PROJECT REPORT

Project Name: Heritage Treasures: An In-Depth Analysis of UNESCO World Heritage Sites in Tableau.

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1. INTRODUCTION

1.1 Project Overview

The project "Heritage Treasures: An In-Depth Analysis of UNESCO World Heritage Sites in Tableau" aims to explore and analyze global UNESCO World Heritage Sites using data analytics. Leveraging Tableau's advanced visualization capabilities, the project provides insights into site distributions, regional patterns, and attributes like cultural, natural, and mixed heritage designations, promoting a deeper understanding of these global treasures.

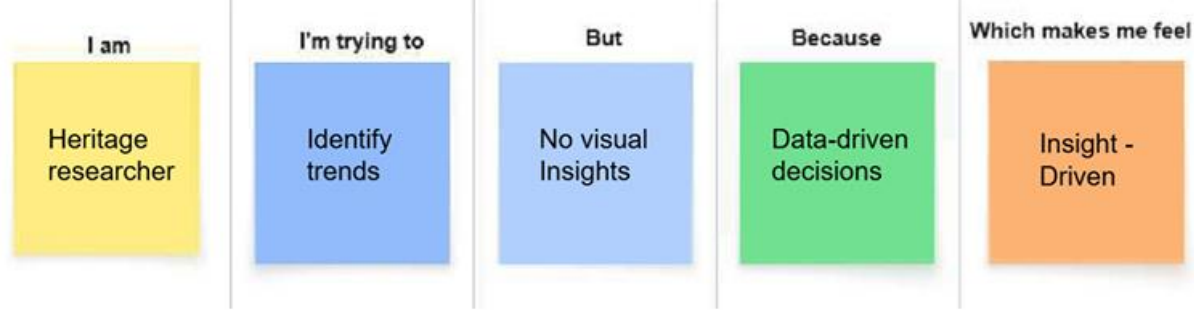
1.2 Purpose

The purpose of this project is to present an informative and engaging analysis of UNESCO World Heritage Sites. The study aims to assist researchers, tourists, and policymakers by offering a visual representation of heritage data, highlighting trends, and identifying areas that may require conservation efforts or promotion.

