WORLD CUP 2023 MATCHES DATA VISUALIZATION

A PROJECT REPORT

Submitted by

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in partial fulfillment for award of the degree of

MASTER OF COMPUTER APPLICATION

SCHOOL OF ENGINEERING AND TECHNOLOGY

BHUBANESWARCAMPUS

CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT

ODISHA

AUGUST 2023 / JANARY 2024

BONAFIDE CERTIFICATE

Certified that this project report **WORLD CUP 2023 MATCHES DATA VISUALIZATION** is the bonafide work of **"BIDYASAGAR BEHERA"** who carried out the project work under my supervision. This is to further certify to the best of my knowledge, that this project has not been carried out earlier in this institute and the university.

SIGNATURE
(Miss Tanushree Mistry)

Certified that the above mentioned project has been duly carried out as perthe norms of the college and statutes of the university.

SIGNATURE
(Mr. Rakesh Kumar Ray)
HEAD OF THE DEPARTMENT OF
Master Of Computer Application

DEPARTMENT SEAL

DECLARATION

I hereby declare that the project entitled "**WORLD CUP 2023 MATCHES DATA VISUALIZATION**" submitted for the "Minor Project" of 1ST semester in Master of Computer Application is my original work and the project has not formed the basis for the award of any Degree / Diploma or any other similar titles in any other University / Institute.

Name of the Students: BIDYASAGAR BEHERA

Signature of the Students:

Registration No: 230720100128

Place: Bhubaneswar

Date:

ACKNOWLEDGEMENTS

We wish to express our profound and sincere gratitude to Miss Tanushree Mistry, Department of Master of Computer Application, SoET, Bhubaneswar Campus,who guided me into the intricacies of this project nonchalantly with matchless magnanimity.

I thank Mr. Rakesh Kumar Ray, Head of the Dept. of Master of Computer Application, SoET, Bhubaneswar Campus and Dr. Sujata Chakravarty, Dean,School of Engineering and Technology, Bhubaneswar Campus for extending their support during Course of this investigation.

I would be failing in my duty if I don't acknowledge the cooperationrendered during various stages of image interpretation by Miss Tanushree Mistry .

I am highly grateful to Miss Tanushree Mistry who evinced keen interest and invaluable support in the progress and successful completion of my project work.

I am indebted to Miss Tanushree Mistry for their constant encouragement, co- operation and help. Words of gratitude are not enough to describe the accommodation and fortitude which they have shown throughout my endeavor.

Name of the Student: BIDYASAGAR BEHERA

Signature of the Student:

Registration No.: 230720100128

Place: Bhubaneswar

Date:

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ABSTRACT

In this project, I classified every Matches in the World Cup to be either significant or non-significant and then find the percentage of significant Matches based on the Status ,Venue, Time , Date etc for all countries that have played in the Cricket World Cup 2023. I then created a Web-application using Pandas, Numpy, Plotly ,Matplotlib, Dash Framework and then deployed the Pie, Bar, Scatter ,Line, Histogram ,Box .

This abstract explores the intersection of Python visualization and World Cup, delving into the significance of visual analytics for decision-makers in this dynamic industry. By harnessing the capabilities of Python libraries such as Matplotlib, Seaborn, and Plotly, professionals can distill complex datasets into compelling visual narratives.

A significant portion of the abstract is dedicated to discussing the various types of visualizations that Python enables in the World Cup domain. From basic line charts illustrating sales trends over time to intricate heatmaps unraveling customer behavior, Python's visualization capabilities provide a spectrum of tools for stakeholders to gain actionable insights. Specific attention is given to scatter plots and bubble charts showcasing correlations between customer demographics and product preferences.

INTODUCTION

The International Cricket Council (ICC) is going to conduct the **ICC Men's Cricket World Cup 2023 from** 5th October to 19th November 2023 in various Stadiums across India. This time, India takes center stage as the sole host, a historic first, after having shared hosting responsibilities earlier with Sri Lanka, Pakistan, and Bangladesh. This year Cricket World Cup 2023 is going to be very exciting as all qualifying teams are in form. So You will get the full dose of entertainment from 5th October 2023 to 19th November 2023. The 2019 edition ICC Cricket World Cup saw England lifting the trophy after defeating New Zealand in the nail-biting final. In terms of Most titles, Australia is still the most successful team in the ODI World Cup as being 5 times Champions in ICC Cricket World Cup.

2.1 PYTHON VISUALIZATION LIBRARIES

Python visualization libraries are software tools and frameworks in the Python programming language designed to facilitate the creation of graphical visualizations from data. These libraries empower data scientists, analysts, and developers to represent complex datasets in a visual format, making it easier to identify patterns, trends, and insights. Python's visualization ecosystem is rich and diverse, offering a variety of tools that cater to different visualization needs and preferences.

2.2 PANDAS

Pandas is a powerful and popular open-source Python library for data manipulation, analysis, and cleaning. It provides easy-to-use data structures and functions needed to work with structured data seamlessly. Developed by Wes McKinney and first released in 2008, Pandas has since become an essential tool in the toolkit of data scientists, analysts, and developers working with tabular data. Features of PANDAS Data Frame and Series, Data Indexing and Selection, Data Cleaning and Preprocessing, Time Series Data.

2.3 NUMPY

NumPy, short for Numerical Python, is a fundamental library in Python for numerical computing. It provides support for large, multi-dimensional arrays and matrices, along with mathematical functions to operate on these arrays efficiently. NumPy is an essential building block for many other scientific computing and machine learning libraries in the Python ecosystem. Features of NumPy is Multidimensional Arrays, Mathematical Functions, Random Module.

2.4 PLOTLY

Plotly is a versatile and interactive Python library for creating visually appealing and interactive data visualizations. It supports a wide range of chart types and can be used for both exploratory data analysis and the creation of interactive dashboards and web applications. Plotly is known for its ease of use, support for collaboration, and ability to generate visually appealing plots with a few lines of code. Features of Interactive Visualizations, Wide Range of Chart Types, Dashboards and Web Applications, Export Options, Collaboration and Sharing.

2.5 PLOTLY EXPRESS

Plotly Express is a high-level interface for creating a wide variety of interactive visualizations with Plotly. Introduced to the Plotly library, it provides a concise and user-friendly syntax, making it particularly suitable for users who want to quickly generate sophisticated plots without delving into the intricacies of Plotly's lower-level API. Features of Plotly Express is Simplicity and Conciseness, Wide Range of Chart Types, Mapping, Animation.

2.6 MATPLOTLIB

Matplotlib is a widely-used Python library for creating static, animated, and interactive visualizations in 2D. It provides a flexible and customizable interface for generating a wide range of plots and charts, making it an essential tool for data scientists, researchers, and analysts. Matplotlib serves as the foundation for many other data visualization libraries in the Python ecosystem. Features of Matplotlib is 2D Plotting, Customization and Styling, Mathematical Expressions.

2.7 SEABORN

Seaborn is a Python data visualization library based on Matplotlib that provides an additional layer of abstraction and ease of use for creating attractive and informative statistical graphics. It simplifies the process of creating complex visualizations by providing high-level functions for common statistical plot types and enhancing the aesthetics of Matplotlib plots. Seaborn is particularly useful for visualizing relationships in datasets and is widely used in data analysis, exploration, and presentation. Features of Seaborn is High-Level Interface, Statistical Plot Types, Color Palettes and Themes, Categorical Plots.

DETAILS DESIGN

This project can be used to make a huge number of dataset. In that dataset our python source code visualize the whole set the product held and where the growth and down is happened and that’s properties means what product and which geographical area the product is sales most. How its look like. For this visualize a data set is required for each product. We used the Python IDE and it librery that helps execute our source code

3.1 HARDWARE SOFTWARE REQUIRED

Specification	Component	Quantity
SOFTWARE	Anaconda Navigater	1
	Jupyter Notebook	1
	Python IDE	1
HARDWARE	Desktop/Laptop	1

3.1.1 SOFTWARE

3.1.1.1 ANACONDA NAVIGATER

Anaconda Navigator is a desktop graphical user interface (GUI) included in Anaconda® Distribution that allows you to launch applications and manage conda packages, environments, and channels without using command line interface (CLI) commands. Navigator can search for packages on Anaconda.org or in a local Anaconda Repository. It is available for Windows, macOS, and Linux.

Fig:1 Anaconda Navigator

3.1.1.2 JUPYTER NOTEBOOK

The Jupyter Notebook is an open source web application that you can use to create and share documents that contain live code, equations, visualizations, and text. Jupyter Notebook is maintained by the people at Project Jupyter. Jupyter Notebooks are a spin-off project from the Python project, which used to have an Python Notebook project itself. The name, Jupyter,

comes from the core supported programming languages that it supports: Python ships with the Pandas, which allows us to write our programs in Python, but there are currently over 100 other library that you can also use.

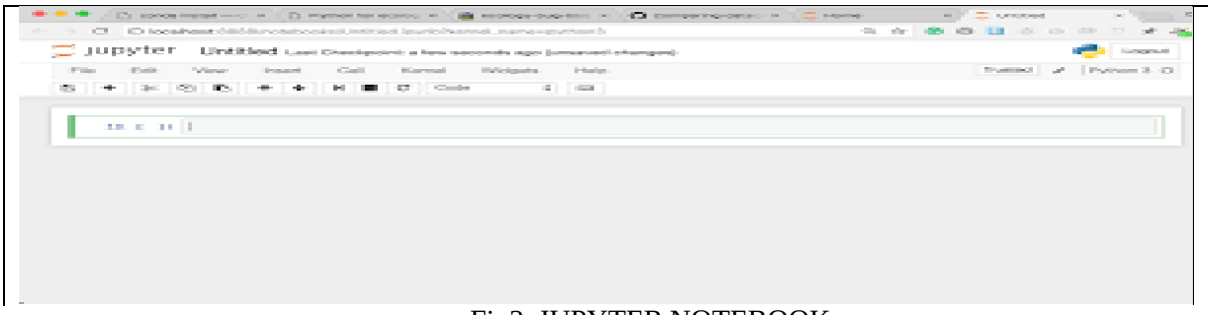


Fig2: JUPYTER NOTEBOOK

3.1.1.3 PYTHON IDE

Python has a simple syntax similar to the English language. Python has syntax that allows developers to write programs with fewer lines than some other programming languages. Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.

Fig3: PYTHON IDE

3.2.1 HARDWARE

3.2.1.1 DESKTOP/LAPTOP

A desktop helps to fast run the source and display a clear output picture for the reference. Desktop storage helps us to store the data set. It must be support the Anaconda packages and Python IDE.

WORKING PROCESS

We used US commercial data for our project report on e-commerce, which has over 3000 columns and 19 rows.

