IMPORT LIBRARIES

In [1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

READ THE CSV FILE

In [9]:
```
df = pd.read_csv('D:/python/pandas/project/rcb_vs_kkr.csv')
print(df)
```

```
     match_no          date         stage                  venue batting_team  \
0           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
1           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
2           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
3           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
4           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
..        ...           ...          ...                    ...          ...
218         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB
219         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB
220         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB
221         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB
222         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB

    bowling_team  innings  over      striker           bowler  runs_of_bat  \
0            RCB        1   0.1      de Kock        Hazlewood            0
1            RCB        1   0.2      de Kock        Hazlewood            4
2            RCB        1   0.3      de Kock        Hazlewood            0
3            RCB        1   0.4      de Kock        Hazlewood            0
4            RCB        1   0.5      de Kock        Hazlewood            0
..           ...      ...   ...          ...              ...          ...
218          KKR        2  15.4  Livingstone    Vaibhav Arora            4
219          KKR        2  15.5  Livingstone    Vaibhav Arora            0
220          KKR        2  15.6  Livingstone    Vaibhav Arora            1
221          KKR        2  16.1  Livingstone  Spencer Johnson            6
222          KKR        2  16.2  Livingstone  Spencer Johnson            4

     extras  wide  legbyes  byes  noballs wicket_type player_dismissed  \
0         0     0        0     0        0         NaN              NaN
1         0     0        0     0        0         NaN              NaN
2         0     0        0     0        0         NaN              NaN
3         0     0        0     0        0         NaN              NaN
4         0     0        0     0        0      caught          de Kock
..      ...   ...      ...   ...      ...         ...              ...
218       0     0        0     0        0         NaN              NaN
219       0     0        0     0        0         NaN              NaN
220       0     0        0     0        0         NaN              NaN
221       0     0        0     0        0         NaN              NaN
222       0     0        0     0        0         NaN              NaN

          fielder
0             NaN
```

```
1              NaN
2              NaN
3              NaN
4    Jitesh Sharma
..             ...
218            NaN
219            NaN
220            NaN
221            NaN
222            NaN

[223 rows x 19 columns]
```

In [11]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 223 entries, 0 to 222
Data columns (total 19 columns):
 #   Column            Non-Null Count  Dtype  
---  ------            --------------  -----  
 0   match_no          223 non-null    int64  
 1   date              223 non-null    object 
 2   stage             223 non-null    object 
 3   venue             223 non-null    object 
 4   batting_team      223 non-null    object 
 5   bowling_team      223 non-null    object 
 6   innings           223 non-null    int64  
 7   over              223 non-null    float64
 8   striker           223 non-null    object 
 9   bowler            223 non-null    object 
 10  runs_of_bat       223 non-null    int64  
 11  extras            223 non-null    int64  
 12  wide              223 non-null    int64  
 13  legbyes           223 non-null    int64  
 14  byes              223 non-null    int64  
 15  noballs           223 non-null    int64  
 16  wicket_type       11 non-null     object 
 17  player_dismissed  11 non-null     object 
 18  fielder           8 non-null      object 
dtypes: float64(1), int64(8), object(10)
memory usage: 33.2+ KB
```

In [13]:
```
df.head()
```

Out[13]:

	match_no	date	stage	venue	batting_team	bowling_team	innings	over	striker	bowler	runs_of_bat	extras	wide	legbyes
0	1	Mar 22, 2025	League stage	Eden Gardens, Kolkata	KKR	RCB	1	0.1	de Kock	Hazlewood	0	0	0	0
1	1	Mar 22, 2025	League stage	Eden Gardens, Kolkata	KKR	RCB	1	0.2	de Kock	Hazlewood	4	0	0	0
2	1	Mar 22, 2025	League stage	Eden Gardens, Kolkata	KKR	RCB	1	0.3	de Kock	Hazlewood	0	0	0	0
3	1	Mar 22, 2025	League stage	Eden Gardens, Kolkata	KKR	RCB	1	0.4	de Kock	Hazlewood	0	0	0	0
4	1	Mar 22, 2025	League stage	Eden Gardens, Kolkata	KKR	RCB	1	0.5	de Kock	Hazlewood	0	0	0	0

In [15]:
```
df.tail()
```

Out[15]:

	match_no	date	stage	venue	batting_team	bowling_team	innings	over	striker	bowler	runs_of_bat	extras	wide	legb
218	1	Mar 22, 2025	League stage	Eden Gardens, Kolkata	RCB	KKR	2	15.4	Livingstone	Vaibhav Arora	4	0	0	
219	1	Mar 22, 2025	League stage	Eden Gardens, Kolkata	RCB	KKR	2	15.5	Livingstone	Vaibhav Arora	0	0	0	
220	1	Mar 22, 2025	League stage	Eden Gardens, Kolkata	RCB	KKR	2	15.6	Livingstone	Vaibhav Arora	1	0	0	
221	1	Mar 22, 2025	League stage	Eden Gardens, Kolkata	RCB	KKR	2	16.1	Livingstone	Spencer Johnson	6	0	0	
222	1	Mar 22, 2025	League stage	Eden Gardens, Kolkata	RCB	KKR	2	16.2	Livingstone	Spencer Johnson	4	0	0	

In [17]:
```
df.duplicated()
```

Out[17]:
```
0      False
1      False
2      False
3      False
4      False
       ...
218    False
219    False
220    False
221    False
222    False
Length: 223, dtype: bool
```

In [19]:
```
df.duplicated().sum()
```

Out[19]: 0

In [25]:
```
df = df.drop_duplicates()
print("/n Data after removing duplicates",df)
```

```
/n Data after removing duplicates      match_no          date         stage                  venue batting_team  \
0           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
1           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
2           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
3           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
4           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
..        ...           ...           ...                    ...          ...
218         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB
219         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB
220         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB
221         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB
222         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB

    bowling_team  innings  over      striker           bowler  runs_of_bat  \
0            RCB        1   0.1      de Kock        Hazlewood            0
1            RCB        1   0.2      de Kock        Hazlewood            4
2            RCB        1   0.3      de Kock        Hazlewood            0
3            RCB        1   0.4      de Kock        Hazlewood            0
4            RCB        1   0.5      de Kock        Hazlewood            0
..           ...      ...   ...          ...              ...          ...
218          KKR        2  15.4  Livingstone    Vaibhav Arora            4
219          KKR        2  15.5  Livingstone    Vaibhav Arora            0
220          KKR        2  15.6  Livingstone    Vaibhav Arora            1
221          KKR        2  16.1  Livingstone  Spencer Johnson            6
222          KKR        2  16.2  Livingstone  Spencer Johnson            4

     extras  wide  legbyes  byes  noballs wicket_type player_dismissed  \
0         0     0        0     0        0     unknown          unknown
1         0     0        0     0        0     unknown          unknown
2         0     0        0     0        0     unknown          unknown
3         0     0        0     0        0     unknown          unknown
4         0     0        0     0        0      caught          de Kock
..      ...   ...      ...   ...      ...         ...              ...
218       0     0        0     0        0     unknown          unknown
219       0     0        0     0        0     unknown          unknown
220       0     0        0     0        0     unknown          unknown
221       0     0        0     0        0     unknown          unknown
222       0     0        0     0        0     unknown          unknown

          fielder
0         unknown
```

```
1          unknown
2          unknown
3          unknown
4    Jitesh Sharma
..             ...
218        unknown
219        unknown
220        unknown
221        unknown
222        unknown