2. IDEATION PHASE

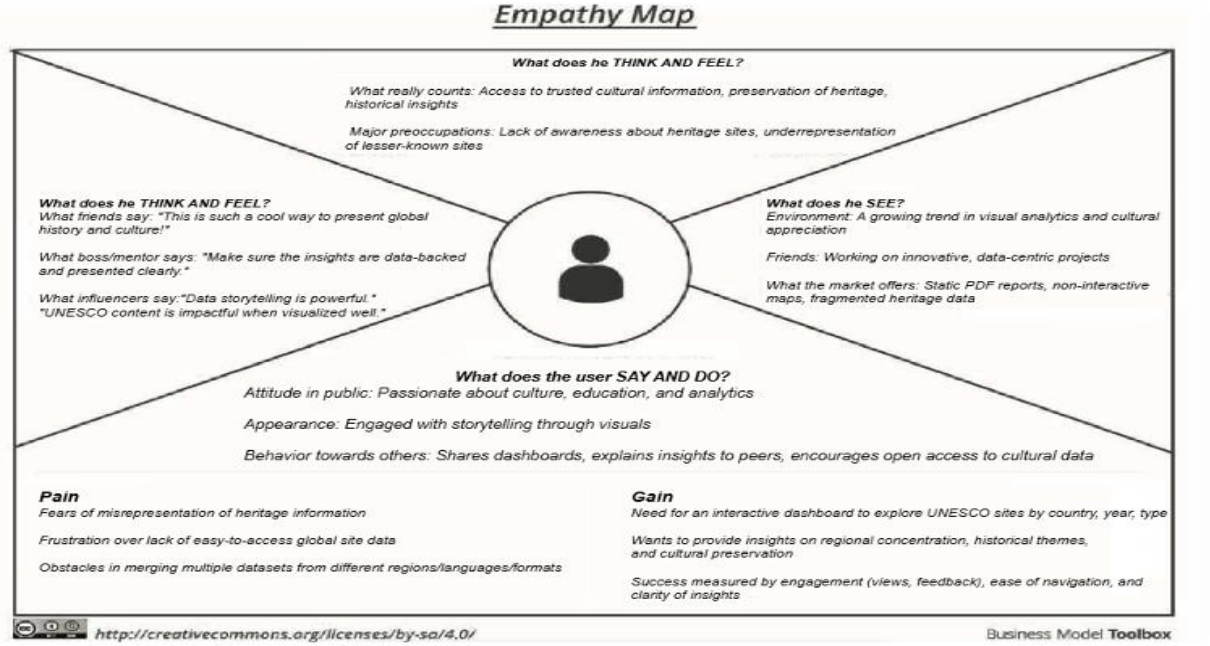
2.1 Problem Statement

UNESCO World Heritage Sites are vital for cultural and natural heritage conservation, yet their significance is often underutilized due to a lack of accessible and engaging data visualization. This project addresses the need for a comprehensive and visually appealing tool to analyze these sites.



2.2 Empathy Map Canvas

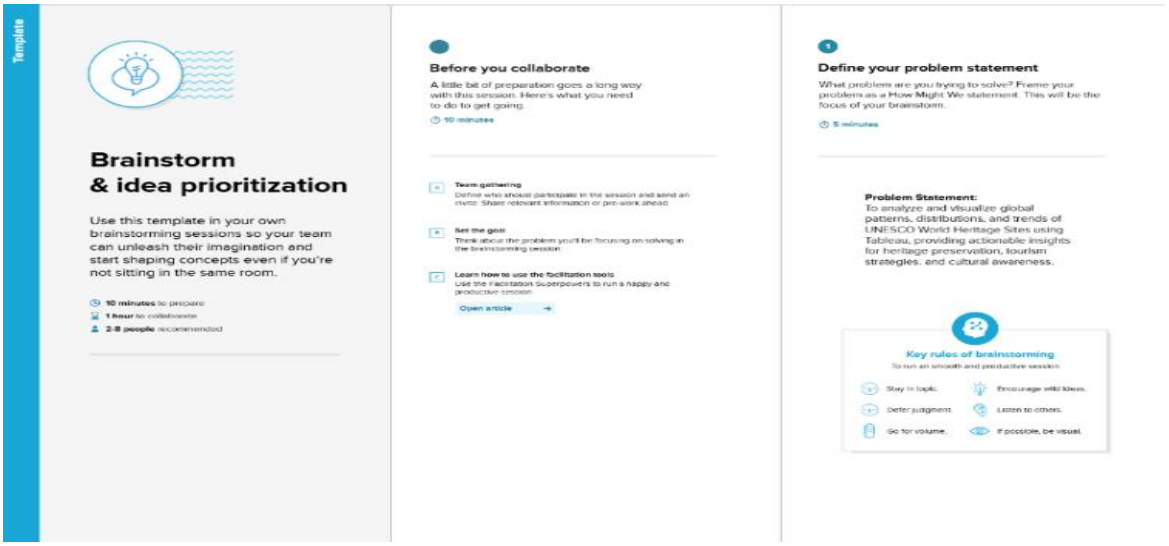
The empathy map considers the perspectives of tourists, researchers, and conservationists. It identifies their needs for accessible information on site locations, historical significance, and conservation status, ensuring the solution aligns with their expectations.

