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Heritage Treasures Project – Final Report

1. INTRODUCTION

1.1 Project Overview

This project presents an interactive dashboard analyzing UNESCO World Heritage Sites. It enables users to explore site categories, endangered statuses, locations, and historical trends with ease.

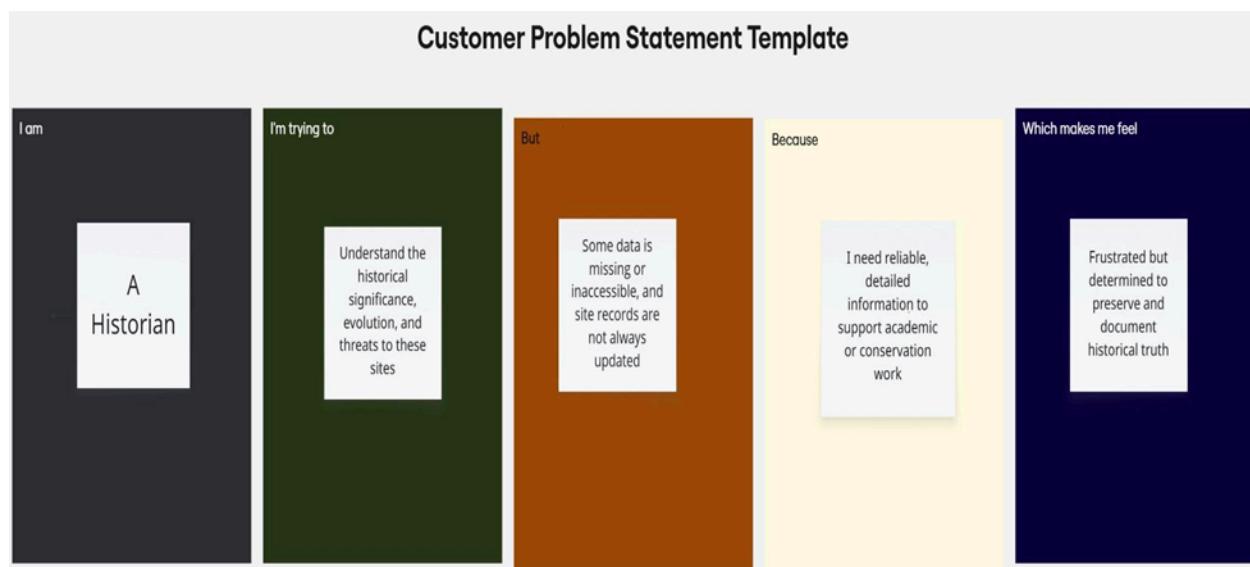
1.2 Purpose

The purpose is to make cultural data more accessible for travelers, researchers, and policymakers using data visualization.

2. IDEATION PHASE

2.1 Problem Statement

Users find it difficult to locate and interpret global heritage data in a simple, meaningful format.

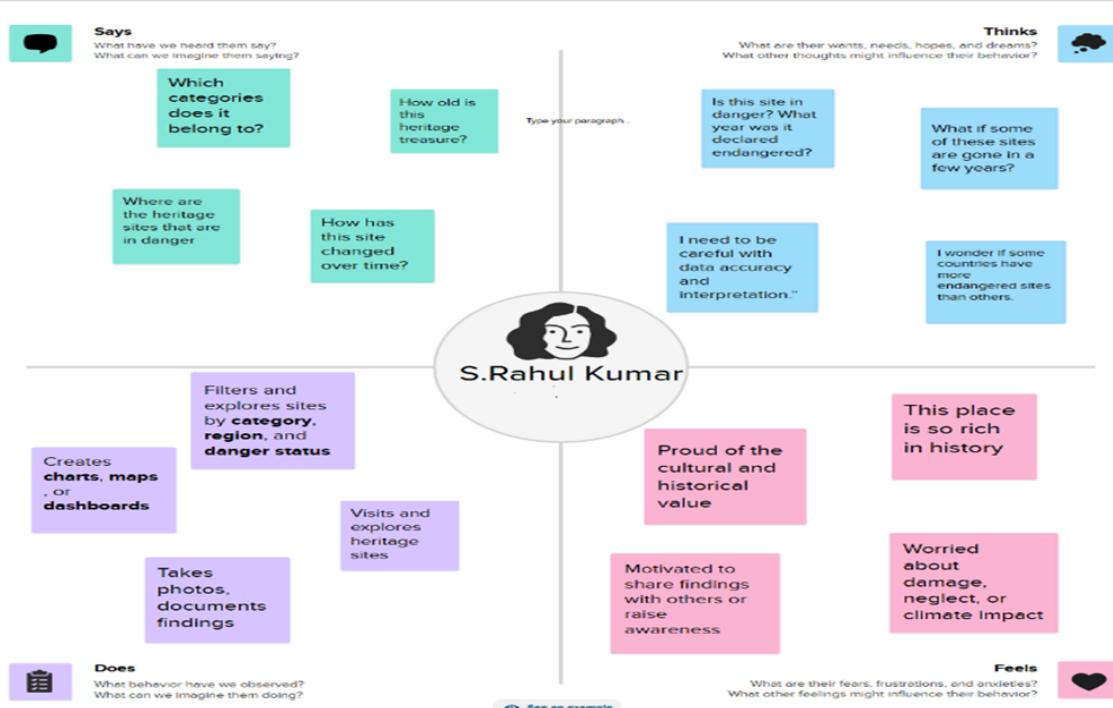


Customer Problem Statement Template



2.2 Empathy Map Canvas

Included perspectives of travelers, historians, and students focusing on their needs, actions, and challenges when exploring heritage data.