[223 rows x 19 columns]
```

In [21]:
```
df.describe()
```

Out[21]:

	match_no	innings	over	runs_of_bat	extras	wide	legbyes	byes	noballs
count	223.0	223.000000	223.000000	223.000000	223.000000	223.000000	223.000000	223.0	223.0
mean	1.0	1.443946	8.981614	1.533632	0.040359	0.022422	0.017937	0.0	0.0
std	0.0	0.497966	5.388424	1.842318	0.197242	0.148383	0.133022	0.0	0.0
min	1.0	1.000000	0.100000	0.000000	0.000000	0.000000	0.000000	0.0	0.0
25%	1.0	1.000000	4.400000	0.000000	0.000000	0.000000	0.000000	0.0	0.0
50%	1.0	1.000000	8.600000	1.000000	0.000000	0.000000	0.000000	0.0	0.0
75%	1.0	2.000000	13.350000	2.000000	0.000000	0.000000	0.000000	0.0	0.0
max	1.0	2.000000	19.600000	6.000000	1.000000	1.000000	1.000000	0.0	0.0

In [23]:
```
df['wicket_type'] = df['wicket_type'].fillna('unknown')
df['player_dismissed'] = df['player_dismissed'].fillna('unknown')
df['fielder'] = df['fielder'].fillna('unknown')
print("/n Data after updating")
print(df)
```

```
/n Data after updating
     match_no          date         stage                  venue batting_team  \
0           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
1           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
2           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
3           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
4           1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          KKR
..        ...           ...           ...                    ...          ...
218         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB
219         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB
220         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB
221         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB
222         1  Mar 22, 2025  League stage  Eden Gardens, Kolkata          RCB

    bowling_team  innings  over      striker           bowler  runs_of_bat  \
0            RCB        1   0.1      de Kock        Hazlewood            0
1            RCB        1   0.2      de Kock        Hazlewood            4
2            RCB        1   0.3      de Kock        Hazlewood            0
3            RCB        1   0.4      de Kock        Hazlewood            0
4            RCB        1   0.5      de Kock        Hazlewood            0
..           ...      ...   ...          ...              ...          ...
218          KKR        2  15.4  Livingstone    Vaibhav Arora            4
219          KKR        2  15.5  Livingstone    Vaibhav Arora            0
220          KKR        2  15.6  Livingstone    Vaibhav Arora            1
221          KKR        2  16.1  Livingstone  Spencer Johnson            6
222          KKR        2  16.2  Livingstone  Spencer Johnson            4

     extras  wide  legbyes  byes  noballs wicket_type player_dismissed  \
0         0     0        0     0        0     unknown          unknown
1         0     0        0     0        0     unknown          unknown
2         0     0        0     0        0     unknown          unknown
3         0     0        0     0        0     unknown          unknown
4         0     0        0     0        0      caught          de Kock
..      ...   ...      ...   ...      ...         ...              ...
218       0     0        0     0        0     unknown          unknown
219       0     0        0     0        0     unknown          unknown
220       0     0        0     0        0     unknown          unknown
221       0     0        0     0        0     unknown          unknown
222       0     0        0     0        0     unknown          unknown

           fielder
```

```
0          unknown
1          unknown
2          unknown
3          unknown
4    Jitesh Sharma
..             ...
218        unknown
219        unknown
220        unknown
221        unknown
222        unknown

[223 rows x 19 columns]
```

TOTAL RUNS SCORED IN THE MATCH

In [28]:
```
total_runs = df[['runs_of_bat', 'extras']].sum().sum()
print("Total runs:", total_runs)
```

```
Total runs: 351
```

RUNS SCORED BY TEAMS WITH FALL OF WICKETS

In [106…
```
# Convert columns to numeric and handle missing values
df["runs_of_bat"] = pd.to_numeric(df["runs_of_bat"], errors="coerce").fillna(0)
df["extras"] = pd.to_numeric(df["extras"], errors="coerce").fillna(0)

# Calculate total runs per innings
df["total_runs"] = df["runs_of_bat"] + df["extras"]
runs = df.groupby("innings")["total_runs"].sum()

# Count wickets per innings
wickets = df[df["wicket_type"] != "unknown"].groupby("innings")["wicket_type"].count()

# Map innings to team names
teams = {1: "KKR", 2: "RCB"}

# Create match summary
team_names = {1: "KKR", 2: "RCB"}
```

```
# Create match summary dictionary
match_summary = {
    team_names[innings]: f"{int(total_runs.loc[innings, 'final_score'])}/{total_wickets.get(innings, 0)}"
    for innings in team_names
}


