

Heritage Treasures: An In-depth Analysis of UNESCO World Heritage sites in Tableau



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

Category: Data Analytics with Tableau

skills Required: Tableau

Project Description:

Scenario 1: Heritage sites by country

Scenario to the number of heritage sites it contains. This visualization will quickly identify which countries have the most UNESCO World Heritage Sites, offering a clear and comprehensive view of heritage site distribution. The key columns used for this visualization are Country and Name_en. Heritage

Scenario 2: Sites at risk

for This pie chart will display the proportion of UNESCO World Heritage Sites listed as being in danger, segmenting the sites into 'In Danger' and 'Not in Danger' categories. This visual aids in understanding the severity of threats to world heritage sites, allowing stakeholders to focus their preservation efforts on the most vulnerable sites. The columns Danger and Name_en will be used this visualization.

Scenario 3: Regional Inscription Trends

Regional Inscription Trends" will be included using a Line Chart. This chart will show the trend of new site inscriptions over the years, segmented by region, providing insights into which regions have seen the most growth in terms of heritage site inscriptions. By visualizing the columns Date_inscribed and Region, this chart will help identify regions with increasing heritage conservation efforts and highlight historical trends Regional Inscription Trends" will be included using a Line Chart. This chart will show the trend of new site inscriptions over the years, segmented by region, providing insights into which regions have seen the most growth in terms of heritage site inscriptions. By visualizing the columns Date_inscribed and Region, this chart will help identify regions with increasing heritage conservation efforts and highlight historical trends.

Technical Architecture

Technical Architecture:



Project Flow

To accomplish this, we have to complete all the activities listed below,

? Data Collection & Extraction from Database

o Collect the dataset, o Connect data with

Tableau ? Data Preparation o Prepare the

Data for Visualization

? Data Visualizations o No of

Unique Visualizations

? Dashboard

o Responsive and Design of Dashboard

? Story o No of Scenes of

Story ? Performance

Testing o Amount of

Data Loaded

o Utilization of Data Filters o No of Calculation Fields o No of Visualizations/ Graphs ? Web

Integration o Dashboard and Story embed with UI With Flask

? Project Demonstration & Documentation

? Project Record explanation Video for project end to end solution

o Project Documentation-Step by step project development procedure

c

Data collection & Extraction from Database

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, evaluate outcomes and generate insights from the Data

Downloading the dataset

Skill Tags:

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

Data contains all the meta information regarding the columns described in the CSV files

Column Description of the Dataset:

- 1.ID No.: Unique identifier for each UNESCO World Heritage Site.
- 2.Name_en: English name of the World Heritage Site.
- 3.Region: Geographical region where the site is located.
- 4.Country: Country in which the site is situated.
- 5.Location: Specific location of the site within the country.
- 6.Date_inscribed: Year the site was added to the UNESCO list.
- 7.Danger: Indicator of whether the site is listed as being in danger.
- 8.Endangered Year: Year in which the site was listed endangered 9.Date_end:The end date for the site's status as a World Heritage.
- 10.Category:Type of site (Cultural, Natural, Mixed).
- 11.Criterion 1-10: specific creteria under which the site qualifies world heritage status.

Data Preparation

Preparing the data for visualization involves cleaning the data to remove irrelevant or missing data, transforming the data into a format that can be easily visualized exploring the preparing the data for visualization software, and ensuring the data is accurate and complete. This process helps to make the data easily understandable and ready for creating visualizations to gain insights into the performance and efficiency. Since the data is already cleaned, we can move to visualization.

Explanation video links

Skill Tags:

Explanation video link 1: Data Loading:

<https://drive.google.com/file/d/1Y941JkukrTiOOAJS4WohiqTVDcMSP29v/view?usp=sharing>

Explanation video link 2: Data Cleaning:

<https://drive.google.com/file/d/16Cx2C1XpatahNAHbNNVQ-4l3NgKJxJBv/view?usp=sharing>

Data Visualization

Data visualization is the process of creating graphical representations of data to help people understand and explore the information. The goal of data visualization is to make complex data sets more accessible, intuitive, and easier to interpret. By using visual elements such as charts, graphs, and maps, data visualizations can help people quickly identify patterns, trends, and outliers in the data.

No.of Unique Visualizations

Skill Tags:

Using the given dataset, several unique visualizations can be created to analyze the dietary habits, nutritional intake, and health outcomes of college students. These visualizations include bar charts, line charts, heat maps, scatter plots, pie charts, and maps. These can be used to compare performance, track changes over time, show distribution, identify relationships, breakdown nutritional intake, provide demographic insights, inform resource allocation, and conduct geographical analysis. By leveraging these diverse visualizations, stakeholders can gain comprehensive insights into the dietary choices and health of college students, enabling data-driven decisions to promote better nutrition and overall well-being.

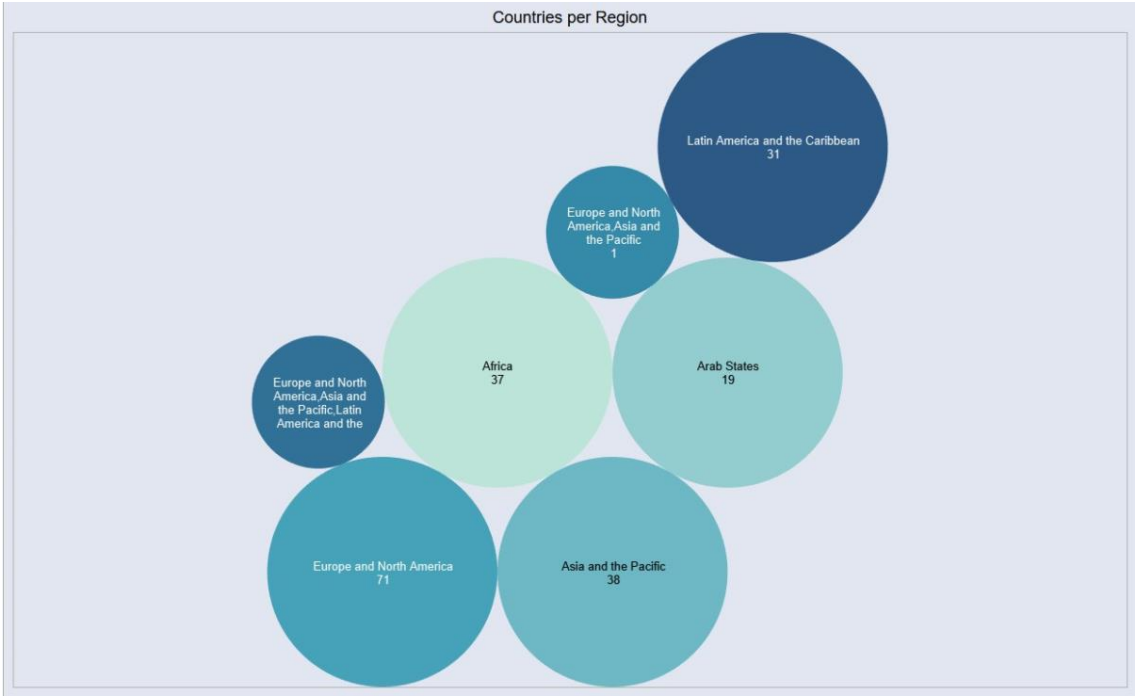
visualizations

Skill Tags:

Explanation link for all

visualizations: <https://drive.google.com/file/d/1wZSY11xLTglUn50D9Isc6NU2CkEiBSQz/view?usp=sharing>

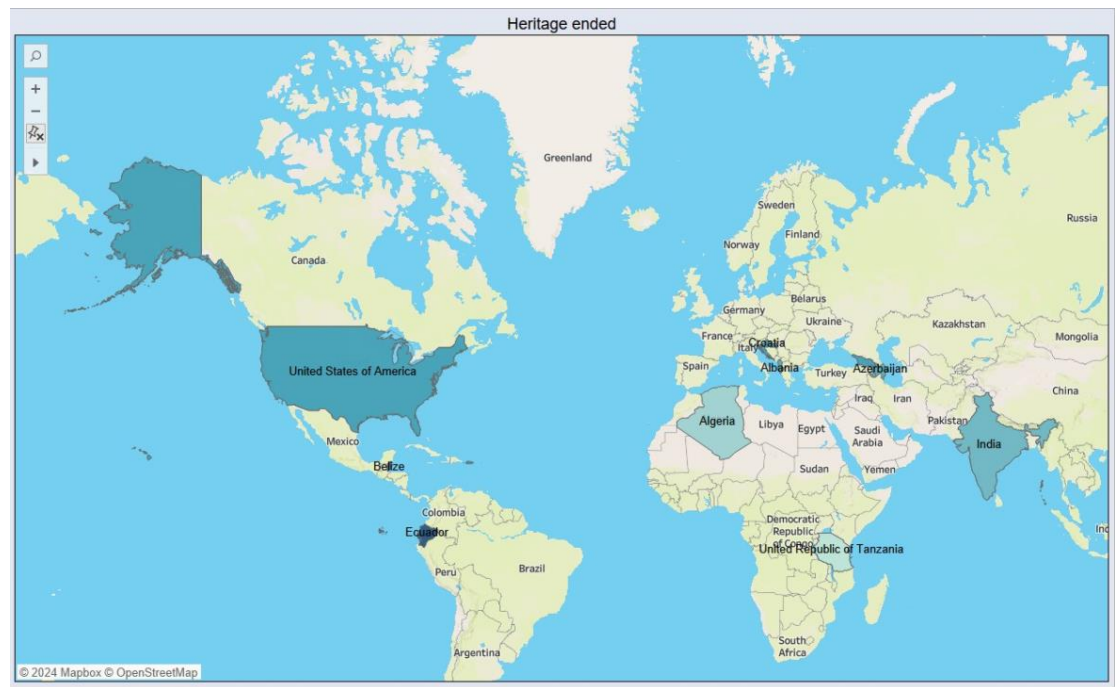
Activity 1.1: Countries per Region



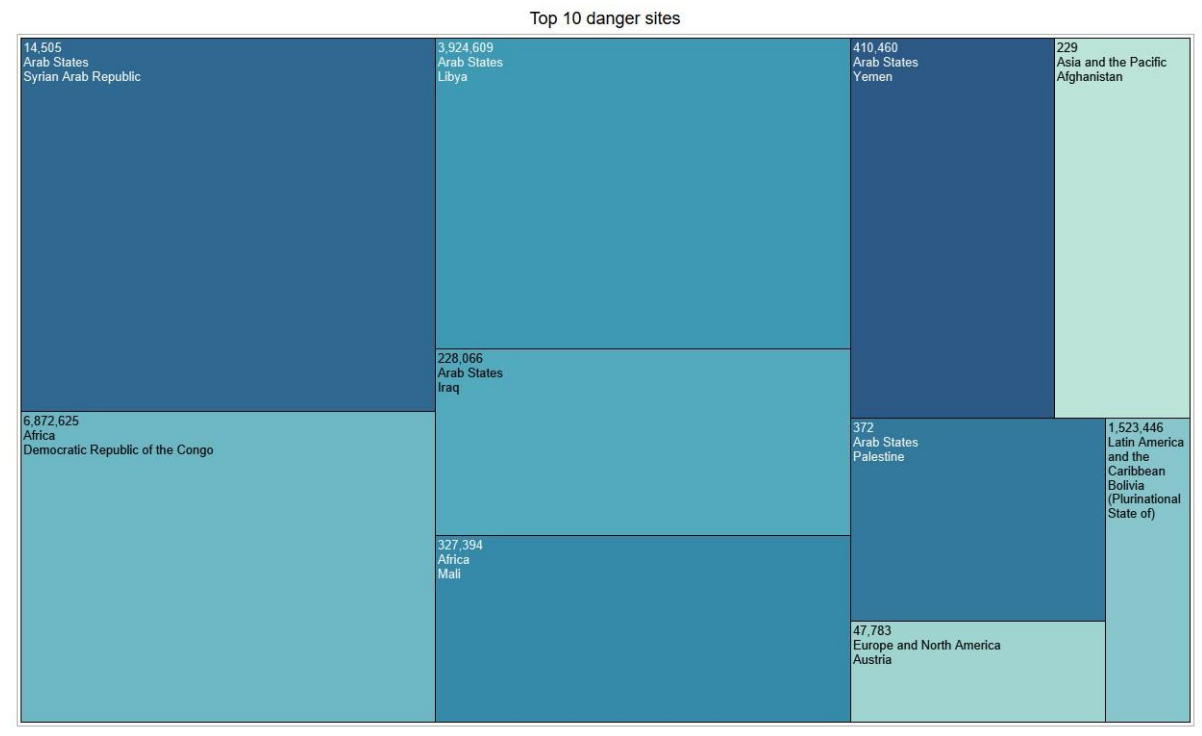
Activity 1.2: Top 10 regions by area



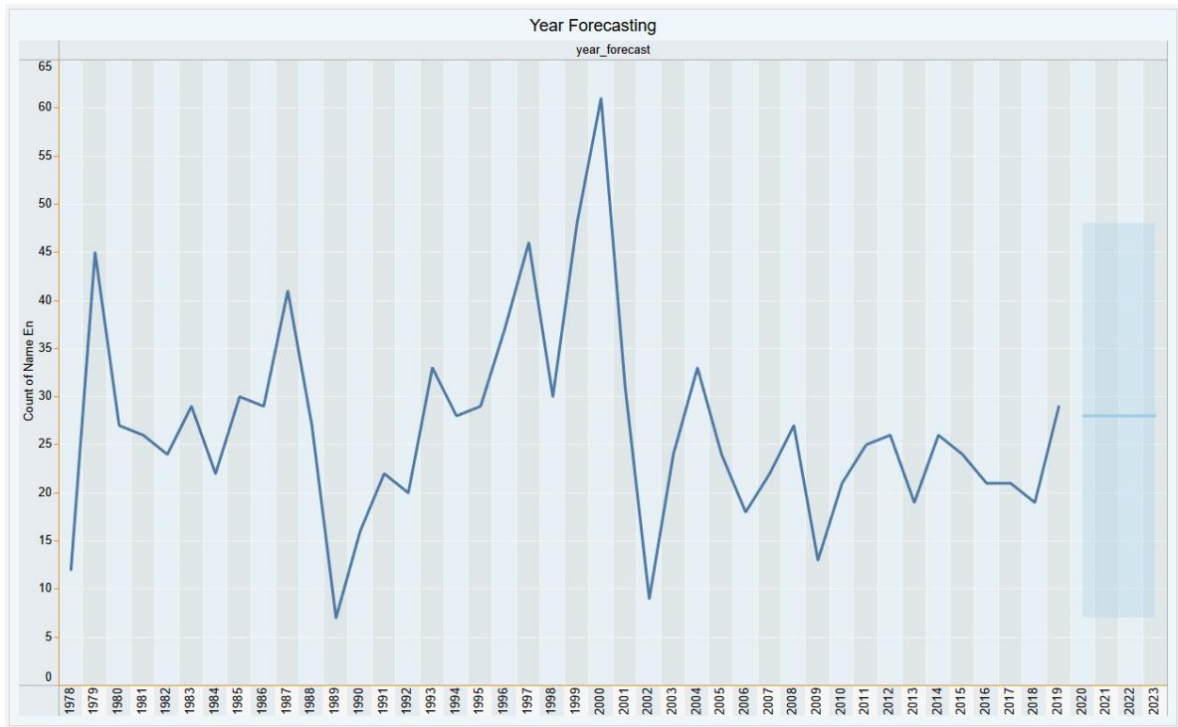
Activity 1.3: Regions by Heritage ended



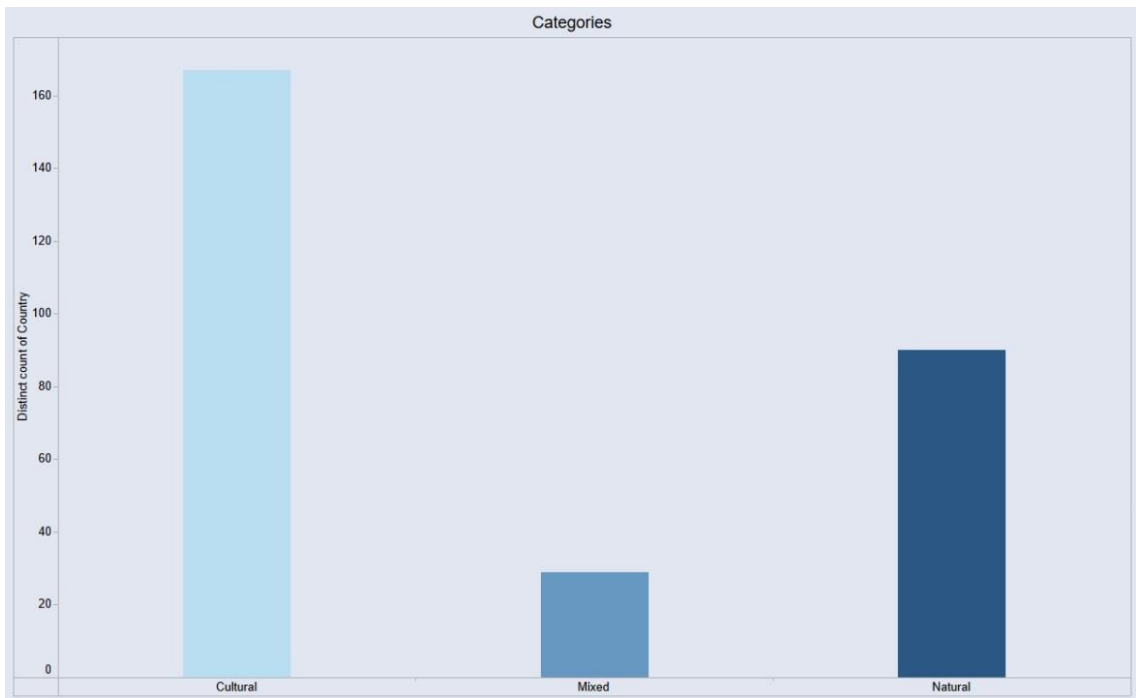
Activity 1.4 : Top 10 Danger Sites prone to Extinction



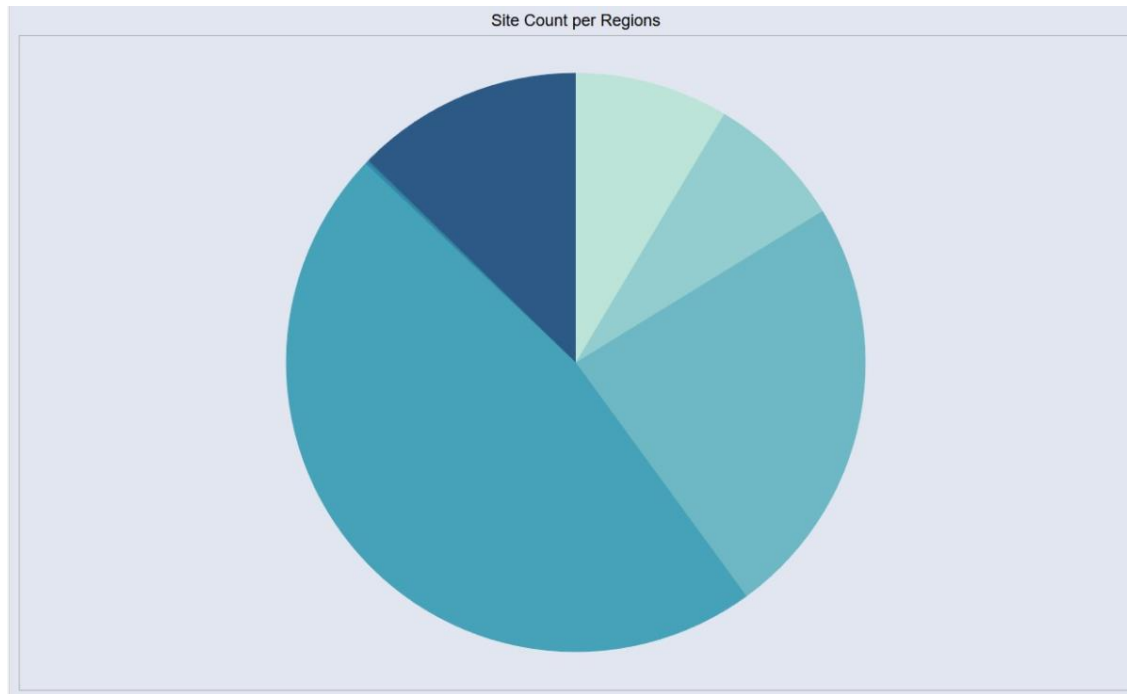
Activity 1.5 : Year Forecasting of Heritages



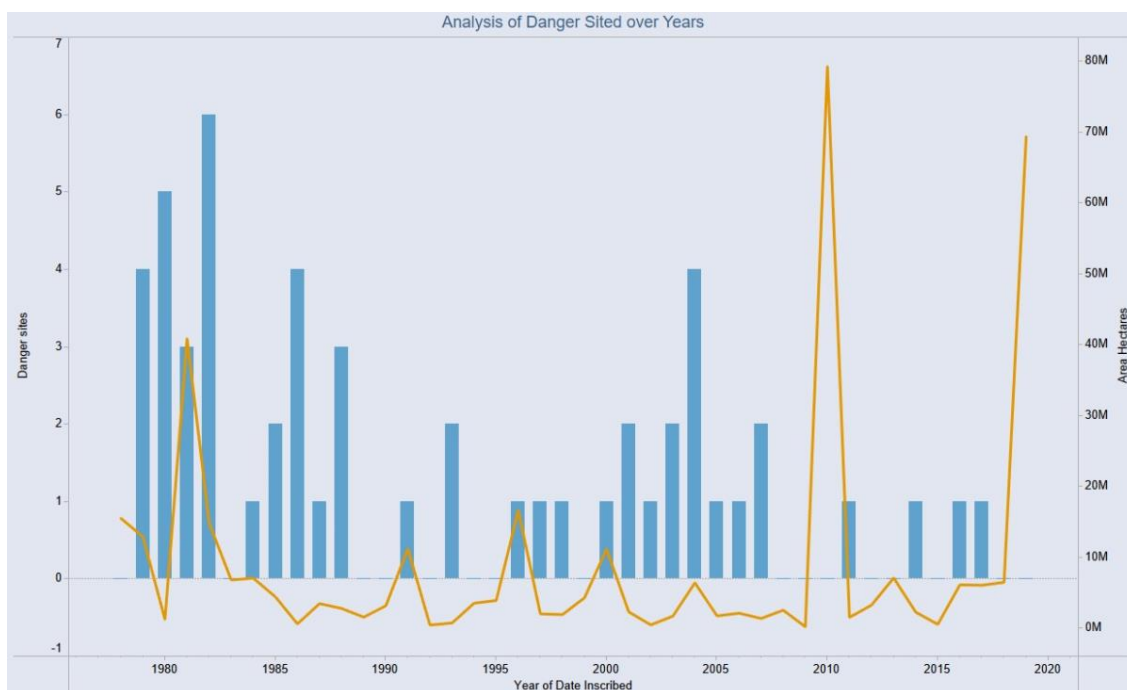
Activity 1.6 : Categories by sites count



Activity 1.7 : Site Count per Region



Activity 1.8 : Analysis of Danger sites and Area of heritages



Note: All the above visualizations were explained in the link mentioned above.

Dashboard

A dashboard is a graphical user interface (GUI) that displays information and data in an organized, easy-to-read format. Dashboards are often used to provide real-time monitoring

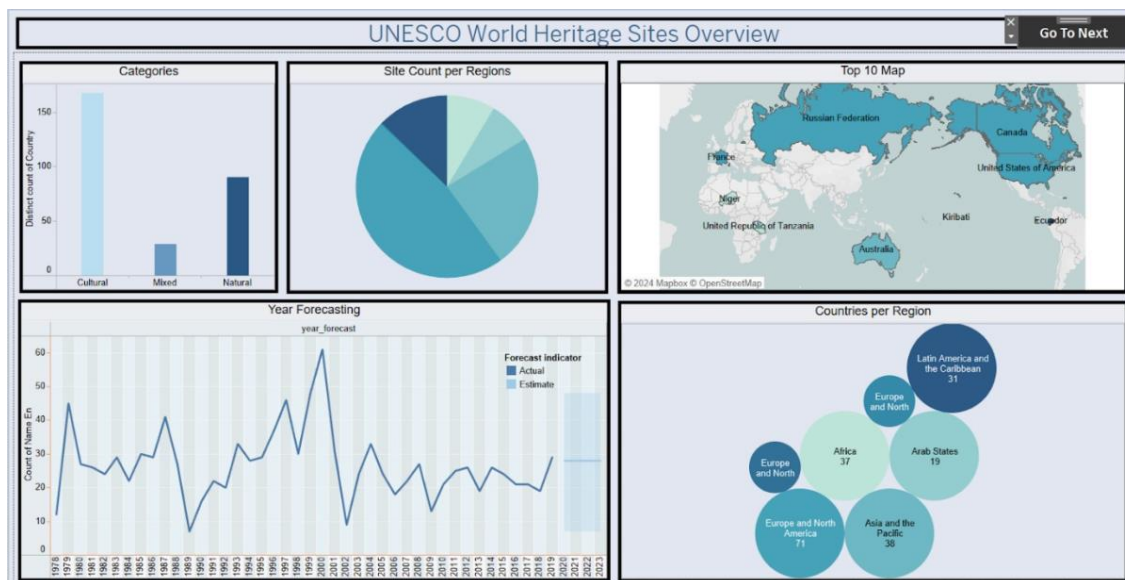
and analysis of data and are typically designed for a specific purpose or use case. Dashboards can be used in a variety of settings, such as business, finance, manufacturing, healthcare, and many other industries. They can be used to track key performance indicators (KPIs), monitor performance metrics, and display data in the form of charts, graphs, and tables.

Dashboard 1

Skill Tags:

Dashboard 1: UNESCO World Heritage Site Overview

Link: <https://drive.google.com/file/d/1wjQb6BoHlft3wyKEEBcMeSTBEzoHAMjk/view?usp=sharing>



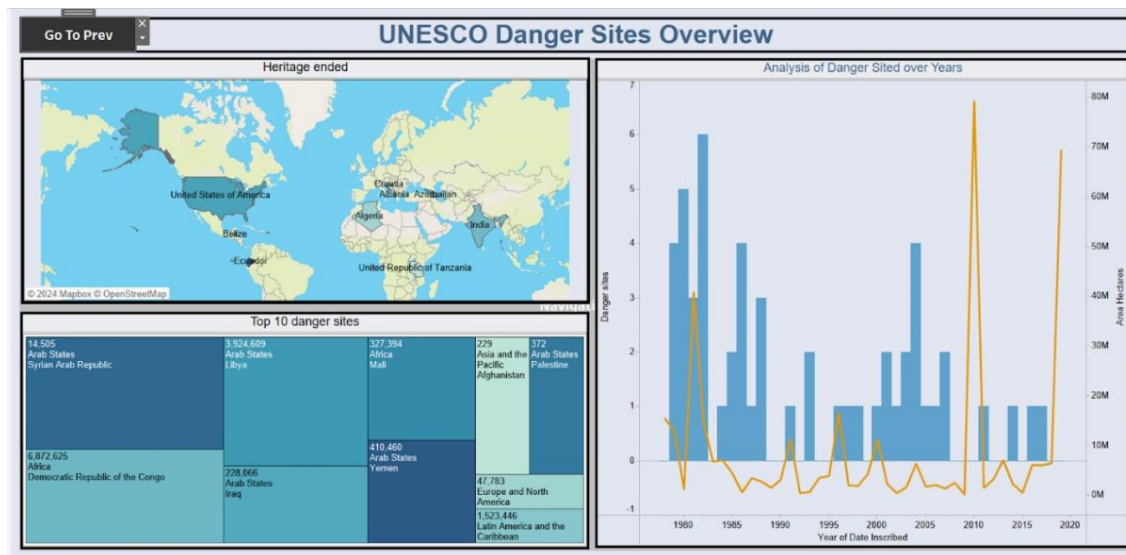
Dashboard 2:

Duration: 1 Hrs Skill

Tags:

Dashboard 2:

Link: <https://drive.google.com/file/d/1PS7vZLeCV52n7hruFeN1IAHBJ8fTssUr/view?usp=sharing>



Story

A data story is a way of presenting data and analysis in a narrative format, with the goal of making the information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and analysis in a logical and systematic way, and a conclusion that summarizes the key findings and highlights their implications. Data stories can be told using a variety of mediums, such as reports, presentations, interactive visualizations, and videos.

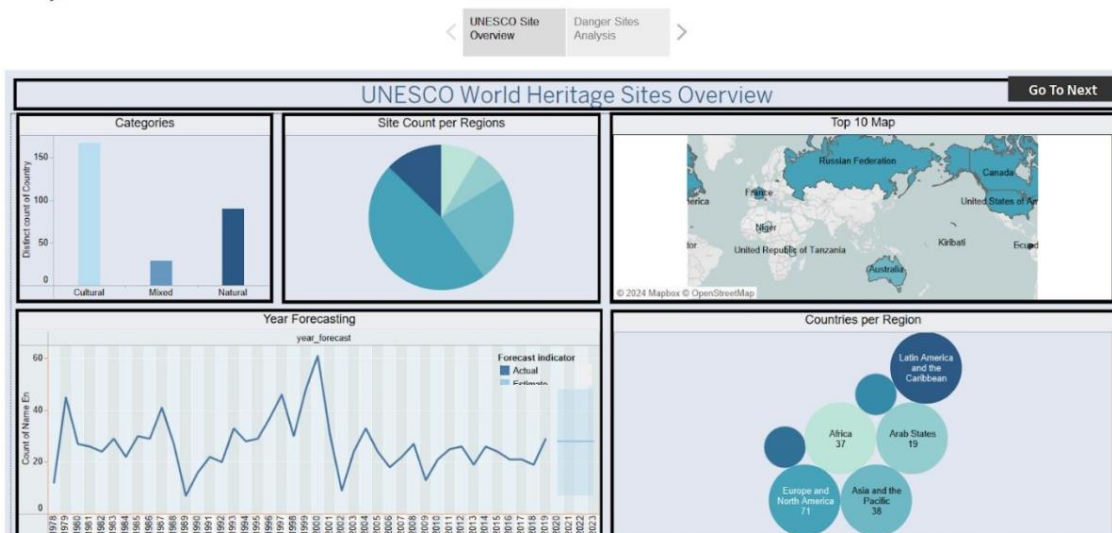
No of Scenes of Story

Skill Tags:

No of Scenes of Story [https://drive.google.com/file/d/1Y-](https://drive.google.com/file/d/1Y-ij6gEo3B9TWWrGIZhxA_yWScEnSBdj/view?usp=sharing)

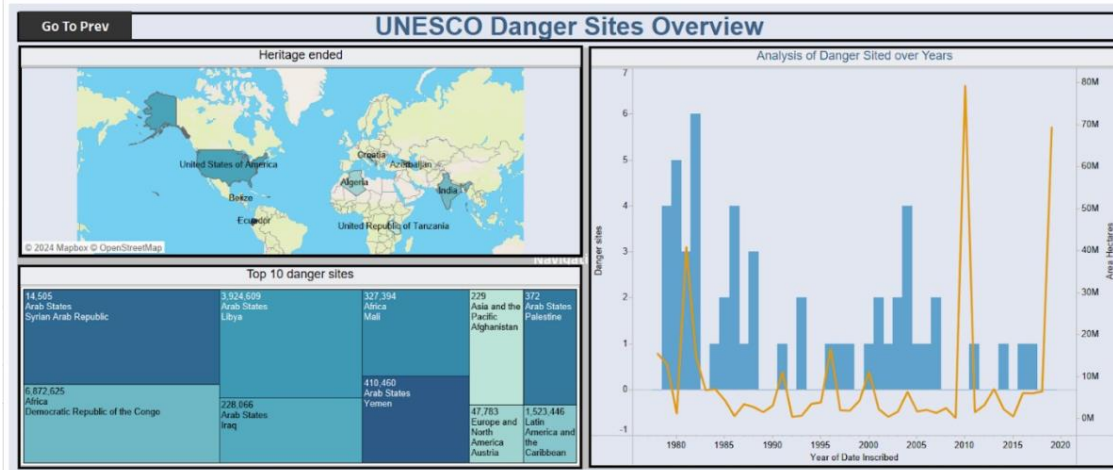
[ij6gEo3B9TWWrGIZhxA_yWScEnSBdj/view?usp=sharing](https://drive.google.com/file/d/1Y-ij6gEo3B9TWWrGIZhxA_yWScEnSBdj/view?usp=sharing)

Story 1



Story 1

< UNESCO Site Overview >
 Danger Sites Analysis



Performance Testing












Amount of Data Loaded

"Amount of Data Loaded" refers to the quantity or volume of data that has been imported, retrieved, or loaded into a system, software application, database, or any other data storage or processing environment. It's a measure of how much data has been successfully processed and made available for analysis, manipulation, or use within the system.

