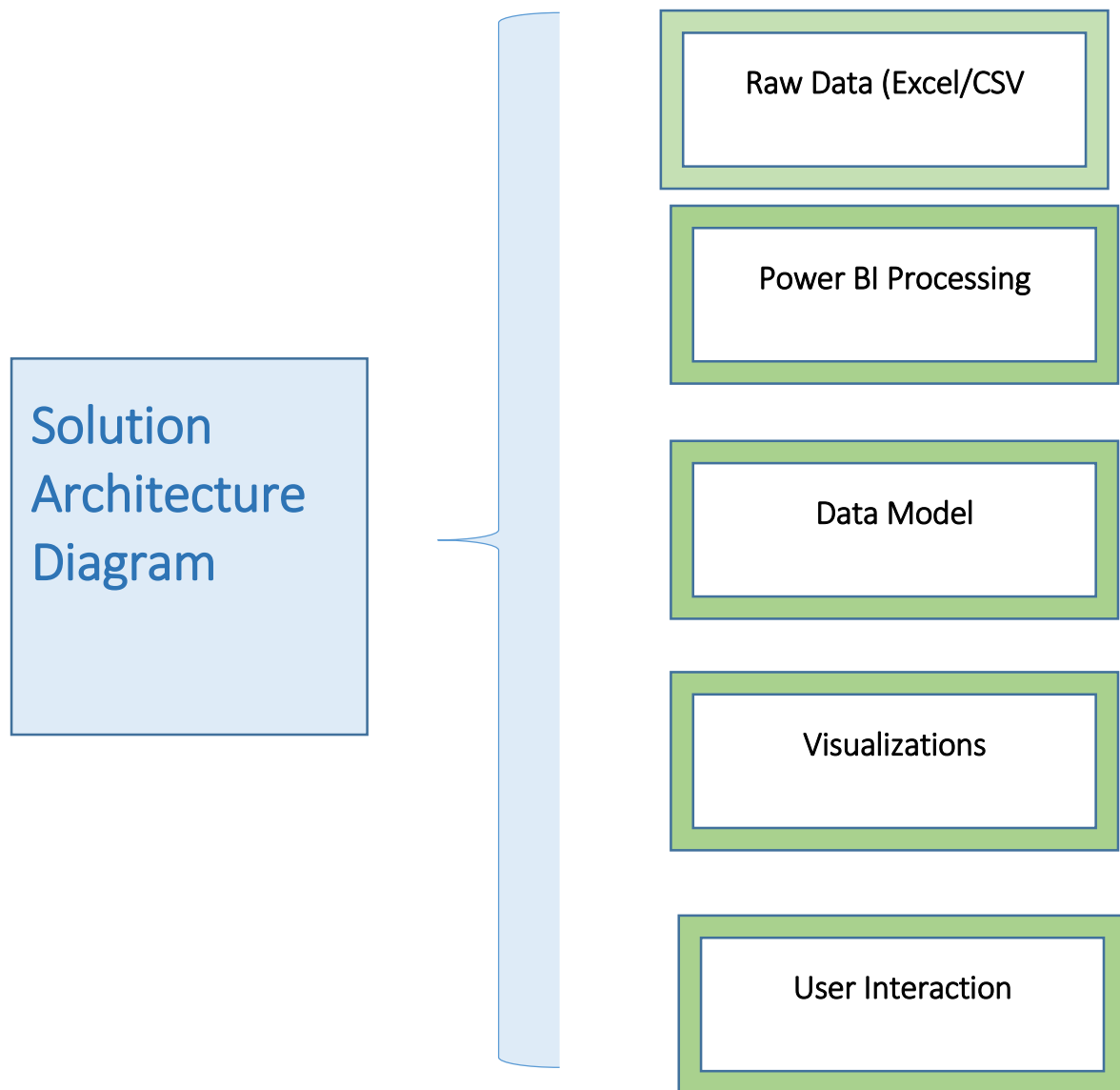
✓ Scalable solution for different datasets & time ranges.

Solution Architecture

Solution Architecture defines the technical structure of the project, from data input to user interaction.

Solution Architecture Components

◈ Data Source: Excel / CSV file with food production records (1961-2023).

◈ Processing Layer: Power BI's Power Query, DAX, and Data Model for transformation.

◈ Visualization Layer: Power BI reports with charts, maps, slicers.

◈ User Interaction: Filters & drill-through to explore trends dynamically.

◈ Deployment: GitHub repository for file sharing & project submission.

Solution Architecture Diagram

Team Leader: Pranoti Patil

Solution Architecture Diagram

- Raw Data (Excel/CSV
- Power BI Processing
- Data Model
- Visualizations
- User Interaction

Project Planning Template :

"Global Food Production Trends and Analysis"

A **Project Planning Template** helps in organizing tasks, timelines, and resources effectively. It ensures that the project follows a structured approach from start to completion.

Project Planning Template Structure :

Phase	Tasks	Deliverables	Timeline	Responsible Person
Ideation Phase	Define problem, research trends, create empathy map	Problem Statement, Brainstorming Notes	Week 1	Research Team
Requirement Analysis	Define data sources, create data flow & customer journey map	DFD, Technology Stack, CJM	Week 2	Data Analysts
Project Design	Define architecture, finalize visualizations	Solution Architecture, Dashboard Layout	Week 3	BI Developer
Development Phase	Clean & process data, build Power BI dashboard	Power BI Dashboard	Week 4-5	BI Developer
Testing & Validation	Performance testing, fixing issues	Test Reports	Week 6	QA Team
Deployment & Documentation	Publish on GitHub, create user documentation	GitHub Repository, Reports	Week 7	DevOps, Tech Writer

Key Highlights of Planning :

✅ **Clear Timeline & Deliverables** – Ensures step-by-step execution.

✅ **Defined Responsibilities** – Assigns tasks to specific teams.

✅ **Structured Execution** – Avoids last-minute issues by following a planned approach.

Project file:

Dataset:

https://www.kaggle.com/datasets/rafsunahmad/world-food-production

Output screenshots: