Analysis of ODI matches played between 1971-2017 using Numpy, Pandas & Seaborn

This project contains the analysis of all the ODI matches played between Jan,1971-Aug,2017 (downloaded from: https://www.kaggle.com/datasets/jaykay12/odi-cricket-matches-19712017). Project is part of my free learning course "Data Analysis with Python: Zero to Pandas"(checkout at https://jovian.ai/learn/data-analysis-with-python-zero-to-pandas)

Downloading the Dataset

Let's start off by downloading the data set from 'https://www.kaggle.com/datasets/jaykay12/odi-cricket-matches-19712017'

```
!pip install jovian opendatasets --upgrade --quiet
```

Let's begin by downloading the data, and listing the files within the dataset.

```
dataset_url = 'https://www.kaggle.com/datasets/jaykay12/odi-cricket-matches-19712017'
```

```
import opendatasets as od
od.download(dataset_url)
```

```
Skipping, found downloaded files in "./odi-cricket-matches-19712017" (use force=True to force download)
```

The dataset has been downloaded and extracted.

```
data_dir = './odi-cricket-matches-19712017'
```

```
import os
os.listdir(data_dir)
```

```
['ContinousDataset.csv',
 'LabelledDataset.csv',
 'CategoricalDataset.csv',
 'originalDataset.csv']
```

Data Preparation and Cleaning

Before we begin our analysis we need to clean the data so as to derive more meaningful results from it.

```
import pandas as pd
import numpy as np
```

```
odi_df = pd.read_csv(data_dir+'/ContinousDataset.csv')
```

```
odi_df
```

	Unnamed: 0	Scorecard	Team 1	Team 2	Margin	Ground	Match Date	Winner	Host_Country	Ve
0	0	ODI # 1	Australia	England	Winner2ndInning	Melbourne	Jan 5, 1971	Australia	Australia	
1	1	ODI # 2	England	Australia	Winner2ndInning	Manchester	Aug 24, 1972	England	England	
2	2	ODI # 3	England	Australia	Winner2ndInning	Lord's	Aug 26, 1972	Australia	England	
3	3	ODI # 4	England	Australia	Winner2ndInning	Birmingham	Aug 28, 1972	England	England	
4	4	ODI # 5	New Zealand	Pakistan	Winner1stInning	Christchurch	Feb 11, 1973	New Zealand	New Zealand	
...	...	...	...	...	...	...	...	...	...	
7489	3747	ODI # 3931	New Zealand	India	Winner2ndInning	Pune	Oct 25, 2017	India	India	
7490	3748	ODI # 3932	New Zealand	India	Winner1stInning	Kanpur	Oct 29, 2017	India	India	
7491	3749	ODI # 3933	Namibia	Hong Kong	Winner2ndInning	Mumbai	Aug 12, 2017	Namibia	India	
7492	3750	ODI # 3934	U.S.A.	Bermuda	Winner2ndInning	Mumbai	Aug 12, 2017	U.S.A.	India	
7493	3749	ODI # 3935	Namibia	East Africa	Winner1stInning	Mumbai	Aug 12, 2017	East Africa	India	

7494 rows × 13 columns

We can see there is duplicate row data and an extra column ('Unnamed: 0')

```
# Remove repeating data
x=np.arange(3747,7494)
odi_df.drop(x,inplace=True)
odi_df.drop(columns=['Unnamed: 0'],inplace=True)
```

```
odi_df
```

	Scorecard	Team 1	Team 2	Margin	Ground	Match Date	Winner	Host_Country	Venue_Team1
0	ODI # 1	Australia	England	Winner2ndInning	Melbourne	Jan 5, 1971	Australia	Australia	Home
1	ODI # 2	England	Australia	Winner2ndInning	Manchester	Aug 24, 1972	England	England	Home

	Scorecard	Team 1	Team 2	Margin	Ground	Match Date	Winner	Host_Country	Venue_Team1
2	ODI # 3	England	Australia	Winner2ndInning	Lord's	Aug 26, 1972	Australia	England	Home
3	ODI # 4	England	Australia	Winner2ndInning	Birmingham	Aug 28, 1972	England	England	Home
4	ODI # 5	New Zealand	Pakistan	Winner1stInning	Christchurch	Feb 11, 1973	New Zealand	New Zealand	Home
...	...	...	...	...	...	...	...	...	...
3742	ODI # 3931	India	New Zealand	Winner2ndInning	Pune	Oct 25, 2017	India	India	Home
3743	ODI # 3932	India	New Zealand	Winner1stInning	Kanpur	Oct 29, 2017	India	India	Home
3744	ODI # 3933	Hong Kong	Namibia	Winner2ndInning	Mumbai	Aug 12, 2017	Namibia	India	Neutral
3745	ODI # 3934	Bermuda	U.S.A.	Winner2ndInning	Mumbai	Aug 12, 2017	U.S.A.	India	Neutral
3746	ODI # 3935	East Africa	Namibia	Winner1stInning	Mumbai	Aug 12, 2017	East Africa	India	Neutral

3747 rows × 12 columns

Rename for better reusability

```
odi_df['Margin'] = odi_df['Margin'].replace(['Winner2ndInning'],'2')
odi_df['Margin'] = odi_df['Margin'].replace(['Winner1stInning'],'1')

odi_df['Innings_Team1'] = odi_df['Innings_Team1'].replace(['Second'],'2')
odi_df['Innings_Team1'] = odi_df['Innings_Team1'].replace(['First'],'1')

odi_df['Innings_Team2'] = odi_df['Innings_Team2'].replace(['Second'],'2')
odi_df['Innings_Team2'] = odi_df['Innings_Team2'].replace(['First'],'1')
```

```
odi_df.rename(columns = {'Team 1':'Team1', 'Team 2':'Team2','Margin':'WinnerBatInnings'
odi_df
```

	Scorecard	Team1	Team2	WinnerBatInnings	Ground	Match_date	Winner	Host_Country	Venue_Te
0	ODI # 1	Australia	England	2	Melbourne	Jan 5, 1971	Australia	Australia	H
1	ODI # 2	England	Australia	2	Manchester	Aug 24, 1972	England	England	H
2	ODI # 3	England	Australia	2	Lord's	Aug 26, 1972	Australia	England	H
3	ODI # 4	England	Australia	2	Birmingham	Aug 28, 1972	England	England	H

	Scorecard	Team1	Team2	WinnerBatInnings	Ground	Match_date	Winner	Host_Country	Venue_Te
4	ODI # 5	New Zealand	Pakistan	1	Christchurch	Feb 11, 1973	New Zealand	New Zealand	H
...	...	...	...	...	...	...	...	...	
3742	ODI # 3931	India	New Zealand	2	Pune	Oct 25, 2017	India	India	H
3743	ODI # 3932	India	New Zealand	1	Kanpur	Oct 29, 2017	India	India	H
3744	ODI # 3933	Hong Kong	Namibia	2	Mumbai	Aug 12, 2017	Namibia	India	Ne
3745	ODI # 3934	Bermuda	U.S.A.	2	Mumbai	Aug 12, 2017	U.S.A.	India	Ne
3746	ODI # 3935	East Africa	Namibia	1	Mumbai	Aug 12, 2017	East Africa	India	Ne

3747 rows × 12 columns

```
odi_df['WinnerBatInnings']=pd.to_numeric(odi_df.WinnerBatInnings,errors='coerce')
odi_df['Innings_Team1']=pd.to_numeric(odi_df.Innings_Team1,errors='coerce')
odi_df['Innings_Team2']=pd.to_numeric(odi_df.Innings_Team2,errors='coerce')
odi_df['Match_date']=pd.to_datetime(odi_df.Match_date,errors='coerce')
```

```
odi_df.head(20)
```

	Scorecard	Team1	Team2	WinnerBatInnings	Ground	Match_date	Winner	Host_Country	Venue_Tean
0	ODI # 1	Australia	England	2	Melbourne	1971-01-05	Australia	Australia	Hon
1	ODI # 2	England	Australia	2	Manchester	1972-08-24	England	England	Hon
2	ODI # 3	England	Australia	2	Lord's	1972-08-26	Australia	England	Hon
3	ODI # 4	England	Australia	2	Birmingham	1972-08-28	England	England	Hon
4	ODI # 5	New Zealand	Pakistan	1	Christchurch	1973-02-11	New Zealand	New Zealand	Hon
5	ODI # 6	England	New Zealand	2	Swansea	1973-07-18	England	England	Hon
6	ODI # 8	England	West Indies	2	Leeds	1973-09-05	England	England	Hon
7	ODI # 9	England	West Indies	2	The Oval	1973-09-07	West Indies	England	Hon
8	ODI # 10	New Zealand	Australia	2	Dunedin	1974-03-30	Australia	New Zealand	Hon
9	ODI # 11	New Zealand	Australia	1	Christchurch	1974-03-31	Australia	New Zealand	Hon
10	ODI # 12	England	India	2	Leeds	1974-07-13	England	England	Hon
11	ODI # 13	England	India	2	The Oval	NaT	England	England	Hon
12	ODI # 14	England	Pakistan	2	Nottingham	1974-08-31	Pakistan	England	Hon
13	ODI # 15	England	Pakistan	2	Birmingham	1974-09-03	Pakistan	England	Hon
14	ODI # 16	Australia	England	2	Melbourne	1975-01-01	England	Australia	Hon
15	ODI # 19	England	India	1	Lord's	1975-06-07	England	England	Hon

	Scorecard	Team1	Team2	WinnerBatInnings	Ground	Match_date	Winner	Host_Country	Venue_Tean
16	ODI # 20	East Africa	New Zealand	1	Birmingham	1975-06-07	New Zealand	England	Neutr
17	ODI # 21	Australia	Pakistan	1	Leeds	1975-06-07	Australia	England	Neutr
18	ODI # 22	Sri Lanka	West Indies	2	Manchester	1975-06-07	West Indies	England	Neutr
19	ODI # 23	England	New Zealand	1	Nottingham	1975-06-11	England	England	Hon

```
type(odi_df.loc[243])
```

```
pandas.core.series.Series
```

```
unique_teams=list(odi_df['Team1'].unique())
y=list(odi_df['Team2'].unique())
for team2 in y:
    if team2 not in unique_teams:
        unique_teams.append(team2)
unique_teams
```

```
['Australia',
 'England',
 'New Zealand',
 'East Africa',
 'Sri Lanka',
 'Pakistan',
 'India',
 'West Indies',
 'Canada',
 'Bangladesh',
 'South Africa',
 'Zimbabwe',
 'U.A.E.',
 'Netherlands',
 'Kenya',
 'Scotland',
 'Namibia',
 'Hong Kong',
 'Bermuda',
 'Ireland',
 'Afghanistan',
 'P.N.G.',
 'U.S.A.']
```

```
Grounds=odi_df['Ground'].unique()
Grounds
```

```
array(['Melbourne', 'Manchester', "Lord's", 'Birmingham', 'Christchurch',
       'Swansea', 'Leeds', 'The Oval', 'Dunedin', 'Nottingham',
       'Adelaide', 'Auckland', 'Scarborough', 'Sialkot', 'Albion',
```

```
'Sahiwal', 'Lahore', "St John's", 'Castries', 'Quetta', 'Sydney',
'Brisbane', 'Karachi', 'Perth', 'Kingstown', 'Hamilton',
'Ahmedabad', 'Jalandhar', 'Cuttack', 'Colombo', 'Wellington',
'Amritsar', 'Delhi', 'Hyderabad', 'Bengaluru', 'Gujranwala',
'Multan', 'Port of Spain', 'Napier', "St George's", 'Taunton',
'Leicester', 'Bristol', 'Worcester', 'Southampton', 'Derby',
'Tunbridge Wells', 'Chelmsford', 'Jaipur', 'Srinagar', 'Vadodara',
'Indore', 'Jamshedpur', 'Guwahati', 'Moratuwa', 'Sharjah',
'Kingston', 'New Delhi', 'Peshawar', 'Faisalabad', 'Pune',
'Hobart', 'Nagpur', 'Chandigarh', 'Bridgetown', 'Rawalpindi',
'Launceston', 'Kandy', 'Rajkot', 'Kanpur', 'Mumbai', 'Devonport',
'Kolkata', 'Chennai', 'Faridabad', 'Gwalior', 'Thiruvananthapuram',
'Georgetown', 'Dhaka', 'Chittagong', 'Visakhapatnam', 'Margao',
'Lucknow', 'Sargodha', 'New Plymouth', 'Ballarat', 'Canberra',
'Berri', 'Albury', 'Harare', 'Bulawayo', 'Cape Town',
'Port Elizabeth', 'Centurion', 'Johannesburg', 'Bloemfontein',
'Durban', 'East London', 'Patna', 'Mohali', 'Singapore', 'Toronto',
'Nairobi', 'Benoni', 'Kochi', 'Kimberley', 'Paarl', 'Sheikhupura',
'Taupo', 'Hove', 'Canterbury', 'Northampton', 'Cardiff', 'Chester',
'Dublin', 'Edinburgh', 'Amstelveen', 'Galle', 'Jodhpur',
'Dambulla', 'Gros Islet', 'Tangier', 'Potchefstroom', 'Vijayawada',
'Kwekwe', 'Queenstown', 'Pietermaritzburg', 'Cairns', 'Darwin',
'Bogra', 'Khulna', 'Fatullah', 'Abu Dhabi', 'Basseterre',
'Belfast', 'Ayr', 'Kuala Lumpur', 'Mombasa', 'North Sound',
'Providence', 'Glasgow', 'Rotterdam', 'King City', 'Aberdeen',
'Dubai', 'Roseau', 'The Hague', 'Schiedam', 'Hambantota',
'Pallekele', 'Whangarei', 'Ranchi', 'Dharamsala', 'ICCA Dubai',
'Nelson', 'Lincoln', 'Mount Maunganui', 'Townsville', 'Mong Kok',
'Greater Noida', 'Port Moresby'], dtype=object)
```

Exploratory Analysis and Visualization

For the analysis of our cleaned dataset, we will employ various visualizations to study patterns and derive inferences.

Let's begin by importing `matplotlib.pyplot` and `seaborn` .

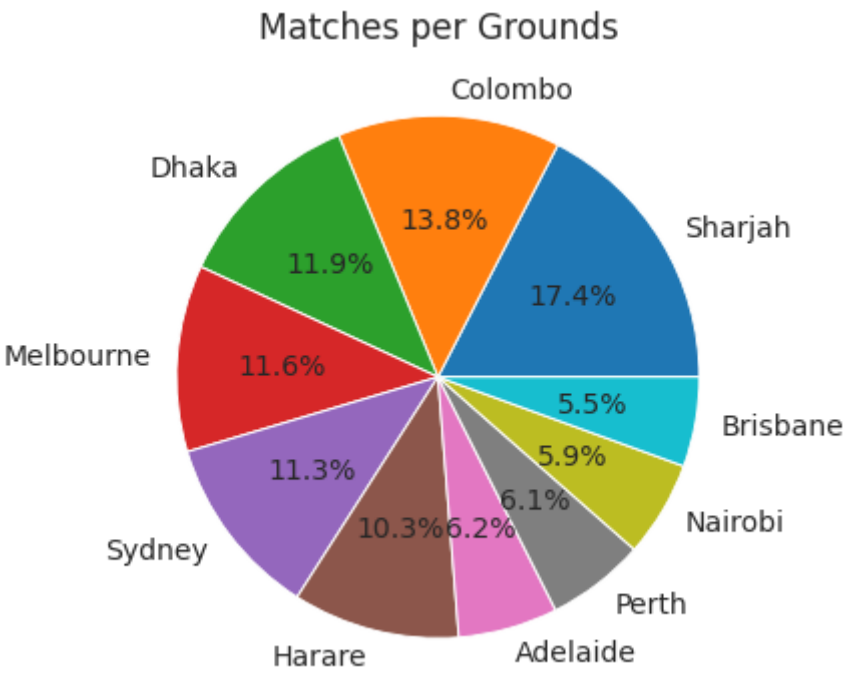
```
import seaborn as sns
import matplotlib
import matplotlib.pyplot as plt
%matplotlib inline

sns.set_style('darkgrid')
matplotlib.rcParams['font.size'] = 10
matplotlib.rcParams['figure.figsize'] = (9, 5)
matplotlib.rcParams['figure.facecolor'] = '#00000000'
```

Q- Top 10 grounds by number of matches played?

```
grounds=odi_df.Ground.value_counts().head(10)
grounds
```

```
Sharjah      226
Colombo      179
Dhaka        154
Melbourne    150
Sydney       147
Harare       134
Adelaide      80
Perth         79
Nairobi       77
Brisbane      72
Name: Ground, dtype: int64
```

```
plt.figure(figsize=(15,6))
plt.title('Matches per Grounds')
plt.pie(grounds,labels=grounds.index,autopct='%1.1f%%');
```



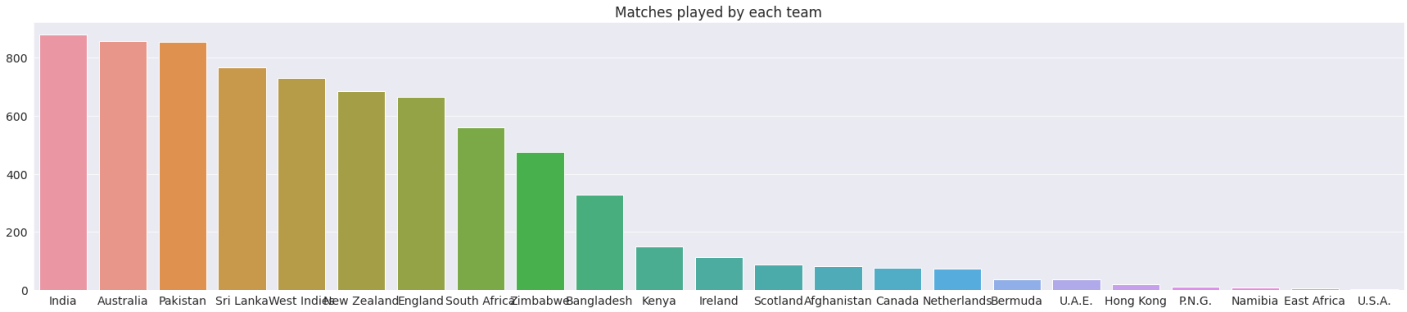
Q- Which countries have played the maximum number of matches and plot them as a bar graph.

```
Team1_df=odi_df.Team1.value_counts()
Team2_df=odi_df.Team2.value_counts()
Total_df=Team1_df+Team2_df
Total_df.sort_values(ascending=False,inplace=True)
head_count=Total_df.head(100)
head_count['U.S.A.']=3
head_count
```

```
India        880.0
Australia    859.0
```

```
Pakistan          854.0
Sri Lanka         766.0
West Indies       731.0
New Zealand       686.0
England           664.0
South Africa      561.0
Zimbabwe          474.0
Bangladesh        328.0
Kenya             149.0
Ireland           113.0
Scotland           87.0
Afghanistan        81.0
Canada             75.0
Netherlands        72.0
Bermuda            36.0
U.A.E.             35.0
Hong Kong          18.0
P.N.G.             10.0
Namibia             8.0
East Africa         4.0
U.S.A.              3.0
dtype: float64
```

```
plt.figure(figsize=(30,6))
plt.title("Matches played by each team")
sns.barplot(x=head_count.index,y=head_count);
```



Q- How many neutral venue games?

```
(odi_df.Venue_Team1=='Neutral').sum()
```

```
1138
```

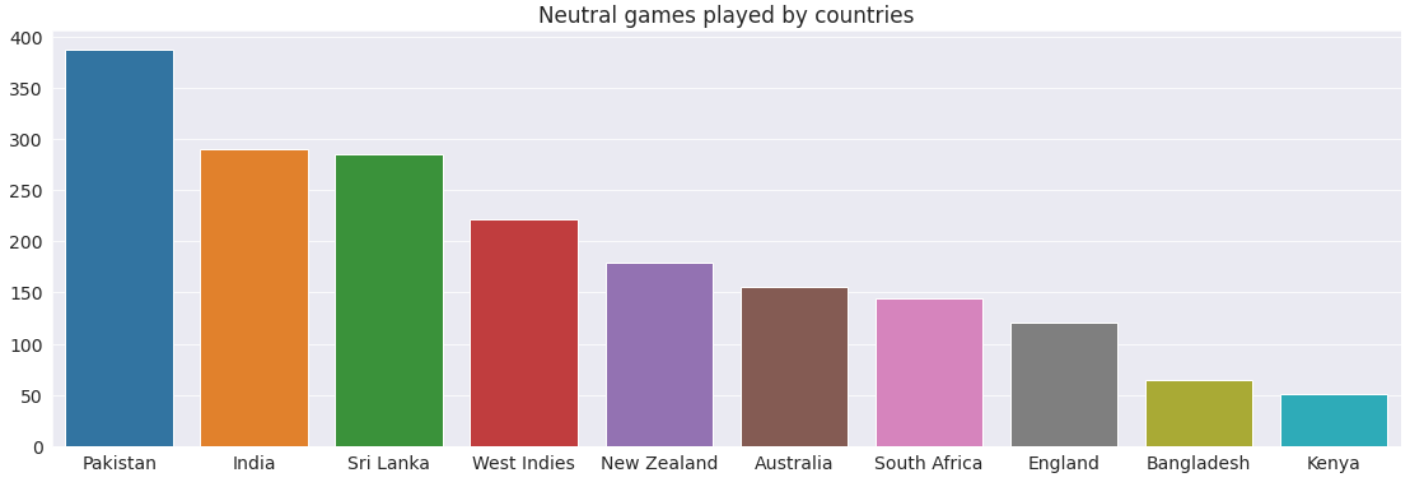
Q- Which countries played most neutral games?

```
Neutral_df=odi_df[odi_df.Venue_Team1=='Neutral']
Team1_df=Neutral_df.Team1.value_counts()
Team2_df=Neutral_df.Team2.value_counts()
Total_neutral_df=(Team1_df+Team2_df).sort_values(ascending=False).head(10)
Total_neutral_df
```

```
Pakistan          387.0
```

```
India           290.0
Sri Lanka       285.0
West Indies     222.0
New Zealand     179.0
Australia       155.0
South Africa    144.0
England         120.0
Bangladesh       64.0
Kenya            51.0
dtype: float64
```

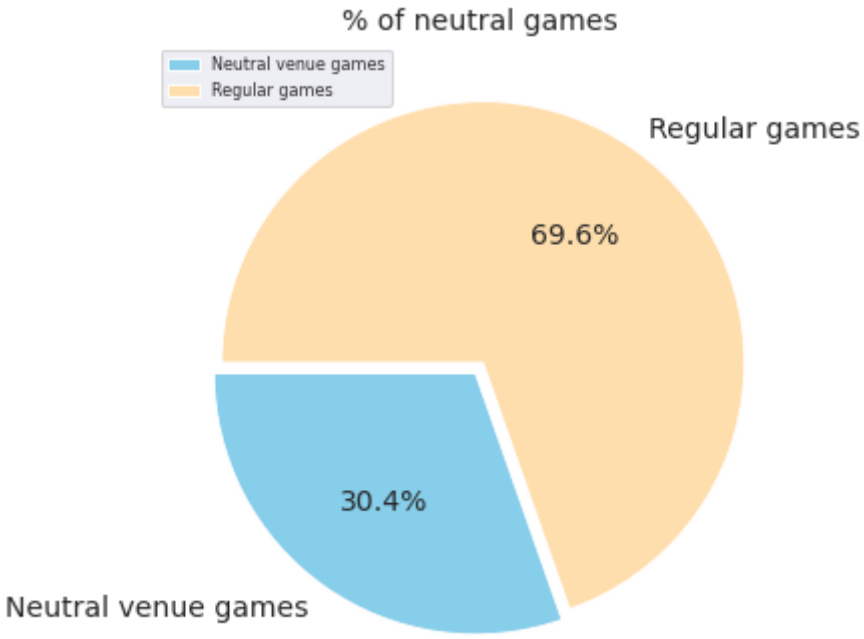
```
plt.figure(figsize=(19,6))
plt.title("Neutral games played by countries")
sns.barplot(x=Total_neutral_df.index,y=Total_neutral_df);
```



Q- What % of total games are played at neutral venues?

```
Total_neutral_games=Neutral_df.Scorecard.count()
print("Total_neutral_games: {}".format(Total_neutral_games))
Non_neutral_games=Total_games-Total_neutral_games
print("Non_neutral_games: {}".format(Non_neutral_games))
Total_games=odi_df.Scorecard.count()
print("Total_games: {}".format(Total_games))
arr={'Neutral venue games' : Total_neutral_games,
     'Regular games' : Non_neutral_games}
plt.figure(figsize=(120,6))
plt.title('% of neutral games',fontsize=14,loc='center')
Labels = [k for k in arr.keys()]
Data   = [float(v) for v in arr.values()]
plt.pie(x = Data, labels=Labels, colors=['skyblue','navajowhite'],explode=(0.025,0.025))
plt.legend(loc='upper left',fontsize=8);
```

```
Total_neutral_games: 1138
Non_neutral_games: 2609
Total_games: 3747
```



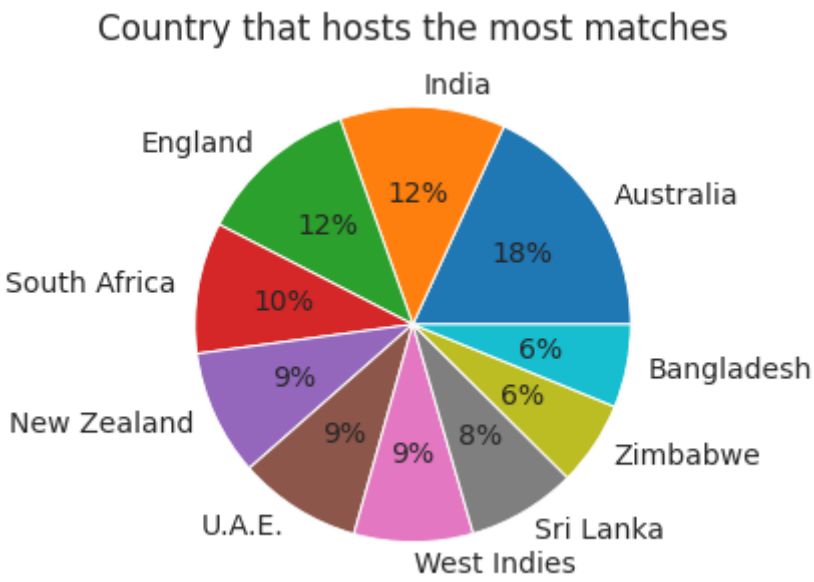
Q- Which teams played most matches against each other?

```
x=(odi_df.Team1+ ':' + odi_df.Team2).value_counts().head(10)
x
```

```
Pakistan:Sri Lanka       110
Pakistan:West Indies      99
India:Pakistan            99
Australia:West Indies     90
India:Sri Lanka           87
Australia:Pakistan        84
India:West Indies         83
Australia:New Zealand     78
New Zealand:Pakistan      75
Australia:England         73
dtype: int64
```

Pakistan and Sri lanka have faced each other the most number of times

```
plt.title('Country that hosts the most matches')
host=odi_df.Host_Country.value_counts().head(10)
plt.pie(host,labels=host.index,autopct='%1.0f%%');
```



Q- Most number of matches played on the same day?

```
Most_matches_per_day=odi_df.Match_date.value_counts().head(20)
```

```
Most_matches_per_day
```

```
2007-02-04    6
1975-06-07    4
1983-06-20    4
1975-06-11    4
2007-01-31    4
2007-02-02    4
1979-06-09    4
1983-06-18    4
1983-06-13    4
2010-07-10    4
1975-06-14    4
2007-01-21    3
2007-01-30    3
1979-06-16    3
1987-10-30    3
2003-02-19    3
2003-02-16    3
2017-08-12    3
2002-01-22    3
1998-04-05    3
Name: Match_date, dtype: int64
```

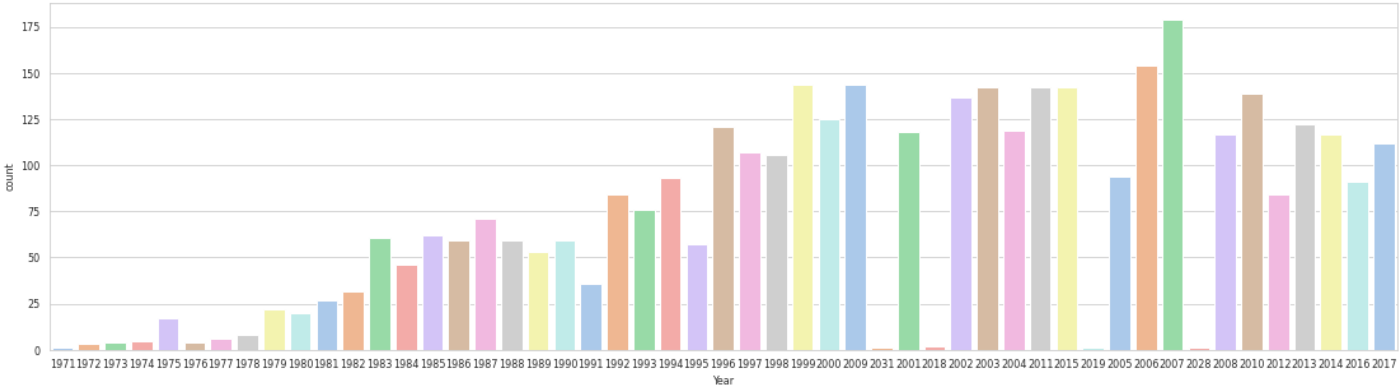
Q-Number of matches played per year?

```
odi_df['Year'] = pd.DatetimeIndex(odi_df['Match_date']).year.astype('Int64')
odi_df['Year'].value_counts()
```

```
x_year=odi_df['Year'].value_counts().head(10)
x_year
```

```
2007    179
2006    154
1999    144
2009    144
2015    142
2011    142
2003    142
2010    139
2002    137
2000    125
Name: Year, dtype: int64
```

```
g = sns.countplot(x=odi_df['Year'],palette="pastel");
```



Q- Teams matches per month?

```
odi_df['Month'] = pd.DatetimeIndex(odi_df['Match_date']).month.astype('Int64')
#odi_df.info()
#type(odi_df['Month'])
#print(odi_df.Month)
m_y=odi_df.groupby(['Year','Month'])[['Scorecard']].count()
m_y.sort_values('Scorecard',ascending=False)
```

