

```
In [2]: import numpy as np
import pandas as pd
from matplotlib import pyplot as plt
import seaborn as sns
df=pd.read_csv('match_01.csv')
```

In [3]: df

Out[3]:

	ballnumber	inningno	over	outcome	batter	bowler	comment
0	1	1	0.1	0	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, no run.
1	2	1	0.2	1lb	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, 1 leg bye.
2	3	1	0.3	0	Ruturaj Gaikwad	Mohammed Shami	Mohammed Shami to Ruturaj Gaikwad, no run.
3	4	1	0.4	1	Ruturaj Gaikwad	Mohammed Shami	Mohammed Shami to Ruturaj Gaikwad, 1 run.
4	5	1	0.5	0	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, no run.
...
238	118	2	18.5	4	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, Four.
239	119	2	18.6	0	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, no run.
240	120	2	19.1	1wd	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, 1 wide.
241	121	2	19.1	6	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Six.
242	122	2	19.2	4	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Four.

243 rows × 7 columns

Clean The Data

In [4]: df.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 243 entries, 0 to 242
Data columns (total 7 columns):
# Column      Non-Null Count  Dtype
---
0 ballnumber  243 non-null    int64
1 inningno    243 non-null    int64
2 over        243 non-null    float64
3 outcome     243 non-null    object
4 batter      243 non-null    object
5 bowler      243 non-null    object
6 comment     243 non-null    object
dtypes: float64(1), int64(2), object(4)
memory usage: 13.4+ MB
```

In [5]: df.duplicated().sum()

Out[5]: 0

splitting the data frame

In [6]: df1=df.iloc[0:121,:]

Out[6]:

	ballnumber	inningno	over	outcome	batter	bowler	comment
0	1	1	0.1	0	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, no run.
1	2	1	0.2	1lb	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, 1 leg bye.
2	3	1	0.3	0	Ruturaj Gaikwad	Mohammed Shami	Mohammed Shami to Ruturaj Gaikwad, no run.
3	4	1	0.4	1	Ruturaj Gaikwad	Mohammed Shami	Mohammed Shami to Ruturaj Gaikwad, 1 run.
4	5	1	0.5	0	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, no run.
...
116	117	1	19.2	1lb	Mitchell Santner	Josh Little	Josh Little to Mitchell Santner, 1 leg bye.
117	118	1	19.3	6	MS Dhoni	Josh Little	Josh Little to MS Dhoni, Six.
118	119	1	19.4	4	MS Dhoni	Josh Little	Josh Little to MS Dhoni, Four.
119	120	1	19.5	0	MS Dhoni	Josh Little	Josh Little to MS Dhoni, no run.
120	121	1	19.6	1	MS Dhoni	Josh Little	Josh Little to MS Dhoni, 1 run.

121 rows × 7 columns

In [7]: df2=df.iloc[121,:]

In [8]: df2=df.iloc[121,:]

Out[9]:

	ballnumber	inningno	over	outcome	batter	bowler	comment
121	1	2	0.1	0	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, no run.
122	2	2	0.2	0	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, no run.
123	3	2	0.3	0	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, no run.
124	4	2	0.4	1	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, 1 run.
125	5	2	0.5	2	Shubman Gill	Deepak Chahar	Deepak Chahar to Shubman Gill, 2 runs.
...
238	118	2	18.5	4	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, Four.
239	119	2	18.6	0	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, no run.
240	120	2	19.1	1wd	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, 1 wide.
241	121	2	19.1	6	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Six.
242	122	2	19.2	4	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Four.

122 rows × 7 columns

In [10]: df2=df.reset_index()

In [11]: df2=df2.reset_index()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 122 entries, 0 to 121
Data columns (total 8 columns):
# Column      Non-Null Count  Dtype
---
0 index       122 non-null    int64
1 ballnumber  122 non-null    int64
2 inningno    122 non-null    int64
3 over        122 non-null    float64
4 outcome     122 non-null    object
5 batter      122 non-null    object
6 bowler      122 non-null    object
7 comment     122 non-null    object
dtypes: float64(1), int64(3), object(4)
memory usage: 7.8+ MB
```

In [12]: df2=df2.drop('index',axis=1)

Out[12]:

	ballnumber	inningno	over	outcome	batter	bowler	comment
0	1	2	0.1	0	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, no run.
1	2	2	0.2	0	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, no run.
2	3	2	0.3	0	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, no run.
3	4	2	0.4	1	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, 1 run.
4	5	2	0.5	2	Shubman Gill	Deepak Chahar	Deepak Chahar to Shubman Gill, 2 runs.
...
117	118	2	18.5	4	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, Four.
118	119	2	18.6	0	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, no run.
119	120	2	19.1	1wd	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, 1 wide.
120	121	2	19.1	6	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Six.
121	122	2	19.2	4	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Four.