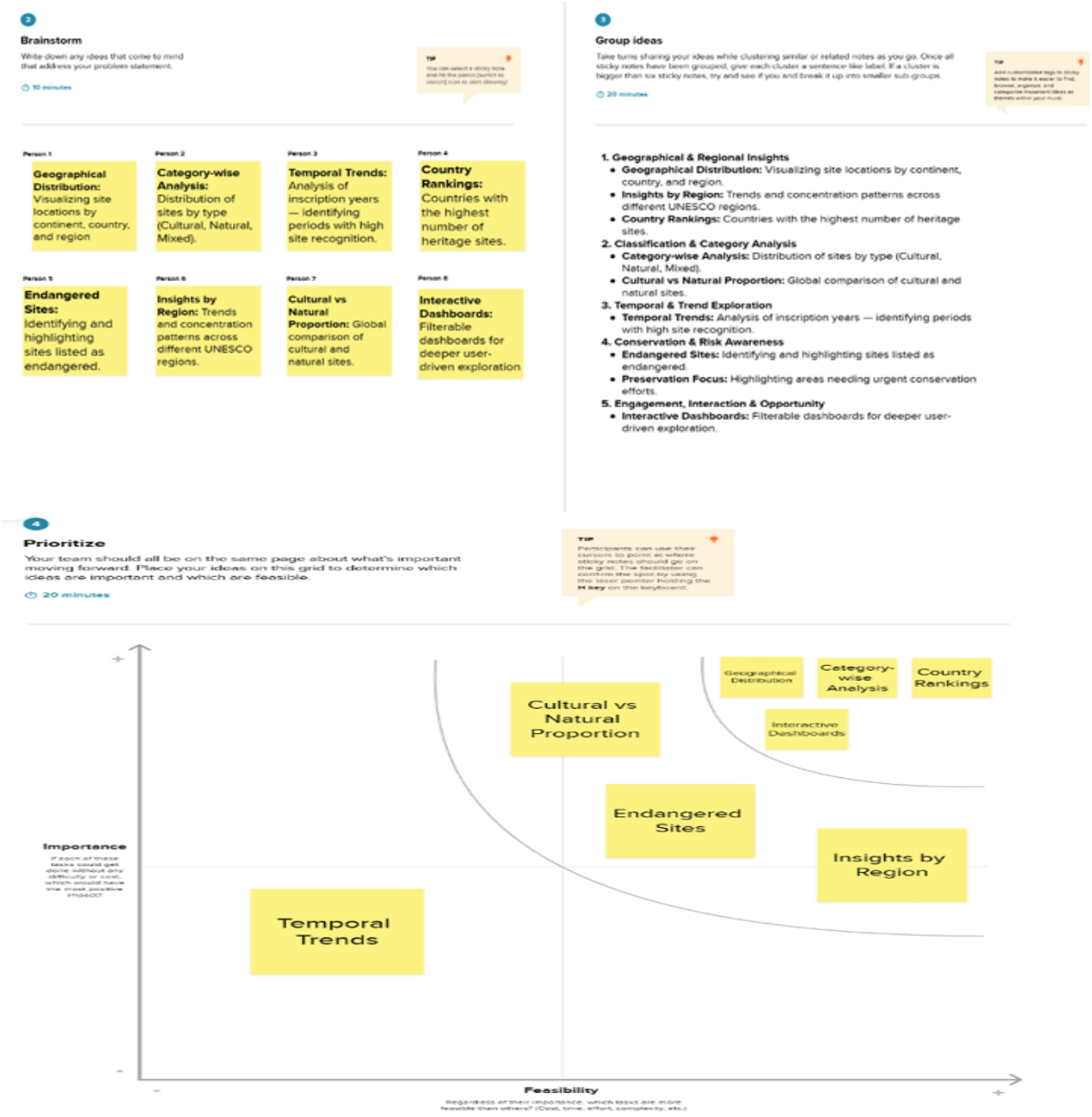


2.3 Brainstorming

Brainstorming sessions focused on:

- Categorizing sites by type (cultural, natural, mixed).
- Analyzing regional and country-wise distributions.
- Visualizing site attributes, such as the year of inscription and endangered status.

