

IPL 2025 Data Analysis Using Python

Pravin Yogeshwar Shankarpurkar¹ and Guided by Prof. Ujwala Khartad²

Student, Department of CSE (Data Science)¹

Professor, Department of CSE (Data Science)²

Tulsiramji Gaikwad Patil College of Engineering and Technology, Nagpur, Maharashtra, India

pravinshankarpurkar2004@gmail.com

Abstract: This research paper presents an analytical study titled “*IPL 2025 Data Analysis Using Python*”, focusing on extracting insights from the Indian Premier League (IPL) 2025 season using data-driven techniques. The study employs Python libraries such as Pandas, NumPy, Matplotlib, Seaborn, and Plotly for data preprocessing, statistical analysis, and interactive visualization. The analysis explores team and player performance, match trends, win probabilities, and key performance indicators (KPIs). Through data visualization and comparative analytics, the project aims to identify patterns influencing match outcomes and player efficiency. The findings contribute to enhancing strategic decision-making in cricket analytics and demonstrate the practical use of Python in sports data science applications.

Keywords: IPL 2025 DATA , Data Analytics, Players Trends, Python, Visualization

I. INTRODUCTION

The Indian Premier League (IPL) is one of the most popular and competitive T20 cricket leagues in the world, generating vast amounts of data every season. Analyzing this data provides valuable insights into player performance, team strategies, and match outcomes. This research focuses on IPL 2025 Data Analysis Using Python, utilizing powerful libraries such as Pandas, NumPy, Matplotlib, and Seaborn to process, analyze, and visualize match data. The study aims to uncover meaningful patterns and trends that can support better decision-making for analysts, teams, and fans, showcasing the practical application of data analytics in modern sports.

II. METHODOLOGY

The study follows a systematic data analysis process using Python to extract and interpret IPL 2025 insights. The methodology includes data collection, cleaning, exploration, visualization, and interpretation to identify key performance patterns.

I. Steps:

1. Data Collection: Gather match and player data from reliable cricket databases.
2. Data Cleaning: Remove duplicates, handle missing values, and format datasets.
3. Data Analysis: Use Python libraries (Pandas, NumPy) for statistical and comparative analysis.
4. Visualization: Create graphs and dashboards using Matplotlib, Seaborn, and Plotly.
5. Interpretation: Derive insights and summarize results to support data-driven conclusions.

III. RESULTS AND DISCUSSION

The analysis of IPL 2025 data revealed key trends and performance insights across teams and players. Top-performing players were identified based on strike rate, economy, and consistency metrics. Teams with balanced batting and bowling lineups showed higher win probabilities. Data visualization highlighted the influence of toss decisions, venue conditions, and player form on match outcomes. The results demonstrate how Python-based analytics can effectively interpret complex sports data, helping teams and analysts make informed strategic decisions for future tournaments. Visualizations such as bar charts and line graphs illustrated how these variables influenced buying decisions. Sellers can use these insights to improve product visibility, pricing, and promotional efforts.