Here, we analyze the product, or the project with the highest sales volume. Which product does the buyer find least appealing? Which year has the highest sales and which has the lowest? How customers place online or device-based product orders. which region is most well-liked

for product variety sales. Python is used to visualize all of this using various libraries. Thus, we import the entire library first, and then we import or upload our data set.

```
import numpy as np
import pandas as pd
import seaborn as sns
import plotly.express as px
import plotly
import matplotlib.pyplot as plt
```

3.1 DATASET

Day & Date	Matches	Status	Time	Venue	Day of the Week	Month	Day of the	Year
Thursday â€“ October 5 2023	ENGLAND vs NEW ZEALAND	New Zealand Won	2:00 PM	Ahmedabad	Thursday	October	5	2023
Friday - October 6 2023	PAKISTAN vs NETHERLANDS	Pakistan Won	2:00 PM	Hyderabad	Friday	October	6	2023
Saturday â€“ October 7 2023	AFGHANISTAN vs BANGLADESH	Bangladesh Won	10:30 AM	Dharamsala	Saturday	October	7	2023
Saturday â€“ October 7 2023	SOUTH AFRICA vs SRI LANKA	South Africa Won	2:00 PM	Delhi	Saturday	October	7	2023
Sunday â€“ October 8 2023	AUSTRALIA vs INDIA	India Won	2:00 PM	Chennai	Sunday	October	8	2023
Monday â€“ October 9 2023	NEW ZEALAND vs NETHERLANDS	New Zealand Won	2:00 PM	Hyderabad	Monday	October	9	2023
Tuesday â€“ October 10 2023	ENGLAND vs BANGLADESH	England Won	10:30 AM	Dharamsala	Tuesday	October	10	2023
Tuesday â€“ October 10 2023	SRI LANKA vs PAKISTAN	Pakistan Won	2:00 PM	Hyderabad	Tuesday	October	10	2023
Wednesday â€“ October 11 2023	INDIA vs AFGHANISTAN	India Won	2:00 PM	Delhi	Wednesday	October	11	2023
Thursday â€“ October 12 2023	AUSTRALIA vs SOUTH AFRICA	South Africa Won	2:00 PM	Lucknow	Thursday	October	12	2023
Friday â€“ October 13 2023	NEW ZEALAND vs BANGLADESH	New Zealand Won	2:00 PM	Chennai	Friday	October	13	2023
Saturday â€“ October 14 2023	INDIA vs PAKISTAN	India Won	2:00 PM	Ahmedabad	Saturday	October	14	2023
Sunday â€“ October 15 2023	ENGLAND vs AFGHANISTAN	Afghanistan Won	2:00 PM	Delhi	Sunday	October	15	2023
Monday â€“ October 16 2023	AUSTRALIA vs SRI LANKA	Australia Won	2:00 PM	Lucknow	Monday	October	16	2023
Tuesday â€“ October 17 2023	SOUTH AFRICA vs NETHERLANDS	Netherlands Won	2:00 PM	Dharamsala	Tuesday	October	17	2023
Wednesday â€“ October 18 2023	NEW ZEALAND vs AFGHANISTAN	New Zealand Won	2:00 PM	Chennai	Wednesday	October	18	2023
Thursday â€“ October 19 2023	INDIA vs BANGLADESH	India Won	2:00 PM	Pune	Thursday	October	19	2023
Friday â€“ October 20 2023	AUSTRALIA vs PAKISTAN	Australia Won	2:00 PM	Bengaluru	Friday	October	20	2023
Saturday â€“ October 21 2023	NETHERLANDS vs SRI LANKA	Sri Lanka Won	10:30 AM	Lucknow	Saturday	October	21	2023
Saturday â€“ October 21 2023	ENGLAND vs SOUTH AFRICA	South Africa Won	2:00 PM	Mumbai	Saturday	October	21	2023
Sunday â€“ October 22 2023	INDIA vs NEW ZEALAND	India Won	2:00 PM	Dharamsala	Sunday	October	22	2023
Monday â€“ October 23 2023	PAKISTAN vs AFGHANISTAN	Afganistan Won	2:00 PM	Chennai	Monday	October	23	2023
Tuesday â€“ October 24 2023	SOUTH AFRICA vs BANGLADESH	South Africa Won	2:00 PM	Mumbai	Tuesday	October	24	2023
Wednesday â€“ October 25 2023	AUSTRALIA vs NETHERLANDS	Australia Won	2:00 PM	Delhi	Wednesday	October	25	2023
Thursday â€“ October 26 2023	ENGLAND vs SRI LANKA	Sri Lanka Won	2:00 PM	Bengaluru	Thursday	October	26	2023
Friday â€“ October 27 2023	PAKISTAN vs SOUTH AFRICA	South Africa Won	2:00 PM	Chennai	Friday	October	27	2023
Saturday â€“ October 28 2023	AUSTRALIA vs NEW ZEALAND	Australia Won	10:30 AM	Dharamsala	Saturday	October	28	2023
Saturday â€“ October 28 2023	NETHERLANDS vs BANGLADESH	Netherlands Won	2:00 PM	Kolkata	Saturday	October	28	2023
Sunday â€“ October 29 2023	INDIA vs ENGLAND	India Won	2:00 PM	Lucknow	Sunday	October	29	2023

Fig 4: World Cup 2023 dataset

3.2 DATASET EXPLANATION

- Matches
- Day & Date
- Status
- Time
- Venue
- Day of the Week
- Month
- Day of the Month
- Year

Import all Python Data Visualization Library

In [1]:
```
import pandas as pd
import numpy as np
import plotly
import plotly.express as px
import matplotlib.pyplot as plt
import seaborn as sns
```

In [2]:
```
df = pd.read_csv(r"D:\Python Project\Cricket_worldcup_2023.csv")
df.head(10)
```

Out[2]:

	Day & Date	Matches	Status	Time	Venue	Day of the Week	Month	Day of the Month	Year
0	Thursday – October 5 2023	ENGLAND vs NEW ZEALAND	New Zealand Won	2:00 PM	Ahmedabad	Thursday	October	5	2023
1	Friday - October 6 2023	PAKISTAN vs NETHERLANDS	Pakistan Won	2:00 PM	Hyderabad	Friday	October	6	2023
2	Saturday – October 7 2023	AFGHANISTAN vs BANGLADESH	Bangladesh Won	10:30 AM	Dharamsala	Saturday	October	7	2023
3	Saturday – October 7 2023	SOUTH AFRICA vs SRI LANKA	South Africa Won	2:00 PM	Delhi	Saturday	October	7	2023
4	Sunday – October 8 2023	AUSTRALIA vs INDIA	India Won	2:00 PM	Chennai	Sunday	October	8	2023
5	Monday – October 9 2023	NEW ZEALAND vs NETHERLANDS	New Zealand Won	2:00 PM	Hyderabad	Monday	October	9	2023
6	Tuesday – October 10 2023	ENGLAND vs BANGLADESH	England Won	10:30 AM	Dharamsala	Tuesday	October	10	2023
7	Tuesday – October 10 2023	SRI LANKA vs PAKISTAN	Pakistan Won	2:00 PM	Hyderabad	Tuesday	October	10	2023
8	Wednesday – October 11 2023	INDIA vs AFGHANISTAN	India Won	2:00 PM	Delhi	Wednesday	October	11	2023
9	Thursday – October 12 2023	AUSTRALIA vs SOUTH AFRICA	South Africa Won	2:00 PM	Lucknow	Thursday	October	12	2023

In [3]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 48 entries, 0 to 47
Data columns (total 9 columns):
 #   Column            Non-Null Count  Dtype 
---  ------            --------------  ----- 
 0   Day & Date        48 non-null     object
 1   Matches           48 non-null     object
 2   Status            48 non-null     object
 3   Time              48 non-null     object
 4   Venue             48 non-null     object
 5   Day of the Week   48 non-null     object
 6   Month             48 non-null     object
 7   Day of the Month  48 non-null     int64 
 8   Year              48 non-null     int64 
dtypes: int64(2), object(7)
memory usage: 3.5+ KB
```

In [4]:
```
df.describe()
```

Out[4]:

	Day of the Month	Year
count	48.000000	48.0
mean	14.479167	2023.0
std	8.412224	0.0
min	1.000000	2023.0
25%	7.750000	2023.0
50%	12.500000	2023.0
75%	21.000000	2023.0
max	31.000000	2023.0

In [5]:
```
df
```

Out[5]:

	Day & Date	Matches	Status	Time	Venue	Day of the Week	Month	Day of the Month	Year
0	Thursday – October 5 2023	ENGLAND vs NEW ZEALAND	New Zealand Won	2:00 PM	Ahmedabad	Thursday	October	5	2023
1	Friday - October 6 2023	PAKISTAN vs NETHERLANDS	Pakistan Won	2:00 PM	Hyderabad	Friday	October	6	2023
2	Saturday – October 7 2023	AFGHANISTAN vs BANGLADESH	Bangladesh Won	10:30 AM	Dharamsala	Saturday	October	7	2023
3	Saturday – October 7 2023	SOUTH AFRICA vs SRI LANKA	South Africa Won	2:00 PM	Delhi	Saturday	October	7	2023
4	Sunday – October 8 2023	AUSTRALIA vs INDIA	India Won	2:00 PM	Chennai	Sunday	October	8	2023
5	Monday – October 9 2023	NEW ZEALAND vs NETHERLANDS	New Zealand Won	2:00 PM	Hyderabad	Monday	October	9	2023
6	Tuesday – October 10 2023	ENGLAND vs BANGLADESH	England Won	10:30 AM	Dharamsala	Tuesday	October	10	2023
7	Tuesday – October 10 2023	SRI LANKA vs PAKISTAN	Pakistan Won	2:00 PM	Hyderabad	Tuesday	October	10	2023
8	Wednesday – October 11 2023	INDIA vs AFGHANISTAN	India Won	2:00 PM	Delhi	Wednesday	October	11	2023
9	Thursday – October 12 2023	AUSTRALIA vs SOUTH AFRICA	South Africa Won	2:00 PM	Lucknow	Thursday	October	12	2023
10	Friday – October 13 2023	NEW ZEALAND vs BANGLADESH	New Zealand Won	2:00 PM	Chennai	Friday	October	13	2023
11	Saturday – October 14 2023	INDIA vs PAKISTAN	India Won	2:00 PM	Ahmedabad	Saturday	October	14	2023
12	Sunday – October 15 2023	ENGLAND vs AFGHANISTAN	Afghanistan Won	2:00 PM	Delhi	Sunday	October	15	2023
13	Monday – October 16 2023	AUSTRALIA vs SRI LANKA	Australia Won	2:00 PM	Lucknow	Monday	October	16	2023
14	Tuesday – October 17 2023	SOUTH AFRICA vs NETHERLANDS	Netherlands Won	2:00 PM	Dharamsala	Tuesday	October	17	2023
15	Wednesday – October 18 2023	NEW ZEALAND vs AFGHANISTAN	New Zealand Won	2:00 PM	Chennai	Wednesday	October	18	2023
16	Thursday – October 19 2023	INDIA vs BANGLADESH	India Won	2:00 PM	Pune	Thursday	October	19	2023
17	Friday – October 20 2023	AUSTRALIA vs PAKISTAN	Australia Won	2:00 PM	Bengaluru	Friday	October	20	2023
	Day & Date	**Matches**	**Status**	**Time**	**Venue**		**Month**		**Year**
18	Saturday – October 21 2023	NETHERLANDS vs SRI LANKA	Sri Lanka Won	10:30 AM	Lucknow	Saturday	October	21	2023
19	Saturday – October 21 2023	ENGLAND vs SOUTH AFRICA	South Africa Won	2:00 PM	Mumbai	Saturday	October	21	2023
20	Sunday – October 22 2023	INDIA vs NEW ZEALAND	India Won	2:00 PM	Dharamsala	Sunday	October	22	2023
21	Monday – October 23 2023	PAKISTAN vs AFGHANISTAN	Afganistan Won	2:00 PM	Chennai	Monday	October	23	2023
22	Tuesday – October 24 2023	SOUTH AFRICA vs BANGLADESH	South Africa Won	2:00 PM	Mumbai	Tuesday	October	24	2023
23	Wednesday – October 25 2023	AUSTRALIA vs NETHERLANDS	Australia Won	2:00 PM	Delhi	Wednesday	October	25	2023
24	Thursday – October 26 2023	ENGLAND vs SRI LANKA	Sri Lanka Won	2:00 PM	Bengaluru	Thursday	October	26	2023
25	Friday – October 27 2023	PAKISTAN vs SOUTH AFRICA	South Africa Won	2:00 PM	Chennai	Friday	October	27	2023
26	Saturday – October 28 2023	AUSTRALIA vs NEW ZEALAND	Australia Won	10:30 AM	Dharamsala	Saturday	October	28	2023
27	Saturday – October 28 2023	NETHERLANDS vs BANGLADESH	Netherlands Won	2:00 PM	Kolkata	Saturday	October	28	2023
28	Sunday – October 29 2023	INDIA vs ENGLAND	India Won	2:00 PM	Lucknow	Sunday	October	29	2023
29	Monday – October 30 2023	AFGHANISTAN vs SRI LANKA	Afghanistan Won	2:00 PM	Pune	Monday	October	30	2023
30	Tuesday – October 31 2023	PAKISTAN vs BANGLADESH	Pakistan Won	2:00 PM	Kolkata	Tuesday	October	31	2023
31	Wednesday – November 1 2023	NEW ZEALAND vs SOUTH AFRICA	South Africa Won	2:00 PM	Pune	Wednesday	November	1	2023
32	Thursday – November 2 2023	INDIA vs SRI LANKA	India Won	2:00 PM	Mumbai	Thursday	November	2	2023
33	Friday – November 3 2023	NETHERLANDS vs AFGHANISTAN	Afghanistan Won	2:00 PM	Lucknow	Friday	November	3	2023
34	Saturday – November 4 2023	NEW ZEALAND vs PAKISTAN	Pakistan Won	10:30 AM	Bengaluru	Saturday	November	4	2023
35	Saturday – November 4 2023	ENGLAND vs AUSTRALIA	Australia Won	2:00 PM	Ahmedabad	Saturday	November	4	2023

	Day & Date	Matches	Status	Time	Venue	Day of the Week	Month	Day of the Month	Year
36	Sunday – November 5 2023	INDIA vs SOUTH AFRICA	India Won	2:00 PM	Kolkata	Sunday	November	5	2023
37	Monday – November 6 2023	BANGLADESH vs SRI LANKA	Bangladesh Won	2:00 PM	Delhi	Monday	November	6	2023
38	Tuesday – November 7 2023	AUSTRALIA vs AFGHANISTAN	Australia Won	2:00 PM	Mumbai	Tuesday	November	7	2023
39	Wednesday – November 8 2023	ENGLAND vs NETHERLANDS	England Won	2:00 PM	Pune	Wednesday	November	8	2023
40	Thursday – November 9 2023	NEW ZEALAND vs SRI LANKA	New Zealand Won	2:00 PM	Bengaluru	Thursday	November	9	2023
41	Friday – November 10 2023	SOUTH AFRICA vs AFGHANISTAN	South Africa Won	2:00 PM	Ahmedabad	Friday	November	10	2023
42	Saturday – November 11 2023	AUSTRALIA vs BANGLADESH	Australia Won	10:30 AM	Pune	Saturday	November	11	2023
43	Saturday – November 11 2023	ENGLAND vs PAKISTAN	England Won	2:00 PM	Kolkata	Saturday	November	11	2023
44	Sunday – November 12 2023	INDIA vs NETHERLANDS	India Won	2:00 PM	Bengaluru	Sunday	November	12	2023
45	Wednesday – November 15 2023	INDIA VS NEW ZEALAND	India Won	2:00 PM	Mumbai	Wednesday	November	15	2023
46	Thursday – November 16 2023	SOUTH AFRICA VS AUSTRALIA	Australia Won	2:00 PM	Kolkata	Thursday	November	16	2023
47	Sunday – November 19 2023	INDIA VS AUSTRALIA	Australia Won	2:00 PM	Ahmedabad	Sunday	November	19	2023

In [6]:
```
single_column = df['Matches']
print(single_column)
```