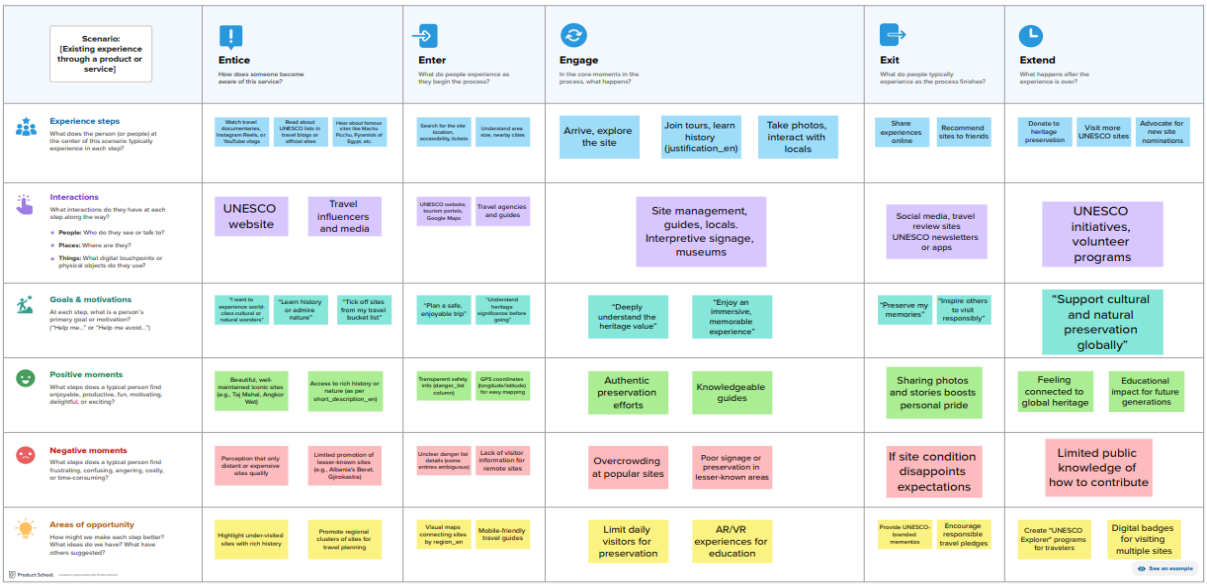




3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

The customer journey map captures the flow from users discovering the platform to exploring interactive visualizations and deriving actionable insights for research or travel planning.



3.2 Solution Requirements

- Data sources: UNESCO datasets, tourism statistics.
- Tools: Tableau for visualization, Python for data processing.
- Key metrics: Number of sites by category, endangered site status, regional distributions.

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Acquisition	Collecting WHC data from UNESCO and CSV repositories. category, year, etc.)
FR-2	Data Cleaning and Preprocessing	Removing duplicates, handling null values (e.g., justification_en, danger_list), formatting for Tableau
FR-3	Tableau Dashboard Development	Creating dashboards with filters (by region, category, year). Maps showing geolocations (lat/long) of sites
FR-4	Insight Generation	Dynamic visuals highlighting endangered sites, regional/categorical comparisons, and year-wise trends in inscription

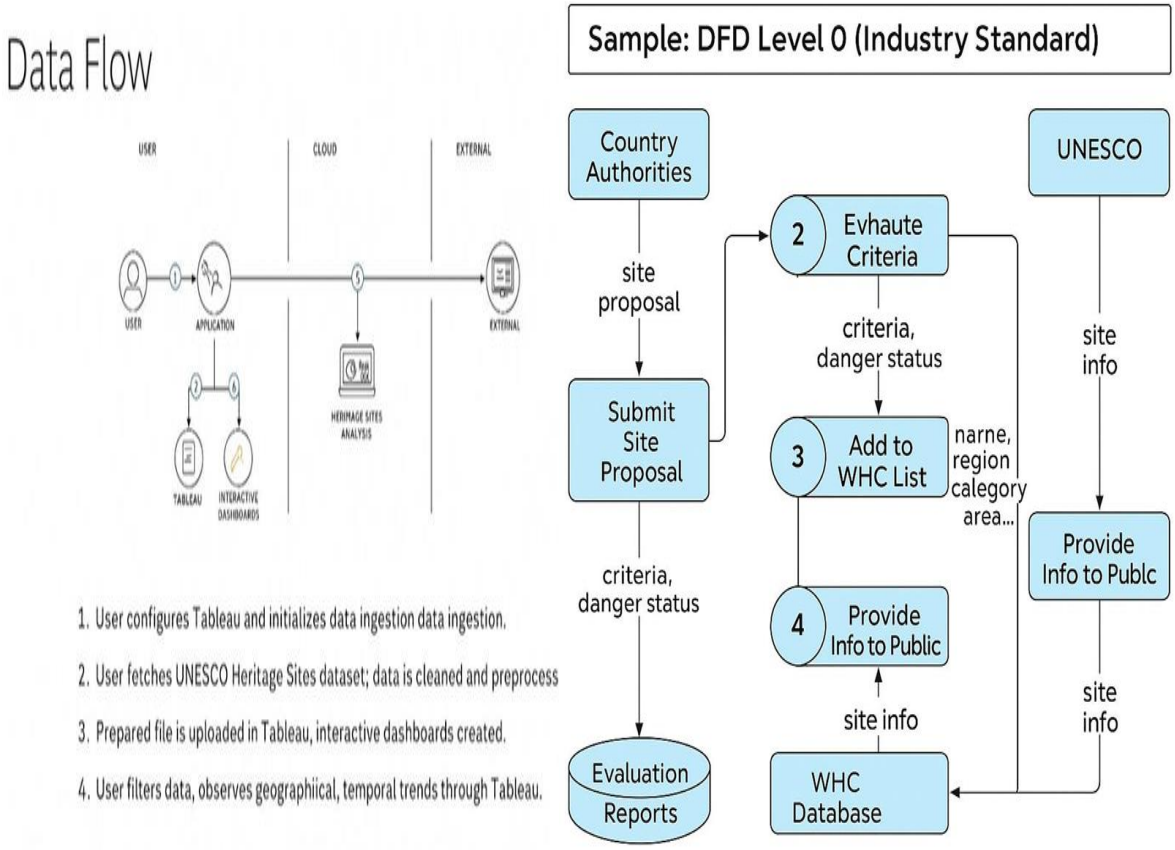
Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Simple and intuitive Tableau interface with interactive filters and maps
NFR-2	**Security**	Restricted sharing on Tableau Public; no personally identifiable information used
NFR-3	**Reliability**	Ensures correct and consistent representation of WHC site data
NFR-4	**Performance**	Optimized dashboards for fast load times and smooth filter interactions
NFR-5	**Availability**	Hosted publicly and accessible to evaluators 24/7 via Tableau Public link
NFR-6	**Scalability**	Easily extendable to include future WHC data or other heritage datasets