2.3 Brainstorming

Ideas included visualizing endangered sites, filtering by category, embedding dashboards on the web, and designing a regional comparison.

Template

1 Before you collaborate

A little bit of preparation goes a long way with the session. Here's what you need to do to get going.

10 minutes

2 Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

3 Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

TIP
You can select a sticky note and hit the pencil (switch to sketch) icon to start drawing!

Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if they're not sitting in the same room.

10 minutes to prepare
1 hour to collaborate
10 people recommended

Team gathering
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

Set the goal
This is what the problem you'll be focusing on solving in the brainstorming session.

Learn how to use the facilitation tools
Use the facilitation Superpowers to run a happy and productive session.

Open slide

PROBLEM
which categories does it belong to and dangerous place?

Key rules of brainstorming
To run an open and productive session

- Stay in topic.
- Encourage wild ideas.
- Defend against.
- Listen others.
- Go to volume.
- Opposite is valid.

Vinodh

Create a dashboard showing the number of sites by Category, Region, and Danger status.

Identify patterns of endangered sites by category over time

Find the top 5 countries with the most sites in each category

Vishnu

Select famous sites from each category and write short descriptions of their significance.

Research real-world causes behind the endangered status of Mixed sites.

Write brief explanations for each of the 10 UNESCO criteria.

Raja Sekhar

Design category-wise infographics using the data from Person 1 and content from Person 2.

Create icons or visuals for Cultural, Natural, and Mixed categories

Compare percentage of endangered sites per category

Yashwanth

Analyze how many sites are endangered in each category

Add a hover feature that explains each site's category or UNESCO criterion

List top 10 danger zones with their category types and reasons if available.

Sukumar

Identify countries/regions with few or no Mixed category sites

I want to visit all the heritage sites and document which category each one belongs to

See which criteria are most common in Cultural vs. Natural sites

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

20 minutes

TIP
And remember: keep notes to make a easier to find, browse, organize, and categorize. Important notes as always, written by hand.

5 Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

TIP
Participants can use their cursor to move their sticky notes around the grid. The facilitator can control the cursor using the laser pointer holding the H key on the keyboard.

Category-Based Distribution & Comparison

Find the top 5 countries with the most sites in each category

Compare percentage of endangered sites per category

See which criteria are most common in Cultural vs. Natural sites

Analyze how many sites are endangered in each category

Identify countries/regions with few or no Mixed category sites

I want to visit all the heritage sites and document which category each one belongs to

Regional and Danger Zone Analysis

Identify patterns of endangered sites by category over time

Research real-world causes behind the endangered status of Mixed sites.

Create a dashboard showing the number of sites by Category, Region, and Danger status.

List top 10 danger zones with their category types and reasons if available.

Visual Communication & Interaction

Design category-wise infographics using the data from Person 1 and content from Person 2.

Create icons or visuals for Cultural, Natural, and Mixed categories

Select famous sites from each category and write short descriptions of their significance.

Enriching Data With Context and Meaning

Write brief explanations for each of the 10 UNESCO criteria.

Add a hover feature that explains each site's category or UNESCO criterion

See which criteria are most common in Cultural vs. Natural sites

Importance
If each of these tasks were done without any other, which would have the most positive impact?

I want to visit all the heritage sites and document which category each one belongs to

Analyze how many sites are endangered in each category

Find the top 5 countries with the most sites in each category

Select famous sites from each category and write short descriptions of their significance.

Create a dashboard showing the number of sites by Category, Region, and Danger status.

Feasibility
Regardless of their importance, which tasks are more feasible than others? (Cost, time, effort, complexity, etc.)

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

Mapped how different user types interact with the dashboard, from accessing it to drawing insights.