Fields

Type	Field Name	Physical Table	Remote Field Name
Abc	Category	sites inscribed properties XLS	category
🌐	Country	sites inscribed properties XLS	states_name_en
🌐	Region En	sites inscribed properties XLS	region_en
#	Unique Number	sites inscribed properties XLS	unique_number
#	Id No	sites inscribed properties XLS	id_no
Abc	Rev Bis	sites inscribed properties XLS	rev_bis
Abc	Name En	sites inscribed properties XLS	name_en
Abc	Short Description En	sites inscribed properties XLS	short_description_en
Abc	Justification En	sites inscribed properties XLS	justification_en
📅	Date Inscribed	sites inscribed properties XLS	date_inscribed
Abc	Secondary Dates	sites inscribed properties XLS	secondary_dates
#	Danger	sites inscribed properties XLS	danger
⚙️	Danger sites	Calculation	Calculation_2525956472081383427

Fields

Type	Field Name	Physical Table	Remote Field Name
	Date End	sites inscribed properties XLS	date_end
	Calculation1	Calculation	Calculation_2525956472255877134
	Danger List	sites inscribed properties XLS	danger_list
	Longitude	sites inscribed properties XLS	longitude
	Latitude	sites inscribed properties XLS	latitude
	Area Hectares	sites inscribed properties XLS	area_hectares
	Criteria Txt	sites inscribed properties XLS	criteria_txt
	Category Short	sites inscribed properties XLS	category_short
	Iso Code	sites inscribed properties XLS	iso_code
	Udnp Code	sites inscribed properties XLS	udnp_code
	Transboundary	sites inscribed properties XLS	transboundary
	year_forecast	Calculation	Calculation_2525956472123355148
	Area Hectares (bin)	Bin	Area Hectares (bin)

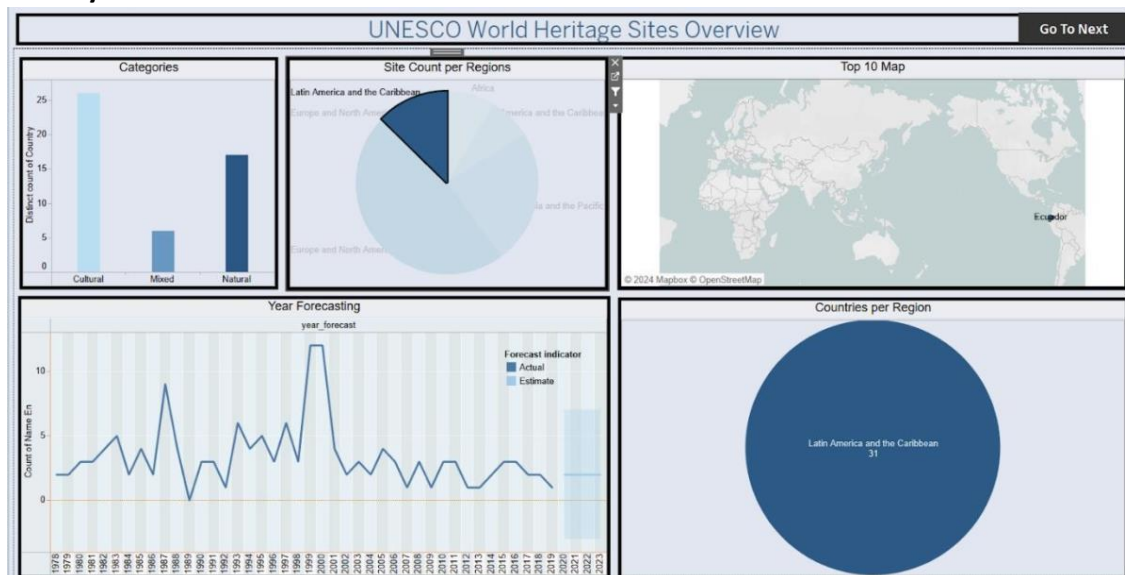
Utilization of Data Filters

Duration: 1 Hrs Skill

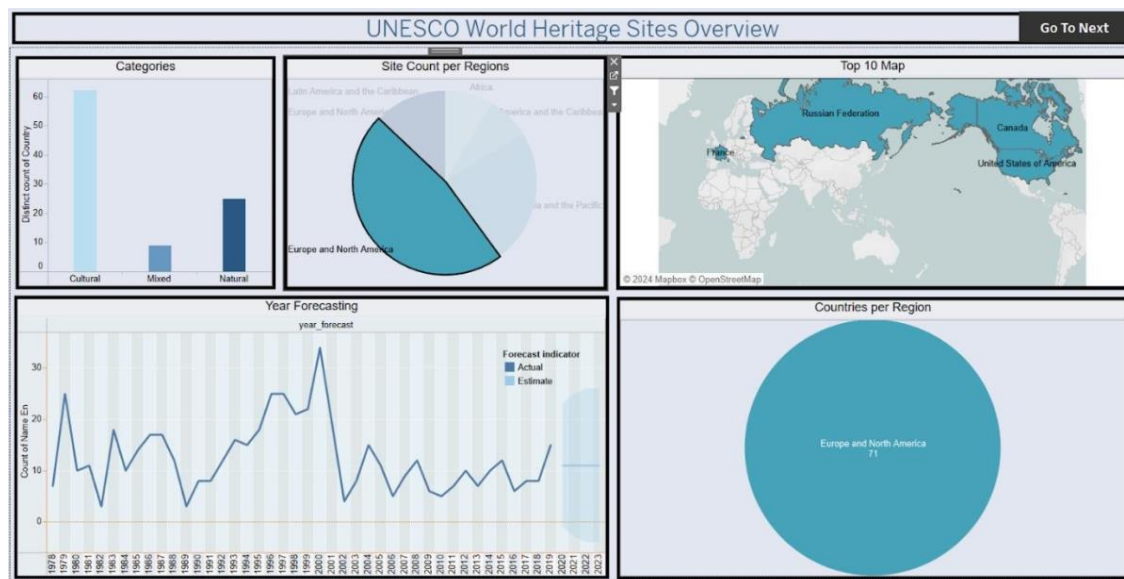
Tags:

"Utilization of Filters" refers to the application or use of filters within a system, software application, or data processing pipeline to selectively extract, manipulate, or analyze data based on specified criteria or conditions

Activity 2.1: Selected “Latin America” as a filter.



Activity 2.2: Selected “Europe and North America” as a filter



No of Visualizations/ Graphs

Skill Tags:

Top 10 regions by area

- Countries per Regions
- Sites Count per Region
- Analysis of Danger sites and Areas
- Heritage ended Regions
- Year Forecasting
- Categories by site count
- Top 10 danger sites

Web integration

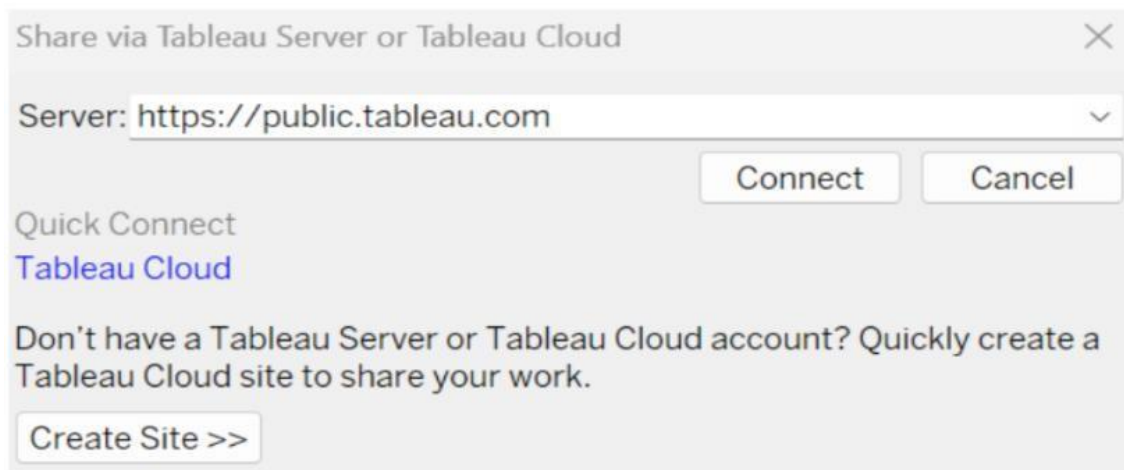
Publishing helps us to track and progress. help a publisher stay informed, make better decisions, and communicate their performance to Publishing helps us to track and monitor key performance metrics, to communicate results others. Publishing dashboard and reports to tableau public

Go to Dashboard/story, click on share button on the top ribbon

Skill Tags:

Note: This process is also explained in the flask part mentioned below

Give the server address of your tableau public account and click on connect.



Share via Tableau Server or Tableau Cloud

Server:

Quick Connect
[Tableau Cloud](#)

Don't have a Tableau Server or Tableau Cloud account? Quickly create a Tableau Cloud site to share your work.

Step 2: Once you click on connect it will ask you for tableau public user name and password.



tableau public

Email

Password

 This site is SSL encrypted

[Forgot your password?](#)

[Don't have a profile yet?](#)

[Create one now for free](#)

Once you login into your tableau public using the credentials, the particular visualization will be published into tableau public.

