Heritage Treasures: An In-Depth Analysis of UNESCO World Heritage Sites

1. Introduction

Project Title: *Heritage Treasures: An In-Depth Analysis of UNESCO World Heritage Sites*

Team ID: LTVIP2025TMID49283

Team Size: 4

Team Leader : Pakkiri Mohammad Rafi
Team member : Nerlikolla Smaran
Team member : Nalban Rajaulla - Project Lead and Evaluation
Team member : Naveen Kumar

2.   Project Overview

2.1. Purpose
This project offers a visual and interactive analysis of the global distribution, category breakdown, and endangered status of UNESCO World Heritage Sites using Tableau dashboards and stories. It empowers users with insights to explore cultural heritage and promotes awareness through data storytelling**.**

2.2. Features

☐ Interactive Dashboards (Site types, danger status, timelines)
☐ Storyboard Narratives (Story 1: Categories, Story 2: Timeline Trends)
☐ Fully responsive web interface using Flask
☐ Embedded Tableau Public visualizations
☐ Deployed on Render.com for public access

3. Architecture

3.1. Frontend

• Built with **HTML, CSS, Jinja2**The prediction result page (prediction.html) features:.
• Navigation bar, hero section, and dashboard/storyboard integration.
   Responsive layout with landscape imagery and embedded iframes **3.2.**
Backend

• Developed using **Python (Flask)**
• Serves HTML and embedded Tableau links

- Deployed on **Render** with automatic build and run scripts

Dataset:

- Developed using **Python (Flask)**
- Serves HTML and embedded Tableau links
- Deployed on **Render** with automatic build and run scripts

Visualizations
- Countries per Region (Pie chart)
- Top 10 Dangerous Sites (Bar chart)
- Site Category Breakdown (Stacked bar)
- Site Age Trend & Forecast (Line chart)
- Danger Map View (Map chart)
- Story 1: Categories per Region (Storyline)
- Story 2: Heritage Timeline and Trends

4. Setup Instructions

4.1. Prerequisites
- Python 3.10+
- Flask
- Git

4.2. Installation git clone
\<your-repo-url\> cd project-folder pip install -r requirements.txt python app.py

5. Folder Structure

```
heritage-treasures-project/
├── app.py
├── templates/
│   └── index.html
├── static/
│   └── style.css
├── requirements.txt
└── README.md
```

User Interface

☐ Navigation: Home | About | Dashboard | Storyboard

☐ Dashboard and story sections are directly embedded via <iframe>

☐ Landscape background with styled sections

☐ Fully responsive on mobile and desktop

Testing

- Manual testing for dashboard responsiveness

- Tableau performance testing (filters, field usage, scene load time)

- Web UI tested on Chrome, Firefox, and Edge

6. Screenshots or Demo

About the Project

Heritage Treasures: An In-depth Analysis of UNESCO World Heritage Sites is an interactive data visualization project developed using **Tableau** and **Flask**. The goal is to provide insights into the global distribution, categorization, and preservation status of world heritage sites.

🌐 **Global Reach:** The dataset spans cultural, natural, and mixed heritage sites across every inhabited continent.

📊 **Visualization:** Dashboards reveal country-wise site counts, endangered site analysis, and category-wise trends.

🏛️ **Historical Insights:** Explore how UNESCO listings evolved over time.
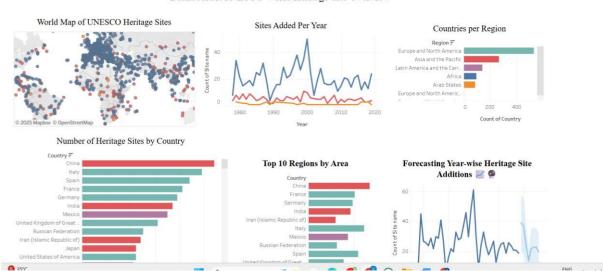
🛠️ **Technology Stack:** Built with Tableau for analytics, Flask for integration, and hosted on Render.

The project promotes awareness of global heritage conservation and offers a clean, educational interface for exploration.

🌍 Dashboard 1 - Global Overview

Dashboard1:UNESCO World Heritage Site Overview

World Map of UNESCO Heritage Sites

Sites Added Per Year

Countries per Region

Number of Heritage Sites by Country

Top 10 Regions by Area

Forecasting Year-wise Heritage Site Additions

🟦 **Story 2 - Timeline and Regional Trends**

Endangered Sites and Site Trends

This dashboard focuses on endangered heritage sites and historical trends.

Endangered Sites & Trends

Map of Endangered Sites

Country

Afghanistan

Danger Sites (as Table)

🔍 Search table

MIN(Site name)	Country	Region	Cat
Old City of Jerusalem and its Walls	Jerusalem (Si	Arab States	Cult
Chan Chan Archaeological Zone	Peru	Latin America and the Caribbean	Cult
Mount Nimba Strict Nature Reserv	Cà˜te d'Ivoire	Africa	Nat
Air and Té©né©ré© Natural Rese	Niger	Africa	Nat
Virunga National Park	Democratic R	Africa	Nat
Manovo-Gounda St Floris National	Central Africa	Africa	Nat
Kahuzi-Biega National Park	Democratic R	Africa	Nat

Analysis of Danger Sites and Area of Heritages

Region

ame 400

Demo Link:

https://drive.google.com/file/d/1gxVAiO4eUy6gvJxnLaaxK9l840KwCt6f/view?usp=drivesdk

Known Issues
- Tableau stories might not embed properly on localhost
- Internet connection required to load Tableau iframes
- Not optimized for batch or live data updates

Future Enhancements
- Add filters for live exploration on the web UI
- Integrate multilingual captions for international reach
- Create a downloadable PDF report generation from dashboard insights • Add interactive filters for story scenes