# Display total socre by each team
print("Total score:")
for team, score in summary.items():
    print(f"{team}: {score}")

# Determine the winner
kkr_runs, kkr_wkts = map(int, summary["KKR"].split("/"))
rcb_runs, rcb_wkts = map(int, summary["RCB"].split("/"))

if rcb_runs > kkr_runs:
    print(f"RCB won by {10 - rcb_wkts} wickets")
elif kkr_runs > rcb_runs:
    print(f"KKR won by {kkr_runs - rcb_runs} runs")
else:
    print("Match tied")
```

```
Total score:
KKR: 174/8
RCB: 177/3
RCB won by 7 wickets
```

LIST OF RUNS SCORED BY BATSMAN FROM EACH TEAM

In [91]:

```
import pandas as pd
# Make sure runs are numbers
df["runs_of_bat"] = pd.to_numeric(df["runs_of_bat"], errors="coerce").fillna(0)

# Add up runs for each player on their team
runs_by_player = df.groupby(["batting_team", "striker"])["runs_of_bat"].sum()

# For each team, show top 10 run-scorers
for team in runs_by_player.index.get_level_values(0).unique():
```

```
    print(f"\nTop scorers for {team}:")
    top_scorers = runs_by_player[team].sort_values(ascending=False).head(10)
    for player, runs in top_scorers.items():
        print(f"{player}: {runs}")
```

```
Top scorers for KKR:
Rahane: 56
Narine: 44
Angkrish Raghuvanshi: 30
Rinku Singh: 12
Ramandeep Singh: 6
Venkatesh Iyer: 6
Harshit Rana: 5
Russell: 4
de Kock: 4
Spencer Johnson: 1

Top scorers for RCB:
Kohli: 59
Phil Salt: 56
Rajat Patidar: 34
Livingstone: 15
Padikkal: 10
```

DETAILED MATCH SUMMARY

In [101…

```
import pandas as pd

# Convert relevant columns to numeric and handle missing values
df["runs_of_bat"] = pd.to_numeric(df["runs_of_bat"], errors="coerce").fillna(0)
df["extras"] = pd.to_numeric(df["extras"], errors="coerce").fillna(0)

# Assume wicket_type already has "unknown" filled in for missing values

# Extract venue info
venue = df["venue"].unique()[0]

# Function to get top 3 batsmen for a given inning
def top_batsmen(df, inning):
    batsmen = df[df["innings"] == inning].groupby("striker")["runs_of_bat"].sum()
```

```
    return batsmen.sort_values(ascending=False).head(3)

# Function to get top 3 bowlers for a given inning
def top_bowlers(df, inning):
    valid_bowling = df[(df["innings"] == inning) & (df["wicket_type"] != "unknown")]
    stats = valid_bowling.groupby("bowler")["wicket_type"].count()
    return stats.sort_values(ascending=False).head(3)

# Calculate total runs and final score per innings
df["total_runs"] = df["runs_of_bat"] + df["extras"]
total_runs = df.groupby("innings")[["runs_of_bat", "extras"]].sum()
total_runs["final_score"] = total_runs["runs_of_bat"] + total_runs["extras"]

# Count total wickets per innings (excluding "unknown")
total_wickets = df[df["wicket_type"] != "unknown"].groupby("innings")["wicket_type"].count()

# Map innings to team names
team_names = {1: "KKR", 2: "RCB"}

# Create match summary dictionary
match_summary = {
    team_names[inning]: f"{int(total_runs.loc[inning, 'final_score'])}/{total_wickets.get(inning, 0)}"
    for inning in team_names
}

