

Understanding the Dynamics of the IPL Auction through EDA from Kaggle Dataset

Indian Premiere League Auction



The Indian Premier League (IPL) auction is not just a mere event; it's a spectacle that sets the stage for the most electrifying cricketing extravaganza in the world.

With millions of dollars at stake, team owners, coaches, and analysts meticulously strategize to assemble the perfect squad that can triumph in the high-stakes competition.

In the ever-evolving landscape of cricket, the IPL auction serves as a microcosm of the sport's economic dynamics, player valuations, and team-building strategies. It's not just about acquiring the biggest names; it's about identifying the right talent to fit within the constraints of team budgets and strategic visions.

In this blog post, we delve deep into the intricacies of the IPL auction through the lens of Exploratory Data Analysis (EDA). By dissecting the data from the 2023 IPL auction, we aim to uncover hidden trends, patterns, and insights that can offer a glimpse into the underlying mechanisms driving the player valuations, team budgets, and bidding strategies.

What is EDA?

EDA or **Exploratory Data Analysis** is taking an exhaustive look at the dataset and summarizing its **main characteristics** and finding **generalized patterns** often with the help of **visualization** techniques.

Why EDA is Important?

One can't draw reliable conclusions from a massive quantity of data by just gleaning over it. Instead, one has to look at it carefully and methodically through an analytical lens.

An EDA is meant to uncover the underlying structure of a dataset and expose the general trends, patterns, and relationships that may not be apparent.

It may be tedious, boring, and/or overwhelming to derive insights by looking at plain numbers. Exploratory data analysis techniques have been devised as an aid in this situation.

Libraries

Various Libraries used in the project are:

- **Pandas:** It is a python library used mainly for data analysis, it allows importing data from various file formats such as comma-separated-values, JSON, SQL database tables or queries, and Microsoft Excel.
- **OS:** The OS module in Python provides functions for interacting with the operating system.
- **Matplotlib:** It is a comprehensive library for creating static, animated, and interactive visualizations in Python.
- **Seaborn:** It is a data visualization library built on top of matplotlib and closely integrated with pandas data structures in Python.

```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

Data Collection

Collecting comprehensive and reliable data is crucial for conducting meaningful analysis. One can collect and compile their dataset using surveys, or can use openly available surveys from [Kaggle](#). The dataset comprises a wide range of variables including player names, playing roles, nationality, base prices, final auction prices, team affiliations, and bidding timestamps. We meticulously curated the dataset to ensure accuracy and completeness, cross-referencing information from multiple sources where necessary.

Exploratory Data Analysis and Visualization

```
df=pd.read_csv("D:\\data analytics\\csv and exl files\\iplauction2023.csv")
df
```

	name	player style	nationality	base price (in lacs)	final price (in lacs)	franchise	status
0	Harshit Rana	Bowler	India	NaN	20.0	KKR	RETAINED
1	Ekant Sen	Batter	India	20.0	NaN	NaN	UNSOLD
2	Wayne Parnell	Allrounder	South Africa	75.0	NaN	NaN	UNSOLD
3	Shakib Al Hasan	Allrounder	Bangladesh	150.0	150.0	KKR	SOLD
4	Joe Root	Batter	England	100.0	100.0	RR	SOLD
...
304	MS Dhoni	WK-Batter	India	NaN	1200.0	CSK	RETAINED
305	Moeen Ali	Allrounder	England	NaN	800.0	CSK	RETAINED
306	Ruturaj Gaikwad	Batter	India	NaN	600.0	CSK	RETAINED
307	Rishabh Pant	WK-Batter	India	NaN	1600.0	DC	RETAINED
308	Axar Patel	Allrounder	India	NaN	900.0	DC	RETAINED

309 rows × 7 columns

```
df.shape
```

```
(309, 7)
```

LOADING DATASET

Here we observed that there are 309 players participate in IPL 2023 Auction in which 158 players has retained by their previous year team, 80 players have been purchased and 71 players remain unsold.

RETAINED PLAYERS (FRANCHISE WISE)