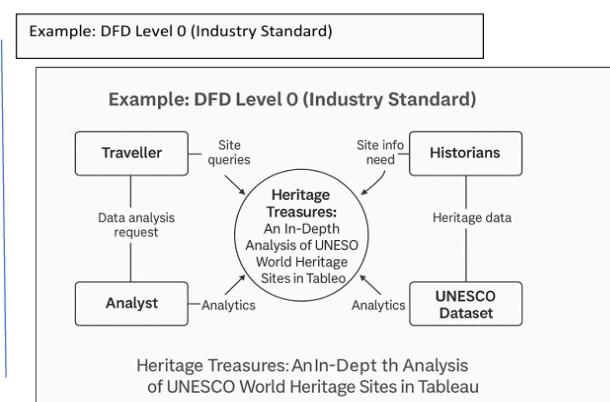
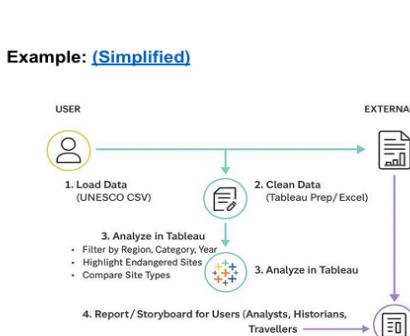
Scenario: Exploring UNESCO Heritage Treasures through Data and Discovery	Entice	Enter	Engage	Exit	Extend						
Experience steps What does the person or people in the center of this scenario typically experience in each step?	See info on UNESCO website, social media, or travel blogs	Hear about the UNESCO dataset or project topic from mentor or assignment	Open dataset in Tableau or visit the physical heritage site	Start navigating data or location map	Clean, transform, and visualize the data	Explore site or data: read info, take photos, visualize stats	Historian cross-references site info with historical records	Export dashboards and write analysis	Take notes, screenshots, or photos	Reflect, share stories, or publish findings	Present insights to class/stakeholders; share files or publish
Interactions What interactions do they have at each step along the way? ▪ People: Who do they see or talk to? ▪ Places: Where are they? ▪ Things: What digital touchpoints or physical objects do they use?	Professors, teammates, google search, Tableau resources	Social media or tourist sites	Tableau Prep Builder, Excel, peers	Physical maps or apps at the site	Tableau Desktop, group members, dataset tools	Discuss insights with group or local expert	Read heritage background via QR codes or online info	Faculty, project review team	Submit project or reflect on site experience	Class audience, online community, portfolio viewers	Blog or publish summary
Goals & motivations At each step, what is a person's primary goal or motivation? ("Help me..." or "Help me avoid...")	I want to discover meaningful historical places	Help me find something culturally rich to explore	Help me start my visit or research with context	I want to analyze endangered sites and their categories	I want to reveal meaningful insights about categories and danger zones	I want to learn how heritage is classified	Let me experience, learn, or analyze this site/data deeply	Make sure the visuals are clear and polished.	Make it memorable and educational	Let others learn or benefit from our work	Help me share this experience/data with others
Positive moments What steps does a typical person find enjoyable, productive, fun, motivating, delightful, or exciting?	Excited about working on a real-world global topic	Inspired by beautiful or historic places	Discovering useful patterns in the data	Easy to navigate or open data	Building maps and category dashboards	Happy to find clean insights or visualizations	Learning something unique about history/culture	Seeing clean visual output & group appreciation	Proud of final work or memorable visit	Increased cultural awareness or academic value	Project used in a presentation or added to portfolio
Negative moments What steps does a typical person find frustrating, confusing, engrossing, costly, or time-consuming?	Confused about data structure or field names	Too many filters or pages	Missing or unclear values (e.g. Date_end, Danger)	Data is incomplete or messy	Tableau bugs or loading issues	Some dashboards/tools are slow or hard to use	Not enough historical context	Trouble summarizing all insights in limited slides	Missed information	Not enough time to share with larger audience	Project impact not recognized
Areas of opportunity How might we make each step better? What ideas do we have? What have others suggested?	Provide clearer data dictionaries or simplified dataset version	Promote endangered sites clearly	Add better onboarding or site intros	Auto-suggest insights in dashboards	Auto-highlight outliers and missing values in Tableau	Show cause of endangerment + solutions	Enable site category filters	Offer a presentation template for dashboard walkthrough	Offer a presentation template for dashboard walkthrough	publish projects on a shared class gallery or open-source board	Create heritage learning badges or shareable recaps

3.2 Solution Requirement

- Functional: Site filtering, map visualizations, story insights
- Non-Functional: Usability, performance, and scalability