122 rows × 7 columns

In [13]: df1=df1.drop('inningno',axis=1)

Out[13]: df2=df2.drop('inningno',axis=1)

In [14]: df1

Out[14]:

	ballnumber	over	outcome	batter	bowler	comment
0	1	0.1	0	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, no run.
1	2	0.2	1lb	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, 1 leg bye.
2	3	0.3	0	Ruturaj Gaikwad	Mohammed Shami	Mohammed Shami to Ruturaj Gaikwad, no run.
3	4	0.4	1	Ruturaj Gaikwad	Mohammed Shami	Mohammed Shami to Ruturaj Gaikwad, 1 run.
4	5	0.5	0	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, no run.
...
116	117	19.2	1lb	Mitchell Santner	Josh Little	Josh Little to Mitchell Santner, 1 leg bye.
117	118	19.3	6	MS Dhoni	Josh Little	Josh Little to MS Dhoni, Six.
118	119	19.4	4	MS Dhoni	Josh Little	Josh Little to MS Dhoni, Four.
119	120	19.5	0	MS Dhoni	Josh Little	Josh Little to MS Dhoni, no run.
120	121	19.6	1	MS Dhoni	Josh Little	Josh Little to MS Dhoni, 1 run.

121 rows × 6 columns

Out[15]: df2

Out[15]:

	ballnumber	over	outcome	batter	bowler	comment
0	1	0.1	0	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, no run.
1	2	0.2	0	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, no run.
2	3	0.3	0	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, no run.
3	4	0.4	1	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, 1 run.
4	5	0.5	2	Shubman Gill	Deepak Chahar	Deepak Chahar to Shubman Gill, 2 runs.
...
117	118	18.5	4	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, Four.
118	119	18.6	0	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, no run.
119	120	19.1	1wd	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, 1 wide.
120	121	19.1	6	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Six.
121	122	19.2	4	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Four.

122 rows × 6 columns

Count of ball faced by each batsman

In [16]: plt.figure(figsize=(16,10))

Out[16]:

In [17]: plt.figure(figsize=(16,10))

Out[17]:

In [18]: df

Out[18]:

	ballnumber	inningno	over	outcome	batter	bowler	comment
0	1	1	0.1	0	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, no run.
1	2	1	0.2	1lb	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, 1 leg bye.
2	3	1	0.3	0	Ruturaj Gaikwad	Mohammed Shami	Mohammed Shami to Ruturaj Gaikwad, no run.
3	4	1	0.4	1	Ruturaj Gaikwad	Mohammed Shami	Mohammed Shami to Ruturaj Gaikwad, 1 run.
4	5	1	0.5	0	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, no run.
...
238	118	2	18.5	4	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, Four.
239	119	2	18.6	0	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, no run.
240	120	2	19.1	1wd	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, 1 wide.
241	121	2	19.1	6	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Six.
242	122	2	19.2	4	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Four.

243 rows × 7 columns

count of balls done by each bowler

In [19]: plt.figure(figsize=(16,10))

Out[19]:

In [20]: plt.figure(figsize=(16,10))

Out[20]:

In [21]: df

Out[21]:

	ballnumber	inningno	over	outcome	batter	bowler	comment
0	1	1	0.1	0	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, no run.
1	2	1	0.2	1lb	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, 1 leg bye.
2	3	1	0.3	0	Ruturaj Gaikwad	Mohammed Shami	Mohammed Shami to Ruturaj Gaikwad, no run.
3	4	1	0.4	1	Ruturaj Gaikwad	Mohammed Shami	Mohammed Shami to Ruturaj Gaikwad, 1 run.
4	5	1	0.5	0	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, no run.
...
238	118	2	18.5	4	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, Four.
239	119	2	18.6	0	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, no run.
240	120	2	19.1	1wd	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, 1 wide.
241	121	2	19.1	6	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Six.
242	122	2	19.2	4	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Four.

