```
In [99]:    import os
            import pandas as pd
            import numpy as np
            import matplotlib.pyplot as plt
```

```
In [18]:    data=pd.read_csv(r"C:\Users\kpmha\Downloads\auction.csv")
            data.head(2)
```

Out[18]:

	PLAYER	NATIONALITY	TYPE	TEAM	PRICE PAID
0	Daryl Mitchell	Overseas	All-Rounder	Chennai Super Kings	140000000
1	Sameer Rizvi	Indian	Batter	Chennai Super Kings	84000000

```
In [11]:    data.tail(2)
```

Out[11]:

	PLAYER	NATIONALITY	TYPE	TEAM	PRICE PAID
70	Jhathavedh Subramanyan	Indian	Bowler	Sunrisers Hyderabad	2000000
71	Akash Singh	Indian	Bowler	Sunrisers Hyderabad	2000000

```
In [12]:    data.shape
```

Out[12]:   (72, 5)

```
In [21]:    data.isnull().sum()
```

Out[21]:   PLAYER   0
            NATIONALITY   0
            TYPE   0
            TEAM   0
            PRICE PAID   0
            dtype: int64

```
In [29]:    data.duplicated()
```

```
Out[29]:  0     False
          1     False
          2     False
          3     False
          4     False
                ...
          67    False
          68    False
          69    False
          70    False
          71    False
          Length: 72, dtype: bool
```

In [19]:
```python
data.head(2)
```

Out[19]:

	PLAYER	NATIONALITY	TYPE	TEAM	PRICE PAID
0	Daryl Mitchell	Overseas	All-Rounder	Chennai Super Kings	140000000
1	Sameer Rizvi	Indian	Batter	Chennai Super Kings	84000000

In [27]:
```python
data_ind=data[data['NATIONALITY']=='Indian'].value_counts()
data_ind
```

```
Out[27]:  PLAYER                    NATIONALITY  TYPE          TEAM                       PRICE PAID
          Abid Mushtaq              Indian       All-Rounder   Rajasthan Royals           2000000     1
          Shivam Mavi               Indian       Bowler        Lucknow Super Giants       64000000    1
          Robin Minz                Indian       Wicket-Keeper Gujarat Titans             36000000    1
          Sakib Hussain             Indian       Bowler        Kolkata Knight Riders      2000000     1
          Sameer Rizvi              Indian       Batter        Chennai Super Kings        84000000    1
          Saurav Chuahan            Indian       Batter        Royal Challengers Bengaluru 2000000    1
          Shahrukh Khan             Indian       All-Rounder   Gujarat Titans             74000000    1
          Shardul Thakur            Indian       All-Rounder   Chennai Super Kings        40000000    1
          Shashank Singh            Indian       Batter        Punjab Kings               2000000     1
          Shivalik Sharma           Indian       All-Rounder   Mumbai Indians             2000000     1
          Shreyas Gopal             Indian       Bowler        Mumbai Indians             2000000     1
          Akash Singh               Indian       Bowler        Sunrisers Hyderabad        2000000     1
          Shubham Dubey             Indian       Batter        Rajasthan Royals           58000000    1
