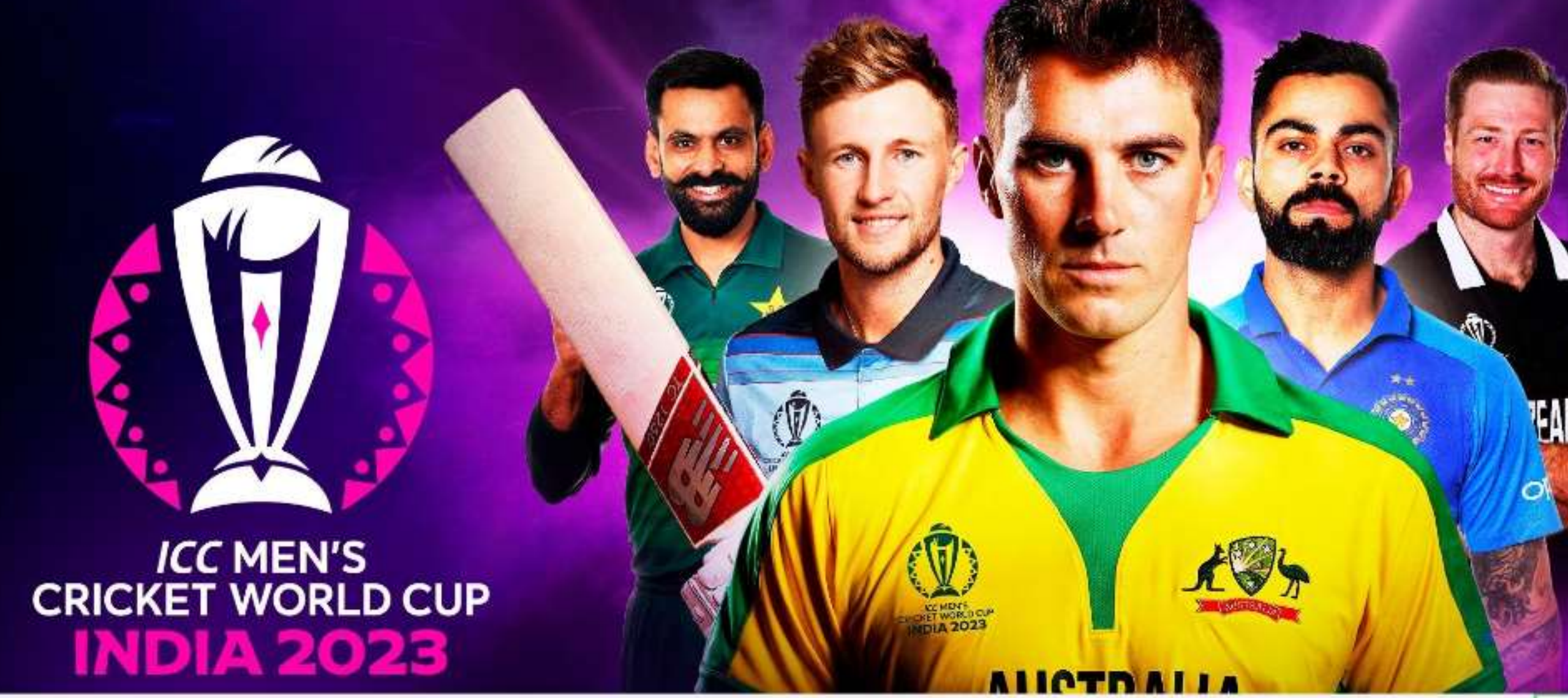


# Data Visualization & Analysis of ICC World Cup 2023

# Meet Our Squad

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# Libraries Used

## Matplotlib


## NumPy


## Pandas


## Seaborn


## Plotly

# Source Code

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

data=pd.read_csv('C:\\Users\\abelj\\OneDrive\\Desktop\\PythonSem4\\Project\\worldcup23_all_innings.csv')

unique_values=[None]*len(data)
for i, p in enumerate(data):
    unique_values[i]= len(data[p].unique())
    print('unique_values',p," =", unique_values[i])

for cols in data.select_dtypes(include=['object']).columns:
    print(f"Unique categories in {cols} column")
    print(data[cols].unique())
    print("="*100)

data["runs"]
sns.displot( data=data["runs"])

team_runs = data.groupby('team')['runs'].sum().sort_values(ascending=False)
team_runs
fig, ax = plt.subplots()
plt.bar(team_runs.index, team_runs.values)
plt.xlabel('Teams')
plt.ylabel('Total Runs Scored')
plt.title('Total Runs Scored by Each Team')
plt.show()

player_runs = data.groupby('player')['runs'].sum().sort_values(ascending=False)
player_runs
import plotly.express as px
fig = px.scatter(data, x="player", y="runs")
fig.show()
import plotly.express as px
fig = px.scatter(data, x="player", y="team", color="runs")
fig.show()

data["bat_or_bowl"]
batting_count = data[data['bat_or_bowl'] == "bat"].shape[0]
bowling_count = data[data['bat_or_bowl'] == "bowl"].shape[0]
labels = ['Batting', 'Bowling']
sizes = [batting_count, bowling_count]
plt.pie(sizes, labels=labels, autopct='%1.1f%%')
plt.title('Distribution of Batting and Bowling Performances')
plt.show()
```