243 rows × 7 columns

players who scored most six

In [24]: players=df1[df1['outcome']=='6']

Out[24]:

	ballnumber	over	outcome	batter	bowler	comment
18	19	3.1	6	Ruturaj Gaikwad	Josh Little	Josh Little to Ruturaj Gaikwad, Six.
28	29	4.4	6	Moeen Ali	Mohammed Shami	Mohammed Shami to Moeen Ali, Six.
39	40	6.3	6	Ruturaj Gaikwad	Hardik Pandya	Hardik Pandya to Ruturaj Gaikwad, Six.
40	41	6.4	6	Ruturaj Gaikwad	Hardik Pandya	Hardik Pandya to Ruturaj Gaikwad, Six.
49	50	8.1	6	Ruturaj Gaikwad	Alzarri Joseph	Alzarri Joseph to Ruturaj Gaikwad, Six.
52	53	8.4	6	Ruturaj Gaikwad	Alzarri Joseph	Alzarri Joseph to Ruturaj Gaikwad, Six.
54	55	8.6	6	Ruturaj Gaikwad	Alzarri Joseph	Alzarri Joseph to Ruturaj Gaikwad, Six.
66	67	10.6	6	Ruturaj Gaikwad	Josh Little	Josh Little to Ruturaj Gaikwad, Six.
69	70	11.3	6	Ruturaj Gaikwad	Yash Dayal	Yash Dayal to Ruturaj Gaikwad, Six.
72	73	11.6	6	Ambati Rayudu	Yash Dayal	Yash Dayal to Ambati Rayudu, Six.
97	98	16.1	6	Ruturaj Gaikwad	Rashid Khan	Rashid Khan to Ruturaj Gaikwad, Six.
110	111	18.2	6	Shivam Dube	Mohammed Shami	Mohammed Shami to Shivam Dube, Six.
117	118	19.3	6	MS Dhoni	Josh Little	Josh Little to MS Dhoni, Six.

In [25]: players['batter'].value_counts()

Out[25]:

Ruturaj Gaikwad 9

Moheen Ali 1

Ambati Rayudu 1

Shivam Dube 1

MS Dhoni 1

Name: batter, dtype: int64

In [26]: plt.figure(figsize=(16,10))

Out[26]:

In [27]: players['bowler'].value_counts()

Out[27]:

Josh Little 3

Alzarri Joseph 1

Mohammed Shami 1

Hardik Pandya 2

Yash Dayal 1

Rashid Khan 1

Name: bowler, dtype: int64

In [28]: plt.figure(figsize=(16,10))

Out[28]:

2nd innings

In [29]: players=df2[df2['outcome']=='6']

Out[29]:

	ballnumber	over	outcome	batter	bowler	comment
6	7	1.1	6	Wriddhiman Saha	Tushar Deshpande	Tushar Deshpande to Wriddhiman Saha, Six.
16	17	2.5	6	Wriddhiman Saha	Deepak Chahar	Deepak Chahar to Wriddhiman Saha, Six.
29	30	4.3	6	Shubman Gill	Tushar Deshpande	Tushar Deshpande to Shubman Gill, Six.
68	69	10.6	6	Shubman Gill	Ravindra Jadeja	Ravindra Jadeja to Shubman Gill, Six.
93	94	14.5	6	Shubman Gill	Tushar Deshpande	Tushar Deshpande to Shubman Gill, Six.
110	111	17.4	6	Vijay Shankar	Rajvardhan Hangarkar	Rajvardhan Hangarkar to Vijay Shankar, Six.
116	117	18.4	6	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, Six.
120	121	19.1	6	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Six.

In [30]: players['batter'].value_counts()

Out[30]:

Shubman Gill 3

Wriddhiman Saha 2

Vijay Shankar 1

Rashid Khan 1

Rahul Tewatia 1

Name: batter, dtype: int64

In [31]: plt.figure(figsize=(16,10))

Out[31]:

In [32]: players['bowler'].value_counts()

Out[32]:

Tushar Deshpande 4

Deepak Chahar 2

Ravindra Jadeja 1

Rajvardhan Hangarkar 1

Name: bowler, dtype: int64

In [33]: plt.figure(figsize=(16,10))

Out[33]:

In [34]: df

Out[34]:

	ballnumber	inningno	over	outcome	batter	bowler	comment
0	1	1	0.1	0	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, no run.
1	2	1	0.2	1lb	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, 1 leg bye.
2	3	1	0.3	0	Ruturaj Gaikwad	Mohammed Shami	Mohammed Shami to Ruturaj Gaikwad, no run.
3	4	1	0.4	1	Ruturaj Gaikwad	Mohammed Shami	Mohammed Shami to Ruturaj Gaikwad, 1 run.
4	5	1	0.5	0	Devon Conway	Mohammed Shami	Mohammed Shami to Devon Conway, no run.
...
238	118	2	18.5	4	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, Four.
239	119	2	18.6	0	Rashid Khan	Deepak Chahar	Deepak Chahar to Rashid Khan, no run.
240	120	2	19.1	1wd	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, 1 wide.
241	121	2	19.1	6	Rahul Tewatia	Tushar Deshpande	Tushar Deshpande to Rahul Tewatia, Six.
242	122	2	19.2	4	Rahul Tewatia		

