ODI Cricket Matches Analysis Between 1971-2017

This project is about "ODI Cricket Matches Analysis Between 1971-2017" Data Analysis with Python. Dataset is taken from "Kaggle" which is the world's largest data science community with powerful tools and resources.


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This dataset contains 3932 rows and 7 columns which is really informaive to analysis. Various kinds of information like number of matches played, winning percentage, most ODI wins by team and many things analyzed in this project.

Downloading the Dataset

> - Link of Dataset: https://www.kaggle.com/jaykay12/odi-cricket-matches-19712017
> - This dataset is in CSV format and contains 7 columns and 3932 rows
> - Downloaded the dataset using the opendatasets Python library

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

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

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

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

```
Please provide your Kaggle credentials to download this dataset. Learn more: http://bit.ly/kaggle-creds
Your Kaggle username: kowshikchakraborty
Your Kaggle Key: ··········
100%|██████████| 330k/330k [00:00<00:00, 37.1MB/s]
Downloading odi-cricket-matches-19712017.zip to ./odi-cricket-matches-19712017
```

The dataset has been downloaded and extracted.

```
# Change this
data_dir = './odi-cricket-matches-19712017'
```

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

```
['originalDataset.csv',
 'CategoricalDataset.csv',
```

```
 'ContinousDataset.csv',
 'LabelledDataset.csv']
```

Let us save and upload our work to Jovian before continuing.

```
project_name = "odi-cricket-matches-analysis-between-1971-2017"
```

```
!pip install jovian --upgrade -q
```

```
import jovian
```

```
jovian.commit(project=project_name)
```

```
[jovian] Detected Colab notebook...
[jovian] Please enter your API key ( from https://jovian.ai/ ):
API KEY: ·····
[jovian] Uploading colab notebook to Jovian...
Committed successfully! https://jovian.ai/kowshikchakraborty6/odi-cricket-matches-analysis-between-1971-2017
```

'https://jovian.ai/kowshikchakraborty6/odi-cricket-matches-analysis-between-1971-2017'

Data Preparation and Cleaning

> - Load the dataset into a data frame using Pandas
> - Explore the number of rows & columns, ranges of values etc.
> - Handle missing, incorrect and invalid data
> - Perform any additional steps (parsing dates, creating additional columns, merging multiple dataset etc.)

```
import pandas as pd
```

```
odi_matches_df = pd.read_csv('odi-cricket-matches-19712017/originalDataset.csv')
```

```
odi_matches_df
```

	Scorecard	Team 1	Team 2	Winner	Margin	Ground	Match Date
0	ODI # 1	Australia	England	Australia	5 wickets	Melbourne	Jan 5, 1971
1	ODI # 2	England	Australia	England	6 wickets	Manchester	Aug 24, 1972
2	ODI # 3	England	Australia	Australia	5 wickets	Lord's	Aug 26, 1972
3	ODI # 4	England	Australia	England	2 wickets	Birmingham	Aug 28, 1972
4	ODI # 5	New Zealand	Pakistan	New Zealand	22 runs	Christchurch	Feb 11, 1973

	Scorecard	Team 1	Team 2	Winner	Margin	Ground	Match Date
...	...	...	...	...	...	...	...
3927	ODI # 3928	India	New Zealand	New Zealand	6 wickets	Mumbai	Oct 22, 2017
3928	ODI # 3929	South Africa	Bangladesh	South Africa	200 runs	East London	Oct 22, 2017
3929	ODI # 3930	Pakistan	Sri Lanka	Pakistan	9 wickets	Sharjah	Oct 23, 2017
3930	ODI # 3931	India	New Zealand	India	6 wickets	Pune	Oct 25, 2017
3931	ODI # 3932	India	New Zealand	India	6 runs	Kanpur	Oct 29, 2017

3932 rows × 7 columns

```
odi_matches_df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 3932 entries, 0 to 3931
Data columns (total 7 columns):
 #   Column      Non-Null Count  Dtype 
---  ------      --------------  ----- 
 0   Scorecard   3932 non-null   object
 1   Team 1      3932 non-null   object
 2   Team 2      3932 non-null   object
 3   Winner      3932 non-null   object
 4   Margin      3753 non-null   object
 5   Ground      3932 non-null   object
 6   Match Date  3932 non-null   object
dtypes: object(7)
memory usage: 215.2+ KB
```

```
odi_matches_df.columns
```

```
Index(['Scorecard', 'Team 1', 'Team 2', 'Winner', 'Margin', 'Ground',
       'Match Date'],
      dtype='object')
```

```
odi_matches_df.shape
```

```
(3932, 7)
```

```
odi_matches_df.describe()
```

	Scorecard	Team 1	Team 2	Winner	Margin	Ground	Match Date
count	3932	3932	3932	3932	3753	3932	3932
unique	3932	24	25	25	227	173	3386
top	ODI # 94	Australia	Sri Lanka	Australia	6 wickets	Sharjah	Feb 4, 2007
freq	1	583	508	555	347	228	6

```
odi_matches_df.isnull().sum()
```

```
Scorecard       0
Team 1          0
Team 2          0
Winner          0
Margin        179
Ground          0
Match Date      0
dtype: int64
```

```
odi_matches_df.fillna(value=0, inplace=True)
odi_matches_df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 3932 entries, 0 to 3931
Data columns (total 7 columns):
 #   Column      Non-Null Count  Dtype 
---  ------      --------------  ----- 
 0   Scorecard   3932 non-null   object
 1   Team 1      3932 non-null   object
 2   Team 2      3932 non-null   object
 3   Winner      3932 non-null   object
 4   Margin      3932 non-null   object
 5   Ground      3932 non-null   object
 6   Match Date  3932 non-null   object
dtypes: object(7)
memory usage: 215.2+ KB
```

```
odi_matches_df
```

