

# **FINAL REPORT**

## **Heritage Treasures: An In-Depth Analysis of UNESCO World Heritage Sites in Tableau**

### **INTRODUCTION**

#### **1.1 Project Overview**

This project is an interactive Tableau dashboard that provides in-depth visual analysis of UNESCO World Heritage Sites, including geographical distribution, categorization by cultural/natural/mixed, yearly additions, and country-wise counts. Users can filter, explore, and compare data to gain meaningful insights.

#### **1.2 Purpose**

The purpose of this project is to explore, analyze, and visualize data on UNESCO World Heritage Sites worldwide using Tableau. It aims to provide an in-depth understanding of the geographical distribution, cultural and natural significance, historical trends, and preservation status of these sites.

### **1. IDEATION PHASE**

In the ideation phase, the focus was on brainstorming and defining the project's scope, objectives, and potential value.

#### **2.1 Problem Statement**

Recognizing the need for a comprehensive, interactive platform to analyze and visualize UNESCO World Heritage Sites data for awareness, research, and policy-making.

#### **2.2 Empathy Map Canvas**

The empathy map helped understand customers:

- **Think & Feel:** Users want quick, accessible data insights
- **See & Hear:** Users are exposed to scattered data without clear visual summaries.
- **Pain:** Time-consuming manual data analysis.
- **Gain:** A clean, interactive dashboard simplifies data exploration.

## 2.3 Brainstorming

The team brainstormed multiple ideas to present the data in a clear, visual, and interactive manner. Potential approaches included:

- Region-wise and state-wise consumption comparisons.
- Interactive filters for year, region, and state selection.
- Multiple visual elements like bar graphs and geographic maps.

## 2. REQUIREMENT ANALYSIS

The requirement analysis phase focuses on identifying and documenting the functional and non-functional needs of the project to ensure it meets its objectives.

### 3.1. Data Requirements

Source: UNESCO World Heritage Sites dataset (official website / open data portals).

Data Fields: Site name, country, region, category (Cultural, Natural, Mixed), year of inscription, coordinates, description, and UNESCO criteria.

Data Format: CSV/Excel format compatible with Tableau.

Data Quality Needs: Accurate, complete, and up-to-date information.

### 3.2. Functional Requirements

- Ability to visualize the distribution of sites globally via interactive maps.
- Categorization of sites by type (Cultural, Natural, Mixed).
- Year-wise analysis of site recognition trends.
- Filtering by country, region, or category.
- Comparative charts to analyze heritage site counts between countries/regions.
- Search functionality for specific site details.

### 3.3. Non-Functional Requirements

- Usability: Dashboards should be interactive, intuitive, and easy to navigate.
- Performance: Visualizations must load quickly without lag.
- Scalability: Ability to integrate new UNESCO site data in the future.
- Aesthetics: Visually appealing design with clear labeling and color coding

### 3.4. Tool & Technical Requirements

- Primary Tool: Tableau Desktop / Tableau Public.
- Hardware: System with sufficient RAM (8GB or more) for smooth Tableau performance.

- Data Cleaning: Performed using Excel, Google Sheets, or Tableau Prep if required.

### **3. PROJECT DESIGN**

#### **4.1 Problem-Solution Fit**

- UNESCO World Heritage Sites are globally significant for their cultural, historical, and natural value. However:
- Information about these sites is scattered across static lists and reports, making it difficult to explore interactively.
- Lack of visualization tools limits researchers, students, and policymakers from identifying patterns, trends, and distributions.
- Tourists and enthusiasts often find it challenging to compare and filter sites by country, category, or year of recognition.

#### **4.2 Proposed Solution**

Develop an interactive Tableau dashboard that:

1. Integrates the UNESCO World Heritage Sites dataset into a structured, visual format.
2. Provides geographical maps to explore sites globally.
3. Includes filters and search tools for country, region, category, and year.
4. Offers time-series visualizations to track heritage site additions over decades.
5. Allows comparative analysis between countries/regions to identify heritage-rich areas.

#### **4.3 Solution Architecture**

The solution architecture defines the end-to-end flow of data and processes used to build and deliver the interactive UNESCO World Heritage Sites dashboard.