```
0           ENGLAND vs NEW ZEALAND
1          PAKISTAN vs NETHERLANDS
2       AFGHANISTAN vs BANGLADESH
3        SOUTH AFRICA vs SRI LANKA
4              AUSTRALIA vs INDIA
5      NEW ZEALAND vs NETHERLANDS
6           ENGLAND vs BANGLADESH
7           SRI LANKA vs PAKISTAN
8           INDIA vs AFGHANISTAN
9       AUSTRALIA vs SOUTH AFRICA
10      NEW ZEALAND vs BANGLADESH
11             INDIA vs PAKISTAN
12         ENGLAND vs AFGHANISTAN
13         AUSTRALIA vs SRI LANKA
14    SOUTH AFRICA vs NETHERLANDS
15     NEW ZEALAND vs AFGHANISTAN
16           INDIA vs BANGLADESH
17          AUSTRALIA vs PAKISTAN
18       NETHERLANDS vs SRI LANKA
19        ENGLAND vs SOUTH AFRICA
20           INDIA vs NEW ZEALAND
21        PAKISTAN vs AFGHANISTAN
22     SOUTH AFRICA vs BANGLADESH
23       AUSTRALIA vs NETHERLANDS
24           ENGLAND vs SRI LANKA
25      PAKISTAN vs SOUTH AFRICA
26      AUSTRALIA vs NEW ZEALAND
27      NETHERLANDS vs BANGLADESH
28              INDIA vs ENGLAND
29       AFGHANISTAN vs SRI LANKA
30         PAKISTAN vs BANGLADESH
31    NEW ZEALAND vs SOUTH AFRICA
32             INDIA vs SRI LANKA
33     NETHERLANDS vs AFGHANISTAN
34        NEW ZEALAND vs PAKISTAN
35           ENGLAND vs AUSTRALIA
36          INDIA vs SOUTH AFRICA
37        BANGLADESH vs SRI LANKA
38       AUSTRALIA vs AFGHANISTAN
39         ENGLAND vs NETHERLANDS
40       NEW ZEALAND vs SRI LANKA
41    SOUTH AFRICA vs AFGHANISTAN
42       AUSTRALIA vs BANGLADESH
43           ENGLAND vs PAKISTAN
44          INDIA vs NETHERLANDS
45          INDIA VS NEW ZEALAND
46      SOUTH AFRICA VS AUSTRALIA
47             INDIA VS AUSTRALIA
Name: Matches, dtype: object
```

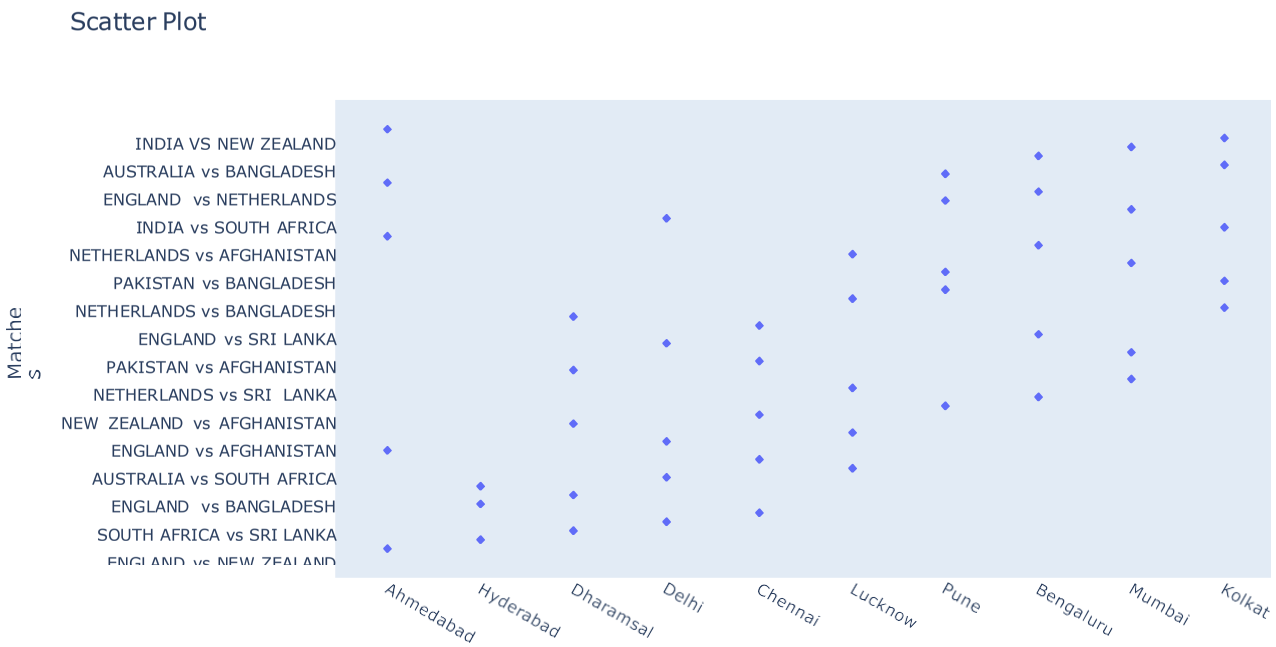
In [7]:
```
multiple_column = df[['Matches','Day of the Month','Status']]
print(multiple_column)
```

	Matches	Day of the Month	Status
0	ENGLAND vs NEW ZEALAND	5	New Zealand Won
1	PAKISTAN vs NETHERLANDS	6	Pakistan Won
2	AFGHANISTAN vs BANGLADESH	7	Bangladesh Won
3	SOUTH AFRICA vs SRI LANKA	7	South Africa Won
4	AUSTRALIA vs INDIA	8	India Won
5	NEW ZEALAND vs NETHERLANDS	9	New Zealand Won
6	ENGLAND vs BANGLADESH	10	England Won
7	SRI LANKA vs PAKISTAN	10	Pakistan Won
8	INDIA vs AFGHANISTAN	11	India Won
9	AUSTRALIA vs SOUTH AFRICA	12	South Africa Won
10	NEW ZEALAND vs BANGLADESH	13	New Zealand Won
11	INDIA vs PAKISTAN	14	India Won
12	ENGLAND vs AFGHANISTAN	15	Afghanistan Won
13	AUSTRALIA vs SRI LANKA	16	Australia Won
14	SOUTH AFRICA vs NETHERLANDS	17	Netherlands Won
15	NEW ZEALAND vs AFGHANISTAN	18	New Zealand Won
16	INDIA vs BANGLADESH	19	India Won