	Scorecard	Team 1	Team 2	Winner	Margin	Ground	Match Date
0	ODI # 1	Australia	England	Australia	5 wickets	Melbourne	Jan 5, 1971
1	ODI # 2	England	Australia	England	6 wickets	Manchester	Aug 24, 1972
2	ODI # 3	England	Australia	Australia	5 wickets	Lord's	Aug 26, 1972
3	ODI # 4	England	Australia	England	2 wickets	Birmingham	Aug 28, 1972
4	ODI # 5	New Zealand	Pakistan	New Zealand	22 runs	Christchurch	Feb 11, 1973
...	...	...	...	...	...	...	...
3927	ODI # 3928	India	New Zealand	New Zealand	6 wickets	Mumbai	Oct 22, 2017
3928	ODI # 3929	South Africa	Bangladesh	South Africa	200 runs	East London	Oct 22, 2017
3929	ODI # 3930	Pakistan	Sri Lanka	Pakistan	9 wickets	Sharjah	Oct 23, 2017
3930	ODI # 3931	India	New Zealand	India	6 wickets	Pune	Oct 25, 2017
3931	ODI # 3932	India	New Zealand	India	6 runs	Kanpur	Oct 29, 2017

3932 rows × 7 columns

```
odi_matches_df.rename(columns = {"Team 1": "Team_1", "Team 2": "Team_2", "Match Date":
odi_matches_df
```

	Scorecard	Team_1	Team_2	Winner	Margin	Ground	Match_Date
0	ODI # 1	Australia	England	Australia	5 wickets	Melbourne	Jan 5, 1971
1	ODI # 2	England	Australia	England	6 wickets	Manchester	Aug 24, 1972
2	ODI # 3	England	Australia	Australia	5 wickets	Lord's	Aug 26, 1972
3	ODI # 4	England	Australia	England	2 wickets	Birmingham	Aug 28, 1972
4	ODI # 5	New Zealand	Pakistan	New Zealand	22 runs	Christchurch	Feb 11, 1973
...	...	...	...	...	...	...	...
3927	ODI # 3928	India	New Zealand	New Zealand	6 wickets	Mumbai	Oct 22, 2017
3928	ODI # 3929	South Africa	Bangladesh	South Africa	200 runs	East London	Oct 22, 2017
3929	ODI # 3930	Pakistan	Sri Lanka	Pakistan	9 wickets	Sharjah	Oct 23, 2017
3930	ODI # 3931	India	New Zealand	India	6 wickets	Pune	Oct 25, 2017
3931	ODI # 3932	India	New Zealand	India	6 runs	Kanpur	Oct 29, 2017

3932 rows × 7 columns

```
import jovian
```

```
jovian.commit()
```

```
[jovian] Detected Colab notebook...
[jovian] Uploading colab notebook to Jovian...
Committed successfully! https://jovian.ai/kowshikchakraborty6/odi-cricket-matches-analysis-between-1971-2017
```

'https://jovian.ai/kowshikchakraborty6/odi-cricket-matches-analysis-between-1971-2017'

Exploratory Analysis and Visualization

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'] = 14
matplotlib.rcParams['figure.figsize'] = (9, 5)
matplotlib.rcParams['figure.facecolor'] = '#00000000'
```

Exploring Max, Min and Mean Functions.

```
odi_matches_df.Match_Date.max()
```

```
'Sep 9, 2011'
```

```
odi_matches_df.Match_Date.min()
```

```
'Apr 1, 1984'
```

```
odi_matches_df.mean()
```

```
Series([], dtype: float64)
```

Exploring the Winner column.

```
odi_matches_df.Winner.value_counts()
```

```
Australia       555
India           476
Pakistan        469
West Indies     380
Sri Lanka       372
South Africa    361
England         343
New Zealand     324
no result       140
Zimbabwe        129
Bangladesh      105
Ireland          51
Kenya            42
Afghanistan      42
tied             34
Scotland         31
Netherlands      28
Canada           17
U.A.E.            9
Bermuda           7
Hong Kong         6
P.N.G.            5
Asia XI           4
Africa XI         1
ICC World XI      1
Name: Winner, dtype: int64
```

```
print(odi_matches_df.Winner.unique())
print('Total Winners:',odi_matches_df.Winner.nunique())
```

```
['Australia' 'England' 'New Zealand' 'no result' 'West Indies' 'Pakistan'
 'India' 'Sri Lanka' 'Zimbabwe' 'tied' 'South Africa' 'Kenya' 'U.A.E.'
 'Bangladesh' 'Canada' 'Netherlands' 'ICC World XI' 'Africa XI' 'Asia XI'
```