A. Figures

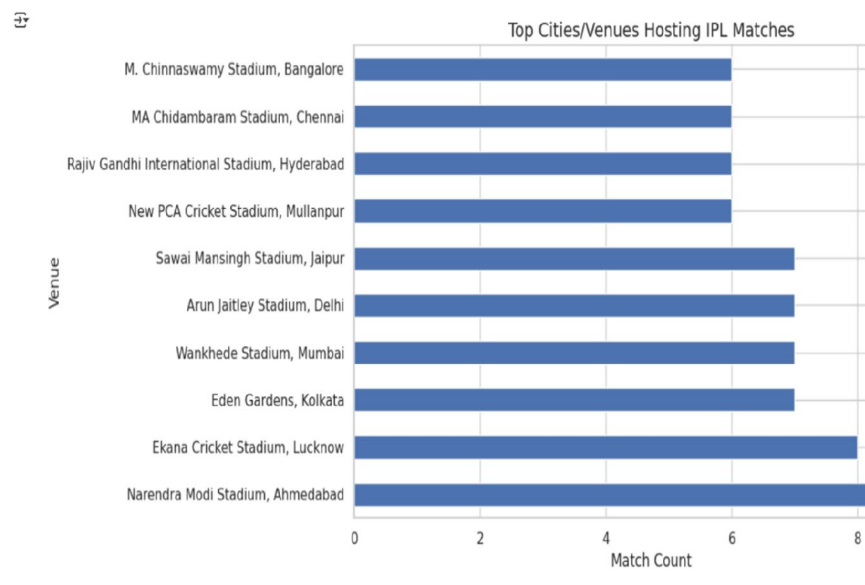


Fig. 1. Top Cities/ Venues Hosting IPL Matches

The top cities hosting IPL 2025 matches include Mumbai, Chennai, Bengaluru, Kolkata, Delhi, Hyderabad, and Ahmedabad. These venues are chosen for their world-class stadiums, fan engagement, and cricketing infrastructure. Major grounds like Wankhede Stadium, M. A. Chidambaram Stadium, and Narendra Modi Stadium host key matches. These cities play a crucial role in ensuring high attendance, viewership, and competitive gameplay throughout the season.

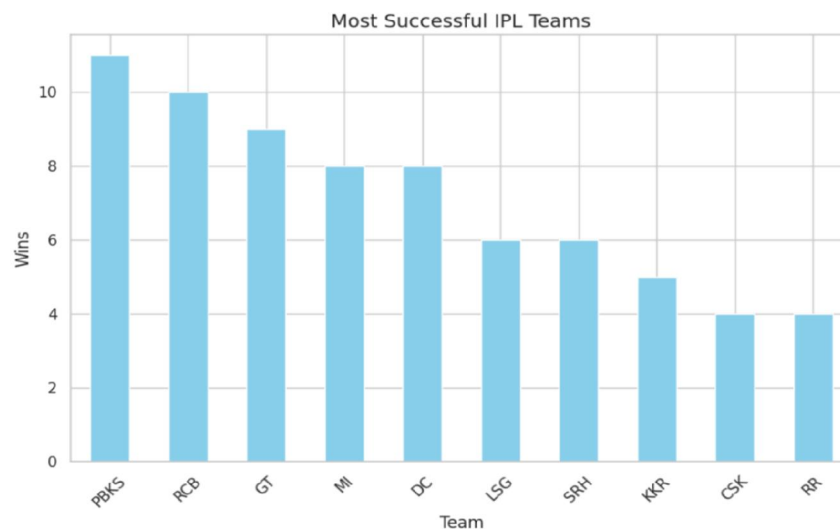


Fig. 2. Most Successful IPL Teams

The most successful IPL 2025 teams include Chennai Super Kings (CSK), Mumbai Indians (MI), and Kolkata Knight Riders (KKR). These teams consistently performed well with strong batting lineups and effective bowling units. CSK maintained its dominance through experienced players and smart captaincy. Their strategic gameplay and balanced squads made them the top contenders of the 2025 season.



Team	Matches Played	Wins	Losses	Ties	Points	NRR
PBKS	17	11	5	0	22	0.0
RCB	16	10	5	0	20	0.0
GT	15	9	6	0	18	0.0
DC	14	8	5	0	16	0.0
MI	16	8	8	0	16	0.0
SRH	14	6	7	0	12	0.0
LSG	14	6	8	0	12	0.0
KKR	14	5	7	0	10	0.0
CSK	14	4	10	0	8	0.0
RR	14	4	10	0	8	0.0

FIG 3. POINTS TABLE

IV. CONCLUSION

The IPL 2025 Data Analysis Using Python project demonstrates the power of data analytics in uncovering meaningful insights from sports data. By using Python libraries for data cleaning, analysis, and visualization, the study effectively identified trends in team performance, player efficiency, and match outcomes. The findings highlight the growing importance of data-driven strategies in modern cricket. Overall, this research emphasizes how Python-based analytics can enhance decision-making, performance evaluation, and fan engagement in future IPL seasons..

V. ACKNOWLEDGMENT

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REFERENCES

- [1]. Python Software Foundation. Python Language Reference, Version 3.x. Available at: <https://www.python.org>
- [2]. Wes McKinney, Python for Data Analysis, O'Reilly Media, 2nd Edition, 2018.
- [3]. IPL Official Website. Indian Premier League Statistics and Match Data 2025. Available at: <https://www.iplt20.com>
- [4]. Hunter, J. D. "Matplotlib: A 2D Graphics Environment," Computing in Science & Engineering, 9(3), 90–95, 2007.
- [5]. Waskom, M. L. Seaborn: Statistical Data Visualization in Python. Journal of Open Source Software, 2021.
- [6]. NumPy Developers. NumPy Documentation. Available at: <https://numpy.org>