```
df["status"].value_counts()
```

```
status
RETAINED    158
SOLD         80
UNSOLD       71
Name: count, dtype: int64
```

```
df.loc[(df["status"]=="RETAINED"),["franchise"]].value_counts()
```

```
franchise
DC          19
CSK         18
GT          18
RCB         18
PBKS        16
RR          16
LSG         15
MI          15
SRH         12
KKR         11
Name: count, dtype: int64
```

Retained players count from each Franchise.

There is total 10 Franchise, participated in IPL 2023 in which DC retained 19 players, CSK retained 18, GT retained 18, RCB retained 18, PBKS retained 16, RR retained 16, LSG retained 15, MI retained 15, SRH retained 12, and KKR retained 11 players. By retaining these players, teams are not only securing their star performers but also signaling their confidence in their abilities to deliver consistent performances on the field. The retained players represent the backbone of their respective teams, bringing a blend of skill, experience, and leadership qualities that will be invaluable in shaping the team's success in the upcoming season.

PURCHASED PLAYERS (FRANCHISE WISE)

KKR (KOLKATA KNIGHT RIDER)

```
df.loc[(df["status"]=="SOLD")&(df["franchise"]=="KKR"),["name","player style","franchise","base price (in lacs)","final price (in lacs)"]].sort_values(by="base price (in lacs)",ascending=False)
```

	index	name	player style	franchise	base price (in lacs)	final price (in lacs)
0	3	Shakib Al Hasan	Allrounder	KKR	150.0	150.0
1	51	David Wiese	Allrounder	KKR	100.0	100.0
2	105	N Jagadeesan	WK-Batter	KKR	20.0	90.0
3	109	Vaibhav Arora	Allrounder	KKR	20.0	60.0
4	18	Mandeep Singh	Batter	KKR	50.0	50.0
5	25	Litton Das	WK-Batter	KKR	50.0	50.0
6	40	Kulwant Khejroliya	Bowler	KKR	20.0	20.0
7	60	Suyash Sharma	Bowler	KKR	20.0	20.0

KKR PURCHASED PLAYER

CSK(CHENNAI SUPER KINGS)

```
df.loc[(df["status"]=="SOLD")&(df["franchise"]=="CSK"),["name","player style","franchise","base price (in lacs)","final price (in lacs)"].sort_values(by=
```

	index	name	player style	franchise	base price (in lacs)	final price (in lacs)
0	147	Ben Stokes	Allrounder	CSK	200.0	1625.0
1	80	Kyle Jamieson	Allrounder	CSK	100.0	100.0
2	116	Nishant Sindhu	Allrounder	CSK	20.0	60.0
3	130	Ajinkya Rahane	Batter	CSK	50.0	50.0
4	29	Bhagath Varma	Allrounder	CSK	20.0	20.0
5	39	Ajay Jadav Mandal	Allrounder	CSK	20.0	20.0
6	124	Shaik Rasheed	Batter	CSK	20.0	20.0

CSK PURCHASED PLAYER

RR (RAJESTHAN ROYALS)

```
df.loc[(df["status"]=="SOLD")&(df["franchise"]=="RR"),["name","player style","franchise","base price (in lacs)","final price (in lacs)"].sort_values(by=
```

	index	name	player style	franchise	base price (in lacs)	final price (in lacs)
0	132	Jason Holder	Allrounder	RR	200.0	575.0
1	23	Adam Zampa	Bowler	RR	150.0	150.0
2	4	Joe Root	Batter	RR	100.0	100.0
3	70	Donavon Ferreira	WK-Batter	RR	20.0	50.0
4	20	KM Asif	Bowler	RR	30.0	30.0
5	5	Abdul Basith	Allrounder	RR	20.0	20.0
6	14	Akash Vashist	Allrounder	RR	20.0	20.0
7	19	Murugan Ashwin	Bowler	RR	20.0	20.0
8	38	Kunal Singh Rathore	WK-Batter	RR	20.0	20.0

RR PURCHASED PLAYER

SRH(SUNRISE HYDRABAD)