# 📊 Display match summary and top performers
print("📊 Match No. 1 Summary")
print(f"📍 Venue: {venue}")

for inning in sorted(df["innings"].unique()):
    team = team_names[inning]
    print(f"\n🏏 Top 3 Batsmen for {team} (Inning {inning}):")
    for batsman, runs in top_batsmen(df, inning).items():
        print(f" - {batsman}: {runs} runs")

    print(f"\n🎯 Top 3 Bowlers against {team}:")
    for bowler, wickets in top_bowlers(df, inning).items():
        print(f" - {bowler}: {wickets} wickets")

# 📋 Display final match score
print("\n📋 Final Match Summary:")
```

```
for team, score in match_summary.items():
    print(f" - {team}: {score}")

# 🏆 Determine the winner
kkr_runs = int(total_runs.loc[1, "final_score"])
rcb_runs = int(total_runs.loc[2, "final_score"])
rcb_wickets = total_wickets.get(2, 0)

if rcb_runs > kkr_runs:
    print(f"\n🎉 RCB won the match by {10 - rcb_wickets} wickets!")
elif kkr_runs > rcb_runs:
    print(f"\n🎉 KKR won the match by {kkr_runs - rcb_runs} runs!")
else:
    print("\n🤝 The match was tied!")
```

```
📊 Match No. 1 Summary
📍 Venue: Eden Gardens, Kolkata

🏏 Top 3 Batsmen for KKR (Inning 1):
- Rahane: 56 runs
- Narine: 44 runs
- Angkrish Raghuvanshi: 30 runs

🎯 Top 3 Bowlers against KKR:
- Krunal Pandya: 3 wickets
- Hazlewood: 2 wickets
- Rasikh Salam: 1 wickets

🏏 Top 3 Batsmen for RCB (Inning 2):
- Kohli: 59 runs
- Phil Salt: 56 runs
- Rajat Patidar: 34 runs

🎯 Top 3 Bowlers against RCB:
- Narine: 1 wickets
- Vaibhav Arora: 1 wickets
- Varun Chakaravarthy: 1 wickets

📋 Final Match Summary:
- KKR: 174/8
- RCB: 177/3

🎉 RCB won the match by 7 wickets!
```

TEAM WISE STATS

In [118…

```python
import pandas as pd

# List unique teams
teams = df["batting_team"].unique()

# Dictionary to store summary for each team
summary = {}

for team in teams:
```

```
    team_data = df[df["batting_team"] == team]

    # Grouping by striker to get highest individual score
    highest_score = team_data.groupby("striker")["runs_of_bat"].sum().max()

    summary[team] = {
        "Total Runs": int(team_data["runs_of_bat"].sum() + team_data["extras"].sum()),
        "Total Wickets": team_data[team_data["player_dismissed"] != "unknown"]["player_dismissed"].count(),
        "Total Overs Played": team_data["over"].nunique(),
        "Highest Individual Score": int(highest_score),
        "Fours Hit": (team_data["runs_of_bat"] == 4).sum(),
        "Sixes Hit": (team_data["runs_of_bat"] == 6).sum(),
        "Extras Given": int(team_data["extras"].sum())
    }

