Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	24 July 2025
Team ID	PNT2025TMID10173
Project Name	Measuring the Pulse of Prosperity: An Index of Economic Freedom Analysis
Maximum Marks	4 Marks

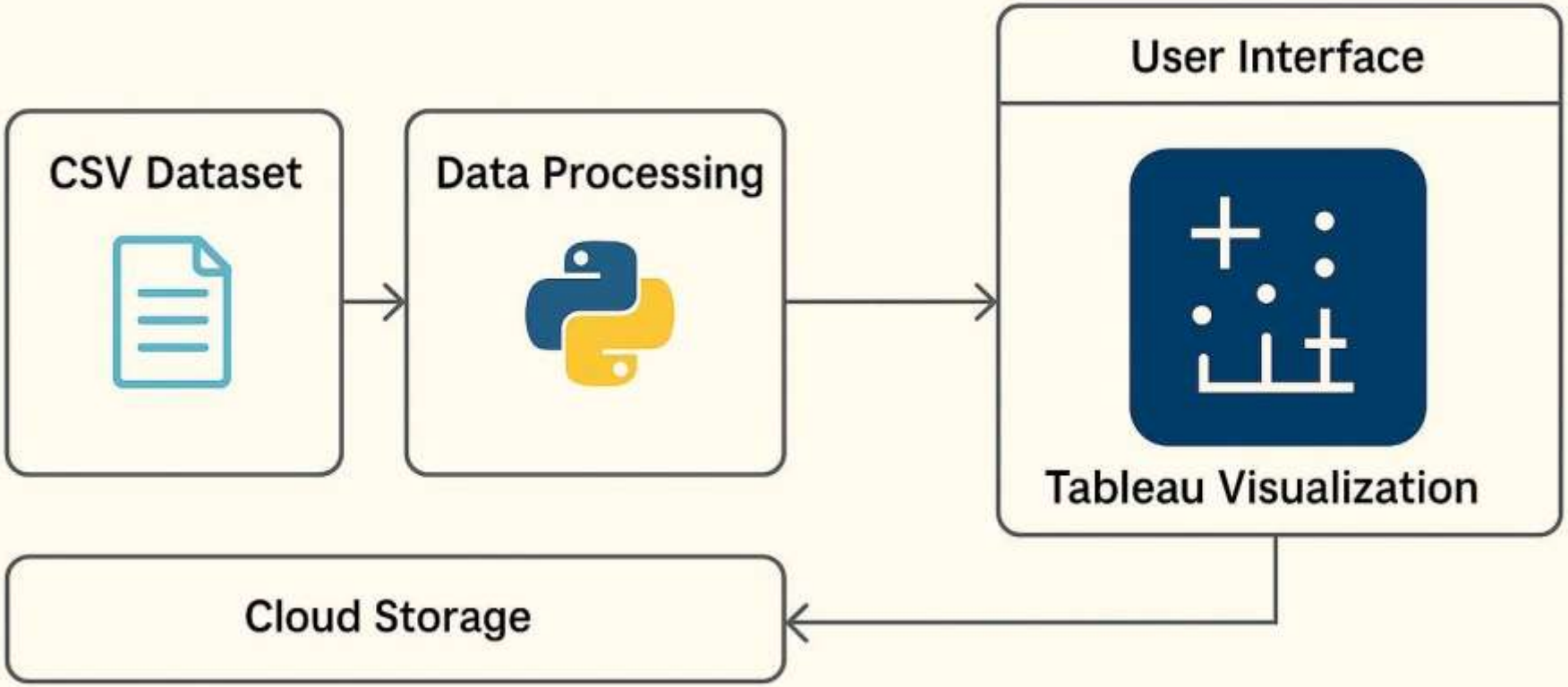
🏗️ Technical Architecture:

This project leverages a data visualization and analytics pipeline to process housing market data and generate interactive Tableau dashboards. The system is designed to ensure usability, accessibility, and clarity for business stakeholders such as real estate analysts and executives.

📌 Architecture Overview:

1. Data Ingestion (CSV Dataset)
2. Data Cleaning & Feature Engineering (Python, Pandas)
3. Data Export for Tableau (Preprocessed CSV)
4. Dashboard Development (Tableau Desktop)
5. Dashboard Hosting (Tableau Public)
6. Report Export (Screenshots / PDF)
7. Link Sharing (Tableau Public URLs)