3.3 Data Flow Diagram

Structured data from CSV → Tableau Prep → Dashboard → Embedded Web App



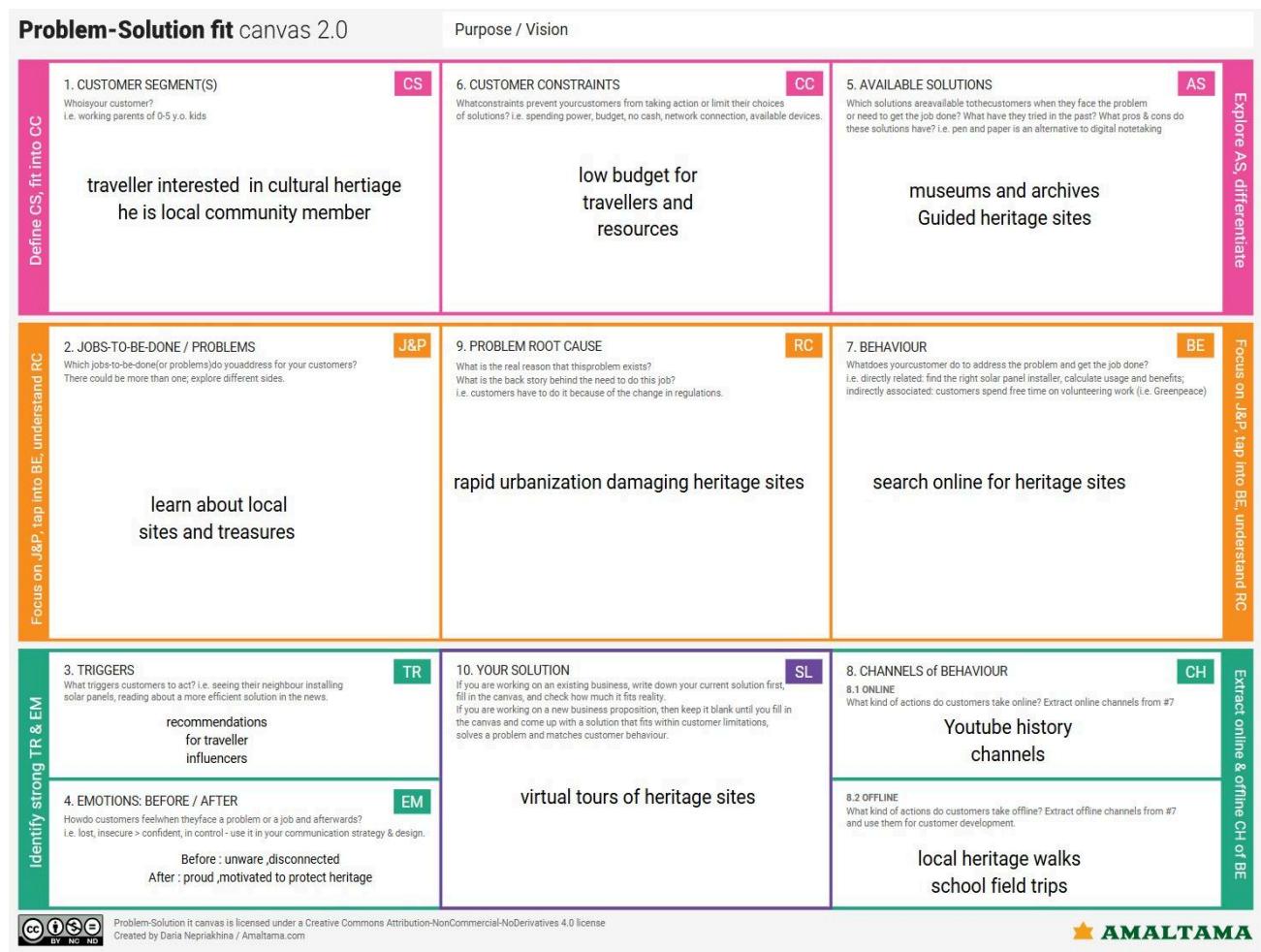
3.4 Technology Stack

- Tableau Prep, Tableau Desktop
- Flask (Python), HTML/CSS
- Google Drive (storage)

4. PROJECT DESIGN

4.1 Problem Solution Fit

A dashboard was identified as the best way to present multi-dimensional data to a broad audience.



4.2 Proposed Solution

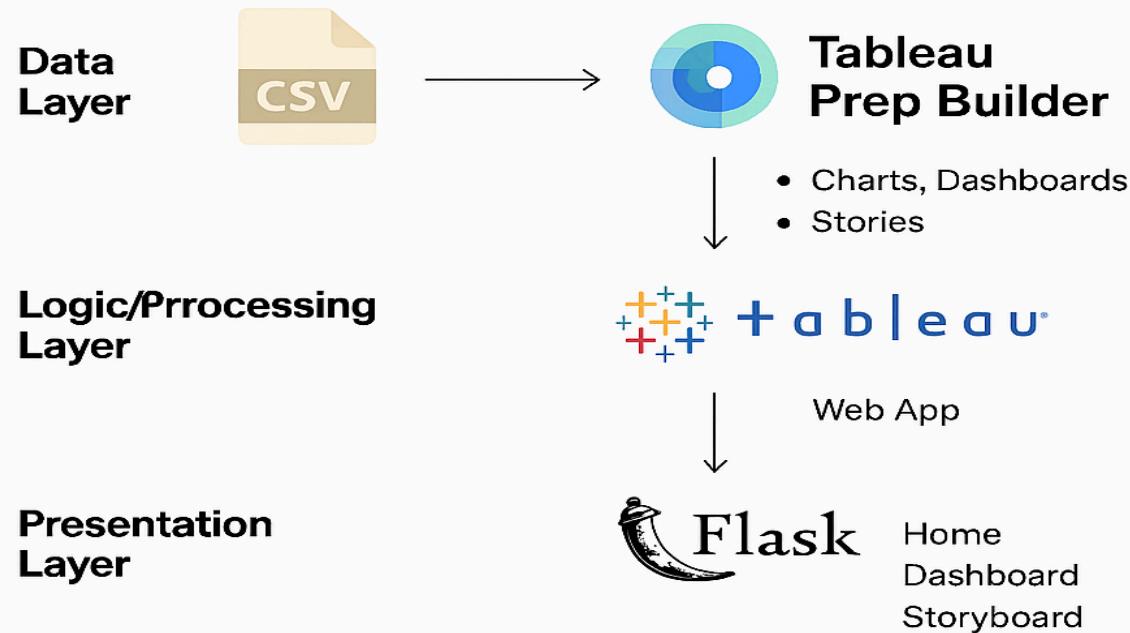
Create a multi-page Tableau dashboard hosted in a web app using Flask, including visual and story insights.