# Convert to DataFrame for a clean tabular display
comparison_df = pd.DataFrame(summary).T

# Display the team-wise statistics
print("🏏 Match Summary by Team:\n")
print(comparison_df)
```

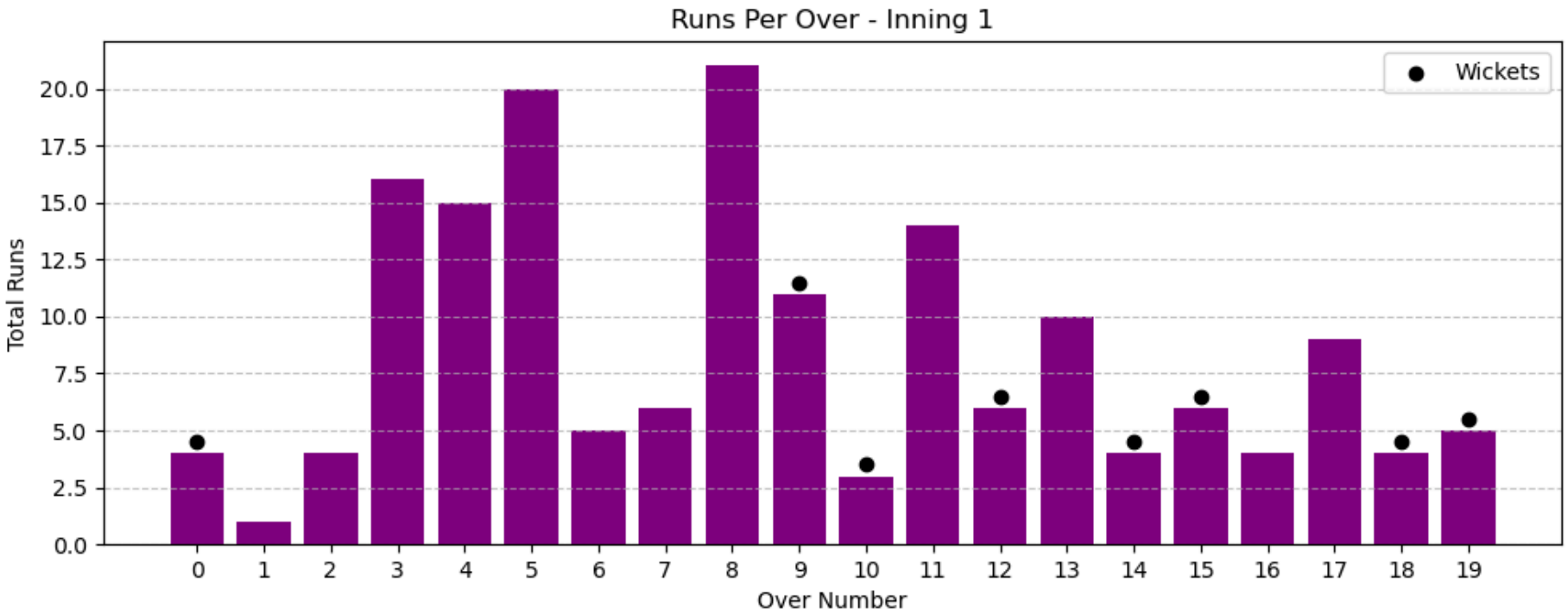
```
🏏 Match Summary by Team:

     Total Runs  Total Wickets  Total Overs Played  Highest Individual Score  \
KKR         174              8                 120                        56
RCB         177              3                  98                        59