```
 'Bermuda' 'Ireland' 'Scotland' 'Afghanistan' 'P.N.G.' 'Hong Kong']
Total Winners: 25
```

Exploring the number of Grounds and other things in Bar chart.

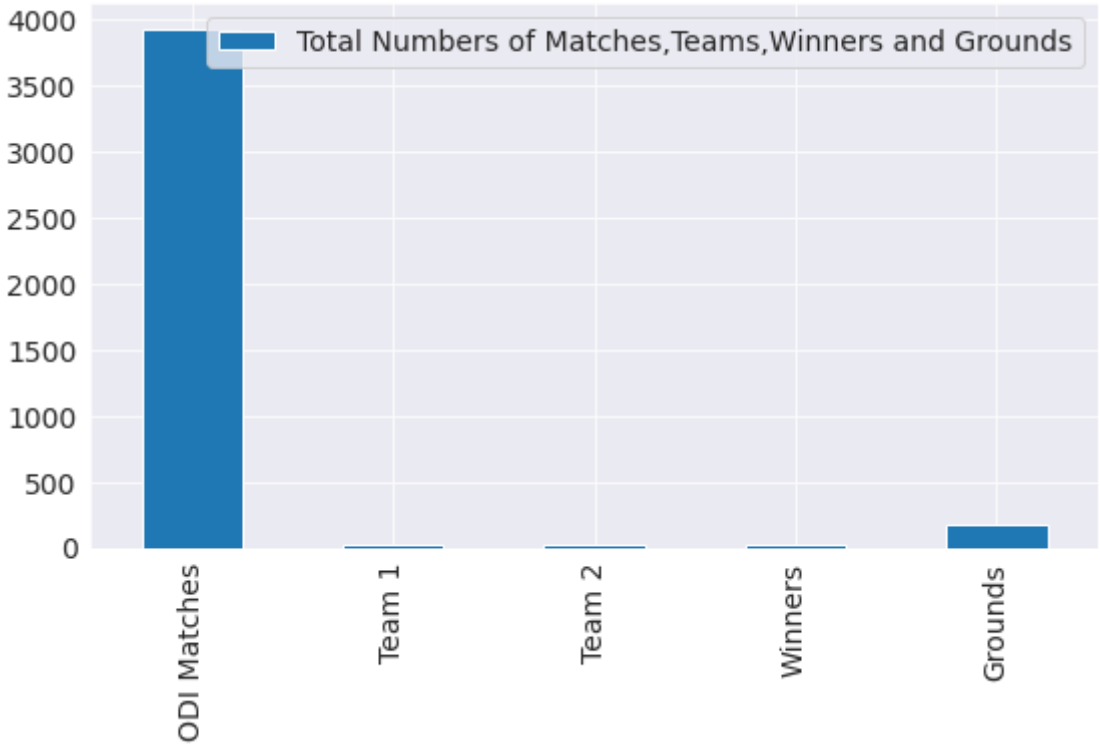
```
print('Total Grounds:',odi_matches_df.Ground.nunique())
```

```
Total Grounds: 173
```

```
plotdata = pd.DataFrame({"Total Numbers of Matches,Teams,Winners and Grounds": [odi_mat

plotdata.plot(kind="bar")
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f64d2865b10>
```



Exploring most matches won by single team at away.

```
odi_matches_2_df = pd.read_csv('odi-cricket-matches-19712017/ContinousDataset.csv')
odi_matches_2_df
```

	Unnamed: 0	Scorecard	Team 1	Team 2	Margin	Ground	Match Date	Winner	Host_Country	Ver
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	

	Unnamed: 0	Scorecard	Team 1	Team 2	Margin	Ground	Match Date	Winner	Host_Country	Ver
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

```
odi_matches_2_df.loc[odi_matches_2_df.Venue_Team1 == 'Away'].Winner.value_counts().idxm
```

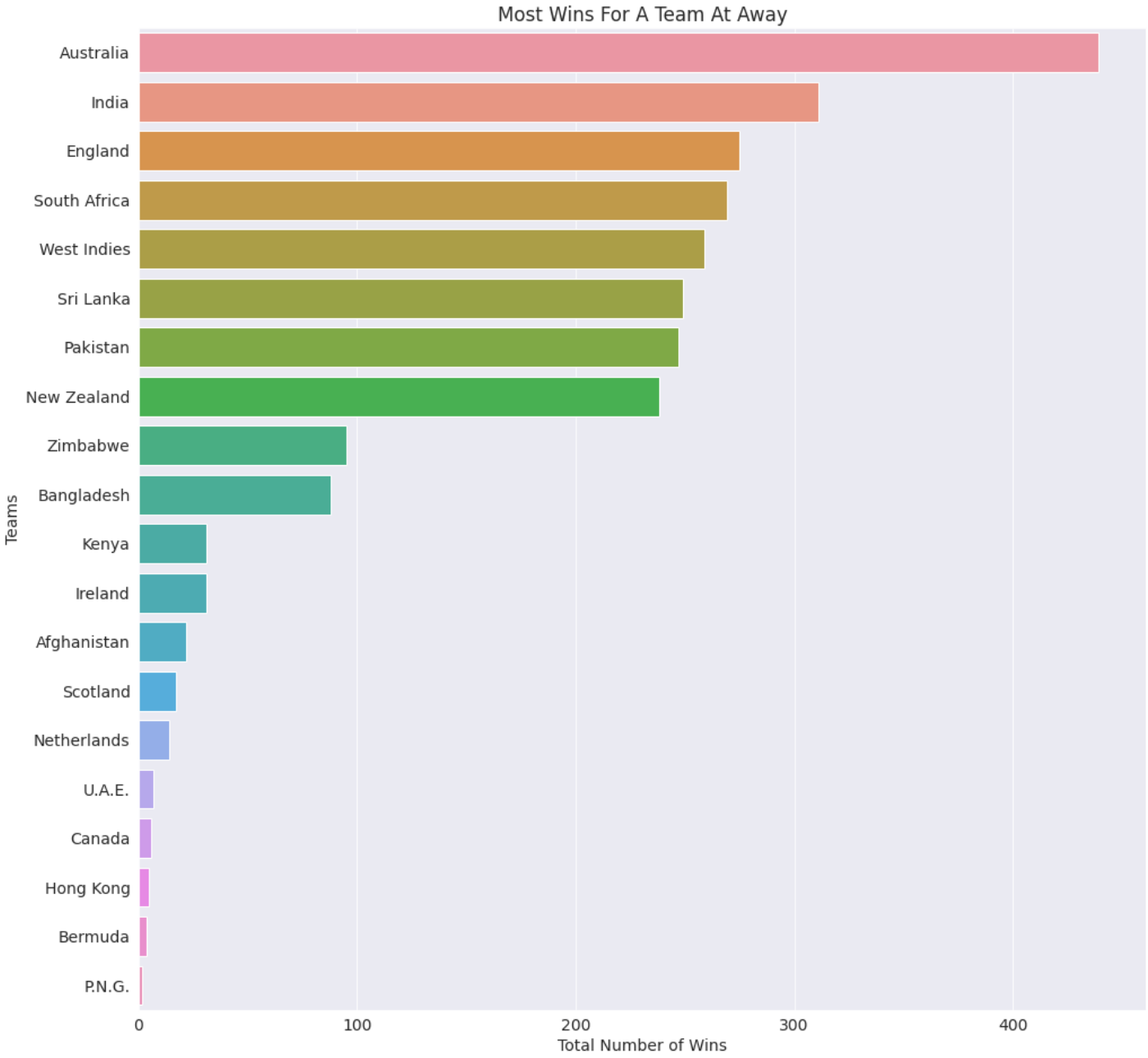
```
'Australia'
```