TECHNICAL ARCHITECTURE



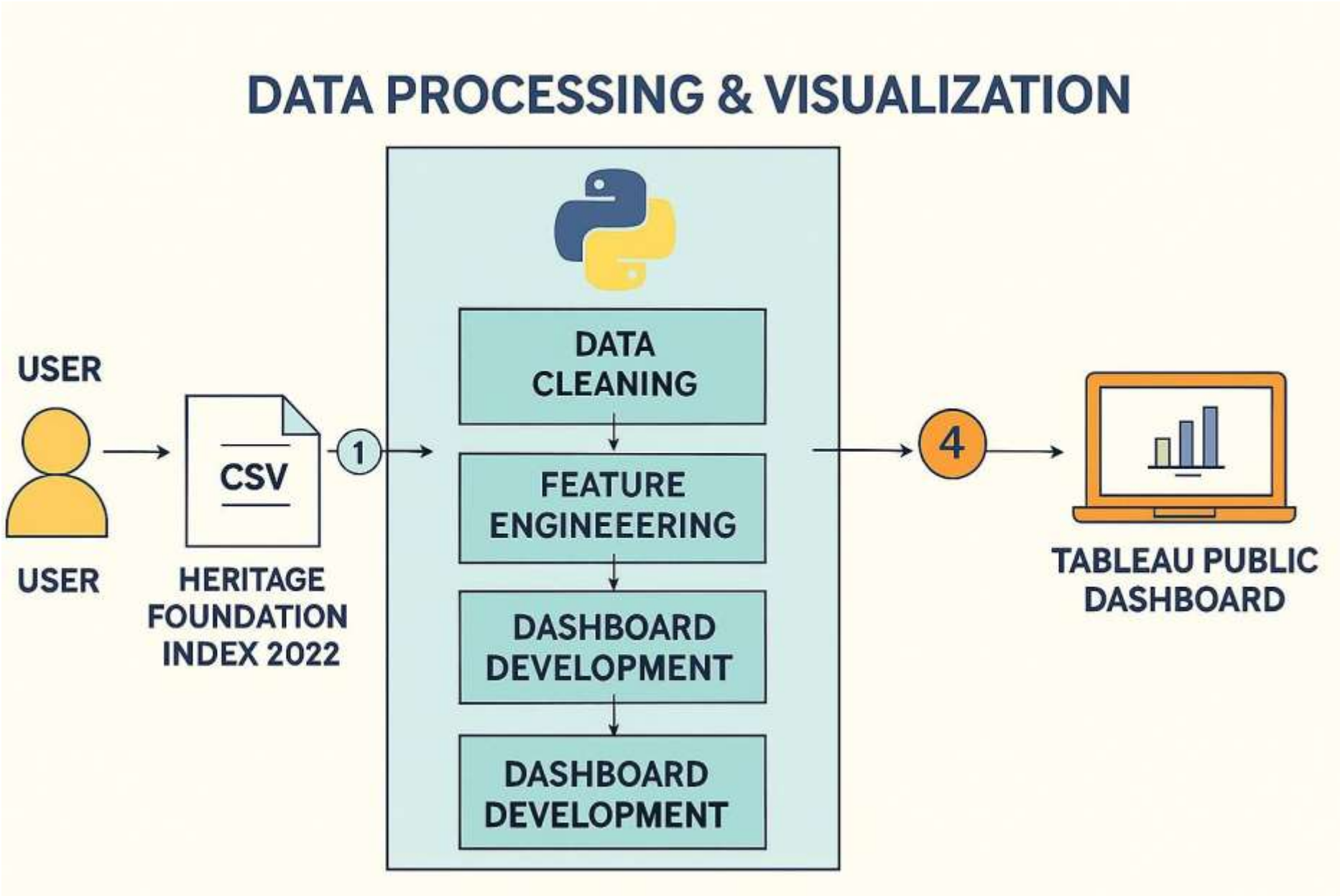

DATA PROCESSING & VISUALIZATION
USER
USER
CSV
HERITAGE FOUNDATION INDEX 2022
1
DATA CLEANING
FEATURE ENGINEEERING
DASHBOARD DEVELOPMENT
DASHBOARD DEVELOPMENT
4
TABLEAU PUBLIC DASHBOARD

Table-1: Components & Technologies

S.No	Component	Description	Technology
1	User Interface	End users interact with visual dashboards to explore country-wise data	Tableau Public Dashboard (Web UI)
2	Application Logic-1	Data cleaning and transformation (e.g., handling nulls, formatting columns)	Python, Pandas
3	Application Logic-2	Indicator grouping and pillar categorization logic	Python, Excel
4	Application Logic-3	Prepare datasets for Tableau import (reshaping, column renaming, etc.)	Python, Tableau Prep
5	Database	Temporary storage of processed data	Local CSV file (flat-file based)
6	Cloud Database	Not applicable (project handled offline/locally)	—
7	File Storage	Stores original and cleaned datasets, screenshots of dashboards	Local file system, Google Drive
8	External API-1	Not used in this project	—
9	External API-2	Not used in this project	—
10	Machine Learning Model	Not applicable (project is descriptive and visual, not predictive)	—
11	Infrastructure	Tableau Public for hosting dashboards, local Python for data processing	Tableau Public, Python Environment

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology / Tools Used
1	Open-Source Frameworks	Python used for data cleaning and transformation; supports flexibility	Python, Pandas

2	Security Implementations	Dataset is anonymized; dashboards are shared using secure, controlled public links	Tableau Public Link Permissions
3	Scalable Architecture	Supports expansion with future economic indicators or years via modular dashboards	Tableau's visualization engine
4	Availability	Dashboards are hosted online and available 24/7 to users	Tableau Public hosting
5	Performance	Optimized dashboard visuals using filters, drilldowns, and minimal load time	Tableau Data Engine, Local Preprocessing

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d https://public.tableau.com/