4.3 Solution Architecture

Three-tier architecture: Data Layer → Logic Layer (processing & visualization) → Presentation Layer (web UI)

Solution Architecture – Heritage Treasures Project

Using a 3-tier architecture to present data on UNESCO World Heritage Sites visually and interactively.



Example –Solution Architecture Diagram

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Sprints, user stories, velocity, and burndown chart planned and tracked across 2 sprints.

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

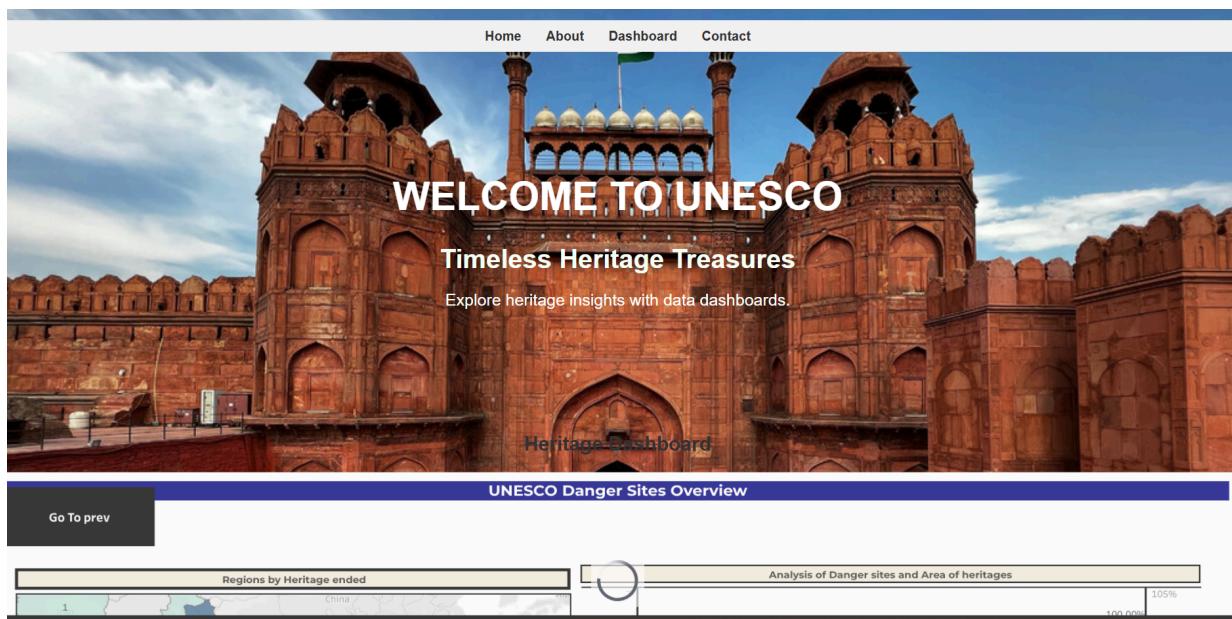
Tested dashboard load time, filter performance, and user interactivity.

- Velocity = 14 story points per sprint
- Burndown graph created to visualize sprint progress