```
away_winners = odi_matches_2_df.loc[odi_matches_2_df.Venue_Team1 == 'Away'].Winner.valu
away_winners.reset_index()
```

	index	Winner
0	Australia	439
1	India	311
2	England	275
3	South Africa	269
4	West Indies	259
5	Sri Lanka	249
6	Pakistan	247
7	New Zealand	238
8	Zimbabwe	95
9	Bangladesh	88
10	Kenya	31
11	Ireland	31
12	Afghanistan	22
13	Scotland	17
14	Netherlands	14
15	U.A.E.	7

	index	Winner
16	Canada	6
17	Hong Kong	5
18	Bermuda	4
19	P.N.G.	2

```
plt.figure(figsize=(16,16))
sns.barplot(x=away_winners, y=away_winners.index)
plt.xlabel("Total Number of Wins")
plt.ylabel("Teams");
plt.title('Most Wins For A Team At Away');
```



Let us save and upload our work to Jovian before continuing

```
import jovian
```

```
jovian.commit()
```

```
[jovian] Detected Colab notebook...
[jovian] Uploading colab notebook to Jovian...
Committed successfully! https://jovian.ai/kowshikchakraborty6/odi-cricket-matches-analysis-between-1971-2017
```

'https://jovian.ai/kowshikchakraborty6/odi-cricket-matches-analysis-between-1971-2017'

Asking and Answering Questions

> Instructions (delete this cell)
>
> - Ask at least 5 interesting questions about your dataset
> - Answer the questions either by computing the results using Numpy/Pandas or by plotting graphs using Matplotlib/Seaborn
> - Create new columns, merge multiple dataset and perform grouping/aggregation wherever necessary
> - Wherever you're using a library function from Pandas/Numpy/Matplotlib etc. explain briefly what it does

Q1: What Are The Winning Percentages By A Team Accroding To Scorecard?

```
x,y = odi_matches_2_df.shape

winner_count = odi_matches_2_df.loc[:,["Winner","Scorecard"]].groupby("Winner").count()
winner_count["Percentage (%)"] = round(winner_count["Scorecard"]*100/x,0);
winner_count = winner_count.sort_values("Scorecard",ascending=False)
winner_count
```

Winner	Scorecard	Percentage (%)
Australia	1104	15.0
India	950	13.0
Pakistan	932	12.0
West Indies	760	10.0
Sri Lanka	742	10.0
South Africa	722	10.0
England	686	9.0
New Zealand	648	9.0
Zimbabwe	258	3.0
Bangladesh	210	3.0
Ireland	102	1.0

Winner	Scorecard	Percentage (%)
Afghanistan	84	1.0
Kenya	84	1.0
Scotland	62	1.0
Netherlands	56	1.0
Canada	34	0.0
U.A.E.	18	0.0
Bermuda	14	0.0
Hong Kong	12	0.0
P.N.G.	10	0.0
East Africa	2	0.0
U.S.A.	2	0.0
Namibia	2	0.0