```
df.loc[(df["status"]=="SOLD")&(df["franchise"]=="SRH"),["name","player style","franchise","base price (in lacs)","final price (in lacs)"].sort_values(by=
```

	Index	name	player style	franchise	base price (in lacs)	final price (in lacs)
0	151	Harry Brook	Batter	SRH	150.0	1325.0
1	131	Mayank Agarwal	Batter	SRH	100.0	825.0
2	146	Heinrich Klaasen	WK-Batter	SRH	100.0	525.0
3	122	Vivrant Sharma	Allrounder	SRH	20.0	260.0
4	139	Adil Rashid	Bowler	SRH	200.0	200.0
5	74	Mayank Dagar	Allrounder	SRH	20.0	180.0
6	7	Akeal Hosein	Bowler	SRH	100.0	100.0
7	135	Mayank Markande	Bowler	SRH	50.0	50.0
8	111	Upendra Yadav	WK-Batter	SRH	20.0	25.0
9	22	Anmolpreet Singh	Batter	SRH	20.0	20.0
10	48	Nitish Reddy	WK-Batter	SRH	20.0	20.0
11	113	Sanvir Singh	Allrounder	SRH	20.0	20.0
12	120	Samarth Vyas	Allrounder	SRH	20.0	20.0

SRH PURCHASED PLAYER

MI (MUMBAI INDIANS)

```
df.loc[(df["status"]=="SOLD")&(df["franchise"]=="MI"),["name","player style","franchise","base price (in lacs)","final price (in lacs)"]].sort_values(by=
```

	index	name	player style	franchise	base price (in lacs)	final price (in lacs)
0	148	Cameron Green	Allrounder	MI	200.0	1750.0
1	140	Jhye Richardson	Bowler	MI	150.0	150.0
2	78	Piyush Chawla	Bowler	MI	50.0	50.0
3	8	Raghav Goyal	Bowler	MI	20.0	20.0
4	30	Nehal Wadhwa	Allrounder	MI	20.0	20.0
5	54	Shams Mulani	Allrounder	MI	20.0	20.0
6	66	Vishnu Vinod	WK-Batter	MI	20.0	20.0
7	73	Duan Jansen	Allrounder	MI	20.0	20.0

MI PURCHASED PLAYER

LSG (LUCKNOW SUPER GANTS)

```
df.loc[(df["status"]=="SOLD")&(df["franchise"]=="LSG"),["name","player style","franchise","base price (in lacs)","final price (in lacs)"]].sort_values(by=
```

	index	name	player style	franchise	base price (in lacs)	final price (in lacs)
0	136	Nicholas Pooran	WK-Batter	LSG	200.0	1600.0
1	89	Daniel Sams	Allrounder	LSG	75.0	75.0
2	12	Naveen-ul-Haq	Allrounder	LSG	50.0	50.0
3	79	Amit Mishra	Bowler	LSG	50.0	50.0
4	91	Romario Shepherd	Bowler	LSG	50.0	50.0
5	134	Jaydev Unadkat	Bowler	LSG	50.0	50.0
6	108	Yash Thakur	Bowler	LSG	20.0	45.0
7	9	Yudhvir Singh Charak	Allrounder	LSG	20.0	20.0
8	53	Swapnil Singh	Allrounder	LSG	20.0	20.0
9	72	Prerak Mankad	Allrounder	LSG	20.0	20.0

LSG PURCHASED PLAYER

DC (DELHI CAPITALS)

```
df.loc[(df["status"]=="SOLD")&(df["franchise"]=="DC"),["name","player style","franchise","base price (in lacs)","final price (in lacs)"]].sort_values(by=
```

	index	name	player style	franchise	base price (in lacs)	final price (in lacs)
0	103	Mukesh Kumar	Bowler	DC	20.0	550.0
1	26	Rilee Rossouw	Batter	DC	200.0	460.0
2	96	Manish Pandey	Batter	DC	100.0	240.0
3	144	Philip Salt	Batter	DC	200.0	200.0
4	133	Ishant Sharma	Bowler	DC	50.0	50.0

DC PURCHASED PLAYER

GT (GUJRAT TITANS)