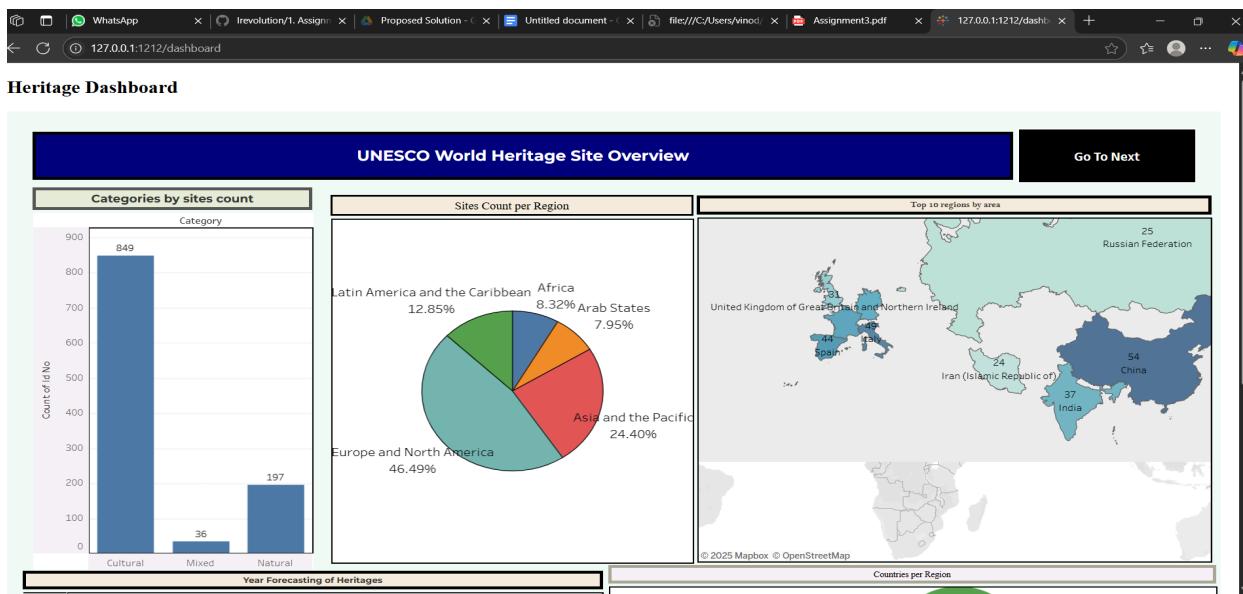
7. RESULTS

7.1 Output Screenshots

Screenshots of Web integration



The screenshot shows the homepage of the UNESCO Heritage Dashboard. The background image is of the Red Fort in India. The main title is "WELCOME TO UNESCO" and the subtitle is "Timeless Heritage Treasures". Below that is the tagline "Explore heritage insights with data dashboards." A button labeled "Heritage Dashboard" is overlaid on the image. At the top, there is a navigation bar with links to "Home", "About", "Dashboard", and "Contact". Below the main image, there is a "UNESCO Danger Sites Overview" section with a "Regions by Heritage ended" chart and a "Analysis of Danger sites and Area of heritages" map. A "Go To prev" button is visible on the left.



The screenshot shows the "Heritage Dashboard" section of the UNESCO World Heritage Site Overview. The title is "UNESCO World Heritage Site Overview". The dashboard features three main charts: a bar chart titled "Categories by sites count" showing the count of sites for Cultural (849), Mixed (36), and Natural (197) categories; a pie chart titled "Sites Count per Region" showing the percentage distribution by region; and a choropleth map titled "Top 10 regions by area" showing the number of sites per region. The map includes labels for the Russian Federation (25), United Kingdom of Great Britain and Northern Ireland (23), Iran (Islamic Republic of) (24), China (54), India (37), Spain (14), Italy (13), and others. A "Go To Next" button is visible on the right. The bottom of the dashboard includes a "Year Forecasting of Heritages" section and a "Countries per Region" section.

CONTACT

We value your feedback, inquiries, and collaboration opportunities as we shape the future of education in the region. Whether you're an educator, policymaker, or simply curious about our work, we invite you to get in touch.

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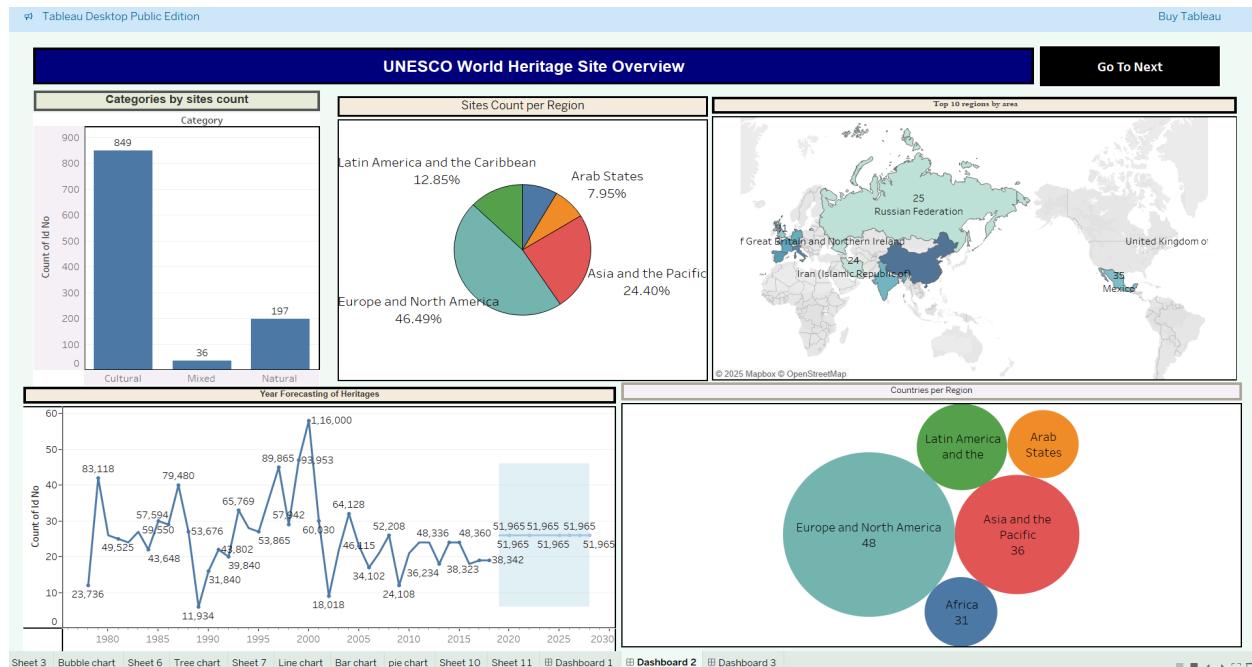