```
reseting_index = winner_count['Percentage (%)']
reseting_index.reset_index()
```

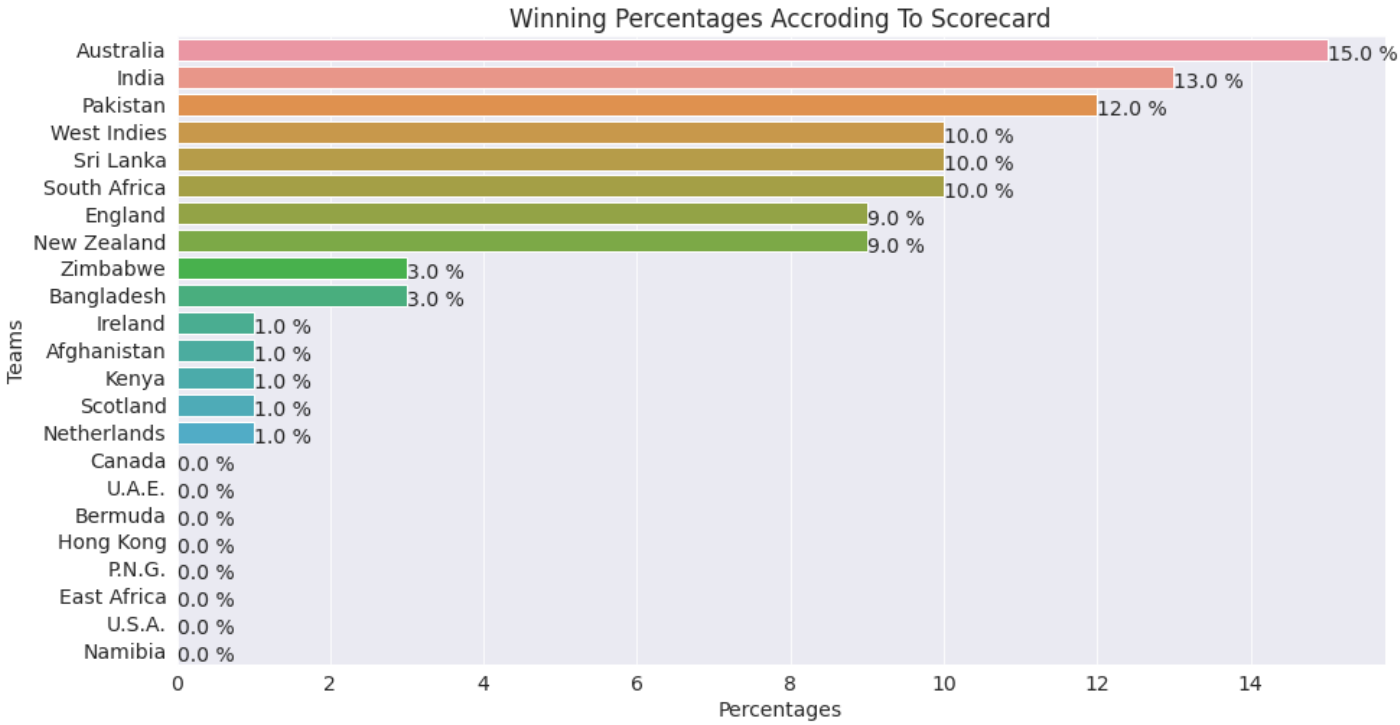
	Winner	Percentage (%)
0	Australia	15.0
1	India	13.0
2	Pakistan	12.0
3	West Indies	10.0
4	Sri Lanka	10.0
5	South Africa	10.0
6	England	9.0
7	New Zealand	9.0
8	Zimbabwe	3.0
9	Bangladesh	3.0
10	Ireland	1.0
11	Afghanistan	1.0
12	Kenya	1.0
13	Scotland	1.0
14	Netherlands	1.0
15	Canada	0.0
16	U.A.E.	0.0
17	Bermuda	0.0
18	Hong Kong	0.0
19	P.N.G.	0.0
20	East Africa	0.0
21	U.S.A.	0.0

	Winner	Percentage (%)
22	Namibia	0.0

```
plt.figure(figsize= (15, 8))
ax = sns.barplot(x=reseting_index, y=reseting_index.index)
plt.title('Winning Percentages Accroding To Scorecard')
plt.xlabel('Percentages')
plt.ylabel('Teams')

for patch in ax.patches:
    width = patch.get_width()
    height = patch.get_height()
    x = patch.get_x()
    y = patch.get_y()

    plt.text(width + x, height + y, '{:.1f} %'.format(width))
```



Q2: How Many ODI Matches Played Per Year?