```
df.loc[(df["status"]=="SOLD")&(df["franchise"]=="GT"),["name","player style","franchise","base price (in lacs)","final price (in lacs)"]].sort_values(by=
```

	index	name	player style	franchise	base price (in lacs)	final price (in lacs)
0	104	Shivam Mavi	Bowler	GT	40.0	600.0
1	57	Joshua Little	Bowler	GT	50.0	440.0
2	129	Kane Williamson	Batter	GT	200.0	200.0
3	112	Srikar Bharat	WK-Batter	GT	20.0	120.0
4	56	Mohit Sharma	Bowler	GT	50.0	50.0
5	127	Odean Smith	Allrounder	GT	50.0	50.0
6	68	Urvil Patel	WK-Batter	GT	20.0	20.0

GT PURCHASED PLAYER

RCB (ROYAL CHALLENGE BANGALORE)

```
df.loc[(df["status"]=="SOLD")&(df["franchise"]=="RCB"),["name","player style","franchise","base price (in lacs)","final price (in lacs)"]].sort_values(by=
```

	index	name	player style	franchise	base price (in lacs)	final price (in lacs)
0	94	Will Jacks	Allrounder	RCB	150.0	320.0
1	142	Reece Topley	Bowler	RCB	75.0	190.0
2	64	Rajan Kumar	Bowler	RCB	20.0	70.0
3	47	Avinash Singh	Bowler	RCB	20.0	60.0
4	32	Sonu Yadav	Allrounder	RCB	20.0	20.0
5	75	Manoj Bhandage	Allrounder	RCB	20.0	20.0
6	98	Himanshu Sharma	Bowler	RCB	20.0	20.0

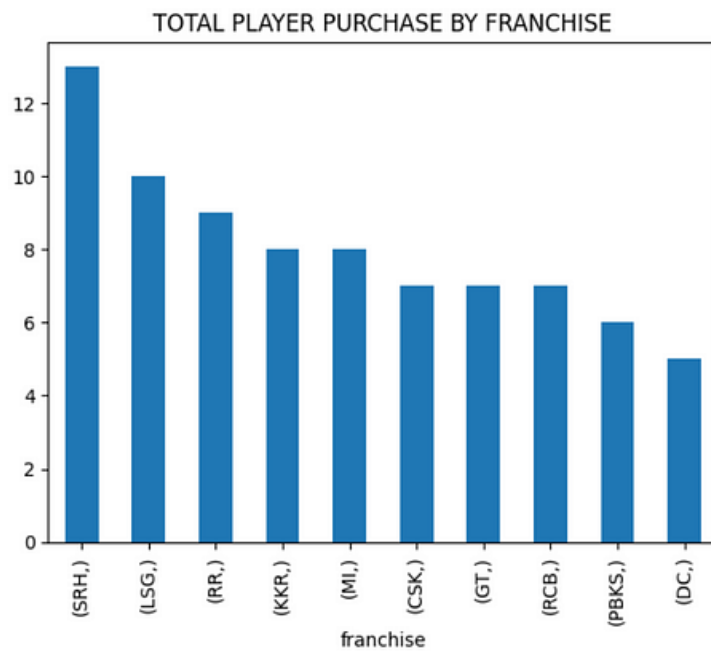
RCB PURCHASED PLAYER

```
df.loc[(df["status"]=="SOLD"),["franchise"]].value_counts().reset_index()
```

	franchise	count
0	SRH	13
1	LSG	10
2	RR	9
3	KKR	8
4	MI	8
5	CSK	7
6	GT	7
7	RCB	7
8	PBKS	6
9	DC	5


```
df.loc[(df["status"]=="SOLD"),["franchise"]].value_counts().plot(x="franchise",y="count",kind="bar",title="TOTAL PLAYER PURCHASE BY FRANCHISE")
```