          Sumit Kumar               Indian       All-Rounder   Delhi Capitals             10000000    1
          Sushant Mishra            Indian       Bowler        Gujarat Titans             22000000    1
          Swapnil Singh             Indian       All-Rounder   Royal Challengers Bengaluru 2000000    1
          Swastik Chhikara          Indian       Batter        Delhi Capitals             2000000     1
          Tanay Thyagarajann        Indian       All-Rounder   Punjab Kings               2000000     1
          Umesh Yadav               Indian       Bowler        Gujarat Titans             58000000    1
          Vishwanath Pratap Singh   Indian       All-Rounder   Punjab Kings               2000000     1
          Ricky Bhui                Indian       Wicket-Keeper Delhi Capitals             2000000     1
          Rasikh Dar                Indian       Bowler        Delhi Capitals             2000000     1
          Ramandeep Singh           Indian       All-Rounder   Kolkata Knight Riders      2000000     1
          Prince Choudhary          Indian       Bowler        Punjab Kings               2000000     1
          Angkrish Raghuvanshi      Indian       Batter        Kolkata Knight Riders      2000000     1
          Anshul Kamboj             Indian       All-Rounder   Mumbai Indians             2000000     1
          Arshin Kulkarni           Indian       All-Rounder   Lucknow Super Giants       2000000     1
          Ashutosh Sharma           Indian       All-Rounder   Punjab Kings               2000000     1
          Avanish Rao Aravelly      Indian       Wicket-Keeper Chennai Super Kings        2000000     1
          Chetan Sakariya           Indian       Bowler        Kolkata Knight Riders      5000000     1
          Harshal Patel             Indian       All-Rounder   Punjab Kings               117500000   1
          Jaydev Unadkat            Indian       Bowler        Sunrisers Hyderabad        16000000    1
          Jhathavedh Subramanyan    Indian       Bowler        Sunrisers Hyderabad        2000000     1
          K.S. Bharat               Indian       Wicket-Keeper Kolkata Knight Riders      5000000     1
          Kartik Tyagi              Indian       Bowler        Gujarat Titans             6000000     1
          Kumar Kushagra            Indian       Wicket-Keeper Delhi Capitals             72000000    1
          M. Siddharth              Indian       Bowler        Lucknow Super Giants       24000000    1
          Manav Suthar              Indian       Bowler        Gujarat Titans             2000000     1
          Manish Pandey             Indian       Batter        Kolkata Knight Riders      5000000     1
```

```
Mohd. Arshad Khan       Indian      All-Rounder    Lucknow Super Giants       2000000    1
Naman Dhir              Indian      All-Rounder    Mumbai Indians             2000000    1
Yash Dayal              Indian      Bowler         Royal Challengers Bengaluru 50000000  1
dtype: int64
```