		Scorecard
Year	Month	
2011	3	34
2007	2	32
2003	2	31
1999	5	29
2015	3	28
...	...	...
1985	8	1
	5	1
1984	9	1

		Scorecard
Year	Month	
	5	1
2031	5	1

419 rows × 1 columns

```
odi_df
```

	Scorecard	Team1	Team2	WinnerBatInnings	Ground	Match_date	Winner	Host_Country	Venue_Te
0	ODI # 1	Australia	England	2	Melbourne	1971-01-05	Australia	Australia	H
1	ODI # 2	England	Australia	2	Manchester	1972-08-24	England	England	H
2	ODI # 3	England	Australia	2	Lord's	1972-08-26	Australia	England	H
3	ODI # 4	England	Australia	2	Birmingham	1972-08-28	England	England	H
4	ODI # 5	New Zealand	Pakistan	1	Christchurch	1973-02-11	New Zealand	New Zealand	H
...	...	...	...	...	...	...	...	...	
3742	ODI # 3931	India	New Zealand	2	Pune	2017-10-25	India	India	H
3743	ODI # 3932	India	New Zealand	1	Kanpur	2017-10-29	India	India	H
3744	ODI # 3933	Hong Kong	Namibia	2	Mumbai	2017-08-12	Namibia	India	Ne
3745	ODI # 3934	Bermuda	U.S.A.	2	Mumbai	2017-08-12	U.S.A.	India	Ne
3746	ODI # 3935	East Africa	Namibia	1	Mumbai	2017-08-12	East Africa	India	Ne

3747 rows × 14 columns

Q- Teams wise division of home/away matches per year

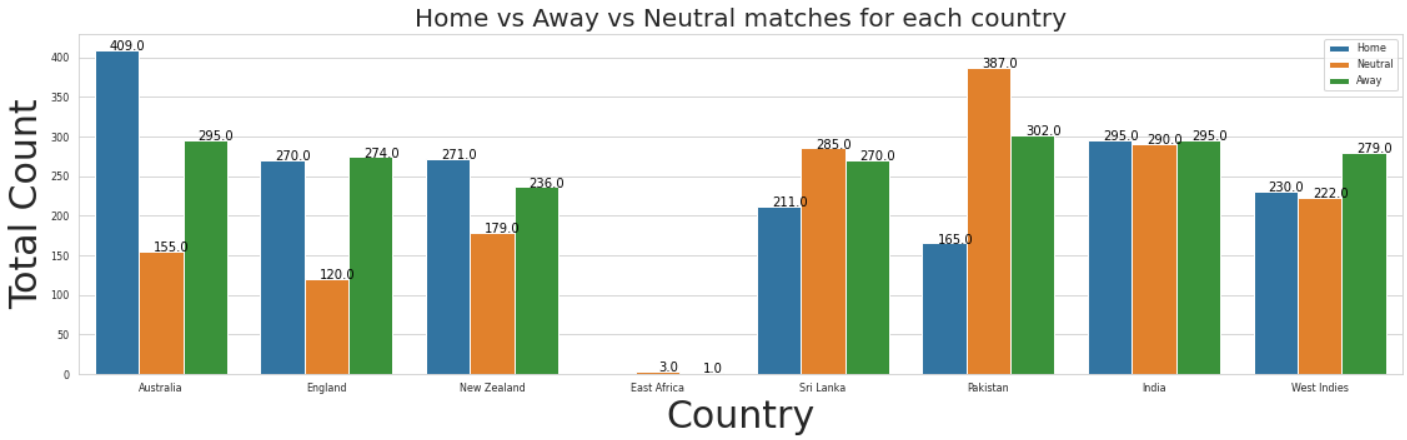
```
odi_df
```

	Scorecard	Team1	Team2	WinnerBatInnings	Ground	Match_date	Winner	Host_Country	Venue_Te
0	ODI # 1	Australia	England	2	Melbourne	1971-01-05	Australia	Australia	H
1	ODI # 2	England	Australia	2	Manchester	1972-08-24	England	England	H
2	ODI # 3	England	Australia	2	Lord's	1972-08-26	Australia	England	H
3	ODI # 4	England	Australia	2	Birmingham	1972-08-28	England	England	H
4	ODI # 5	New Zealand	Pakistan	1	Christchurch	1973-02-11	New Zealand	New Zealand	H
...	...	...	...	...	...	...	...	...	
3742	ODI # 3931	India	New Zealand	2	Pune	2017-10-25	India	India	H
3743	ODI # 3932	India	New Zealand	1	Kanpur	2017-10-29	India	India	H

	Scorecard	Team1	Team2	WinnerBatInnings	Ground	Match_date	Winner	Host_Country	Venue_Te
3744	ODI # 3933	Hong Kong	Namibia	2	Mumbai	2017-08-12	Namibia	India	Ne
3745	ODI # 3934	Bermuda	U.S.A.	2	Mumbai	2017-08-12	U.S.A.	India	Ne
3746	ODI # 3935	East Africa	Namibia	1	Mumbai	2017-08-12	East Africa	India	Ne

3747 rows × 14 columns

```
a=list(odi_df.Team1).copy()
b=list(odi_df.Team2).copy()

Teams=np.append(a,b)

x=list(odi_df.Venue_Team1).copy()
y=list(odi_df.Venue_Team2).copy()

Venues=np.append(x,y)
order=['Australia',
 'England',
 'New Zealand',
 'East Africa',
 'Sri Lanka',
 'Pakistan',
 'India',
 'West Indies']
g=sns.countplot(x=Teams,hue=Venues,order=order,orient = "v");
plt.title("Home vs Away vs Neutral matches for each country",fontsize=20)
plt.xlabel("Country",fontsize=30)
plt.ylabel("Total Count",fontsize=30)
plt.figure(figsize=(18,6))
for p in g.patches:
    g.annotate(f'\n{p.get_height()}', (p.get_x()+0.2, p.get_height()), color='black', s
plt.show();
```




```
<Figure size 1296x432 with 0 Axes>
```

Let us save and upload our work to Jovian before continuing

Asking and Answering Questions

Let us explore some more interesting facts about this data set

Let's start off by finding the winners vs losers...

Q1: Team winning the most matches vs team losing the most??