```
<Axes: title={'center': 'TOTAL PLAYER PURCHASE BY FRANCHISE'}, xlabel='franchise'>
```



In total 80 sold out players, DC has purchased 5 players, CSK purchased 7, GT purchased 7 also, RCB purchase 6, SRH done their shopping with 13 players, LSG got 10, RR purchased 9, KKR and MI purchased 8 respectively, and PBKS has purchased 6 players in this Auction. This auction saw fierce bidding wars as teams go for their desired players, resulting in some record-breaking deals. As the dust settles, it's evident that the stage is set for an electrifying season of cricket, with each team poised to unleash their newly acquired firepower in pursuit of IPL glory.

TOTAL PLAYERS IN IPL 2023 (FRANCISE WISE)

```
df["franchise"].value_counts().reset_index()
```

	franchise	count
0	RR	25
1	SRH	25
2	LSG	25
3	CSK	25
4	RCB	25
5	GT	25
6	DC	24
7	MI	23
8	PBKS	22
9	KKR	19

UNSOLD PLAYERS IN IPL 2023

```
df.loc[(df["status"]=="UNSOLD"),["name","player style","base price (in lacs)"]].reset_index()
```

	index	name	player style	base price (in lacs)
0	1	Ekant Sen	Batter	20.0
1	2	Wayne Parnell	Allrounder	75.0
2	6	Prashant Chopra	Allrounder	20.0
3	10	Luke Wood	Bowler	100.0
4	11	Dilshan Madushanka	Bowler	50.0
...
66	137	Mujeeb Ur Rahman	Bowler	100.0
67	138	Tabraiz Shamsi	Bowler	100.0
68	141	Adam Milne	Bowler	200.0
69	143	Chris Jordan	Bowler	200.0
70	145	Tom Banton	WK-Batter	200.0

71 rows × 4 columns

Total 71 players remain unsold in this IPL auction. In this some players may have gone unsold due to their high base price or lack of recent performance, others may have simply missed the mark in capturing the attention of team owners amidst a competitive bidding environment. For these players, it's a moment to reassess and regroup, perhaps focusing on sharpening their skills or seeking opportunities to showcase their talent in other cricket leagues or tournaments.

HIGHEST PAID BATSMAN SOLD IN IPL 2023

```
df.loc[(df["status"]=="SOLD")&(df["player style"]=="Batter"),["name","player style","franchise","nationality","base price (in lacs)","final price (in lac
```

	index	name	player style	franchise	nationality	base price (in lacs)	final price (in lacs)
0	151	Harry Brook	Batter	SRH	England	150.0	1325.0
1	131	Mayank Agarwal	Batter	SRH	India	100.0	825.0
2	26	Rilee Rossouw	Batter	DC	South Africa	200.0	460.0
3	96	Manish Pandey	Batter	DC	India	100.0	240.0
4	129	Kane Williamson	Batter	GT	New Zealand	200.0	200.0

In the IPL 2023 auction, the highest sold-out batsman was Harry Brook from England, who commanded an impressive Rs.1325 lacs price tag. This hefty investment underscores the immense value and potential that teams saw in securing a top-tier batting talent for their squad, reflecting the intense competition and strategic planning inherent in the IPL auction process.

HIGHEST PAID BOWLER SOLD IN IPL 2023

```
df.loc[(df["status"]=="SOLD")&(df["player style"]=="Bowler"),["name","player style","franchise","nationality","base price (in lacs)","final price (in lac
```

	index	name	player style	franchise	nationality	base price (in lacs)	final price (in lacs)
0	104	Shivam Mavi	Bowler	GT	India	40.0	600.0
1	103	Mukesh Kumar	Bowler	DC	India	20.0	550.0
2	57	Joshua Little	Bowler	GT	Ireland	50.0	440.0
3	139	Adil Rashid	Bowler	SRH	England	200.0	200.0
4	142	Reece Topley	Bowler	RCB	England	75.0	190.0

Shivam Mavi from India became the highest sold-out bowler in IPL 2023 with a total of Rs.600 lacs by GT. This landmark acquisition underscores the value placed on skilful bowling performances and highlights the intense competition among franchises to secure top-tier bowling talent for their campaigns.

HIGHEST PAID ALLROUNDER SOLD IN IPL 2023