     Fours Hit  Sixes Hit  Extras Given
KKR         18          8             6
RCB         21          7             3
```

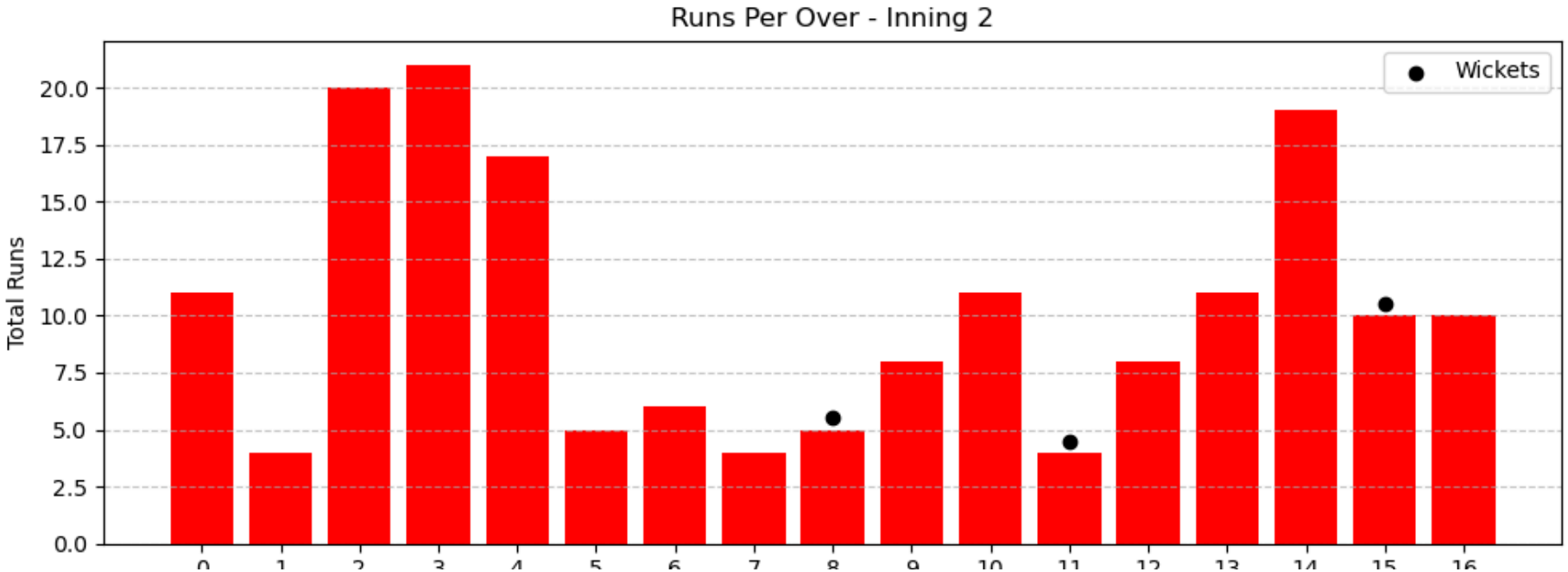
BAR GRAPH REPRESENTATION OF OVERS vs TOTAL RUNS SCORED WITH WICKETS FALLEN

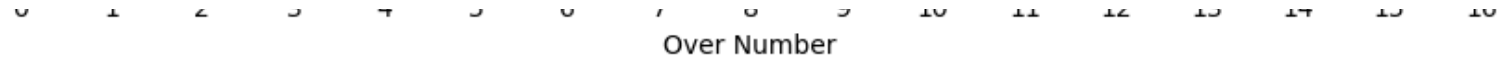
In [187…

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

# Convert over column to int if needed
df["over"] = df["over"].astype(int)
```

```
# Group by innings and over, summing runs
runs_per_over = df.groupby(["innings", "over"])["runs_of_bat"].sum()

# Count wickets per over (exclude 'unknown' if present)
wickets_per_over = df[df["wicket_type"].notna() & (df["wicket_type"] != "unknown")].groupby(["innings", "over"])["wicket_type"

# Define colors
colors = {1: "purple", 2: "red"}

# Create separate graphs for each inning
fig, axes = plt.subplots(nrows=2, figsize=(10, 8))

for i, inning in enumerate(sorted(df["innings"].unique())):
    inning_data = runs_per_over.xs(inning, level="innings")
    wickets_data = wickets_per_over.xs(inning, level="innings") if inning in wickets_per_over.index.levels[0] else pd.Series()

    axes[i].bar(inning_data.index, inning_data.values, color=colors[inning])

    # Plot wickets markers just above the bar height for those overs
    wicket_x = wickets_data.index
    wicket_y = [inning_data.loc[o] + 0.5 for o in wicket_x]  # add small offset to bar height

    axes[i].scatter(wicket_x, wicket_y, color="black", marker="o", label="Wickets", zorder=5)

    axes[i].set_xlabel("Over Number")
    axes[i].set_ylabel("Total Runs")
    axes[i].set_title(f"Runs Per Over - Inning {inning}")
    axes[i].set_xticks(inning_data.index)
    axes[i].grid(axis="y", linestyle="--", alpha=0.7)
    axes[i].legend()

plt.tight_layout()
plt.show()
```


Runs Per Over - Inning 1
Wickets
Total Runs
Over Number
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