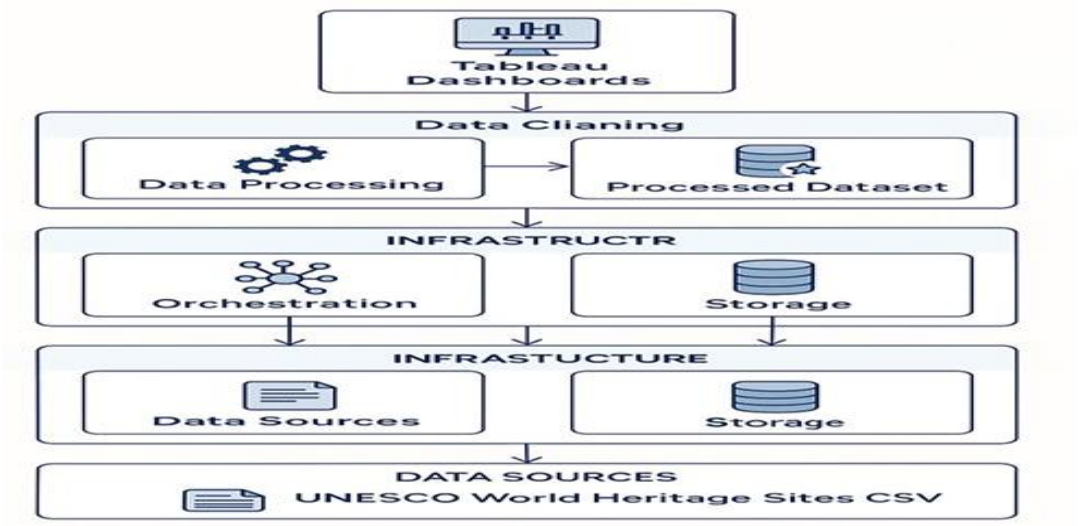
3.3 Data Flow Diagram

The data flow diagram showcases the journey from data collection to final visualization, encompassing steps like preprocessing, categorization, and Tableau integration.