```
batting_data = data[data['bat_or_bowl'] == 'bat']
top_scorers = batting_data.sort_values(by='runs', ascending=False).head(10)
print("Top 10 Batsmen by Runs Scored:")
print(top_scorers[['player', 'runs']].to_string(index=False))
players = top_scorers['player'].to_numpy()
runs = top_scorers['runs'].to_numpy()
palette = sns.color_palette("Greens")
plt.bar(players, runs, color=palette)
plt.title('Top 10 Run Scorers')
plt.xlabel('Players')
plt.ylabel('Runs Scored')
plt.xticks(rotation=45)
plt.show()

bowling_data = data[data['bat_or_bowl'] == 'bowl']
top_wicket_takers = bowling_data.sort_values(by='wkts', ascending=False).head(10)
print("Top 10 Bowlers by Wickets Taken:")
print(top_wicket_takers[['player', 'wkts']].to_string(index=False))
players = top_wicket_takers['player'].to_numpy()
wickets = top_wicket_takers['wkts'].to_numpy()
palette = sns.color_palette("Purples")
plt.bar(players, wickets, color=palette)
plt.title('Top Wicket Takers')
plt.xlabel('Bowler')
plt.ylabel('Wickets Taken')
plt.xticks(rotation=45)
plt.show()
team_data = bowling_data.groupby('team')['wkts'].mean()
print("\nAverage Wickets Taken per Innings (by Team):")
print(team_data.to_string())
import matplotlib.pyplot as plt
palette = sns.color_palette("Oranges")
top_wicket_takers.plot.bar(x='team', y='wkts',color=palette)
plt.title('Top Wicket Takers')
plt.xlabel('Bowler')
plt.ylabel('Wickets Taken')
plt.xticks(rotation=45)
plt.show()

custom_colors = sns.color_palette("tab10", 10)
plt.figure(figsize=(12, 20))
sns.barplot(x='runs', y='team', hue='opposition', data=data,dodge=False,palette=cust
plt.xlabel('Runs')
plt.ylabel('Ground')
plt.title('Team with Highest Runs on Each Ground')
plt.legend(title='Opposition', bbox_to_anchor=(1, 1), loc='upper left')
plt.show()
```

# Objectives of Analysing this Data

1. Performance Evaluation: Assessing the performance of individual players, teams, and overall tournament trends to identify strengths and weaknesses.

2. Strategy Assessment: Analysing match strategies, tactics, and decision-making processes to understand successful approaches and areas for improvement.

3. Statistical Insights: Extracting statistical insights such as batting averages, bowling strike rates, and fielding efficiency to identify key performers and trends.

4. Fan Engagement: Providing engaging visualizations and analyses for cricket enthusiasts to enhance their understanding and enjoyment of the tournament.

5. Historical Comparison: Comparing current tournament statistics and outcomes with past editions to identify evolving trends and patterns in the game.

6. Predictive Modelling: Developing predictive models to forecast match outcomes, player performances, and tournament standings based on historical data and statistical analysis.

# Advantages of Analysing this Data

1. Performance Improvement: Analysis helps teams identify areas of strength and weakness, enabling them to refine strategies, tactics, and player selections for future matches.

2. Tactical Insights: Detailed analysis provides teams with insights into opponents' playing styles, strengths, and weaknesses, allowing them to devise effective game plans and counter-strategies.

3. Player Development: By analyzing individual player performances, coaches can identify areas for improvement and tailor training programs to enhance skills and capabilities.

4. Fan Engagement: Analysis enhances the viewing experience for cricket enthusiasts by providing engaging statistics, visualizations, and insights that deepen their understanding and appreciation of the game.

5. Broadcast Enhancement: Television broadcasters and online platforms use analysis to enrich their coverage with informative graphics, replays, and commentary, enhancing the quality of the viewing experience for audiences worldwide.

6. Decision Support: Coaches, selectors, and team management use data-driven analysis to make informed decisions regarding team selection, batting orders, bowling rotations, and fielding placements.

7. Historical Context: Analysis of past tournaments provides valuable historical context, allowing teams, players, and fans to understand how the game has evolved over time and identify trends and patterns that may influence future outcomes.

# CONCLUSION

The ICC Men's World Cup 2023 has been a riveting display of cricketing excellence, blending tradition with innovation to create unforgettable moments on the field. Our analysis delved into team performances, player statistics, and tactical strategies, uncovering the relentless pursuit of success by athletes from around the globe.

Through our visualizations, we transformed data into compelling narratives, offering stakeholders and fans deeper insights into the tournament dynamics. As we reflect on the ICC Men's World Cup 2023, we celebrate the unity and joy it has brought to cricket enthusiasts worldwide, leaving a lasting legacy of inspiration and camaraderie.

We extend our gratitude to all who contributed to the tournament's success and look forward to the continued growth and impact of cricket as a global phenomenon. The spirit of cricket endures, and we remain committed to cherishing its values and fostering its growth for generations to come.

# Thanks!