```
df.loc[(df["status"]=="SOLD")&(df["player_style"]=="Allrounder"),["name","player_style","franchise","nationality","base price (in lacs)","final price (in lacs)"]]
```

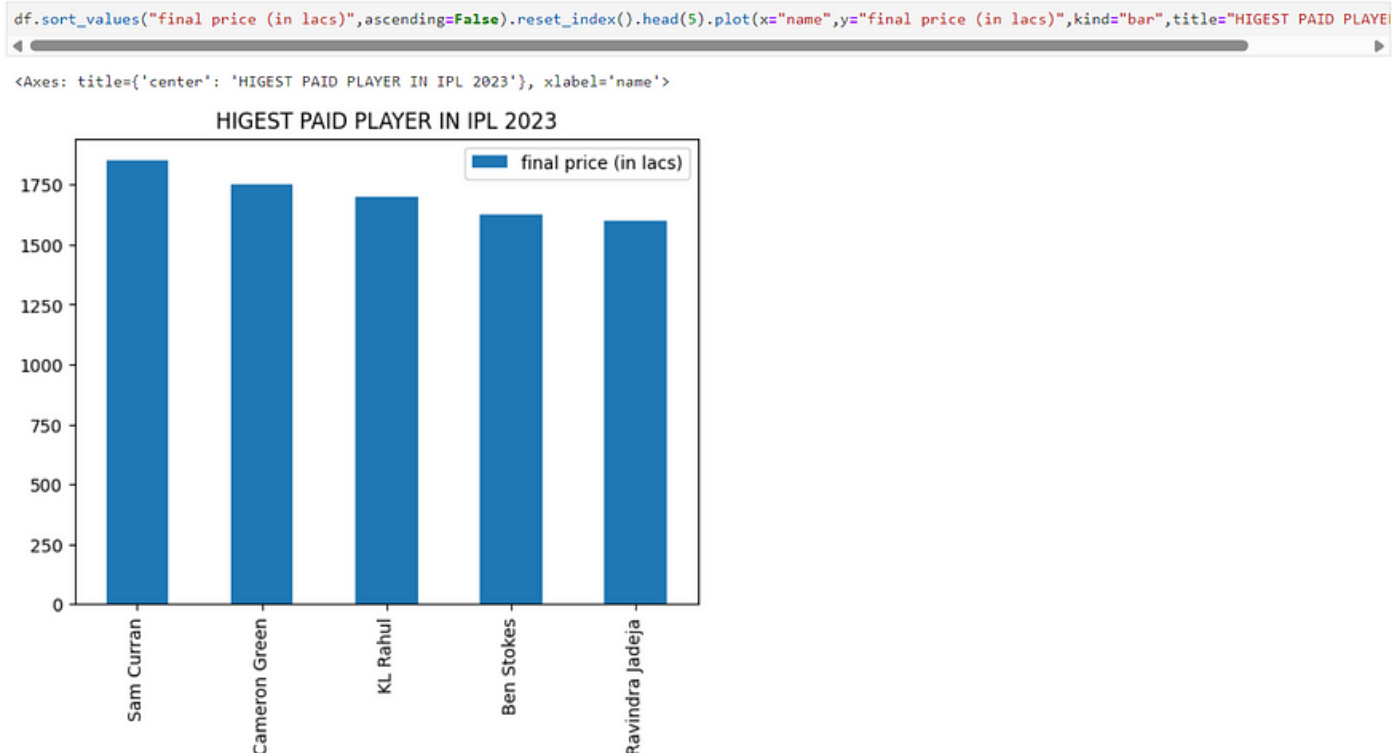
	index	name	player style	franchise	nationality	base price (in lacs)	final price (in lacs)
0	150	Sam Curran	Allrounder	PBKS	England	200.0	1850.0
1	148	Cameron Green	Allrounder	MI	Australia	200.0	1750.0
2	147	Ben Stokes	Allrounder	CSK	England	200.0	1625.0
3	132	Jason Holder	Allrounder	RR	West Indies	200.0	575.0
4	94	Will Jacks	Allrounder	RCB	England	150.0	320.0

And Sam Curran from England became the highest sold out Allrounder who fetched an impressive Rs.600 lacs in the bidding process. This substantial investment reflects the recognition of Sam Curran as a versatile player capable of making significant contributions with both bat and ball on the cricket field. With this acquisition, PBKS has secured a valuable asset for their squad, demonstrating their commitment to assembling a competitive team for the IPL season.

TOP 5 HIGHEST PAID PLAYERS OF IPL 2023