```
odi_matches_2_df['Year'] = odi_matches_2_df['Match Date'].str[-4:]
yearwise = odi_matches_2_df[['Year']].value_counts()/2
yearwise = yearwise.reset_index()
yearwise.columns =['Year', 'Matches']
yearwise = yearwise.sort_values(by='Year',ascending=True)
yearwise = yearwise.reset_index()
yearwise = yearwise.drop(columns=['index'])
yearwise
```

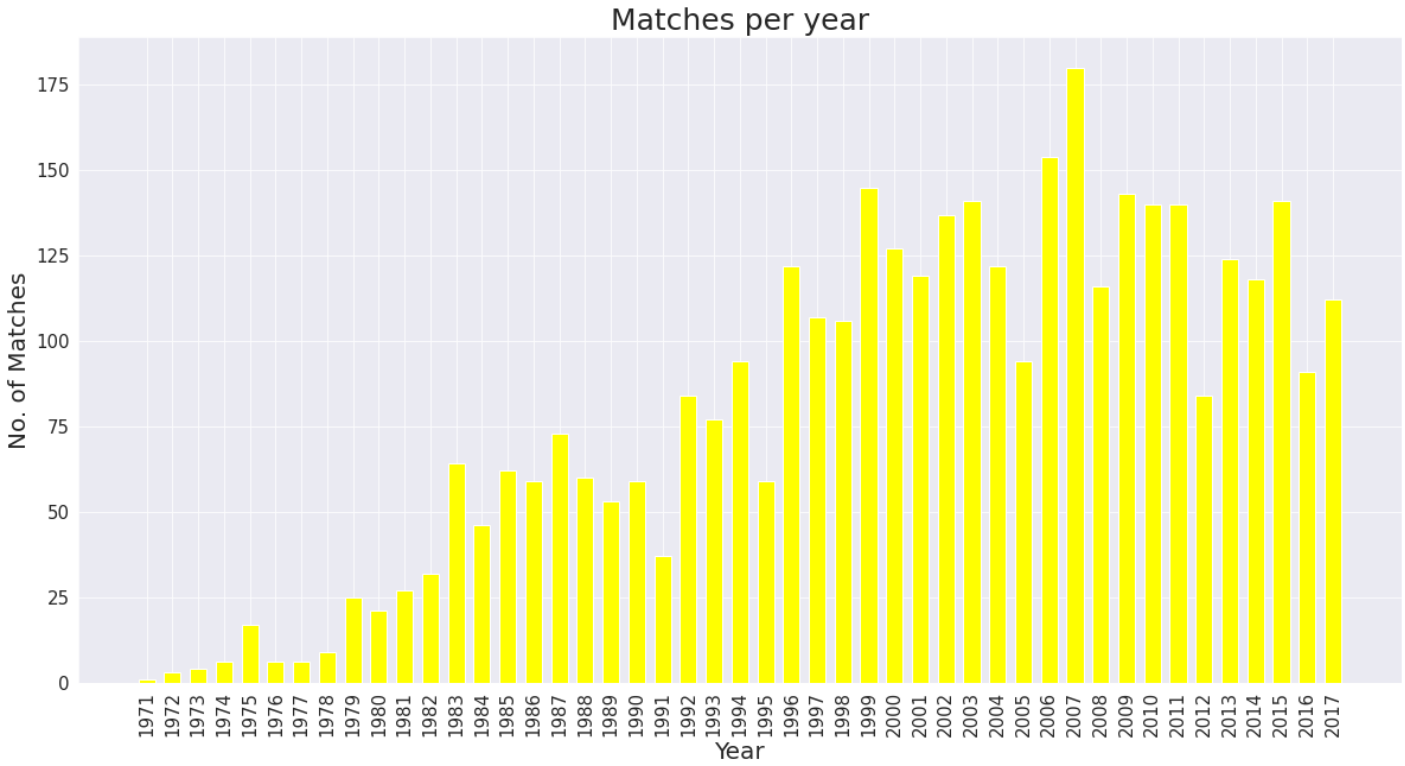
	Year	Matches
0	1971	1.0

	Year	Matches
1	1972	3.0
2	1973	4.0
3	1974	6.0
4	1975	17.0
5	1976	6.0
6	1977	6.0
7	1978	9.0
8	1979	25.0
9	1980	21.0
10	1981	27.0
11	1982	32.0
12	1983	64.0
13	1984	46.0
14	1985	62.0
15	1986	59.0
16	1987	73.0
17	1988	60.0
18	1989	53.0
19	1990	59.0
20	1991	37.0
21	1992	84.0
22	1993	77.0
23	1994	94.0
24	1995	59.0
25	1996	122.0
26	1997	107.0
27	1998	106.0
28	1999	145.0
29	2000	127.0
30	2001	119.0
31	2002	137.0
32	2003	141.0
33	2004	122.0
34	2005	94.0
35	2006	154.0
36	2007	180.0
37	2008	116.0
38	2009	143.0
39	2010	140.0

	Year	Matches
40	2011	140.0
41	2012	84.0
42	2013	124.0
43	2014	118.0
44	2015	141.0
45	2016	91.0
46	2017	112.0

```
sns.set_style('darkgrid')
plt.figure(figsize=(20,10))
plt.bar(yearwise['Year'], yearwise['Matches'], width=0.65, color='Yellow')
plt.xticks(rotation='vertical', size=15)
plt.yticks(size=15)
plt.xlabel('Year', size=20)
plt.ylabel('No. of Matches', size=20)
plt.title('Matches per year', size=25)
plt.show
```