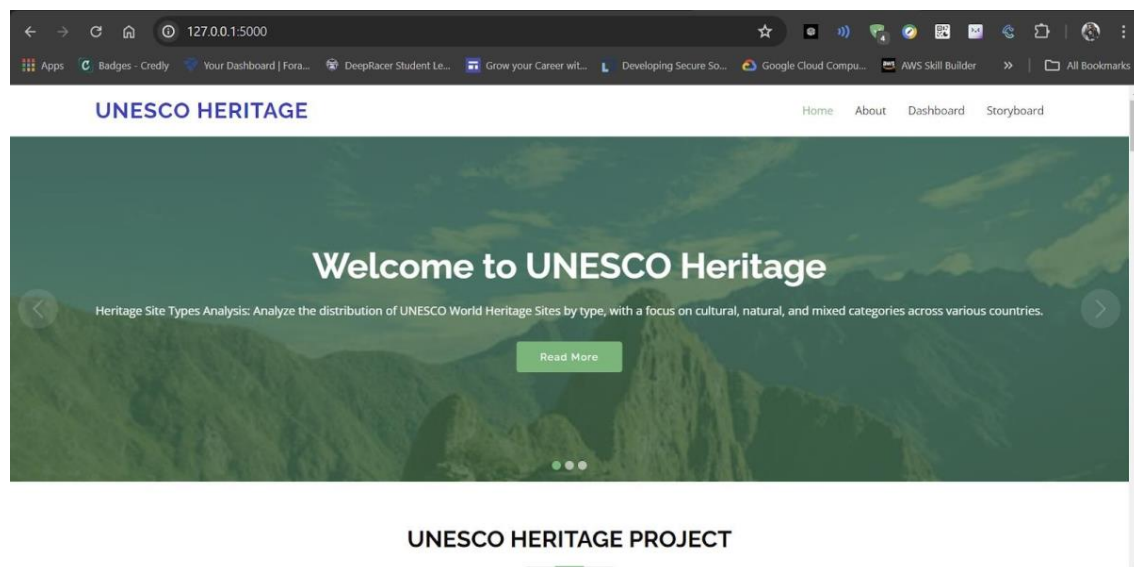
Note: While publishing the visualization to the public, the respective sheet will get published when you click on share option.

Dashboard and Story embed with UI With Flask

Skill Tags:

Explanation video link: [TableauFlask.mp4](#)

```
index.html X app.py X
1 from flask import *
2
3 app = Flask(__name__)
4
5 @app.route("/")
6 def home():
7     return render_template("index.html")
8
9
10 if __name__ == "__main__":
11     app.run(debug = True, port = 1212)
```



UNESCO HERITAGE PROJECT

The UNESCO Heritage Project is dedicated to identifying, protecting, and preserving cultural and natural heritage around the world. Established in 1972, our project aims to promote international collaboration and provide support for the conservation of World Heritage sites.

The project covers a diverse range of sites, including ancient monuments, natural parks, historic cities, and intangible cultural heritage. Our efforts are guided by the principles of sustainable development, ensuring that the preservation of heritage sites contributes to the well-being of surrounding communities.

Our mission is to safeguard the world's cultural and natural treasures for future generations. We work closely with governments, local communities, and various organizations to ensure that these sites are maintained and protected in accordance with the highest standards.


Join us in our mission to preserve the world's heritage. Together, we can ensure that the beauty, history, and cultural significance of these sites continue to inspire and educate future generations.





UNESCO HERITAGE


CONTACT

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

 **Location:**

 **Email:**
visits@unesco.org

 **Call:**
+33 (0)1 45 68 10 00



Your Name

Your Email

Subject

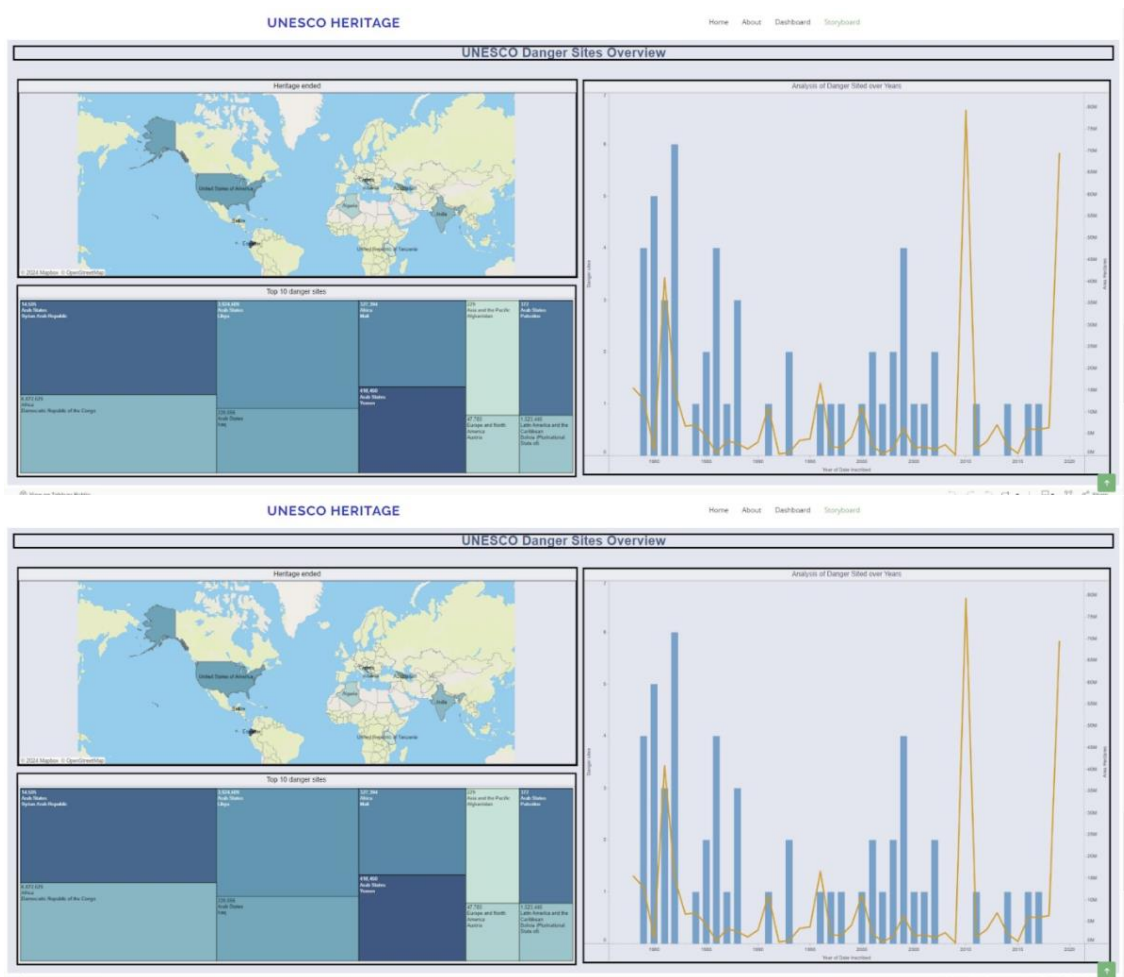
Message

Send Message

UNESCO Heritage

Building peace in the minds of men and women.

Designed by BootstrapMade



Output:

Clean Data from Excel, CSV, PDF, and Google Sheets with Data Interpreter

Applies to: Tableau Cloud, Tableau Desktop, Tableau Server

When you track data in Excel spreadsheets, you create them with the human interface in mind.

To make your spreadsheets easy to read, you might include things like titles, stacked headers, notes, maybe empty rows and columns to add white space, and you probably have multiple tabs of data too.

When you want to analyze this data in Tableau, these aesthetically pleasing attributes make it very difficult for Tableau to interpret your data. That's where Data Interpreter can help.

Tip: Though Tableau's Excel add-in is no longer supported, Data Interpreter can help you reshape your data for analysis in Tableau.

What does Data Interpreter do?

Data Interpreter can give you a head start when cleaning your data. It can detect things like titles, notes, footers, empty cells, and so on and bypass them to identify the actual fields and values in your data set.

It can even detect additional tables and sub-tables so that you can work with a subset of your data independently of the other data.

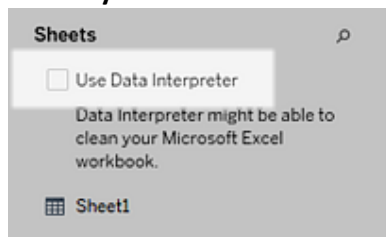
After Data Interpreter has done its magic, you can check its work to make sure it captured the data that you wanted and identified it correctly. Then, you can make any necessary adjustments.

