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

Date	31 January 3035
Team ID	LTVIP2025TMID51713
Project Name	Heritage Treasures: An In-Depth Analysis of UNESCO World Heritage Sites in Tableau
Maximum Marks	4 Marks

Technical Architecture:

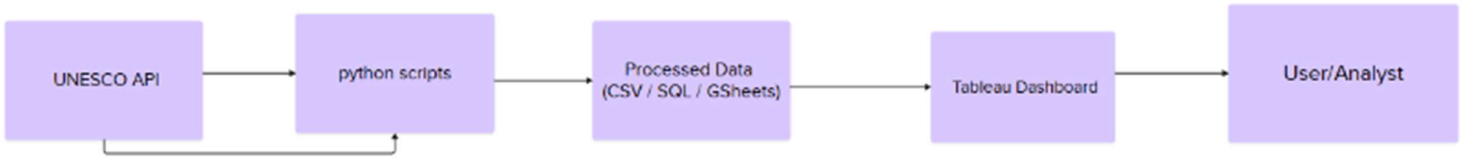

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Interactive dashboards and visualizations	Tableau Public / Tableau Desktop
2.	Application Logic-1	Data extraction and preprocessing	Python (Pandas, NumPy)
3.	Application Logic-2	Data cleaning and transformation for Tableau	Python
4.	Application Logic-3	UNESCO site classification and grouping	Python (Matplotlib, Seaborn)
5.	Database	Storage of raw and processed UNESCO site data	MySQL / SQLite
6.	Cloud Database	Backup and online access to datasets	Google / AWS RDS
7.	File Storage	Raw CSVs, cleaned datasets, Tableau workbooks	Google Drive / Local Filesystem
8.	External API-1	Pull updated UNESCO site data if available via API	UNESCO WHC API (if available)
9.	External API-2	Country/region info	REST Countries API
10.	Machine Learning Model	Optional clustering of sites based on attribute	Scikit-learn
11.	Infrastructure (Server / Cloud)	Local and cloud deployment for data processing and dashboard hosting	Local Machine, Tableau Public (Cloud)

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Python, Pandas, Scikit-learn, Tableau Public	Python ecosystem, Tableau Public
2.	Security Implementations	Access control for shared dashboards and APIs	IAM on cloud, HTTPS for API, OAuth
3.	Scalable Architecture	Scalable processing pipeline (ETL can be parallelized)	Python multiprocessing, Tableau Extracts

S.No	Characteristics	Description	Technology
4.	Availability	Dashboards hosted on Tableau Public for 24/7 availability	Tableau Public, Google Drive (backup)
5.	Performance	Optimized queries, pre-aggregated data for Tableau	Tableau Hyper Engine, caching