```
<function matplotlib.pyplot.show>
```



Q3: How Many ODI Matches Played By Team?

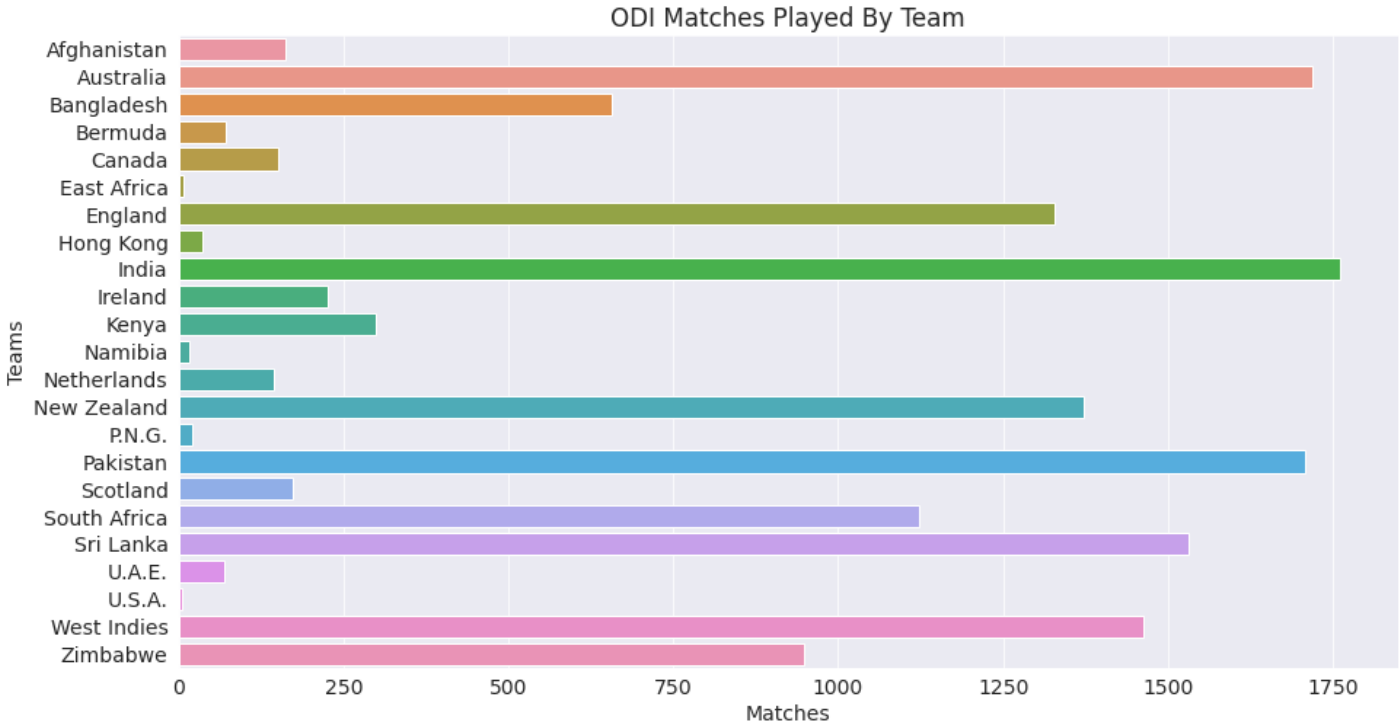
```
group1=odi_matches_2_df.groupby("Team 1").size().rename("Team_1")
group2=odi_matches_2_df.groupby("Team 2").size().rename("Team_2")
total=pd.concat([group1,group2],axis=1).fillna(0)
total["Total_Matches"]=total["Team_1"]+total["Team_2"]
total
```

	Team_1	Team_2	Total_Matches

	Team_1	Team_2	Total_Matches
Afghanistan	81	81	162
Australia	859	859	1718
Bangladesh	328	328	656
Bermuda	36	36	72
Canada	75	75	150
East Africa	4	4	8
England	664	664	1328
Hong Kong	18	18	36
India	880	880	1760
Ireland	113	113	226
Kenya	149	149	298
Namibia	8	8	16
Netherlands	72	72	144
New Zealand	686	686	1372
P.N.G.	10	10	20
Pakistan	854	854	1708
Scotland	87	87	174
South Africa	561	561	1122
Sri Lanka	766	766	1532
U.A.E.	35	35	70
U.S.A.	3	3	6
West Indies	731	731	1462
Zimbabwe	474	474	948

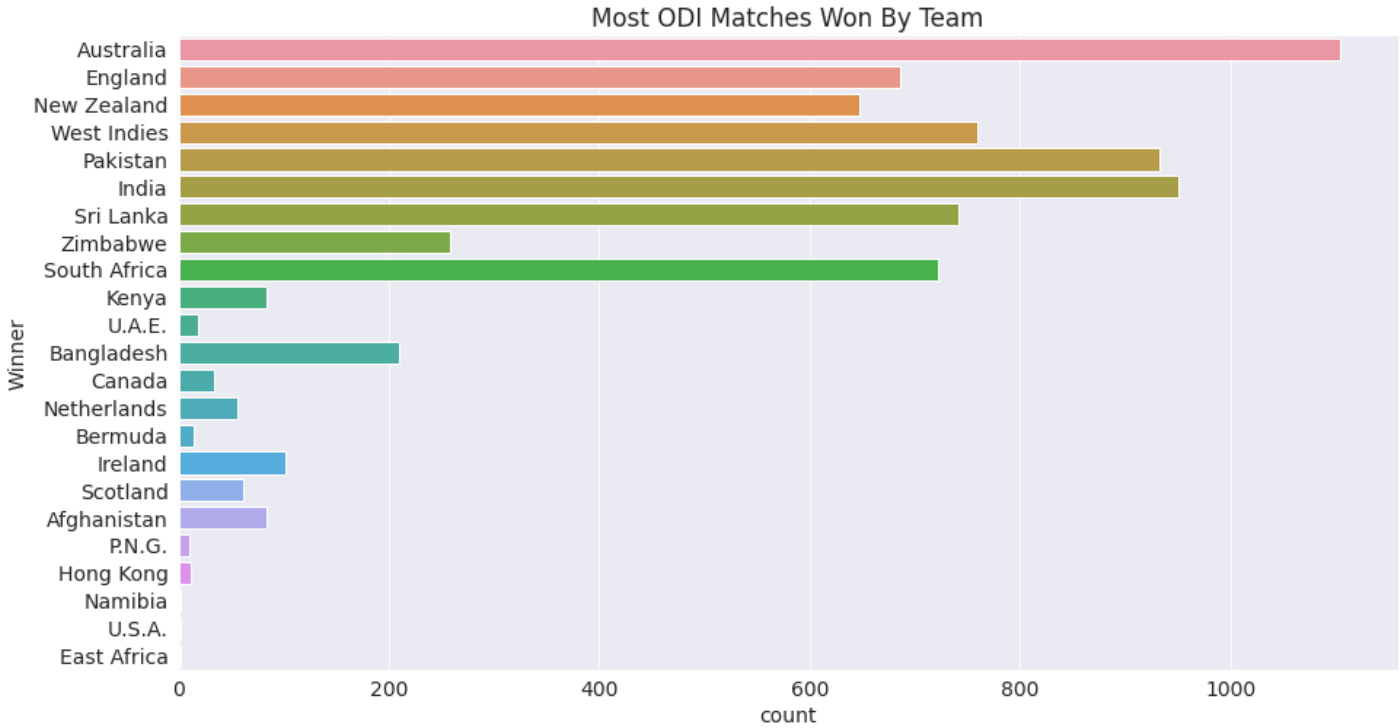
```
plt.figure(figsize= (15, 8))
sns.barplot(x=total['Total_Matches'],y=total.index)
plt.ylabel("Teams")
plt.xlabel("Matches")
plt.title("ODI Matches Played By Team")
```