17	AUSTRALIA vs PAKISTAN	20	Australia Won
18	NETHERLANDS vs SRI LANKA	21	Sri Lanka Won
19	ENGLAND vs SOUTH AFRICA	21	South Africa Won
20	INDIA vs NEW ZEALAND	22	India Won
21	PAKISTAN vs AFGHANISTAN	23	Afganistan Won
22	SOUTH AFRICA vs BANGLADESH	24	South Africa Won
23	AUSTRALIA vs NETHERLANDS	25	Australia Won
24	ENGLAND vs SRI LANKA	26	Sri Lanka Won
25	PAKISTAN vs SOUTH AFRICA	27	South Africa Won
26	AUSTRALIA vs NEW ZEALAND	28	Australia Won
27	NETHERLANDS vs BANGLADESH	28	Netherlands Won
28	INDIA vs ENGLAND	29	India Won
29	AFGHANISTAN vs SRI LANKA	30	Afghanistan Won
30	PAKISTAN vs BANGLADESH	31	Pakistan Won
31	NEW ZEALAND vs SOUTH AFRICA	1	South Africa Won
32	INDIA vs SRI LANKA	2	India Won
33	NETHERLANDS vs AFGHANISTAN	3	Afghanistan Won
34	NEW ZEALAND vs PAKISTAN	4	Pakistan Won
35	ENGLAND vs AUSTRALIA	4	Australia Won
36	INDIA vs SOUTH AFRICA	5	India Won
37	BANGLADESH vs SRI LANKA	6	Bangladesh Won
38	AUSTRALIA vs AFGHANISTAN	7	Australia Won
39	ENGLAND vs NETHERLANDS	8	England Won
40	NEW ZEALAND vs SRI LANKA	9	New Zealand Won
41	SOUTH AFRICA vs AFGHANISTAN	10	South Africa Won
42	AUSTRALIA vs BANGLADESH	11	Australia Won
43	ENGLAND vs PAKISTAN	11	England Won
44	INDIA vs NETHERLANDS	12	India Won
45	INDIA VS NEW ZEALAND	15	India Won
46	SOUTH AFRICA VS AUSTRALIA	16	Australia Won
47	INDIA VS AUSTRALIA	19	Australia Won

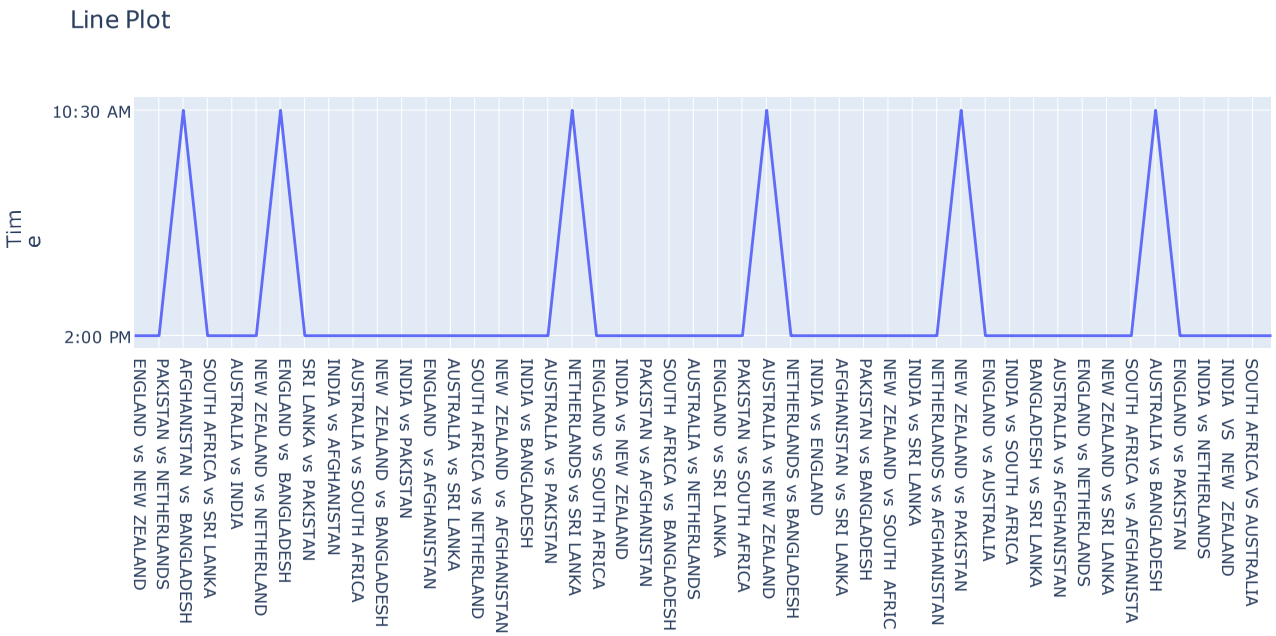
PLOTLY

PLOTLY

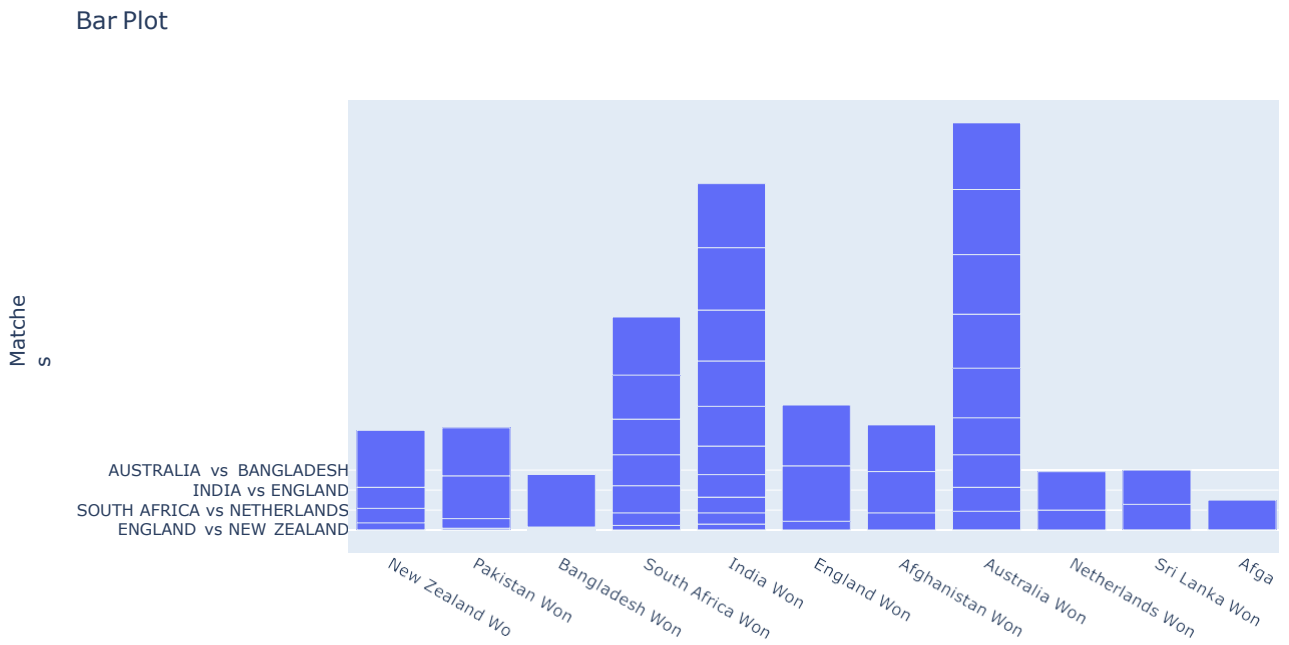
In [8]:
```
scatter_plot=px.scatter(df,x='Venue',y='Matches',title='Scatter Plot')
scatter_plot.show()
```



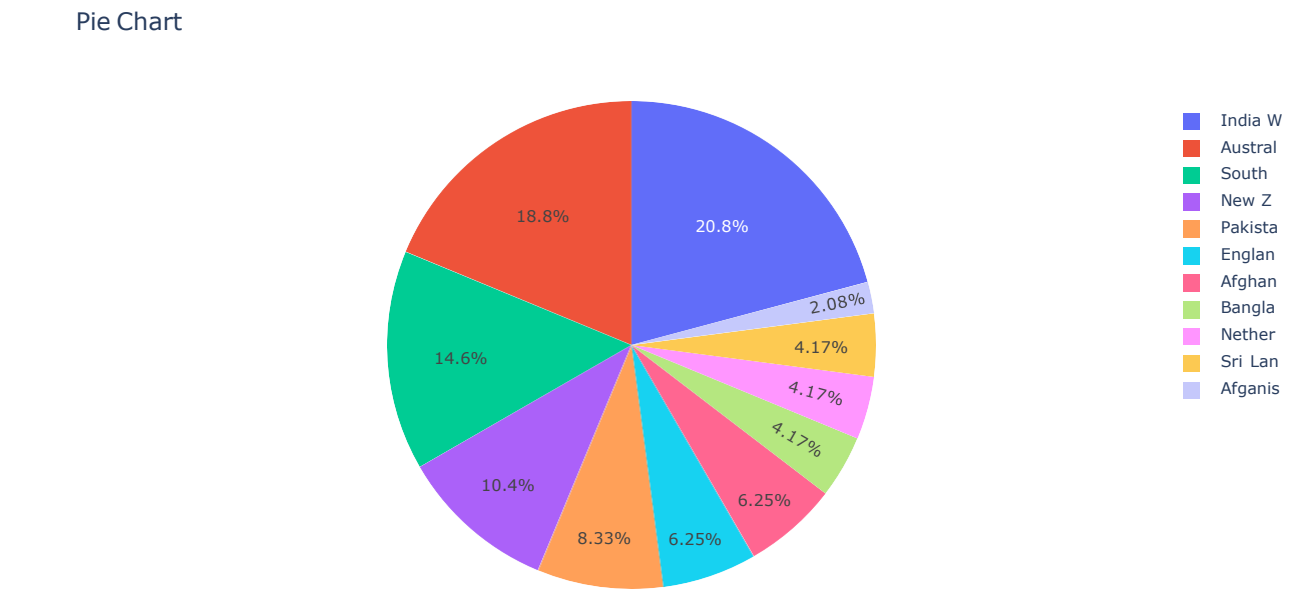
In [9]:
```
line_plot=px.line(df,x='Matches',y='Time',title='Line Plot')
line_plot.show()
```



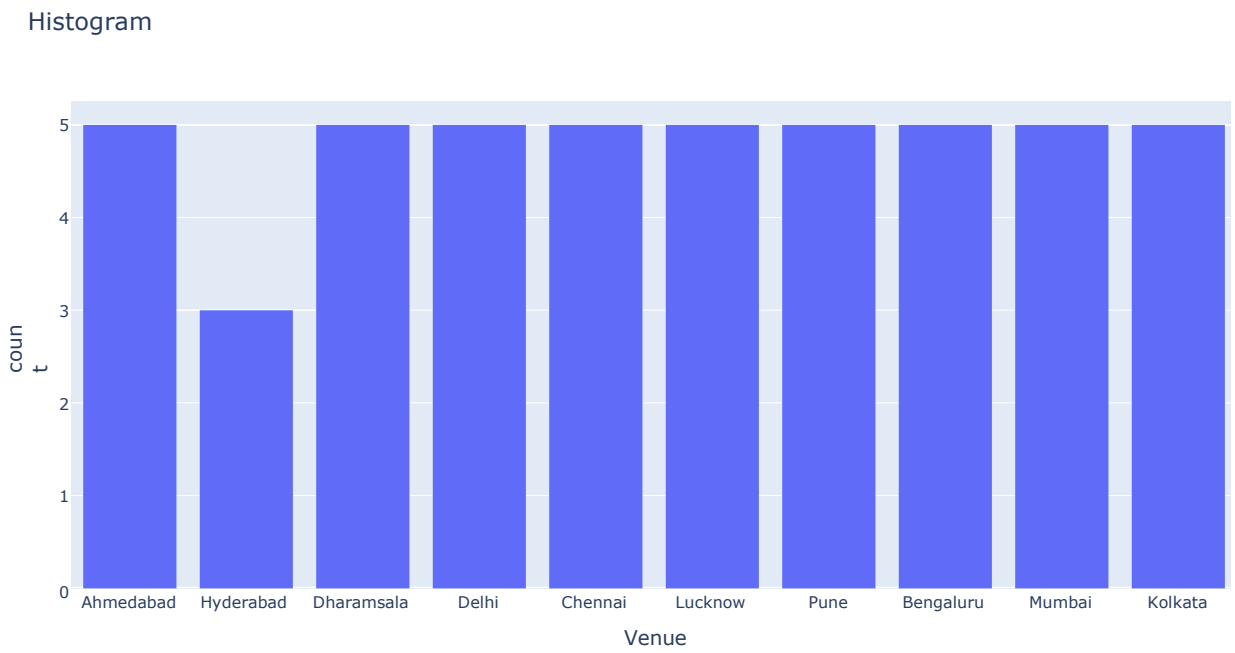
In [10]:
```
bar_plot=px.bar(df,x='Status',y='Matches',title='Bar Plot')
bar_plot.show()
```



In [11]:
```
pie_chart=px.pie(df,names='Status',title='Pie Chart')
pie_chart.show()
```

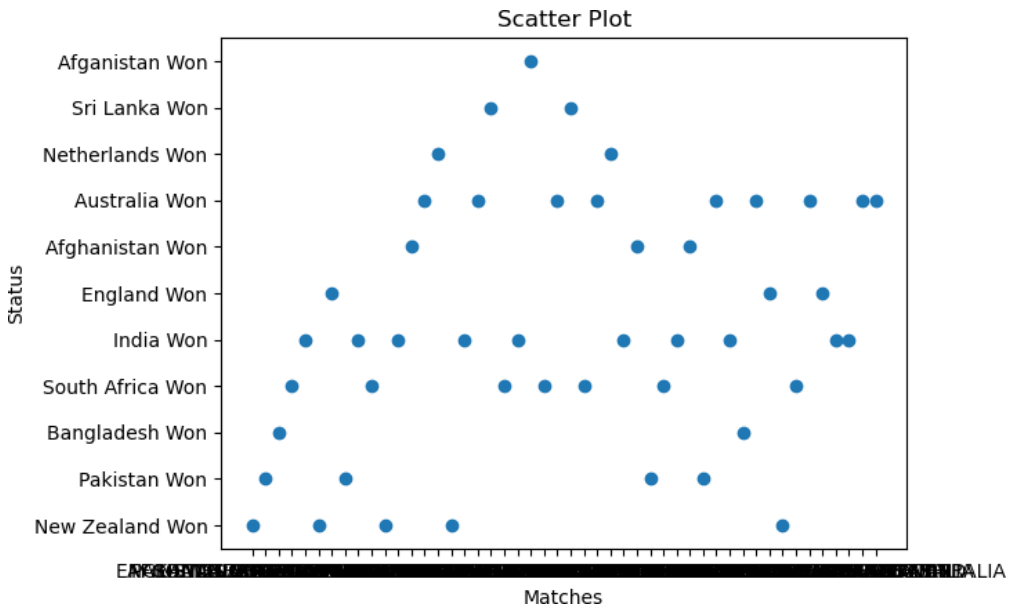


In [12]:
```
histogram=px.histogram(df,x='Venue',title='Histogram')
histogram.show()
```

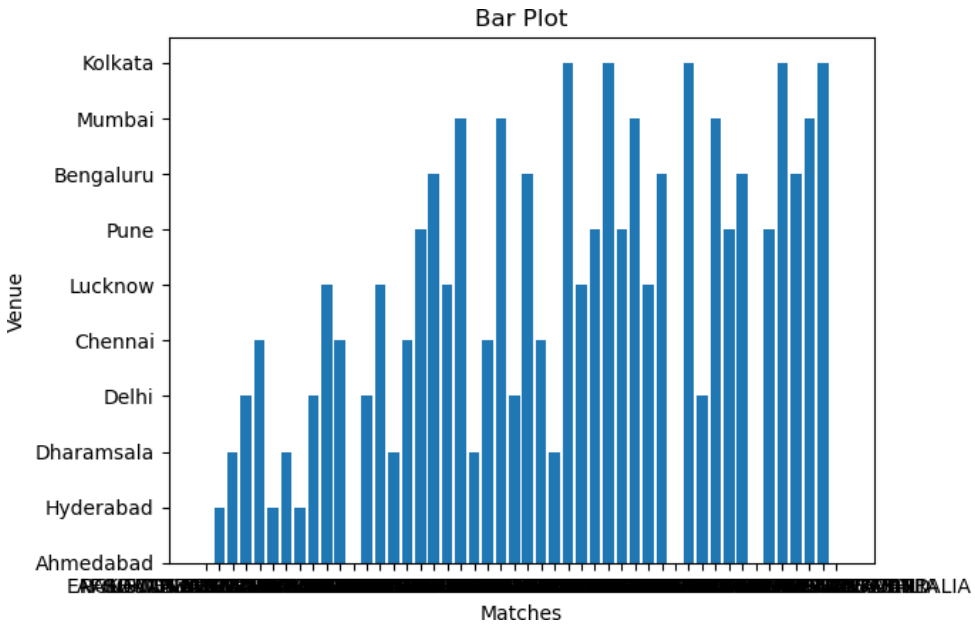


MATPLOTLIB

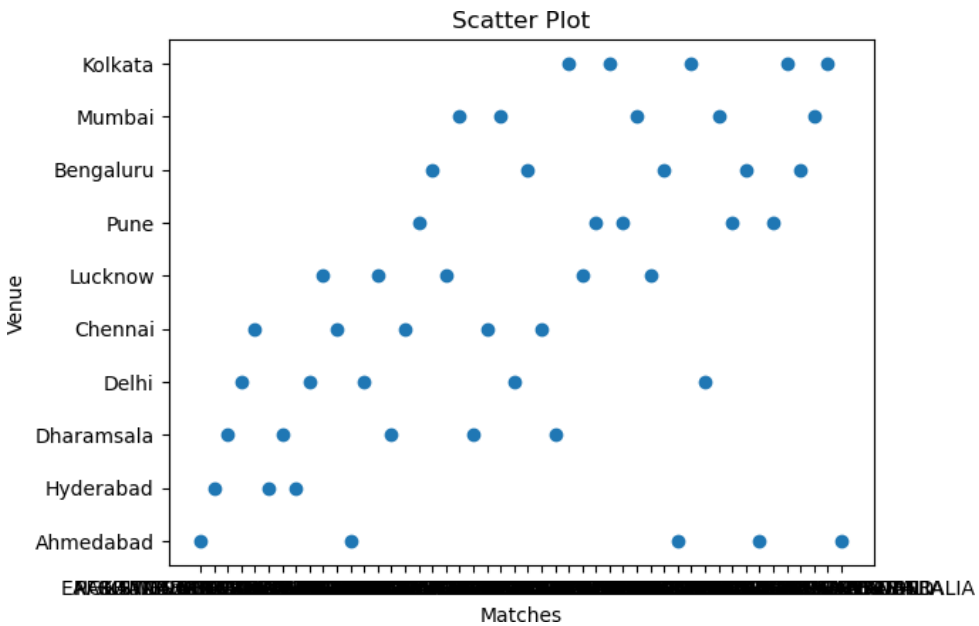
In [13]:
```
plt.scatter(df['Matches'],df['Status'])
plt.title('Scatter Plot')
plt.xlabel('Matches')
plt.ylabel('Status')
plt.show()
```



In [14]:
```
plt.bar(df['Matches'],df['Venue'])
plt.title('Bar Plot')
plt.xlabel('Matches')
plt.ylabel('Venue')
plt.show()
```

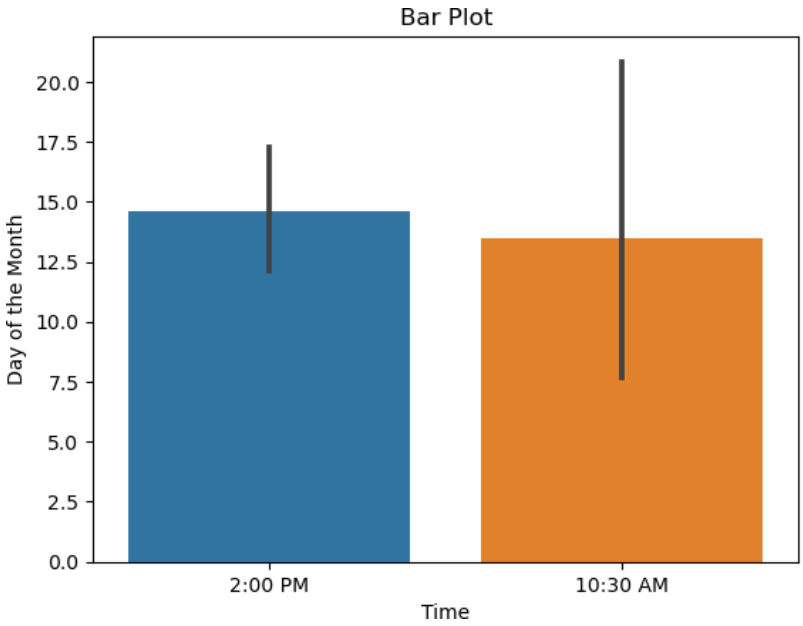


In [15]:
```
plt.scatter(df['Matches'],df['Venue'])
plt.title('Scatter Plot')
plt.xlabel('Matches')
plt.ylabel('Venue')
plt.show()
```