3.4 Technology Stack

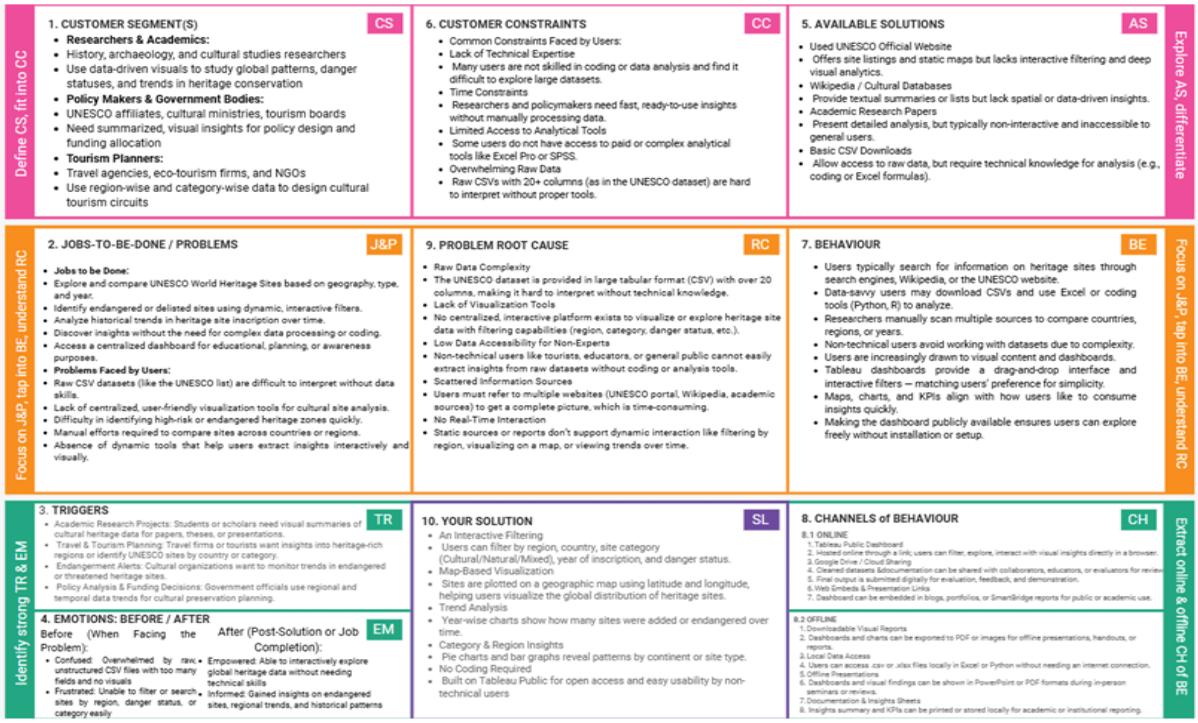
- Data Analytics: Tableau, Python (for ETL processes).
- Data Sources: UNESCO database, tourism reports.
- Storage: Cloud solutions for scalability and collaborative access.



4. PROJECT DESIGN

4.1 Problem-Solution Fit

This solution bridges the gap between raw data on UNESCO sites and actionable insights by delivering intuitive visualizations that cater to diverse stakeholder needs.



4.2 Proposed Solution

A Tableau dashboard that includes:

- Global maps of site distributions.
- Time series showing the growth of inscriptions.
- Analysis of sites under threat.

S.No.	Parameter	Description
	Problem Statement (Problem to be solved)	UNESCO's World Heritage Site data is available in raw tabular format, making it difficult for researchers, tourists, educators, and policymakers to derive actionable insights. The lack of accessible, interactive, and region-wise analytics limits data-driven understanding and awareness of cultural and natural heritage globally.
	Idea / Solution description	This project builds a **Tableau-based interactive dashboard** using the official UNESCO World Heritage Sites dataset. It enables: • Region, category, and year-based filtering of heritage sites • Map visualizations with lat-long plots • Trend analysis of inscription and endangered sites • Comparative charts by country, region, or category The dashboard makes complex cultural data easy to understand for technical and non-technical users alike.
	Novelty / Uniqueness	Unlike traditional reports or static portals, the solution is: • Fully interactive and filterable via Tableau • Designed for open access (Tableau Public) • Focused on storytelling with data • Visual-first, allowing users to quickly identify heritage patterns globally.

	Social Impact / Customer Satisfaction	This project supports: • Increases awareness of endangered heritage sites • Aids students, educators, and heritage planners with accessible analytics • Enhances data literacy using a globally recognized dataset • Promotes cultural education through interactive tools
	Business Model (Revenue Model)	While primarily an academic project, future potential includes: • Licensing dashboards to educational or cultural institutions • Monetizing custom reports for tourism departments or NGOs • Offering dashboard templates for Tableau learners or trainers
	Scalability of the Solution	• Easily extendable to include future UNESCO data updates • Can be adapted to visualize other heritage datasets (national/state-level) • Scalable to include machine learning models for prediction (e.g., risk analysis) • Expandable to mobile-friendly interfaces or embedded educational modules

4.3 Solution Architecture

The architecture integrates datasets into a streamlined pipeline for preprocessing, analysis, and interactive visual representation using Tableau.

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

The project utilized an iterative methodology:

- Week 1: Data gathering and initial exploration.
- Week 2: Dashboard design and development.
- Week 3: Refinement and testing for deployment.