```
Text(0.5, 1.0, 'ODI Matches Played By Team')
```



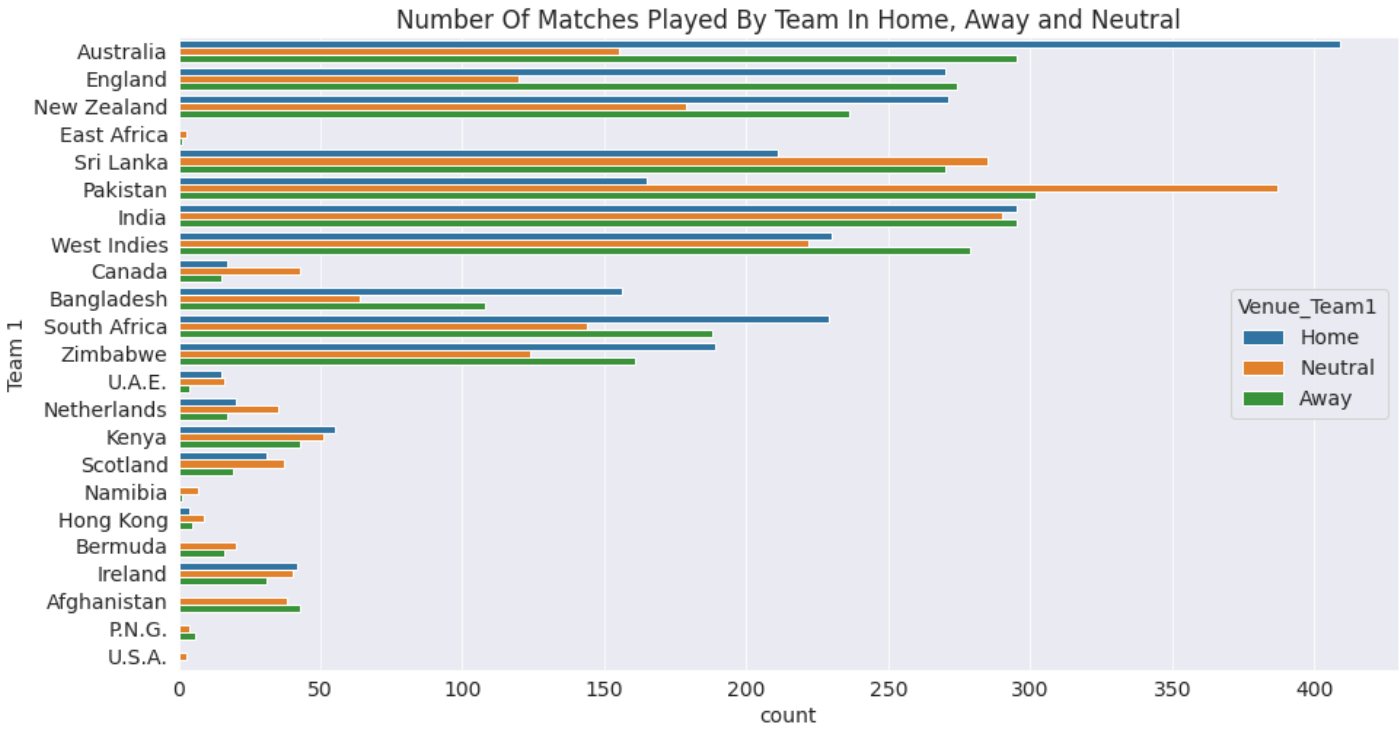
Q4: What Are The Rankings Of Teams That Won Most ODI Matches?

```
plt.figure(figsize= (15, 8))
sns.countplot(y='Winner', data=odi_matches_2_df)
plt.title('Most ODI Matches Won By Team')
plt.show()
```



Q5: What Are The Number Of Matches Played By Team In Home, Away and Neutral?

```
plt.figure(figsize= (15, 8))
sns.countplot(y='Team 1',hue='Venue_Team1',data=odi_matches_2_df)
plt.title('Number Of Matches Played By Team In Home, Away and Neutral')
plt.show()
```



Let us save and upload our work to Jovian before continuing.

```
import jovian
```

```
jovian.commit()
```

```
[jovian] Detected Colab notebook...
[jovian] Uploading colab notebook to Jovian...
Committed successfully! https://jovian.ai/kowshikchakraborty6/odi-cricket-matches-analysis-between-1971-2017
```

```
'https://jovian.ai/kowshikchakraborty6/odi-cricket-matches-analysis-between-1971-2017'
```

Inferences and Conclusion

That'a all about the "ODI Cricket Matches Analysis". There more things that can be analyzed and some codes that can be improved in future.

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```

References and Future Work

TODO - Write some explanation here: ideas for future projects using this dataset, and links to resources you found useful.

> Submission Instructions (delete this cell)
>
> - Upload your notebook to your Jovian.ml profile using `jovian.commit`.
> - **Make a submission here**: https://jovian.ml/learn/data-analysis-with-python-zero-to-pandas/assignment/course-project
> - Share your work on the forum: https://jovian.ml/forum/t/course-project-on-exploratory-data-analysis-discuss-and-share-your-work/11684
> - Share your work on social media (Twitter, LinkedIn, Telegram etc.) and tag @JovianML
>
> (Optional) Write a blog post
>
> - A blog post is a great way to present and showcase your work.
> - Sign up on Medium.com to write a blog post for your project.
> - Copy over the explanations from your Jupyter notebook into your blog post, and embed code cells & outputs
> - Check out the Jovian.ml Medium publication for inspiration: https://medium.com/jovianml

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```