After you select the data that you want to work with, you might also need to do some additional cleaning steps like pivoting your data, splitting fields, or adding filters to get the data in the shape you want before starting your analysis.

Note: If your data needs more cleaning than what Data Interpreter can help you with, try Tableau Prep(Link opens in a new window).

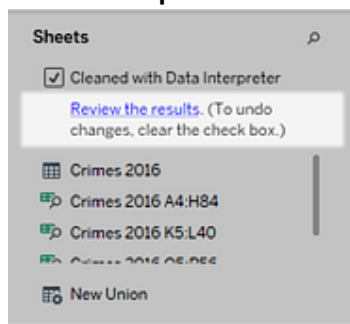
Turn on Data Interpreter and review results

1. From the Connect pane, connect to an Excel spreadsheet or other connector that supports Data Interpreter such as Text (.csv) files, PDF files or Google sheets.
2. Drag a table to the canvas (if needed), then on the Data Source page, in the left pane, select the Use Data Interpreter check box to see if Data Interpreter can help clean up your data.



Note: When you clean your data with Data Interpreter, Data Interpreter cleans all the data associated with a connection in the data source. Data Interpreter does not change the underlying data.

3. In the Data pane, click the Review the results link to review the results of the Data Interpreter.

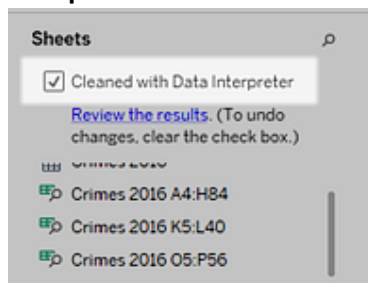


A copy of your data source opens in Excel on the Key for the Data Interpreter tab. Review the key to find out how to read the results.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
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11														
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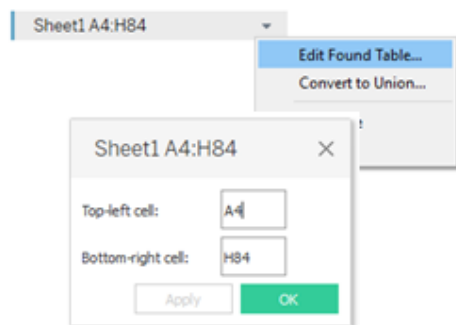
4. Click each tab to review how Data Interpreter interpreted the data source.

If Data Interpreter found additional tables, also called found tables or sub-tables, they are identified in the <sheet name>_subtables tab by outlining their cell ranges. A separate tab is also included for each sub-table, color coded to identify the header and data rows. If Data Interpreter does not provide the expected results, clear the Cleaned with Data Interpreter check box to use the original data source.



5. To replace the current table with any of the found tables, drag the current table off the canvas and then drag the found table that you want to use to the canvas.

If Data interpreter has misidentified the range of the found table, after you drag the found table to the canvas, click the drop-down arrow on that table, and then select Edit Found Table to adjust the corners of the found table (the top-left cell and bottom-right cell of the table).



6. After you have the data that you want to work with, you can apply any additional cleaning operations to your data so that you can analyze it.

Data Interpreter Example

In this example we are connecting to an Excel spreadsheet with violent crime data by city and state for the year 2016. This spreadsheet includes multiple tables on one sheet and some extra formatting.

Violent Crimes in 2016 in the United States by City and State																			
Location		Months																	
city	state	Apr	Jun	Jul	Aug	Sep	Oct			state	Total Crimes 2016			State	Population 2016				
Albuquerque	New Mexico						46			Alabama	12			Alabama	4860545				
Anaheim	California			4						Alaska	26			Alaska	741522				
Anchorage	Alaska		1				26			Arizona	132			Arizona	6908642				
Arlington	Texas					17				California	515			Arkansas	2988231				
Atlanta	Georgia						85			Colorado	64			California	39296476				
Aurora	Colorado						16			D.C.	105			Colorado	5530105				
Austin	Texas					28				Florida	210			Connecticut	3587685				
Bakersfield	California			22						Georgia	85			Delaware	952698				
Baltimore	Maryland						230			Hawaii	9			District of Co	684336				
Boston	Massachusetts						28			Illinois	538			Florida	2066689				
Buffalo	New York						38			Indiana	151			Georgia	10113620				
Chandler	Arizona						3			Kansas	10			Hawaii	1428683				
Charlotte-M	North Carolina			25						Kentucky	95			Idaho	1680026				
Chicago	Illinois						536			Louisiana	127			Illinois	12835726				
Chula Vista	California		2			1				Maryland	230			Indiana	6634007				
Cincinnati	Ohio						50			Massachuset	28			Iowa	3130869				
Cleveland	Ohio						89			Michigan	221			Kansas	2907731				
Colorado Sp	Colorado					15				Minnesota	26			Kentucky	4436113				
Columbus	Ohio						70			Missouri	223			Louisiana	4686157				
Corpus Chris	Texas			9						Nebraska	25			Maine	1330232				
Dallas	Texas					118				Nevada	128			Maryland	6024752				
Denver	Colorado					33				New Jersey	86			Massachuset	6823721				
Detroit	Michigan		5				221			New Mexico	46			Michigan	9933445				
Durham	North Carolina						30			New York	290			Minnesota	5525050				
El Paso	Texas						14			North Carolin	82			Mississippi	2985415				
Fort Wayne	Indiana						34			Ohio	217			Missouri	6091176				
Fort Worth	Texas		7				49			Oklahoma	82			Montana	1038656				
Fresno	California				19					Oregon	14			Nebraska	1907603				
Greensboro	North Carolina						20			Pennsylvania	255			Nevada	2939254				

- A. Title
- B. Merged header cells
- C. Extra white space
- D. Sub-tables

The extra formatting in this spreadsheet makes it difficult for Tableau to determine what the field headers and values are.

Instead, it reads the data vertically and assigns each column the default value F1, F2, F3 (Field 1, Field 2, Field 3) and so on. Blank cells are read as null values.

Crimes 2016 (crimes_2016)

Connections: crimes_2016 (Microsoft Excel)

Sheets: ☐ Use Data Interpreter (Data Interpreter might be able to clean your Microsoft Excel workbook.) ☒ Crimes 2016

Sort fields: Data source order

Show aliases: ☐ Show hidden fields: ☐ 82 rows

Crimes 2016 F1	Crimes 2016 F2	Crimes 2016 F3	Crimes 2016 F4	Crimes 2016 F5	Crimes 2016 F6	Crimes 2016 F7	Crimes 2016 F8	Crimes 2016 F11	Crimes 2016 F12	Crimes 2016 F15	Crimes 2016 F16
Violent Crimes in 201...											
Location		Months									
city	state	Apr	Jun	Jul	Aug	Sep	Oct	state	Total Crimes 2016	State	Population 2016
Albuquerque	New Mexico							46	Alaska	12	4860545
Anaheim	California		4						Alaska	26	741522
Anchorage	Alaska	1					26		Arizona	132	6908642
Arlington	Texas					17			California	515	2988231
Atlanta	Georgia						85		Colorado	64	39296476

To see if Data Interpreter can help clean this data set, we select Use Data Interpreter.

Data Interpreter detected the proper headings for the fields, removed the extra formatting and found several sub-tables. The sub-tables are listed in the Sheets section in the Data pane and are named using the original sheet name and the cell ranges for each sub-table.

In this example there are three sub-tables: Crimes 2016 A4:H84, Crimes 2016 K5:L40, and Crimes 2016 O5:P56.

File Data Server Window Help

Crimes 2016 (crimes_2016) (2)

Connection ☒ Live ☐ Extract Filters | Add

Connections

crimes_2016
Microsoft Excel

Sheets

☒ Cleaned with Data Interpreter
[Review the results.](#) (To undo changes, clear the check box.)