Send us a message

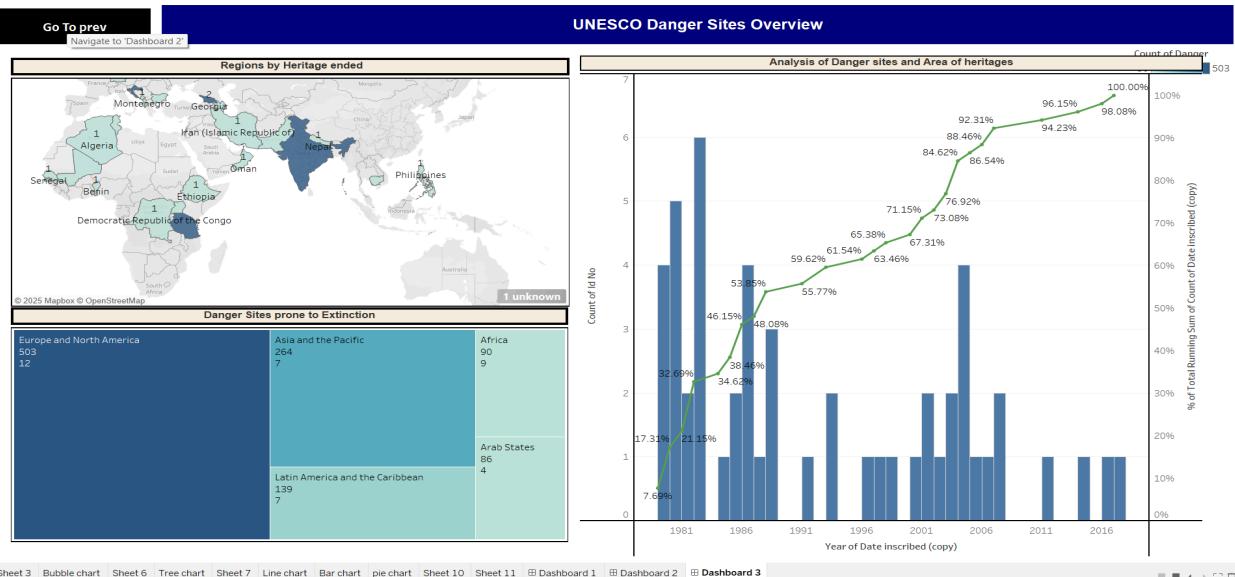
Send Message

■ Screenshots of Tableau dashboards showing

UNESCO World Heritage Site Overview



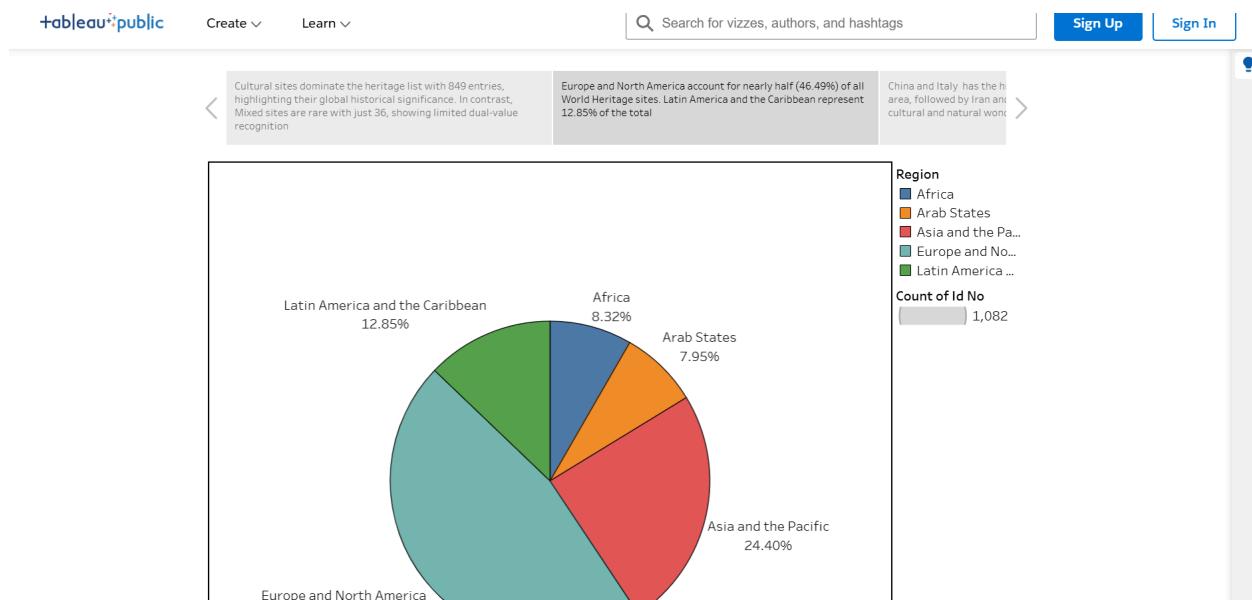
UNESCO Danger Sites Overview

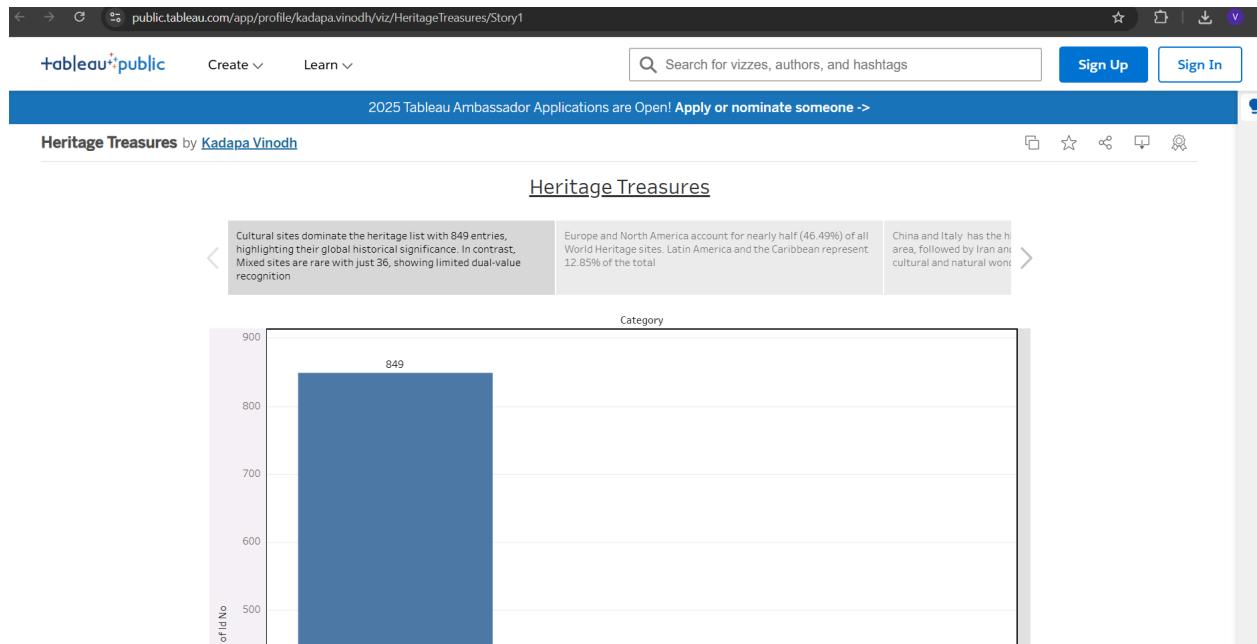


[Sheet 3](#) [Bubble chart](#) [Sheet 6](#) [Tree chart](#) [Sheet 7](#) [Line chart](#) [Bar chart](#) [pie chart](#) [Sheet 10](#) [Sheet 11](#) [Dashboard 1](#) [Dashboard 2](#) [Dashboard 3](#)

- Category chart
- Endangered region map
- Story dashboard
- Filtered views by region and category
-

■ Screenshots of Tableau dashboards showing





8. ADVANTAGES & DISADVANTAGES

Advantages:

- Easy access to cultural data
- Visually appealing
- Interactive and filterable

Disadvantages:

- Requires internet for dashboard embedding
- Limited offline access

9. CONCLUSION

The project successfully converts heritage site data into interactive insights using modern tools, helping raise awareness of endangered sites.

10. FUTURE SCOPE

- Add machine learning for site risk prediction
 - Enable real-time updates via API
 - Support more languages and offline features
-

11. APPENDIX

Source Code: Provided in GitHub repo

Dataset Link: [UNESCO World Heritage Sites 2019](https://www.unesco.org/unesco-world-heritage-sites-2019)

GitHub & Demo:

https://drive.google.com/file/d/1FelbWb56JvVA63vfgnkteeAIAhqsZNAK/view?usp=drive_link