6. FUNCTIONAL AND PERFORMANCE TESTING

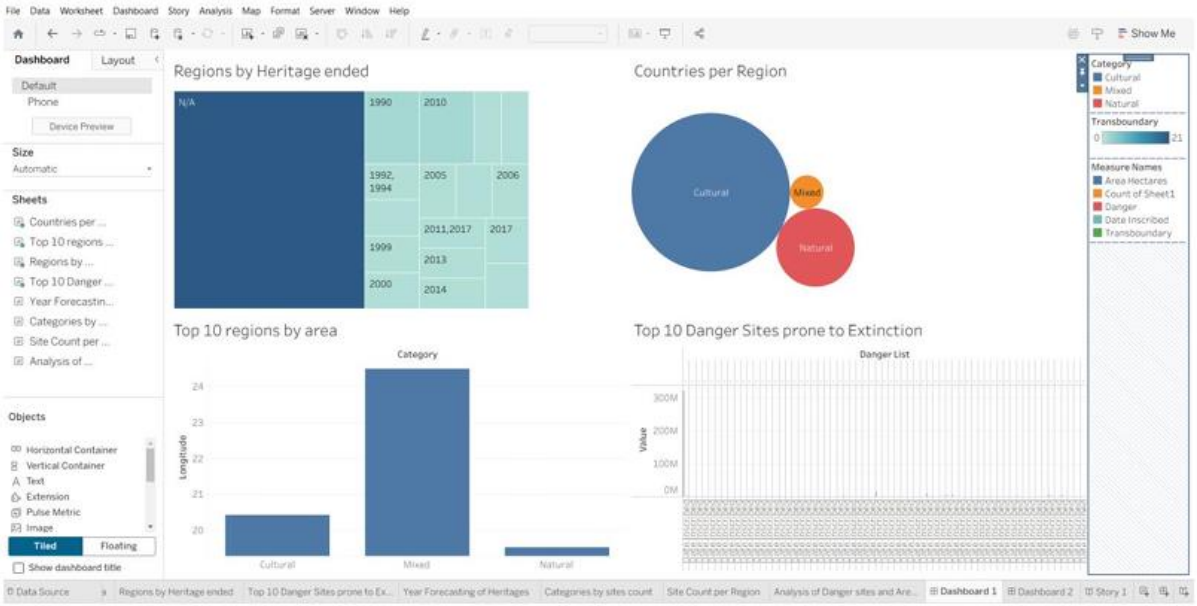
6.1 Performance Testing

Tests ensured the dashboards loaded efficiently, rendered accurate visualizations, and provided seamless interactivity even with large datasets.