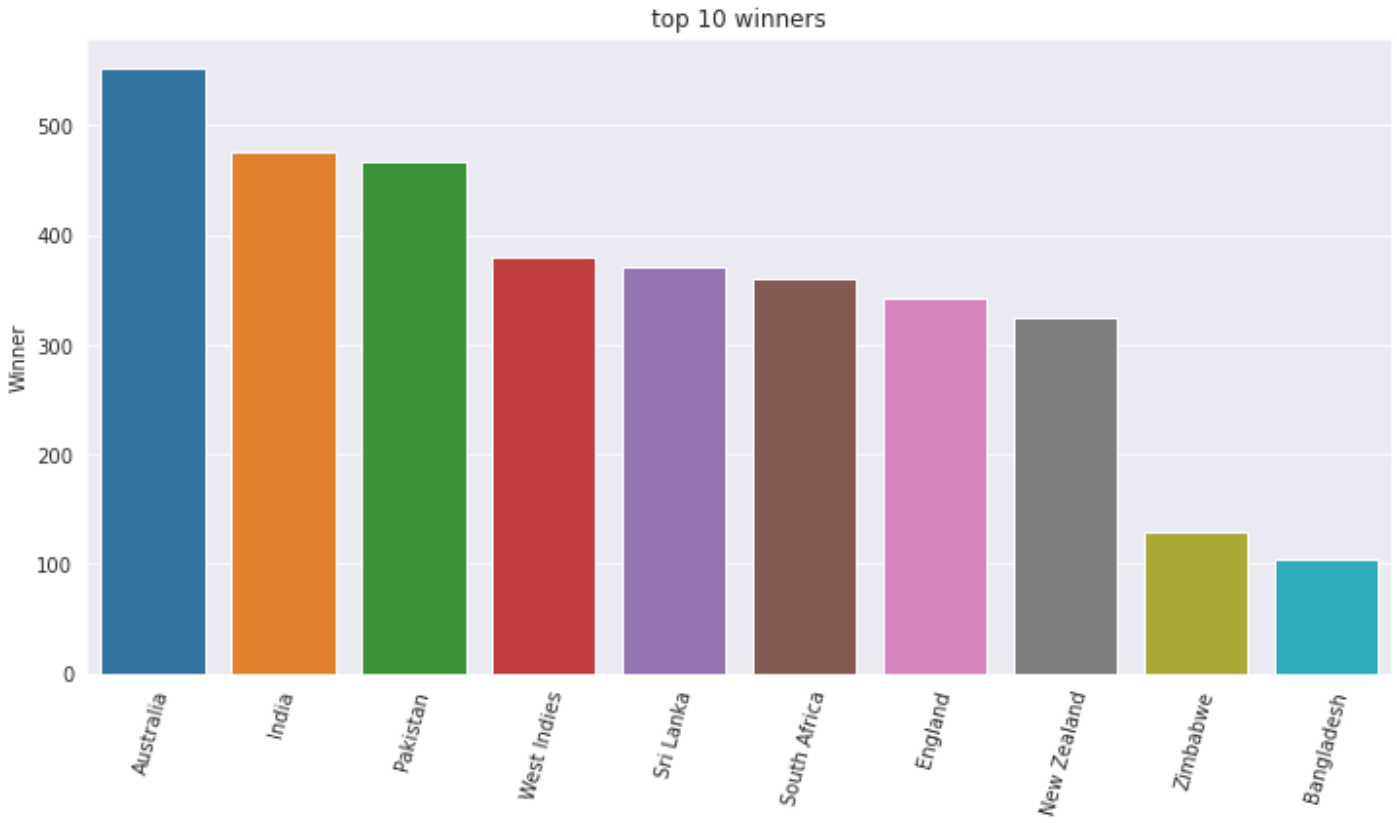
```
# Rank 1
odi_df.Winner.mode()
```

```
0    Australia
dtype: object
```

```
# List of top 10 winners
top_10=odi_df.Winner.value_counts()
top10=top_10.head(10)
top10
```

```
Australia       552
India           475
Pakistan        466
West Indies     380
Sri Lanka       371
South Africa    361
England         343
New Zealand     324
Zimbabwe        129
Bangladesh      105
Name: Winner, dtype: int64
```

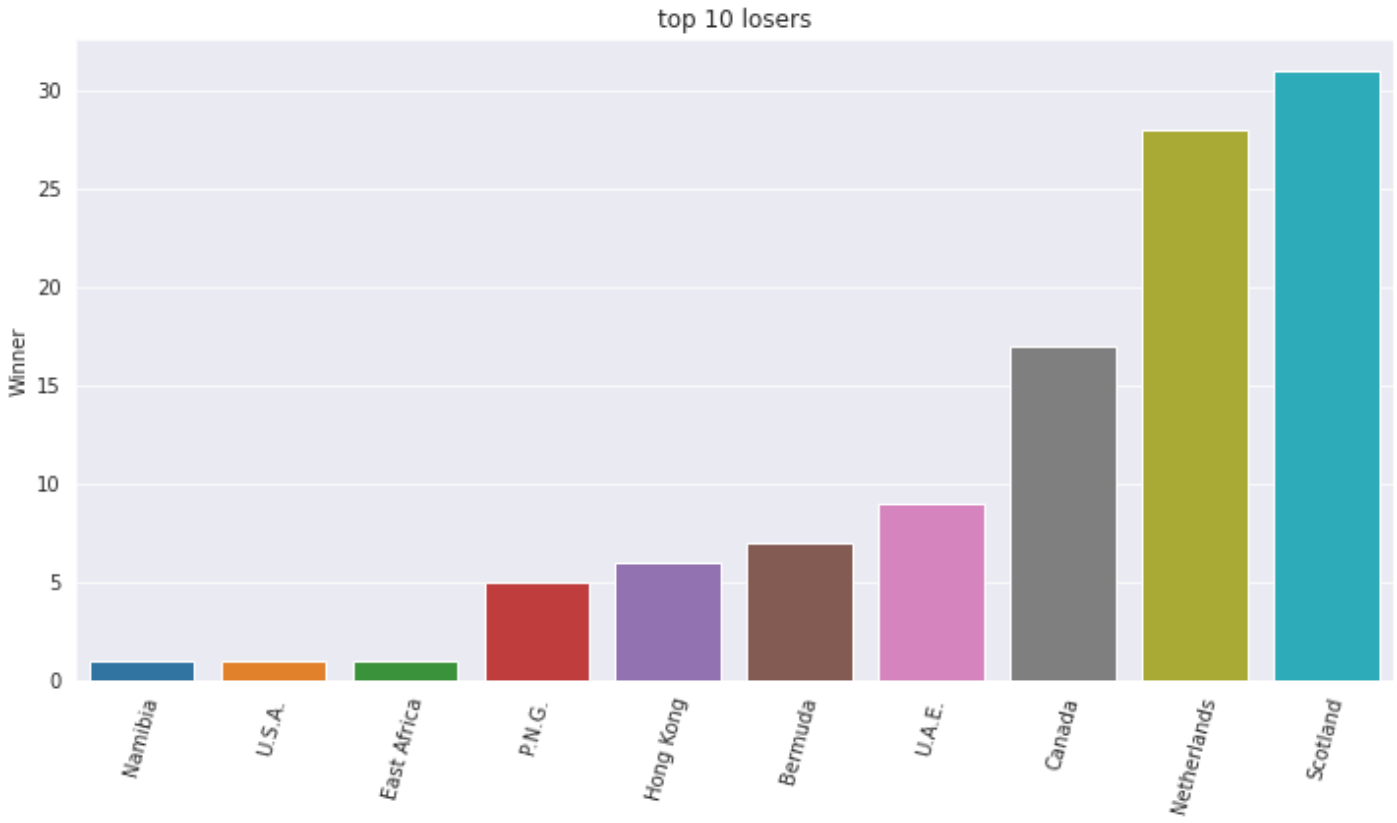
```
plt.figure(figsize=(12,6))
plt.xticks(rotation=75)
plt.title('top 10 winners')
sns.barplot(x=top10.index,y=top10);
```




```
# Top 10 losers
lw_10=odi_df.Winner.value_counts()
Best_losers=lw_10.tail(10).sort_values()
Best_losers
```

```
Namibia          1
U.S.A.           1
East Africa      1
P.N.G.           5
Hong Kong        6
Bermuda          7
U.A.E.           9
Canada          17
Netherlands     28
Scotland        31
Name: Winner, dtype: int64
```

