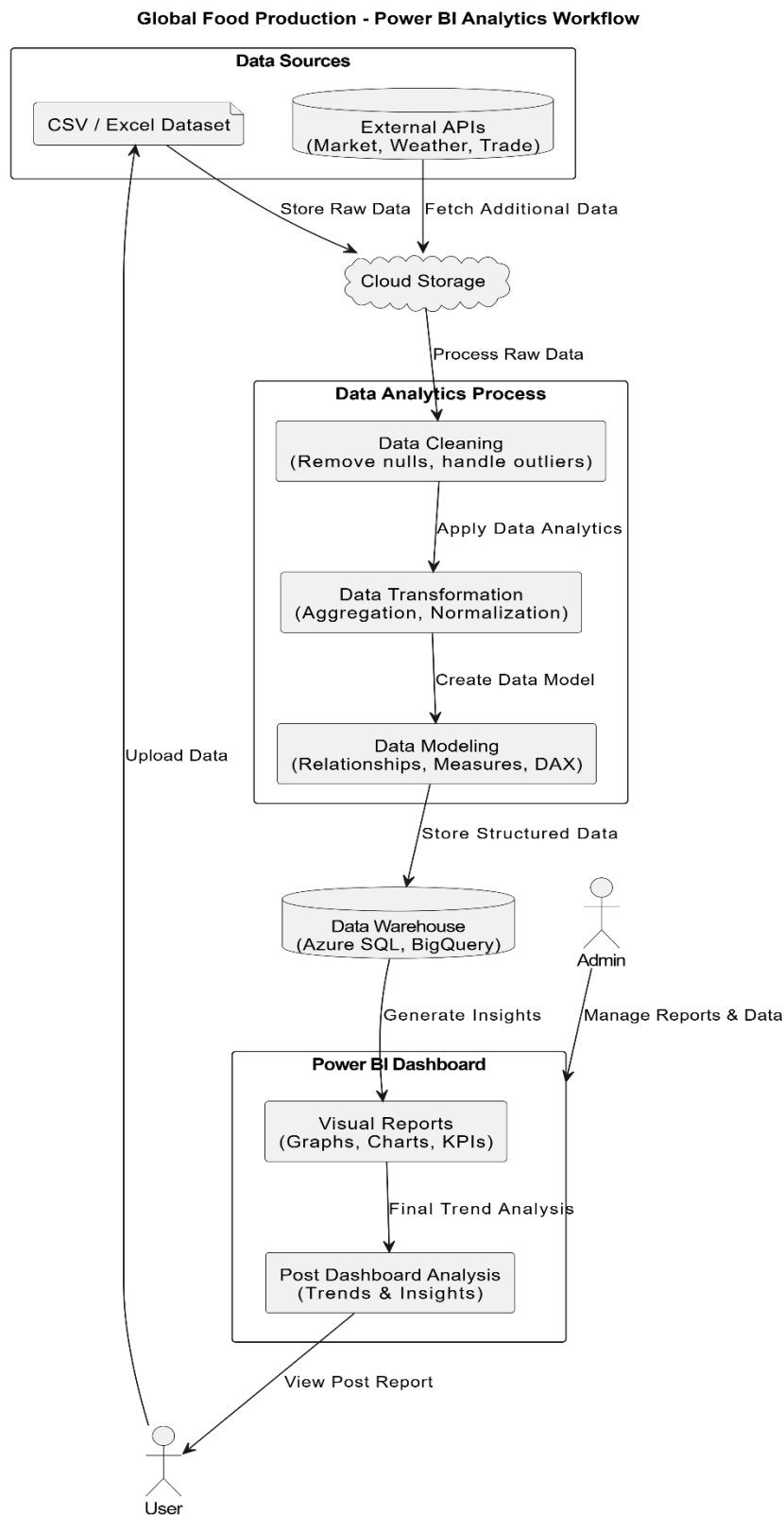


Date	28-Feb-25
Team ID	PNT2025TMID00740
Project Name	Global Food Production and Trend Analysis
Maximum Marks	4



Technical Architecture:

S.No	Component	Description	Technology
1	User Interface	How users interact with Power BI reports and dashboards (e.g., Web UI, Interactive Reports).	Power BI, Web UI
2	Data Collection	Collecting historical food production data from various sources.	Python, Pandas, APIs
3	Data Cleaning & Preprocessing	Handling missing values, standardizing formats, and normalizing data.	Python, SQL, Power Query
4	Data Storage (Local)	Storing processed data for further analysis.	MySQL, PostgreSQL, CSV, Excel
5	Cloud Database	Storing structured data for accessibility and scalability.	AWS RDS, Azure SQL, Google BigQuery
6	Data Processing & Transformation	Aggregating data, calculating trends, and structuring for visualization.	Python, Power Query, SQL
7	Visualization & Reporting	Creating dashboards and reports with interactive insights.	Power BI, Tableau
8	External APIs	Fetching additional data like weather patterns, crop indices, and market prices.	OpenWeather API, FAO API, Market Data APIs
9	Machine Learning Model (Optional)	Predicting future food production trends based on historical data.	Scikit-learn, TensorFlow, Azure ML

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	List the open-source frameworks used in data processing and visualization.	Power BI, Python (Pandas, NumPy), Excel
2	Security Implementations	Basic security measures like role-based access and dataset permissions.	Power BI Row-Level Security (RLS), Power BI Service Permissions

3	Scalable Architecture	Ensures scalability for handling large datasets and multiple users.	Power BI Cloud Service, Azure SQL, Google BigQuery
4	Availability	Ensuring accessibility of reports through cloud deployment.	Power BI Service, Power BI Embedded, SharePoint Integration
5	Performance	Optimizing report load times and data refresh rates.	Power BI Data Modeling, DAX Optimization, DirectQuery vs. Import Mode