```
df.sort_values("final price (in lacs)",ascending=False).reset_index().head(5)
```

	index	name	player style	nationality	base price (in lacs)	final price (in lacs)	franchise	status
0	150	Sam Curran	Allrounder	England	200.0	1850.0	PBKS	SOLD
1	148	Cameron Green	Allrounder	Australia	200.0	1750.0	MI	SOLD
2	292	KL Rahul	WK-Batter	India	NaN	1700.0	LSG	RETAINED
3	147	Ben Stokes	Allrounder	England	200.0	1625.0	CSK	SOLD
4	296	Ravindra Jadeja	Allrounder	India	NaN	1600.0	CSK	RETAINED



The IPL 2023 auction witnessed remarkable bidding fever, with the top 5 highest sold-out players fetching staggering sums. Sam Curran led the pack, securing a whopping 1850.0 lacs, followed closely by Cameron Green, who garnered an impressive 1750.0 lacs. Ben Stokes also commanded a substantial bid of 1625.0 lacs, underlining the immense value placed on versatile all-rounders. Additionally, the retention of stalwarts like KL Rahul and Ravindra Jadeja further emphasized franchises' commitment to retaining proven talent. These acquisitions signal a strategic blend of international flair and domestic expertise, underscoring teams' ambitions for success in the highly anticipated IPL season.

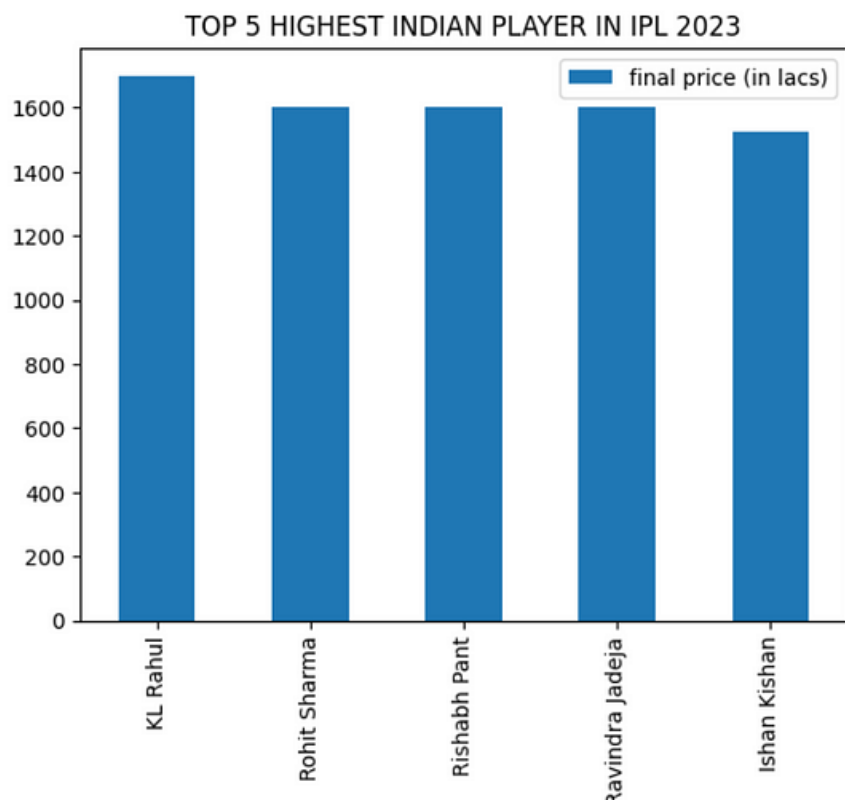
TOP 5 HIGHEST PAID INDIAN PLAYER IN IPL 2023