In [34]: `data['palyer_nation']=data['NATIONALITY'].apply(lambda x: 'Indian' if x == 'Indian' else '-')`

In [67]: `data.head(2)`

Out[67]:

	PLAYER	NATIONALITY	TYPE	TEAM	PRICE PAID	palyer_nation
0	Daryl Mitchell	Overseas	All-Rounder	Chennai Super Kings	140000000	-
1	Sameer Rizvi	Indian	Batter	Chennai Super Kings	84000000	Indian

In [78]: `data['PRICE PAID'].max()`

Out[78]: 247500000

In [79]: `data['PRICE PAID'].min()`

Out[79]: 2000000

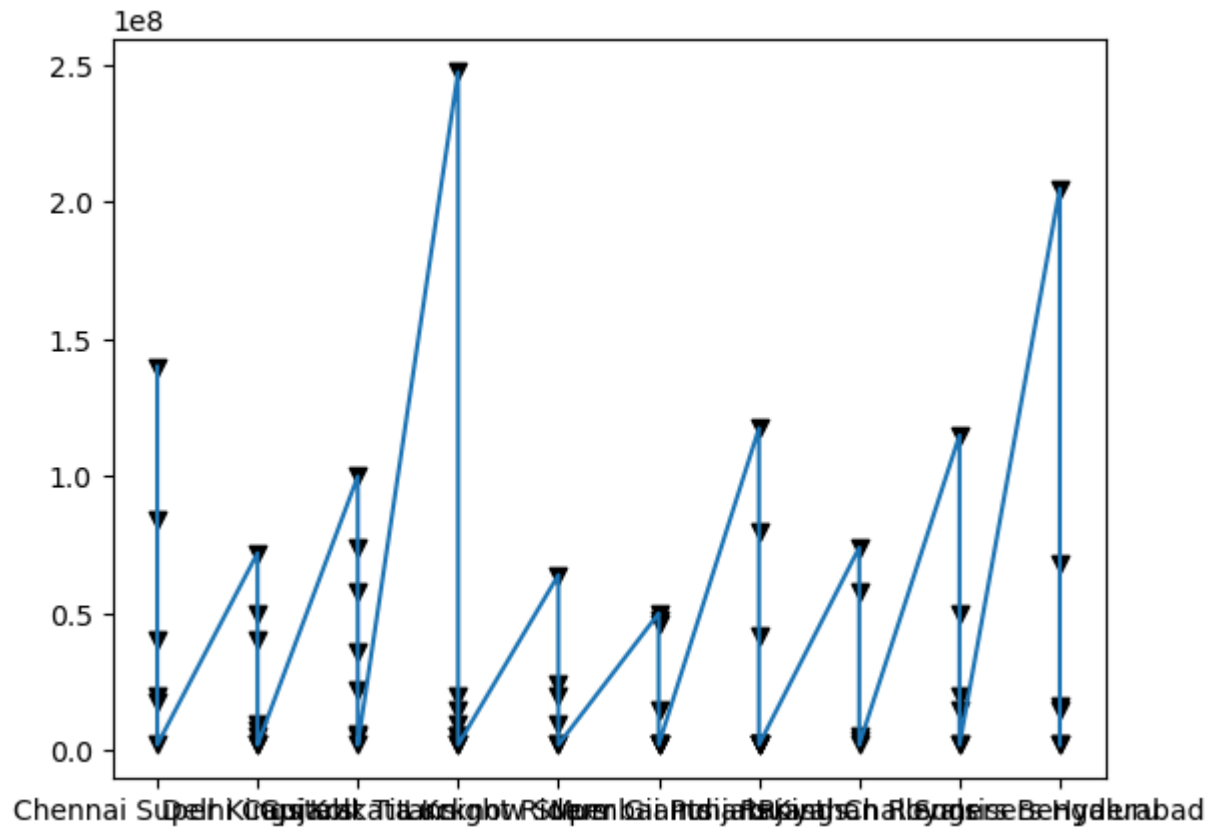In [97]: `data[(data['PRICE PAID']==247500000) | (data['PRICE PAID']==2000000)].head(8)`

Out[97]:

	PLAYER	NATIONALITY	TYPE	TEAM	PRICE PAID	palyer_nation
5	Avanish Rao Aravelly	Indian	Wicket-Keeper	Chennai Super Kings	2000000	Indian
12	Ricky Bhui	Indian	Wicket-Keeper	Delhi Capitals	2000000	Indian
13	Swastik Chhikara	Indian	Batter	Delhi Capitals	2000000	Indian
14	Rasikh Dar	Indian	Bowler	Delhi Capitals	2000000	Indian
22	Manav Suthar	Indian	Bowler	Gujarat Titans	2000000	Indian
23	Mitchell Starc	Overseas	Bowler	Kolkata Knight Riders	247500000	-
30	Angkrish Raghuvanshi	Indian	Batter	Kolkata Knight Riders	2000000	Indian
31	Ramandeep Singh	Indian	All-Rounder	Kolkata Knight Riders	2000000	Indian