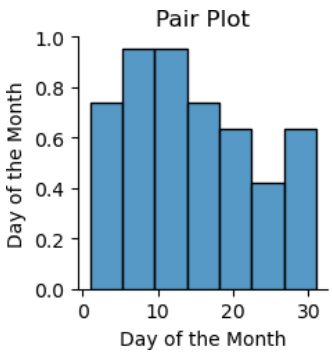


SEABORN

In [16]:
```
sns.barplot(x='Time',y='Day of the Month',data=df)
plt.title('Bar Plot')
plt.show()
```

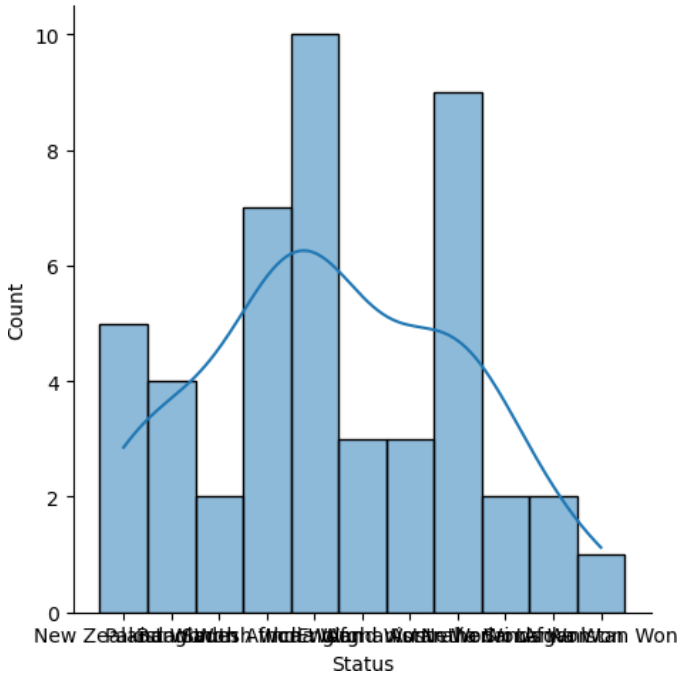


In [17]:
```
sns.pairplot(df[['Time','Day of the Month']])
plt.title('Pair Plot')
plt.show()
```

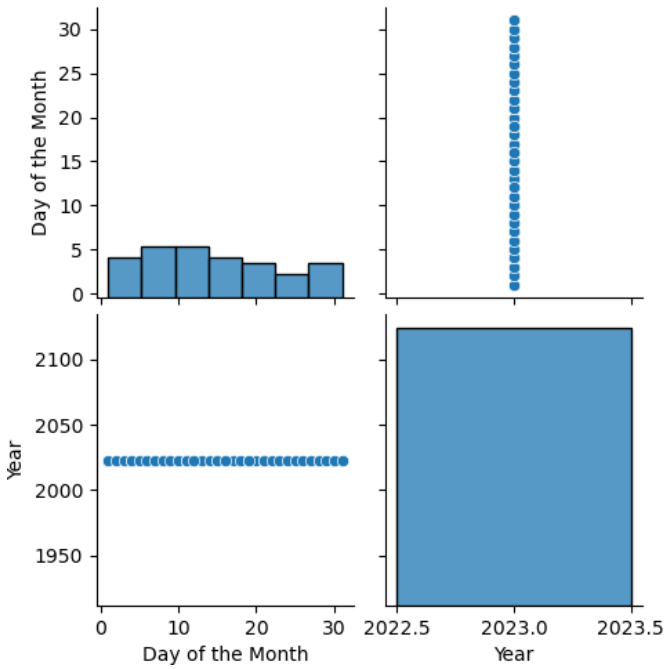


In [18]:
```
sns.displot(df["Status"],kde = True)
```

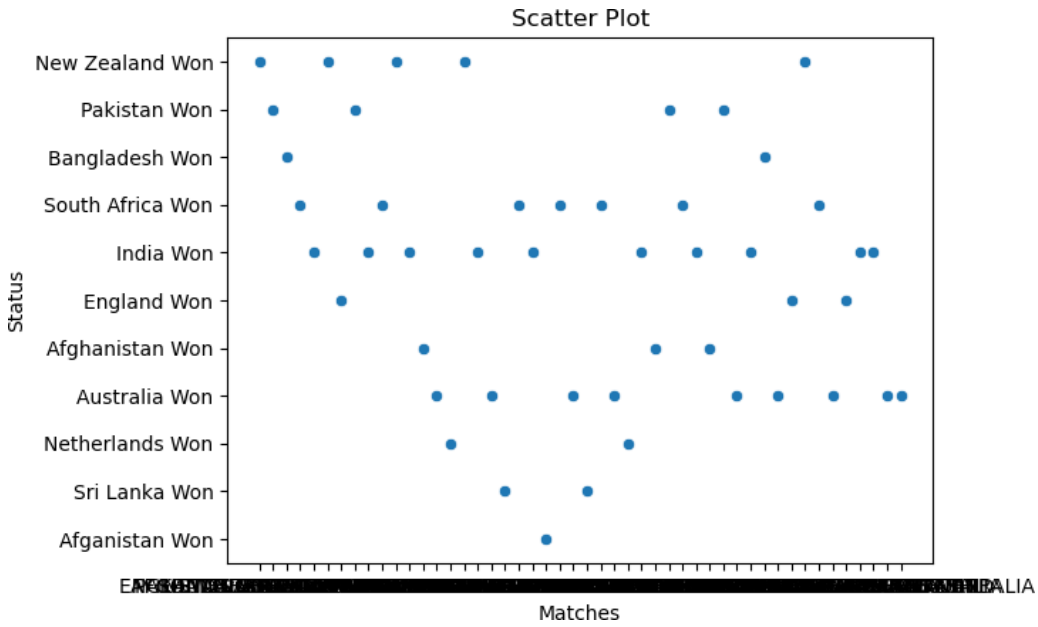
Out[18]: <seaborn.axisgrid.FacetGrid at 0x2338c592f50>



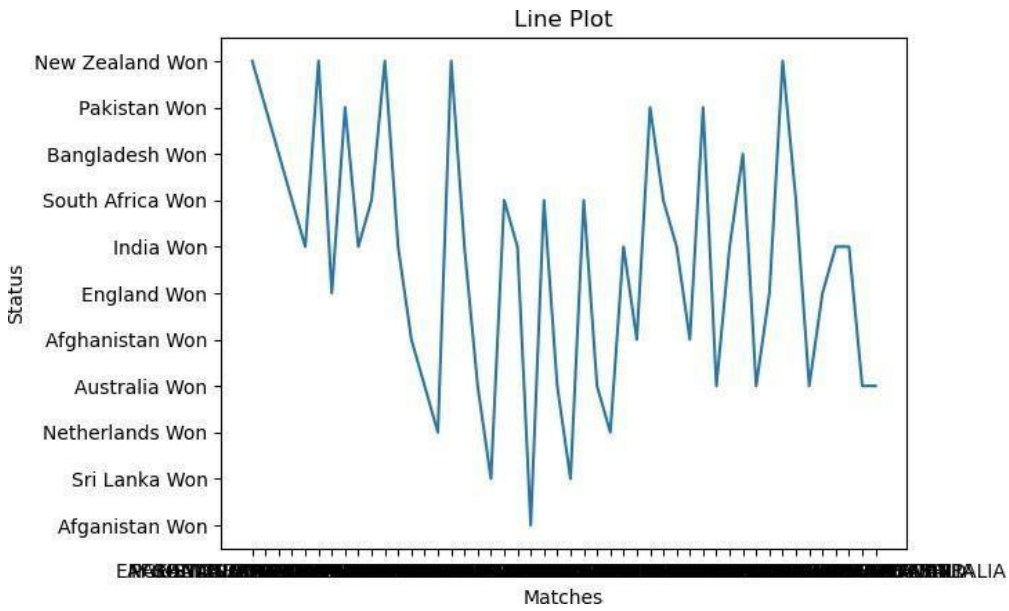
In [19]:
```
sns.pairplot(df)
plt.show()
```



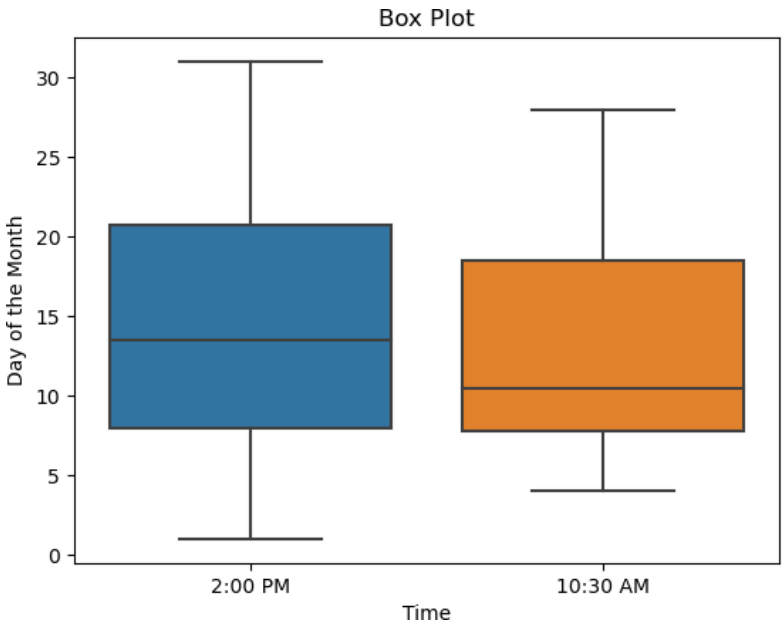
In [20]:
```
sns.scatterplot(x='Matches',y='Status',data=df)
plt.title('Scatter Plot')
plt.show()
```



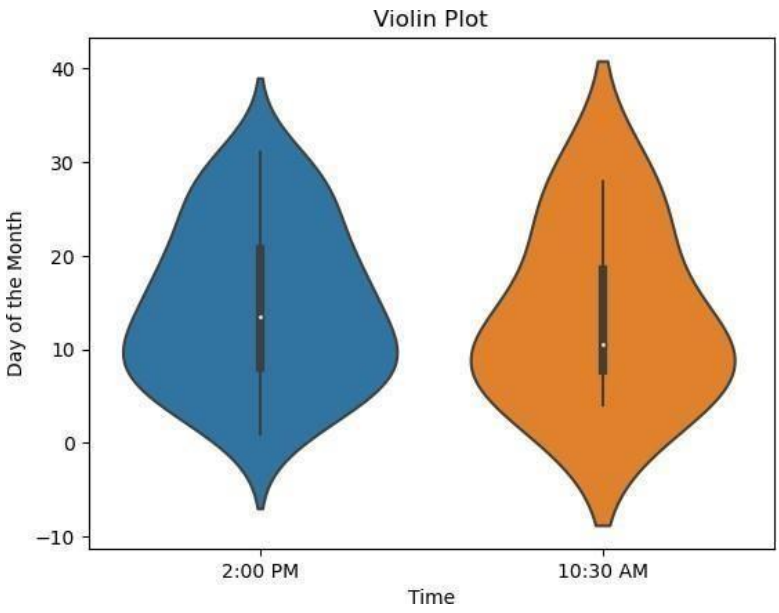
In [21]:
```
sns.lineplot(x='Matches',y='Status',data=df)
plt.title('Line Plot')
plt.show()
```



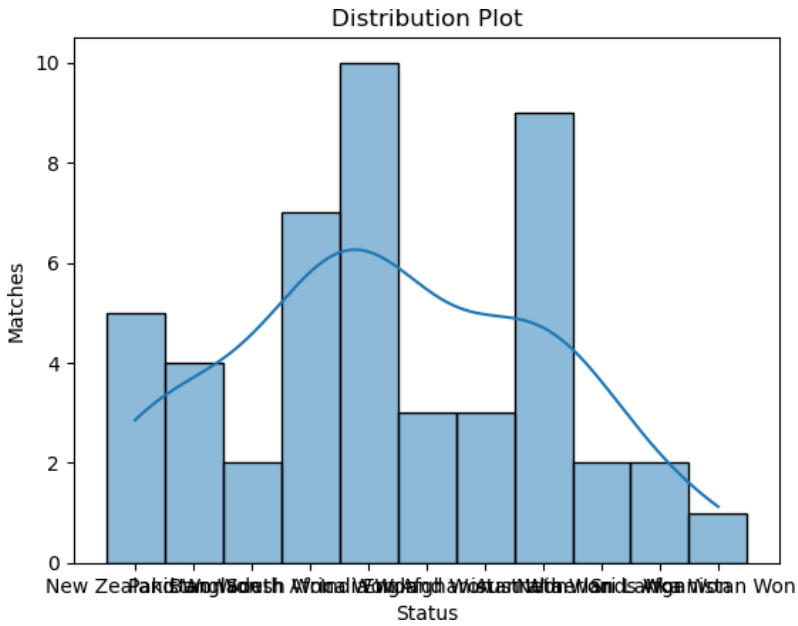
In [22]:
```
sns.boxplot(x='Time',y='Day of the Month',data=df)
plt.title('Box Plot')
plt.show()
```



In [23]:
```
sns.violinplot(x='Time',y='Day of the Month',data=df)
plt.title('Violin Plot')
plt.show()
```



In [24]:
```
sns.histplot(df['Status'],kde=True)
plt.title('Distribution Plot')
plt.xlabel('Status')
plt.ylabel('Matches')
plt.show()
```



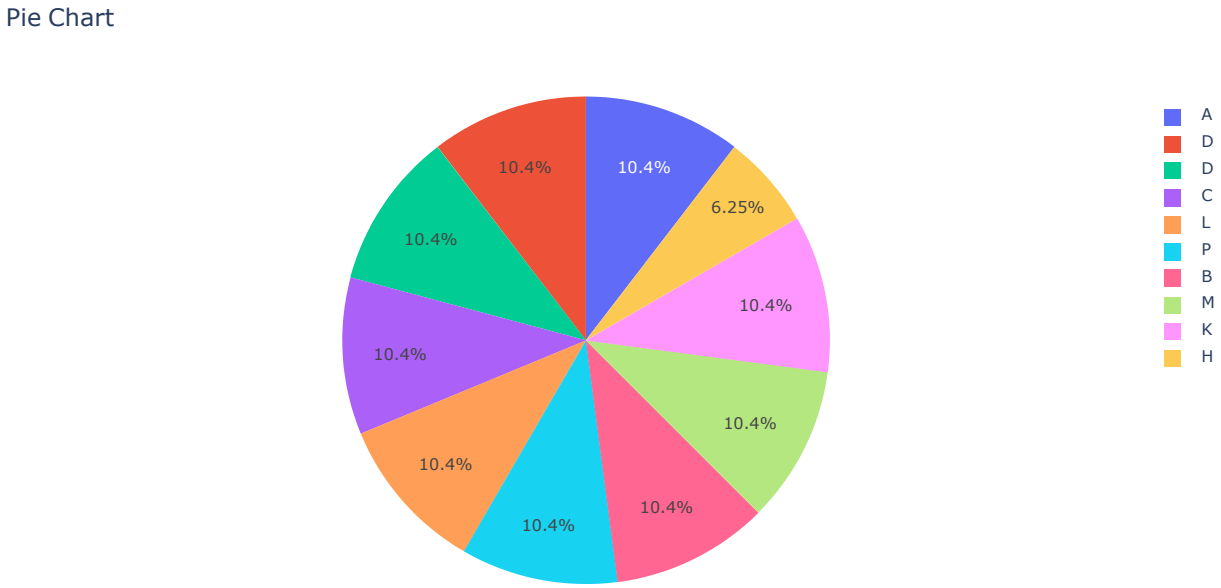
NUMPY

In [26]:
```
Matches_array=np.array(df['Matches'])
```

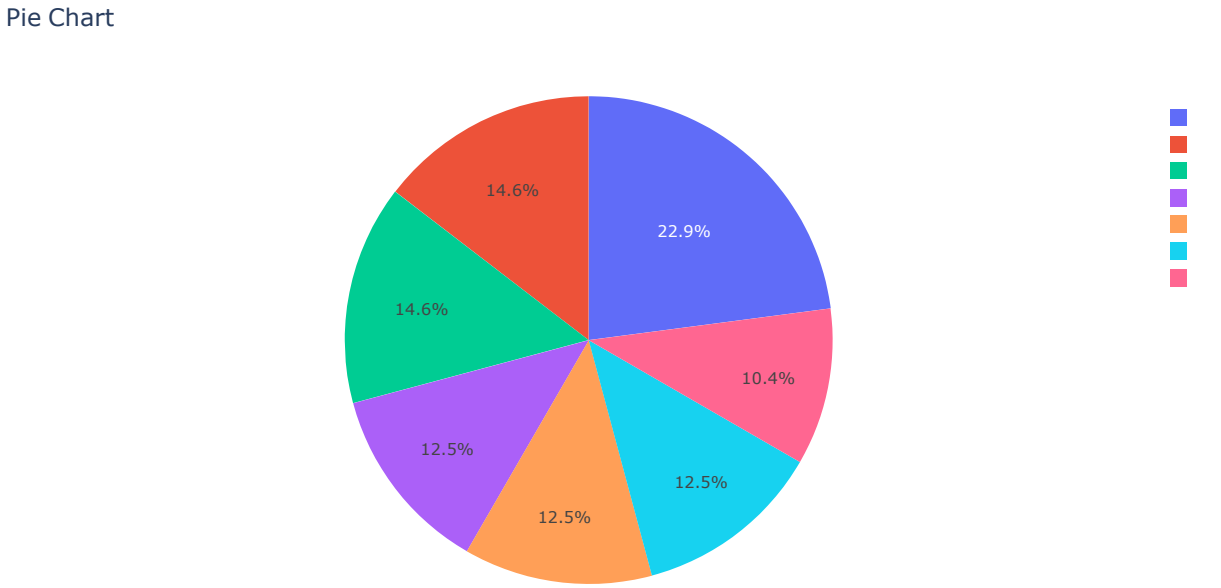
In [27]:
```
Matches_array
```

Out[27]:
```
array(['ENGLAND vs NEW ZEALAND', 'PAKISTAN vs NETHERLANDS',
       'AFGHANISTAN vs BANGLADESH', 'SOUTH AFRICA vs SRI LANKA',
       'AUSTRALIA vs INDIA', 'NEW ZEALAND vs NETHERLANDS',
       'ENGLAND vs BANGLADESH', 'SRI LANKA vs PAKISTAN',
       'INDIA vs AFGHANISTAN', 'AUSTRALIA vs SOUTH AFRICA',
       'NEW ZEALAND vs BANGLADESH', 'INDIA vs PAKISTAN',
       'ENGLAND vs AFGHANISTAN', 'AUSTRALIA vs SRI LANKA',
       'SOUTH AFRICA vs NETHERLANDS', 'NEW ZEALAND vs AFGHANISTAN',
       'INDIA vs BANGLADESH', 'AUSTRALIA vs PAKISTAN',
       'NETHERLANDS vs SRI LANKA', 'ENGLAND vs SOUTH AFRICA',
       'INDIA vs NEW ZEALAND', 'PAKISTAN vs AFGHANISTAN',
       'SOUTH AFRICA vs BANGLADESH', 'AUSTRALIA vs NETHERLANDS',
       'ENGLAND vs SRI LANKA', 'PAKISTAN vs SOUTH AFRICA',
       'AUSTRALIA vs NEW ZEALAND', 'NETHERLANDS vs BANGLADESH',
       'INDIA vs ENGLAND', 'AFGHANISTAN vs SRI LANKA',
       'PAKISTAN vs BANGLADESH', 'NEW ZEALAND vs SOUTH AFRICA',
       'INDIA vs SRI LANKA', 'NETHERLANDS vs AFGHANISTAN',
       'NEW ZEALAND vs PAKISTAN', 'ENGLAND vs AUSTRALIA',
       'INDIA vs SOUTH AFRICA', 'BANGLADESH vs SRI LANKA',