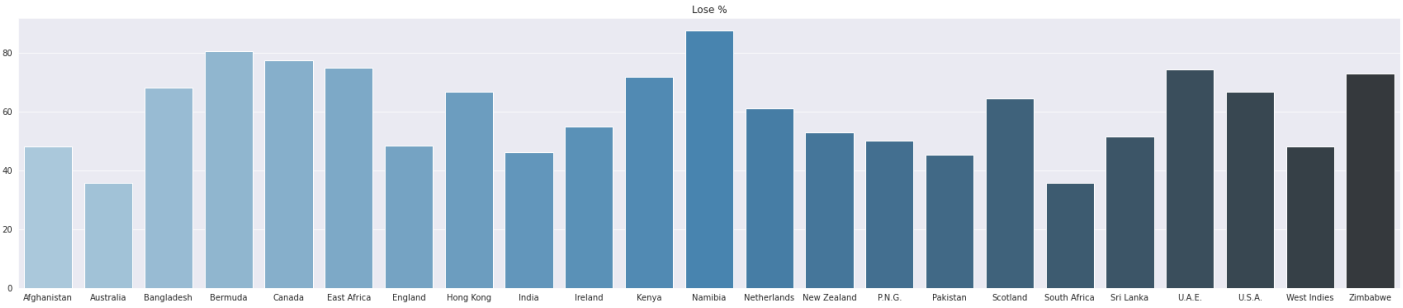
```
plt.figure(figsize=(12,6))
plt.xticks(rotation=75)
plt.title('top 10 losers')
sns.barplot(x=Best_losers.index,y=Best_losers);
```




```
#Losers %
loss_pc=(1-lw_10/head_count)*100
print(loss_pc)
plt.figure(figsize=(30,6))
plt.title('Lose %')
sns.barplot(x=loss_pc.index,y=loss_pc,color="salmon",palette="Blues_d",);
```

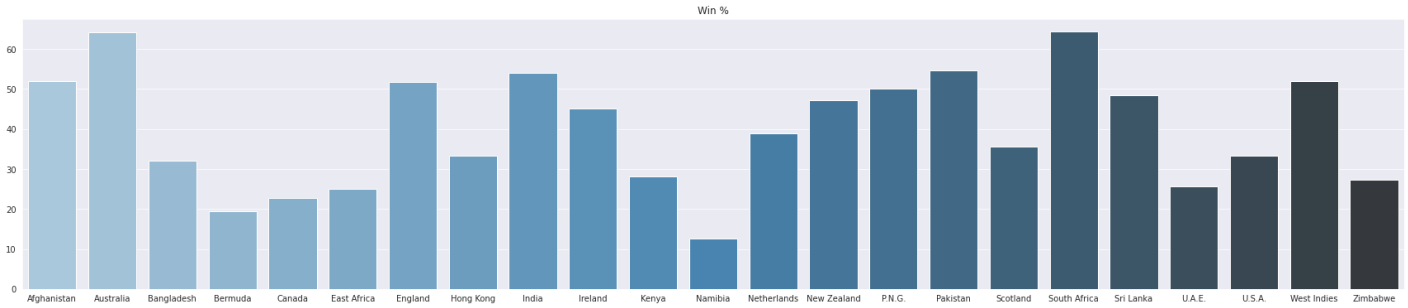
```
Afghanistan     48.148148
Australia       35.739232
Bangladesh      67.987805
Bermuda         80.555556
Canada          77.333333
East Africa     75.000000
England         48.343373
Hong Kong       66.666667
India           46.022727
Ireland         54.867257
Kenya           71.812081
Namibia         87.500000
Netherlands     61.111111
New Zealand     52.769679
P.N.G.          50.000000
Pakistan        45.433255
Scotland        64.367816
South Africa    35.650624
Sri Lanka       51.566580
```

```
U.A.E.          74.285714
U.S.A.          66.666667
West Indies     48.016416
Zimbabwe        72.784810
dtype: float64
```




```
# Best win %
Win_pc=top_10/head_count*100
print(Win_pc)
plt.figure(figsize=(30,6))
plt.title('Win %')
sns.barplot(x=Win_pc.index,y=Win_pc,color="salmon",palette="Blues_d",);
```

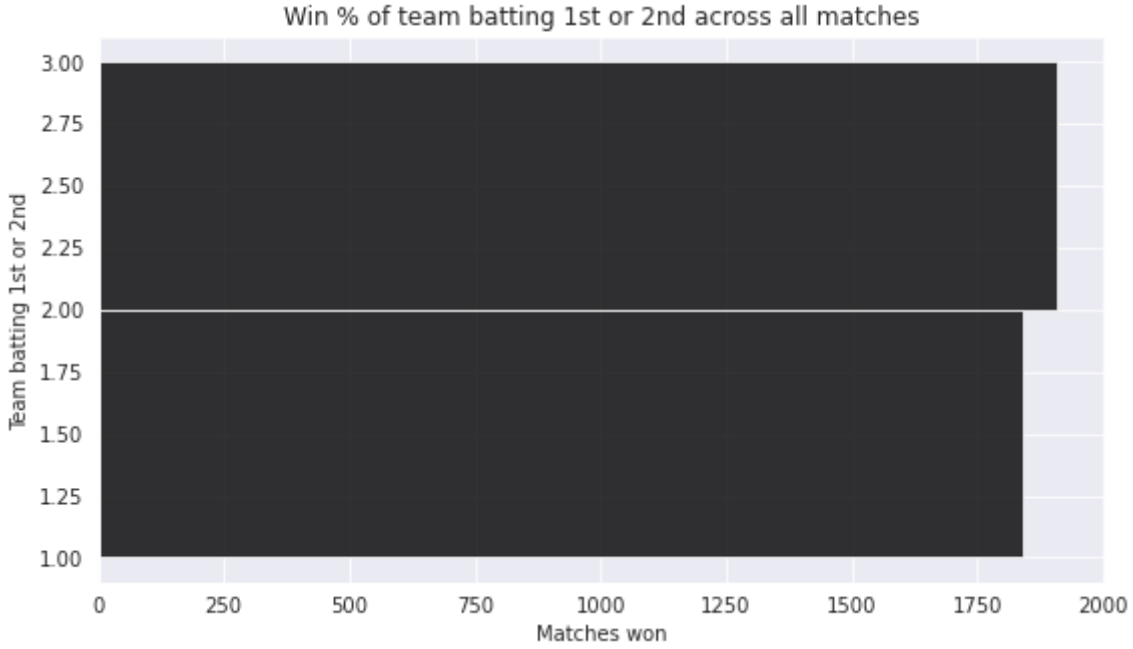
```
Afghanistan     51.851852
Australia       64.260768
Bangladesh      32.012195
Bermuda         19.444444
Canada          22.666667
East Africa     25.000000
England         51.656627
Hong Kong       33.333333
India           53.977273
Ireland         45.132743
Kenya           28.187919
Namibia         12.500000
Netherlands     38.888889
New Zealand     47.230321
P.N.G.          50.000000
Pakistan        54.566745
Scotland        35.632184
South Africa    64.349376
Sri Lanka       48.433420
U.A.E.          25.714286
U.S.A.          33.333333
West Indies     51.983584
Zimbabwe        27.215190
dtype: float64
```



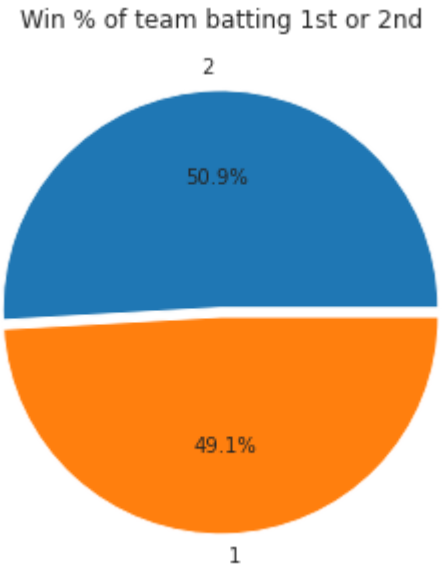
Q2- Win % of team batting 1st or 2nd across all matches?

```
plt.title("Win % of team batting 1st or 2nd across all matches")
plt.hist(odi_df.WinnerBatInnings,bins=np.arange(1, 4, 1),histtype='barstacked',align='m
plt.xlabel('Matches won')
plt.ylabel('Team batting 1st or 2nd')
```

```
Text(0, 0.5, 'Team batting 1st or 2nd')
```




```
#pie_chart
plt.title('Win % of team batting 1st or 2nd')
win=odi_df.WinnerBatInnings.value_counts()
plt.pie(win,labels=win.index,autopct='%1.1f%%',explode=(.02,.02));
```