In [140…
```python
plt.scatter(data['TEAM'],data['PRICE PAID'],color='black',marker='v')
plt.plot(data['TEAM'],data['PRICE PAID'],linestyle="-")
```
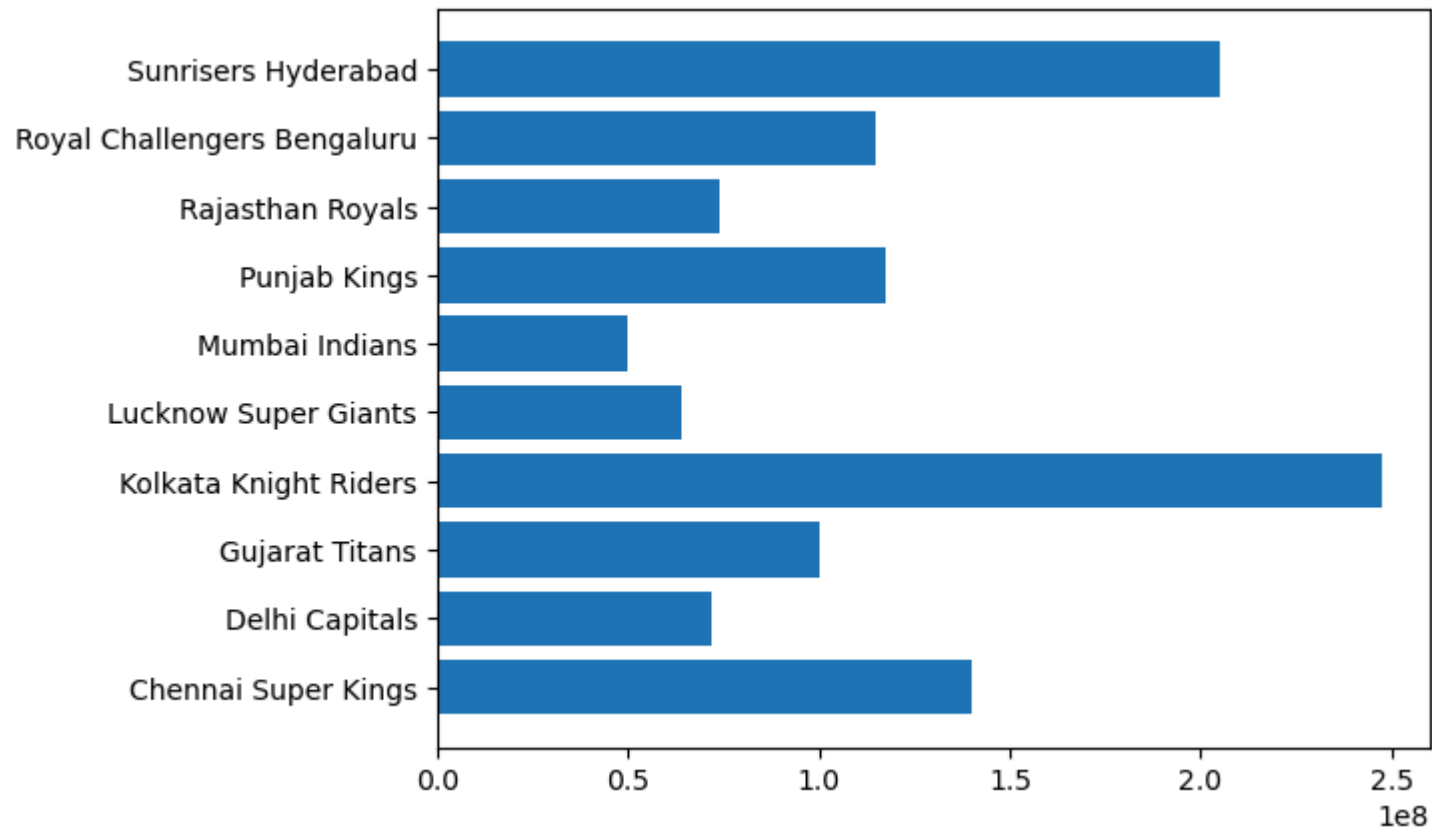
Out[140…   [<matplotlib.lines.Line2D at 0x1f397bb1650>]

```
In [141… plt.barh(data['TEAM'],data['PRICE PAID'])
```

```
Out[141… <BarContainer object of 72 artists>
```

```
In [143... data.head(2)
```

Out[143...

	PLAYER	NATIONALITY	TYPE	TEAM	PRICE PAID	palyer_nation
0	Daryl Mitchell	Overseas	All-Rounder	Chennai Super Kings	140000000	-
1	Sameer Rizvi	Indian	Batter	Chennai Super Kings	84000000	Indian

```
In [158... data[data['TYPE']=='Bowler'].head(10)
```

Out[158...