       'AUSTRALIA vs AFGHANISTAN', 'ENGLAND vs NETHERLANDS',
       'NEW ZEALAND vs SRI LANKA', 'SOUTH AFRICA vs AFGHANISTAN',
       'AUSTRALIA vs BANGLADESH', 'ENGLAND vs PAKISTAN',
       'INDIA vs NETHERLANDS', 'INDIA VS NEW ZEALAND',
       'SOUTH AFRICA VS AUSTRALIA', 'INDIA VS AUSTRALIA'], dtype=object)
```

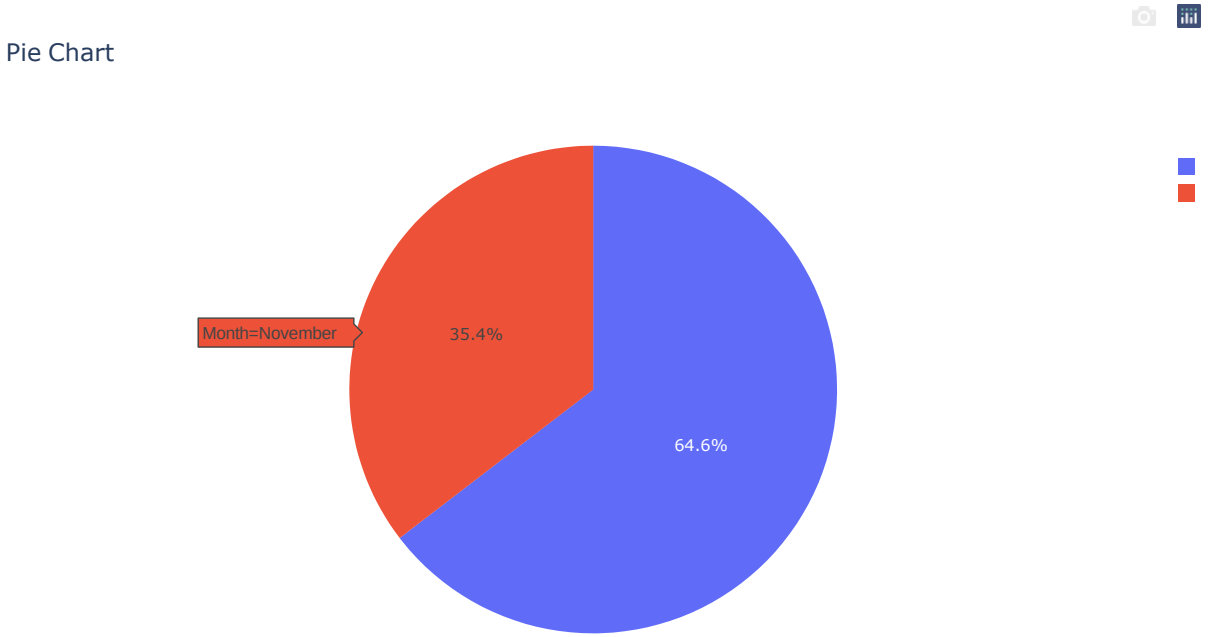
In [28]:
```
pie_chart=px.pie(df,names='Venue',title='Pie Chart')
pie_chart.show()
```



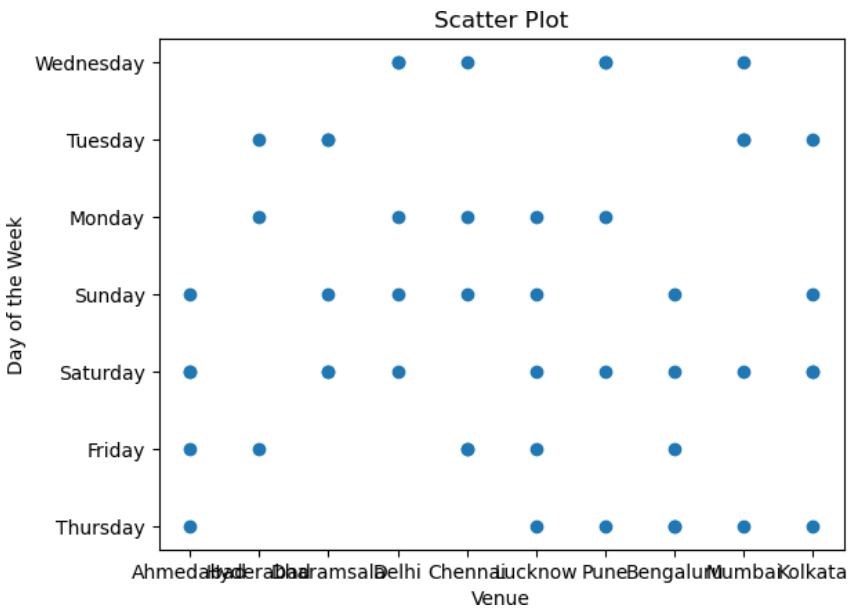
In [30]:
```
pie_chart=px.pie(df,names='Day of the Week',title='Pie Chart')
pie_chart.show()
```



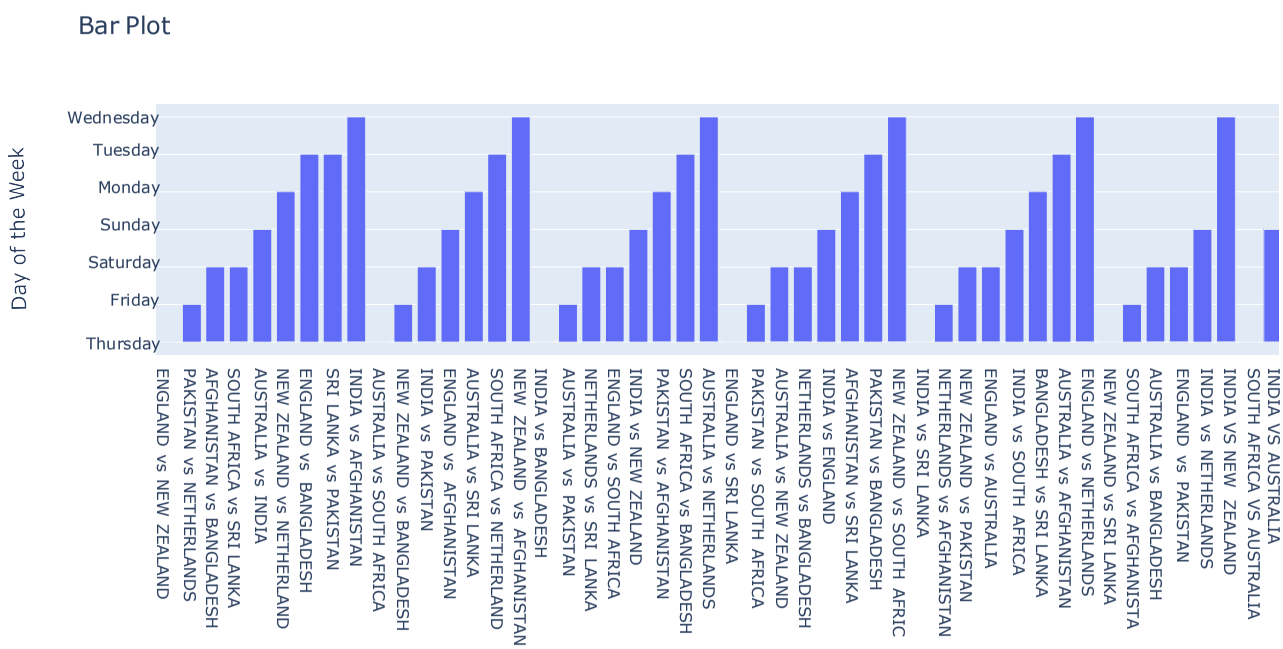
In [31]:
```
pie_chart=px.pie(df,names='Month',title='Pie Chart')
pie_chart.show()
```



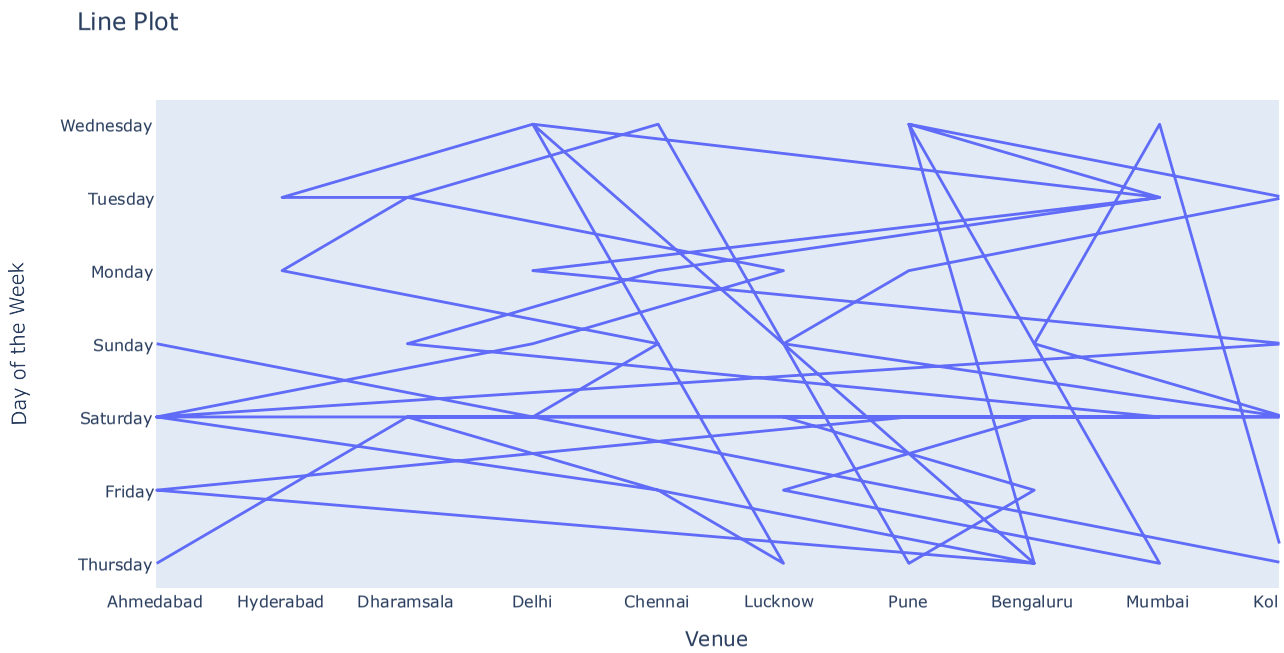
In [35]:
```
plt.scatter(df['Venue'],df['Day of the Week'])
plt.title('Scatter  Plot')
plt.xlabel('Venue')
plt.ylabel('Day of the Week')
plt.show()
```



In [37]:
```
bar_plot=px.bar(df,x='Matches',y='Day of the Week',title='Bar Plot')
bar_plot.show()
```



In [38]:
```
line_plot=px.line(df,x='Venue',y='Day of the Week',title='Line Plot')
line_plot.show()
```



In [ ]:
```

```

CONCLUSION

Our World Cup project, utilizing Python visualization tools such as Matplotlib, Seaborn, and Plotly, has been a captivating exploration of the tournament's rich history. Through visually appealing representations, we uncovered insights beyond mere scores, delving into historical trends, player performances, and team dynamics. The flexibility of Python's data visualization capabilities highlighted its adaptability, suggesting future enhancements with machine learning, real-time data integration, and augmented reality. This project emphasized the synergy of analytical skills and compelling visualization, showcasing Python as a potent tool in sports analytics. As we conclude, we acknowledge the dynamic nature of sports analytics and envision ongoing advancements, inviting enthusiasts to further explore the intersection of data, sports, and storytelling.

This project owes its success to the collaborative efforts of the Python community, developers, and cricket enthusiasts who contributed to its development and refinement. The shared passion for cricket and the capabilities of Python have played pivotal roles in creating a digital space where fans can connect and celebrate the spirit of the Cricket World Cup.