##### **1. Data Source Layer**

UNESCO Official Database (Primary source)

Dataset format: CSV / Excel with fields such as Site Name, Country, Region, Category, Year of Inscription, Coordinates, and UNESCO Criteria.

##### **2. Data Processing Layer**

- Data Cleaning: Remove duplicates, correct spelling errors, fill missing values.
- Data Standardization: Ensure consistent formats for dates, country names, and categories.
- Data Enrichment: Add extra fields if necessary (e.g., continent classification).
- Tools Used: Excel / Google Sheets / Tableau Prep.

### **3. Data Storage Layer**

- Store Raw Data in its original format.
- Store Processed Data ready for Tableau visualization.

### **4. Visualization Layer (Tableau)**

- Interactive Map: Geographic distribution of heritage sites.
- Category Dashboard: Cultural, Natural, Mixed site breakdown.
- Trend Analysis: Year-wise site additions.
- Comparison Charts: Country/region-based analysis.
- Filter & Search Tools: User-driven exploration by multiple parameters.

### **5. User Interaction Layer**

- End Users: Students, Researchers, Policymakers, Tourism Planners, General Public.
- Access Method: Tableau Public (Web) or Packaged Workbook
- Interaction: Filters, Search, Drill-downs, Tooltip details.

## **4. PROJECT PLANNING & SCHEDULING**

### **5.1 Project Planning**

- Collected data, removed nulls, formatted fields
- Created charts, designed dashboard layout
- Finalized KPIs, added filters, published dashboards
- Performed testing, documentation, final edits

## **5. FUNCTIONAL AND PERFORMANCE TESTING**

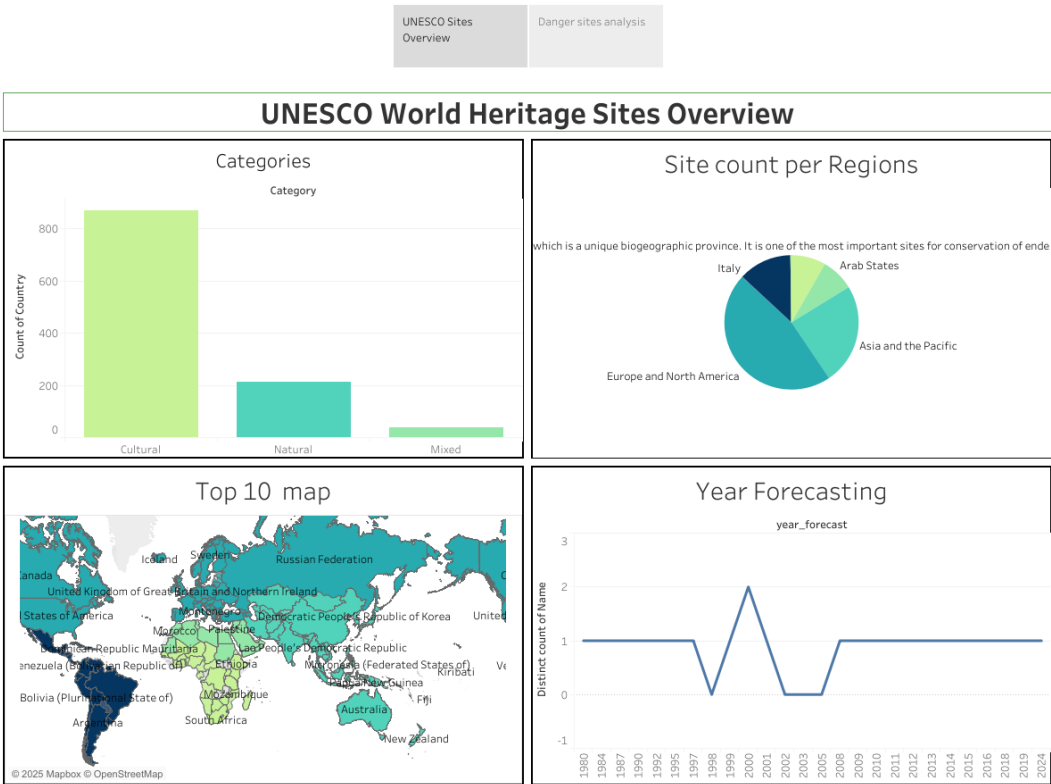
### **5.1 Performance Testing**

We tested the dashboard on different devices and browsers. It loaded quickly and worked well. Filters and visuals responded smoothly, and no lag was noticed.