	PLAYER	NATIONALITY	TYPE	TEAM	PRICE PAID	palyer_nation
3	Mustafizur Rahman	Overseas	Bowler	Chennai Super Kings	20000000	-
7	Jhye Richardson	Overseas	Bowler	Delhi Capitals	50000000	-
14	Rasikh Dar	Indian	Bowler	Delhi Capitals	2000000	Indian
15	Spencer Johnson	Overseas	Bowler	Gujarat Titans	100000000	-
17	Umesh Yadav	Indian	Bowler	Gujarat Titans	58000000	Indian
19	Sushant Mishra	Indian	Bowler	Gujarat Titans	22000000	Indian
20	Kartik Tyagi	Indian	Bowler	Gujarat Titans	6000000	Indian
22	Manav Suthar	Indian	Bowler	Gujarat Titans	2000000	Indian
23	Mitchell Starc	Overseas	Bowler	Kolkata Knight Riders	247500000	-
24	Mujeeb Rahman	Overseas	Bowler	Kolkata Knight Riders	20000000	-

In [167...

```python
data.head(2)
```

Out[167...

	PLAYER	NATIONALITY	TYPE	TEAM	PRICE PAID
0	Daryl Mitchell	Overseas	All-Rounder	Chennai Super Kings	140000000
1	Sameer Rizvi	Indian	Batter	Chennai Super Kings	84000000

In [194...

```python
a=data[data['TEAM']=='Mumbai Indians']
a.count()
```

Out[194...

```
PLAYER         8
NATIONALITY    8
TYPE           8
TEAM           8
PRICE PAID     8
dtype: int64
```

In [174... `data['PRICE PAID'].sum()`
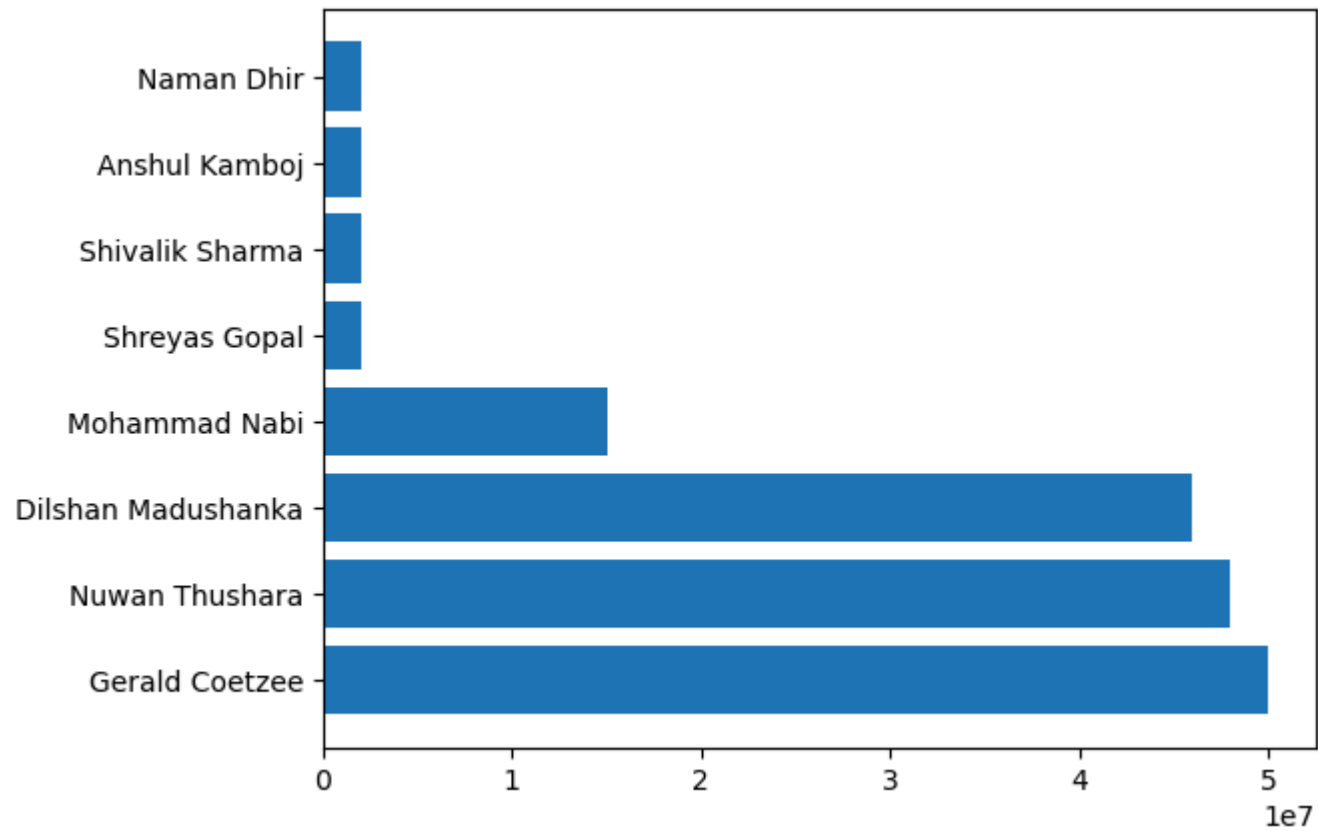
Out[174... 2304500000