☐ Crimes 2016
☒ Crimes 2016 A4:H84
☒ Crimes 2016 K5:L40
☒ Crimes 2016 O5:P56

☐ New Union

Data source order 79

Crimes 2016 Location city	Crimes 2016 Location state	Crimes 2016 Months Apr	Crimes 2016 Months Jun	Crimes 2016 Months Jul	Crimes 2016 Months Aug	Crimes 2016 Months Sep	Crimes 2016 Months Oct	Crimes 2016 state	Crimes 2016 Total Crimes 2016	Crimes 2016 State	Crimes 2016 Population 2016
Albuquerque	New Mexico	null	null	null	null	46	null	Alabama	12	Alabama	4,860,545
Anaheim	California	null	4	null	null	null	null	Alaska	26	Alaska	741,522
Anchorage	Alaska	1	null	null	null	26	null	Arizona	132	Arizona	6,908,642
Arlington	Texas	null	null	null	17	null	null	California	515	Arkansas	2,988,231
Atlanta	Georgia	null	null	null	null	85	null	Colorado	64	California	39,296,476
Aurora	Colorado	null	null	null	null	16	null	D.C.	105	Colorado	5,530,105
Austin	Texas	null	null	null	28	null	null	Florida	210	Connecticut	3,587,685
Bakersfield	California	null	22	null	null	null	null	Georgia	85	Delaware	952,698
Baltimore	Maryland	null	null	null	null	null	230	Hawaii	9	District of Columbia	684,336

To examine the results of the Data Interpreter more closely, we click the Review the results link in the Data pane to view an annotated copy of the spreadsheet.

Here we see a copy of the original data, color coded to identify which data was identified as header data and which data was identified as field values.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Violent Crimes in 2016 In the United States by City and State																
2																	
3																	
4	Location	Location	Months	Months	Months	Months	Months	Months									Header
5	city	state	Apr	Jun	Jul	Aug	Sep	Oct			state	Total Crimes 2016		State	Populatio	Header	
6	Albuquerque	New Mexico							46		Alabama	12		Alabama	4860545	Data	
7	Anaheim	California		4							Alaska	26		Alaska	741522	Data	
8	Anchorage	Alaska	1						26		Arizona	132		Arizona	6908642	Data	
9	Arlington	Texas					17				California	515		Arkansas	2988231	Data	
10	Atlanta	Georgia						85			Colorado	64		California	39296476	Data	
11	Aurora	Colorado						16			D.C.	105		Colorado	5530105	Data	
12	Austin	Texas					28				Florida	210		Connectic	3587685	Data	
13	Bakersfiel	California		22							Georgia	85		Delaware	952698	Data	
14	Baltimore	Maryland							230		Hawaii	9		District of	684336	Data	
15	Boston	Massachusett						28			Illinois	536		Florida	20656589	Data	
16	Buffalo	New York						38			Indiana	151		Georgia	10313620	Data	
17	Chandler	Arizona						3			Kansas	10		Hawaii	1428683	Data	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Violent Crimes In 2016 In the United States by City and State																
2																	
3																	
4	Location	Location	Months	Months	Months	Months	Months	Months									
5	city	state	Apr	Jun	Jul	Aug	Sep	Oct			state	Total Crimes 2016			State	Population 2016	
6	Albuquerque	New Mexico						46			Alabama	12			Alabama	4860545	
7	Anaheim	California			4						Alaska	26			Alaska	741522	
8	Anchorage	Alaska		1				26			Arizona	132			Arizona	6908642	
9	Arlington	Texas					17				California	515			Arkansas	2988231	
10	Atlanta	Georgia						85			Colorado	64			California	39296476	
11	Aurora	Colorado						16			D.C.	105			Colorado	5530105	
12	Austin	Texas					28				Florida	210			Connecticut	3587685	
13	Bakersfield	California		22							Georgia	85			Delaware	952698	
14	Baltimore	Maryland							230		Hawaii	9			District of Columbia	684336	
15	Boston	Massachusetts						28			Illinois	536			Florida	20656589	
16	Buffalo	New York						38			Indiana	151			Georgia	10313620	
17	Chandler	Arizona						3			Kansas	10			Hawaii	1428683	
18	Charlotte	North Carolina			25						Kentucky	95			Idaho	1680026	
19	Chicago	Illinois							536		Louisiana	127			Illinois	12835726	
20	Chula Vista	California		2			1				Maryland	230			Indiana	6634007	
21	Cincinnati	Ohio						50			Massachusetts	28			Iowa	3130869	
22	Cleveland	Ohio						89			Michigan	221			Kansas	2907731	
23	Colorado Springs	Colorado					15				Minnesota	26			Kentucky	4436113	
24	Columbus	Ohio						70			Missouri	223			Louisiana	4686157	
25	Corpus Christi	Texas			9						Nebraska	29			Maine	1330232	
26	Dallas	Texas					118				Nevada	128			Maryland	6024752	
27	Denver	Colorado					33				New Jersey	86			Massachusetts	6823721	
28	Detroit	Michigan		5				221			New Mexico	46			Michigan	9933445	
29	Durham	North Carolina							30		New York	290			Minnesota	5525050	
30	El Paso	Texas						14			North Carolina	82			Mississippi	2985415	
31	Fort Wayne	Indiana						34			Ohio	217			Missouri	6091176	
32	Fort Worth	Texas						77			Oklahoma	84			Montana	1068778	
33	Fresno	California									Oregon	10			Nebraska	1938134	
34	Fullerton	California									Pennsylvania	120			Nevada	2985922	
35	Glendale	California									Rhode Island	10			New Hampshire	1352702	
36	Honolulu	Hawaii									South Carolina	15			New Jersey	9267235	
37	Houston	Texas									South Dakota	12			New Mexico	1208919	
38	Indianapolis	Indiana									Tennessee	18			New York	1955001	
39	Jacksonville	Florida															

Crimes 2016 A4:H84 (crimes_2016)

Connections: crimes_2016 (Microsoft Excel) | Add

Sheets: Cleaned with Data Interpreter | Review the results (To undo changes, clear the check box.)

- Crimes 2016
- Crimes 2016 A4:H84
- Crimes 2016 K5:L40
- New Union

Sort fields: Data source order | Show aliases | Show hidden fields | 79 rows

Crimes 2016 A4:H84 Location city	Crimes 2016 A4:H84 Location state	Crimes 2016 A4:H84 Months Apr	Crimes 2016 A4:H84 Months Jun	Crimes 2016 A4:H84 Months Jul	Crimes 2016 A4:H84 Months Aug	Crimes 2016 A4:H84 Months Sep	Crimes 2016 A4:H84 Months Oct
Albuquerque	New Mexico	null	null	null	null	46	null
Anaheim	California	null	4	null	null	null	null
Anchorage	Alaska	1	null	null	null	26	null
Arlington	Texas	null	null	null	17	null	null
Atlanta	Georgia	null	null	null	null	85	null
Aurora	Colorado	null	null	null	null	16	null
Austin	Texas	null	null	null	28	null	null
Bakersfield	California	null	22	null	null	null	null
Baltimore	Maryland	null	null	null	null	null	230
Boston	Massachusetts	null	null	null	null	28	null
Buffalo	New York	null	null	null	null	38	null
Chandler	Arizona	null	null	null	null	3	null

- **Change the field names so that they represent city, state, and month names.**

- Pivot the months fields.
- Drag in the third sub-table Crimes 2016 o5:P56 and join it to our first sub-table on the State field to include state populations for our analysis.
- Hide any duplicate fields that were added as a result of the join.

The results might look something like this:

Sort fields Data source order				
Crimes 2016 A4:H84 City	Crimes 2016 A4:H84 State	Crimes 2016 O5:P56 Population 2016	Abc Pivot Months	# Pivot Crimes
Phoenix	Arizona	6,908,642	August	111
Pittsburgh	Pennsylvania	12,787,085	August	null
Plano	Texas	27,904,862	August	5
Portland	Oregon	4,085,989	August	null
Raleigh	North Carolina	10,156,689	August	null
Riverside	California	39,296,476	August	7
Sacramento	California	39,296,476	August	null
San Antonio	Texas	27,904,862	August	null
San Diego	California	39,296,476	August	30
San Francisco	California	39,296,476	August	null
San Jose	California	39,296,476	August	35
Santa Ana	California	39,296,476	August	null
Seattle	Washington	7,280,934	August	14
St. Louis	Missouri	6,091,176	August	133
St. Petersburg	Florida	20,656,589	August	14

Now we are ready to start analyzing our data in Tableau.

When Data Interpreter is not available

The Data Interpreter option might not be available for the following reasons:

- The data source is already in a format that Tableau can interpret: If Tableau Desktop doesn't need extra help from Data Interpreter to handle unique formatting or extraneous information, the Data Interpreter option is not available.
- Many rows or many columns: The Data Interpreter option is not be available when your data has the following attributes:
 - Data contains more than 2000 columns.
 - Data contains more than 3000 rows and more than 150 columns.
- The data source is not supported: Data Interpreter is only available for Microsoft Excel, Text (.csv) files, PDF files and Google Sheets. For Excel, your data must be in the .xls or .xlsx format.