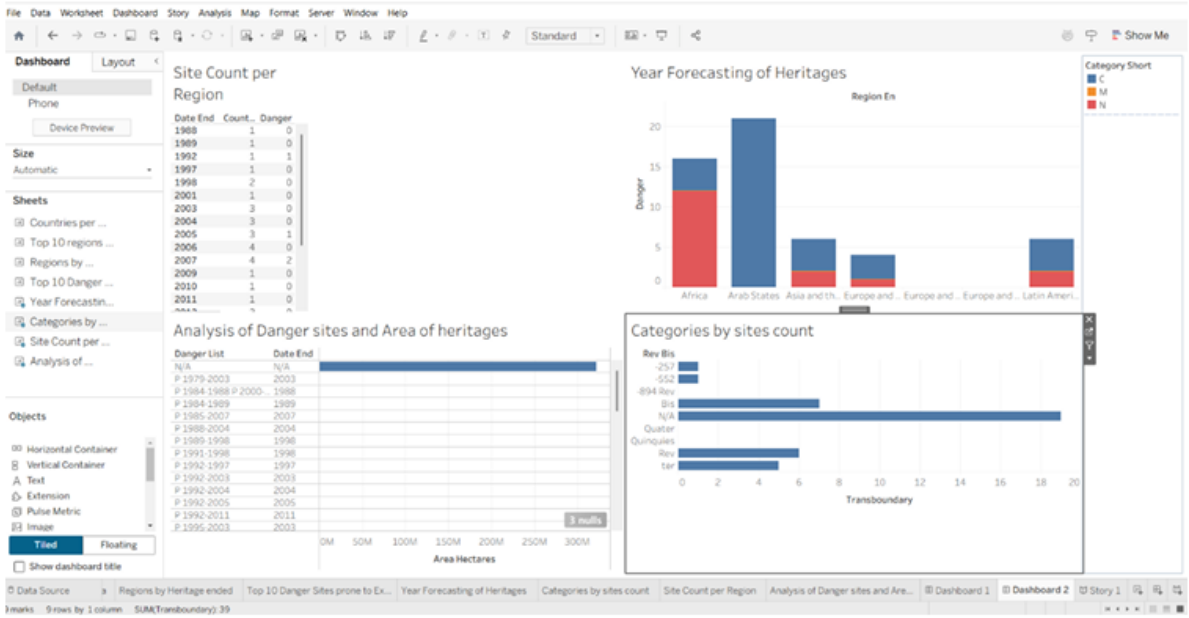
7. RESULTS

7.1 Output Screenshots

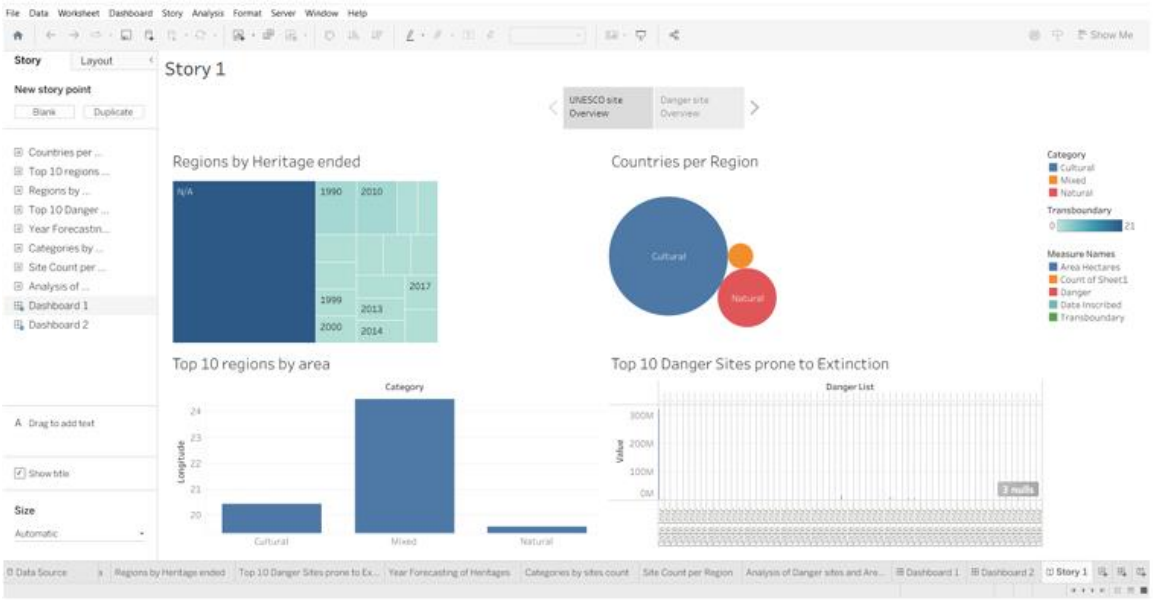
Screenshot of Dashboard – 1:



Screenshot of Dashboard – 2:



Screenshot of Story-1:



8. ADVANTAGES & DISADVANTAGES

- **Advantages:** Enhanced accessibility to UNESCO data, user-friendly visualizations, and insights into heritage site conservation needs.
- **Disadvantages:** Limited access to proprietary data, reliance on dataset accuracy.

9. CONCLUSION

The project effectively demonstrates how Tableau can visualize UNESCO World Heritage data, making it more accessible and impactful. The insights can assist in promoting and preserving these global treasures.

10. FUTURE SCOPE

Future enhancements include incorporating real-time updates, expanding datasets to include visitor statistics, and integrating predictive analytics for site conservation efforts.

11. APPENDIX

- **Source Code:** No Source Code.

- **Dataset Link:** https://www.kaggle.com/datasets/ujwalkandi/unesco-world-heritage-sites/data?select=whc-sites-2019.csv.
- **GitHub & Project Demo Link:**

  - **GitHub Link:**

    https://github.com/naveenkumar974/naveenkumar974-Heritage-Treasures-An-In-Depth-Analysis-of-UNESCO-World-Heritage-Sites-in-Tableau

  - **Project Demo Link:**
    https://drive.google.com/file/d/1Pmfta09_gx5B2LicwteMal2Sf8tEDrA-/view?usp=sharing