**Summary**

The analysis focuses on evaluating IPL team performances over multiple seasons, comparing win percentages using line and pie charts, and assessing the impact of team changes such as player transfers or injuries. Additionally, it examines match outcomes across different IPL venues to determine venue-specific performance trends. The dataset was cleaned, formatted, and visualized using Python libraries like Pandas, Matplotlib, and Seaborn.

**Objectives**

**Data Cleaning & Formatting** - Extract necessary columns, handle missing values, and preprocess data for meaningful insights.

**Team Comparison Analysis** - Compare team performance using win percentages visualized through line and pie charts.

**Impact of Team Changes** - Analyse the influence of player transfers, injuries, and other team changes on performance.

**Venue Performance Evaluation** - Assess match outcomes at different IPL venues to identify performance patterns.

**Visualization** – data is visualized using seaborn library.

**Activities and Tasks**

Team Comparison Analysis

**Task 1**: Compare team performance using line and pie charts

Description:

1. Analyse IPL team data to determine win percentages over different seasons.
2. Extract relevant columns: Only the necessary columns (‘season’, ‘team1’, ‘team2’, ‘winner’) are selected for analysis.
3. Handle missing values: Remove rows where ‘winner’ data is missing to ensure accuracy.
4. Calculate win percentage: Compute the total number of matches played and wins for each team in every season.
5. Visualize team win percentages: Use line charts to show win trends over seasons and pie charts to represent overall win distribution among teams.

**Task 2:** Analyse the impact of team changes

Description:

1. Extract key player transfer data to assess performance shifts.
2. Compare team performance before and after major player changes.
3. Identify trends in win percentages and individual player impact.
4. Analyse batting performance by extracting columns such as ‘batter’, ‘batter team’, ‘batsman runs’, and ‘year’.
5. Since there is no direct table for player transfers or injuries, derive these insights by aggregating data based on batter, batting team, total batsman runs per year, and identifying sudden performance changes.
6. Use bar chart to illustrate the correlation between team changes and performance fluctuations.

**Task 3:** Evaluate match outcomes across different IPL venues

Description:

1. Extract relevant columns: (‘venue’, ‘winner’, ‘season’).
2. Group data by venue and count the number of wins per team at each location.
3. Identify teams with strong home or away performances.
4. Use heatmaps and bar charts to visualize win patterns across venues.

**Challenges and Solutions**

Challenge in Analysing Team Performance Before and After Key Player Transfers:  
Since there is no direct dataset on player transfers, we must manually evaluate multiple parameters. These include:

* The number of teams a player has played for over different seasons.
* The player’s individual performance (runs scored, wickets taken, etc.) in each team.
* The specific seasons in which the player was active for each team.  
  By analysing these factors, we can assess the impact of key player transfers on team performance.

**Conclusion**

The analysis highlights key IPL team performance trends, revealing consistent teams, the impact of player changes, and venue-based outcomes. Mumbai Indians and Chennai Super Kings exhibited stable performance, while frequent transfers impacted other teams negatively. Certain venues consistently favoured specific teams, influencing match results. These insights can help teams refine their strategies and improve future performances.

**Recommendation**

* Develop targeted training strategies based on venue-specific challenges.
* Optimize team selection to mitigate the negative impact of player transfers or injuries.
* Leverage data-driven insights to refine match strategies and improve overall team performance.