Batting first or second doesn't make much of a difference

Which team won most matches batting first?

```
import statistics
from statistics import mode
```

```
#(odi_df[odi_df.WinnerBatInnings==1].groupby('Team1')[['Scorecard']].count()).sort_valu
Team=np.array([])
x=odi_df[odi_df.WinnerBatInnings==1]
for y in x.Innings_Team1:
    if y==1:
        Teams=np.append(Team,x.Team1)
    else:
        Teams=np.append(Team,x.Team2)
print(mode(Teams))
```

```
Australia
```

Which team won most matches batting second?

```
Team=np.array([])
x=odi_df[odi_df.WinnerBatInnings==2]
for y in x.Innings_Team1:
    if y==2:
        Teams=np.append(Team,x.Team1)
    else:
        Teams=np.append(Team,x.Team2)
print(mode(Teams))
```

```
Pakistan
```

Q3: Home vs away matches

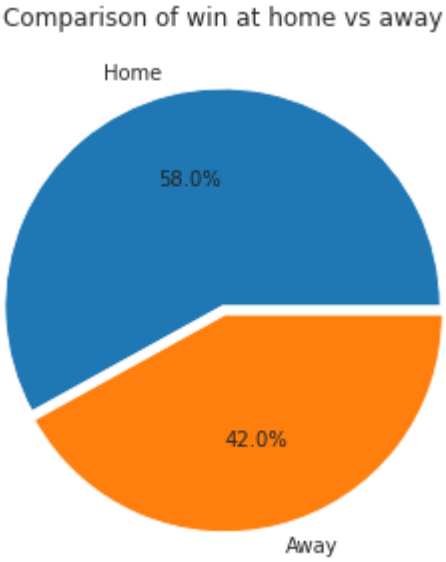
```
#Home_team_wins
x=odi_df[odi_df.Venue_Team1=='Home']
a1=(x.Winner==x.Team1).sum()
y=odi_df[odi_df.Venue_Team2=='Home']
a2=(y.Winner==y.Team2).sum()
a1+a2
```

1514

```
#Away wins
xc=odi_df[odi_df.Venue_Team1=='Away']
a1a=(xc.Winner==xc.Team1).sum()
yc=odi_df[odi_df.Venue_Team2=='Away']
a2a=(yc.Winner==yc.Team2).sum()
a1a+a2a
```

1095

```
list1=[1514,1095]
labels=['Home','Away']
plt.title("Comparison of win at home vs away")
plt.pie(list1,labels=labels,autopct='%1.1f%%',explode=(.02,.02));
```



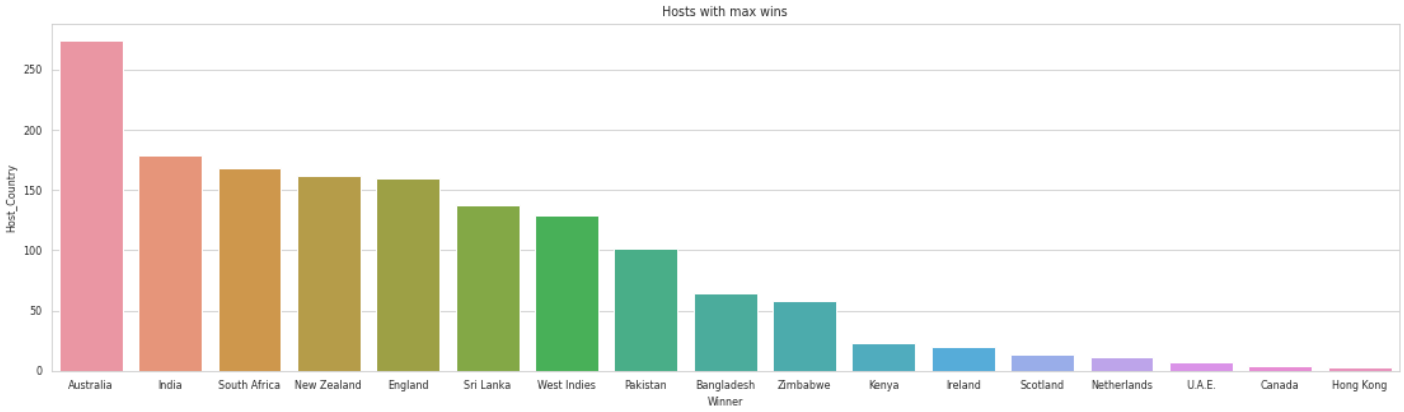
Teams are more comfortable playing at home and have better winning ratio at home

Q4- Which host country has won most matches?

```
xa=(odi_df[odi_df.Winner==odi_df.Host_Country]).groupby('Winner')['Host_Country'].count
xa.index
```

```
Index(['Australia', 'India', 'South Africa', 'New Zealand', 'England',
       'Sri Lanka', 'West Indies', 'Pakistan', 'Bangladesh', 'Zimbabwe',
       'Kenya', 'Ireland', 'Scotland', 'Netherlands', 'U.A.E.', 'Canada',
       'Hong Kong'],
      dtype='object', name='Winner')
```

```
sns.set_style('whitegrid')
matplotlib.rcParams['font.size'] = 8
matplotlib.rcParams['figure.figsize'] = (19, 5)
matplotlib.rcParams['figure.facecolor'] = '#90060000'
plt.title('Hosts with max wins')
plt.xlabel("Country")
plt.ylabel("Count")
sns.barplot(x=xa.index, y=xa);
```



Australia has won most number of matches while hosting it.

Q5-Which grounds are most favourable for chasing score?

```
((odi_df[odi_df.WinnerBatInnings==2]).groupby('Ground')[['Scorecard']].count()).sort_va
```

Ground	Scorecard
Sharjah	104
Colombo	85
Dhaka	79
Melbourne	74
Harare	68
...	...
New Plymouth	1
Quetta	1
Darwin	1
Port Moresby	1
Derby	1

150 rows × 1 columns

Which grounds are most favourable for batting first?

```
((odi_df[odi_df.WinnerBatInnings==1]).groupby('Ground')[['Scorecard']].count()).sort_va
```

	Scorecard

	Ground	Scorecard
	Ground	
	Sharjah	122
	Colombo	94
	Sydney	86
	Melbourne	76
	Dhaka	75
	...	...
	Kwekwe	1
	Queenstown	1
	Pietermaritzburg	1
	Khulna	1
	Whangarei	1

147 rows × 1 columns

Interestingly Sharjah followed by Colombo are suitable for both batting 1st and 2nd.

Inferences and Conclusion

1. First recorded ODI match was played on Jan 5,1971
2. Sharjah and colombo have hosted the most number of matches
3. India followed by Australia have played the most ODI matches
4. Pakistan has played most neutral venue games which is obvious as Teams rarely tour Pakistan due to securiy threats
5. Suprisingly only one-third games are played at Neutral venues
6. Year 2007 saw highest matches(179)
7. Australia, India have won most matches while associate nations like Scotland & Netherlands are top losers
8. Batting 1st or 2nd doesn't matter much as far as overall win:loss is concerned.
9. Most teams dominate at home.

References

1. Data set can be found at "https://www.kaggle.com/datasets/jaykay12/odi-cricket-matches-19712017"

```
import jovian
```

```
jovian.commit()
```

```
[jovian] Updating notebook "nihalgupta012/zerotopandas-course-project-starter-nihal" on https://jovian.ai
```

```
[jovian] Committed successfully! https://jovian.ai/nihalgupta012/zerotopandas-course-project-starter-nihal
```

```
'https://jovian.ai/nihalgupta012/zerotopandas-course-project-starter-nihal'
```