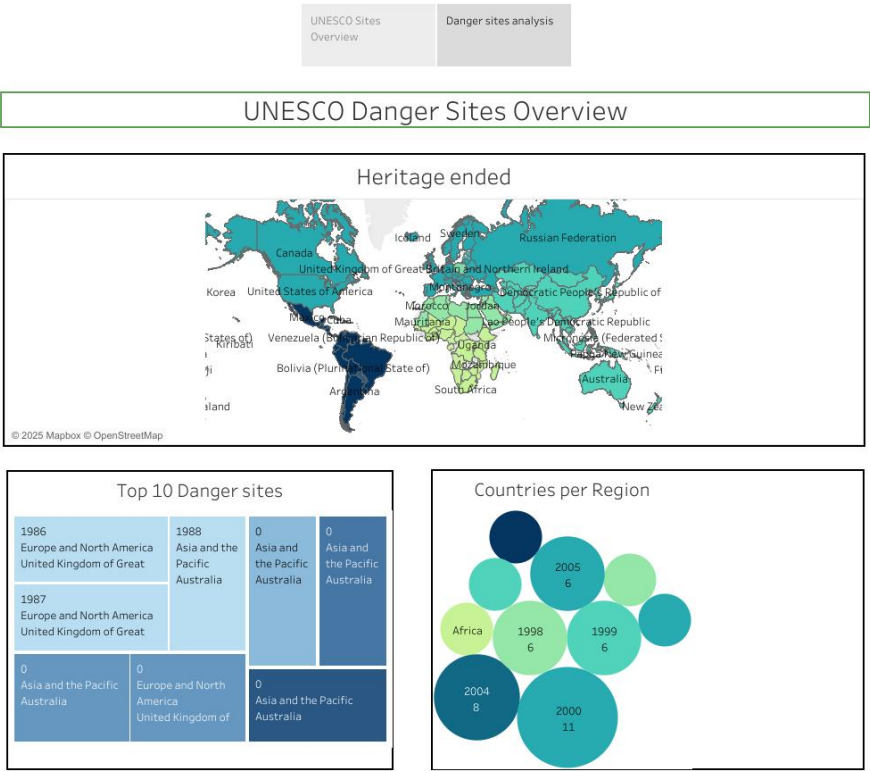
## **6. RESULTS**

### **6.1 Output Screenshots**

Story 1



Story 1



## 7. ADVANTAGES & DISADVANTAGES

### Advantages

- - User-friendly and interactive
- - Accessible via Tableau Public
- - Easy comparison across India

### Disadvantages

- Limited to available dataset
- Tableau Public may have privacy limitations
- Not real-time data

## 8. CONCLUSION

The Heritage Treasures project successfully transformed static UNESCO World Heritage Site data into an interactive and visually engaging Tableau dashboard. By integrating geographical maps, category-based charts, time-series trends, and country comparisons, the project provides a powerful tool for exploring global heritage. This approach can be extended to other heritage, tourism, and conservation datasets in the future, ensuring that valuable historical and cultural information remains both accessible and impactful.

## 9. FUTURE SCOPE

### 1. Real-Time Data Integration

Connect the dashboard directly to the live UNESCO database for automatic updates when new sites are added or details are changed.

### 2. Advanced Analytics

Implement predictive analytics to identify potential future heritage sites based on historical patterns and nomination trends.

### 3. Additional Data Layers

Include related datasets such as tourism statistics, site preservation status, and climate change impact for deeper insights.

### 4. User Personalization

Allow users to save favorite sites, create custom comparison views, and share interactive report

**10. Dataset Link:**

<https://www.kaggle.com/datasets/ujwalkandi/unesco-world-heritage-sites/data?select=whc-sites-2019.csv>

**GitHub & Project Demo Link:**

<https://github.com/vaishnavi-08-collab/UNESCO-World-Heritage-Sites-overview>

**Video Demo Link:**

[https://drive.google.com/file/d/1ytC-F1Os4JeCTNgwRUnwJ9vkJ41tcd2q/view?usp=drive link](https://drive.google.com/file/d/1ytC-F1Os4JeCTNgwRUnwJ9vkJ41tcd2q/view?usp=drive_link)