In [195...
```python
mumbai_data=data[data['TEAM']=='Mumbai Indians']
mumbai_data
```

Out[195...

	PLAYER	NATIONALITY	TYPE	TEAM	PRICE PAID
39	Gerald Coetzee	Overseas	All-Rounder	Mumbai Indians	50000000
40	Nuwan Thushara	Overseas	Bowler	Mumbai Indians	48000000
41	Dilshan Madushanka	Overseas	Bowler	Mumbai Indians	46000000
42	Mohammad Nabi	Overseas	All-Rounder	Mumbai Indians	15000000
43	Shreyas Gopal	Indian	Bowler	Mumbai Indians	2000000
44	Shivalik Sharma	Indian	All-Rounder	Mumbai Indians	2000000
45	Anshul Kamboj	Indian	All-Rounder	Mumbai Indians	2000000
46	Naman Dhir	Indian	All-Rounder	Mumbai Indians	2000000

In [197... `plt.barh(mumbai_data['PLAYER'], mumbai_data['PRICE PAID'])`

Out[197... `<BarContainer object of 8 artists>`

```
In [198…   data.head(2)
```

Out[198…

	PLAYER	NATIONALITY	TYPE	TEAM	PRICE PAID
0	Daryl Mitchell	Overseas	All-Rounder	Chennai Super Kings	140000000
1	Sameer Rizvi	Indian	Batter	Chennai Super Kings	84000000

```
In [201…   data[data['PLAYER']=='Sam Curran']
```

Out[201…

PLAYER	NATIONALITY	TYPE	TEAM	PRICE PAID

In [229…
```python
te=data['TEAM'].value_counts().head(10)
te
```

Out[229…
```
Kolkata Knight Riders          10
Delhi Capitals                  9
Gujarat Titans                  8
Mumbai Indians                  8
Punjab Kings                    8
Chennai Super Kings             6
Lucknow Super Giants            6
Royal Challengers Bengaluru     6
Sunrisers Hyderabad             6
Rajasthan Royals                5
Name: TEAM, dtype: int64
```

In [234…
```python
pl=data['PLAYER'].value_counts().head(10)
pl
```

Out[234…
```
Daryl Mitchell            1
Sameer Rizvi              1
Ashutosh Sharma           1
Vishwanath Pratap Singh   1
Tanay Thyagarajann        1
Chris Woakes              1
Rilee Rossouw             1
Harshal Patel             1
Naman Dhir                1
Anshul Kamboj             1
Name: PLAYER, dtype: int64
```