```
highest_player=df.loc[(df["nationality"]=="India"),["name","player style","franchise","final price (in lacs)","status"]].sort_values(by="final price (in lacs)").head(5)
```

	index	name	player style	franchise	final price (in lacs)	status
0	292	KL Rahul	WK-Batter	LSG	1700.0	RETAINED
1	290	Rohit Sharma	Batter	MI	1600.0	RETAINED
2	307	Rishabh Pant	WK-Batter	DC	1600.0	RETAINED
3	296	Ravindra Jadeja	Allrounder	CSK	1600.0	RETAINED
4	230	Ishan Kishan	WK-Batter	MI	1525.0	RETAINED

```
highest_player.head(5).plot(x="name",y="final price (in lacs)",kind="bar",title="TOP 5 HIGHEST INDIAN PLAYER IN IPL 2023")
```

```
<Axes: title={'center': 'TOP 5 HIGHEST INDIAN PLAYER IN IPL 2023'}, xlabel='name'>
```



The IPL 2023 auction showcased the premium placed on top Indian talent, with the top 5 highest Indian players commanding significant bids from franchises. Leading the pack is KL Rahul of Lucknow Super Giants (LSG), whose exceptional skills as a wicketkeeper-batter secured him a bid of 1700.0 lacs. Following closely is the esteemed Indian opener Rohit Sharma, retained by Mumbai Indians (MI) for 1600.0 lacs, emphasizing the franchise's unwavering trust in his leadership and batting prowess. Rishabh Pant of Delhi Capitals (DC) also commanded a bid of 1600.0 lacs, reflecting his emergence as one of India's premier wicketkeeper-batters. Additionally, the retention of Ravindra Jadeja by Chennai Super Kings (CSK) and Ishan Kishan by Mumbai Indians further underscored the value placed on versatile Indian players, with both securing bids of 1600.0 lacs and 1525.0 lacs, respectively. These acquisitions highlight the significance of Indian talent in shaping the fortunes of IPL franchises and underscore the pivotal role these players are poised to play in the upcoming season.

Conclusion

In conclusion, the Exploratory Data Analysis (EDA) of the IPL 2023 auction data has provided valuable insights into the player dynamics, franchise strategies, and market trends. Through analysing player valuations, franchise acquisitions, and player retention, several key observations have emerged:

Player Valuations: The distribution of base and final prices reveals the varying valuations placed on players based on factors such as playing style, nationality, and past performance.

Franchise Strategies: Franchises have demonstrated diverse strategies in allocating their budgets, with some focusing on acquiring star players at high prices, while others have opted for a more balanced approach by spreading their investments across multiple players.

Nationality Trends: The distribution of players by nationality highlights the international diversity within IPL teams and may indicate preferences or strategies related to player recruitment.

Retention vs. Auction: The contrast between retained players and those acquired in the auction underscores the perceived value of retaining key players versus acquiring new talent through the auction process.

REFERENCE

These are the following sources from which I took the necessary help to complete the project.

1. [IPL Auction 2023 \(kaggle.com\)](https://www.kaggle.com/datasets/ashishpatel26/ipl-auction-2023)
2. [pandas documentation — pandas 2.2.0 documentation \(pydata.org\)](https://pandas.pydata.org/pandas-docs/stable/10min.html)
3. [Matplotlib documentation — Matplotlib 3.8.3 documentation](https://matplotlib.org/3.8.3/index.html)
4. [seaborn: statistical data visualization — seaborn 0.13.2 documentation \(pydata.org\)](https://seaborn.pydata.org/)