The Cricket World Cup 2023 Project in Python leaves a lasting impression as a testament to the intersection of technology and sports. By combining the excitement of cricket with the capabilities of Python, this project has successfully delivered an immersive and dynamic platform, leaving a positive impact on the digital landscape of cricket engagement. As the tournament concludes, the legacy of this project endures, reflecting the ever-evolving nature of sports in the digital age.

FUTURE SCOPE

The future scope of a World Cup project using Python is broad and promising. Key areas for expansion include real-time data integration for live matches, implementing machine learning for predictive analytics, delving deeper into player and team analytics, exploring 3D visualizations and augmented reality, providing user-driven interactivity, investigating sustainability analytics, integrating external APIs, collaborating with other data sources, developing educational modules, and fostering a community for ongoing engagement. Staying updated on technological advancements is crucial to ensuring the project remains innovative and relevant.

Real-Time Data Integration: Integrate real-time data feeds during live matches. This could include player statistics, team performance metrics, and even sentiment analysis from social media. Enhancing your visualizations with up-to-the-minute information adds a dynamic layer to the project.

Player and Team Analytics: Dive deeper into player and team analytics by incorporating more detailed metrics, such as player movement patterns, team formations, or positional heatmaps. This could provide a more granular understanding of strategies employed during matches.

REFERENCE

https://github.com/topics/world-cup-2023
https://www.youtube.com/watch?v=4OkYy1wANXA

ASSESSMENT

Internal:

SL NO	RUBRICS	FULL MARK	MARKS OBTAINED	REMARKS
1	Understanding the relevance, scope and dimension of the project	10		
2	Methodology	10		
3	Quality of Analysis and Results	10		
4	Interpretations and Conclusions	10		
5	Report	10		
	Total	**50**		

Date: **Signature of the Faculty**

COURSE OUTCOME (COs) ATTAINMENT

➢ **Expected Course Outcomes (COs):**

(Refer to COs Statement in the Syllabus)

_____

_____

_____

_____

➢ **Course Outcome Attained:**

How would you rate your learning of the subject based on the specified COs?

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

1 2 3 4 5 6 7 8 9 10

LOW **HIGH**

➢ **Learning Gap (if any):**

_____

_____

_____

_____

➢ **Books / Manuals Referred:**

_____

_____

_____

_____

Date: **Signature of the Student**

➢ **Suggestions / Recommendations:**

(By the Course Faculty)

_____

_____

_____

_____

Date: **Signature of the Faculty**