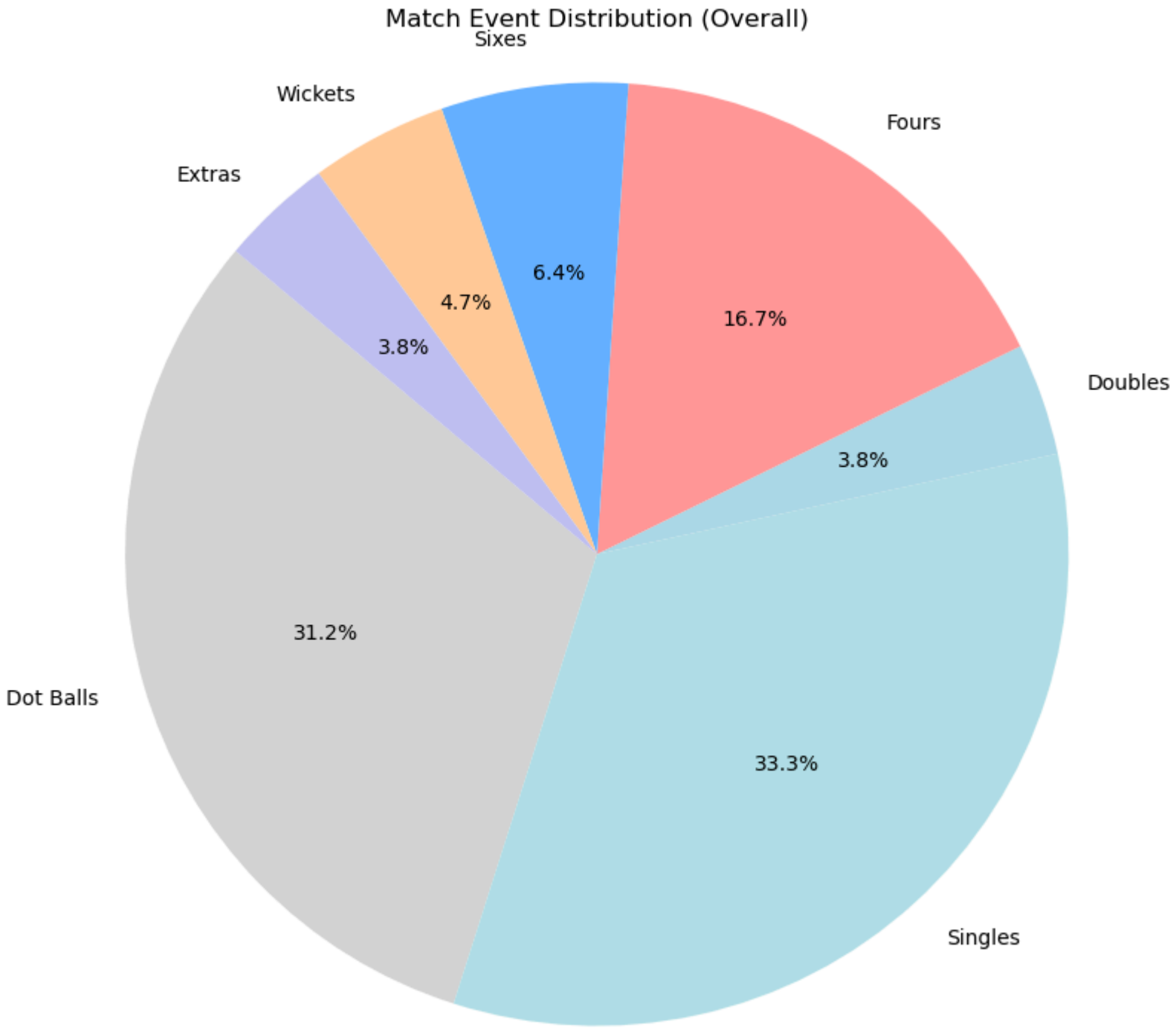

Runs Per Over - Inning 2
Wickets
Total Runs
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0



PIE CHART REPRESENTATION OF MATCH EVENTS

In [134…

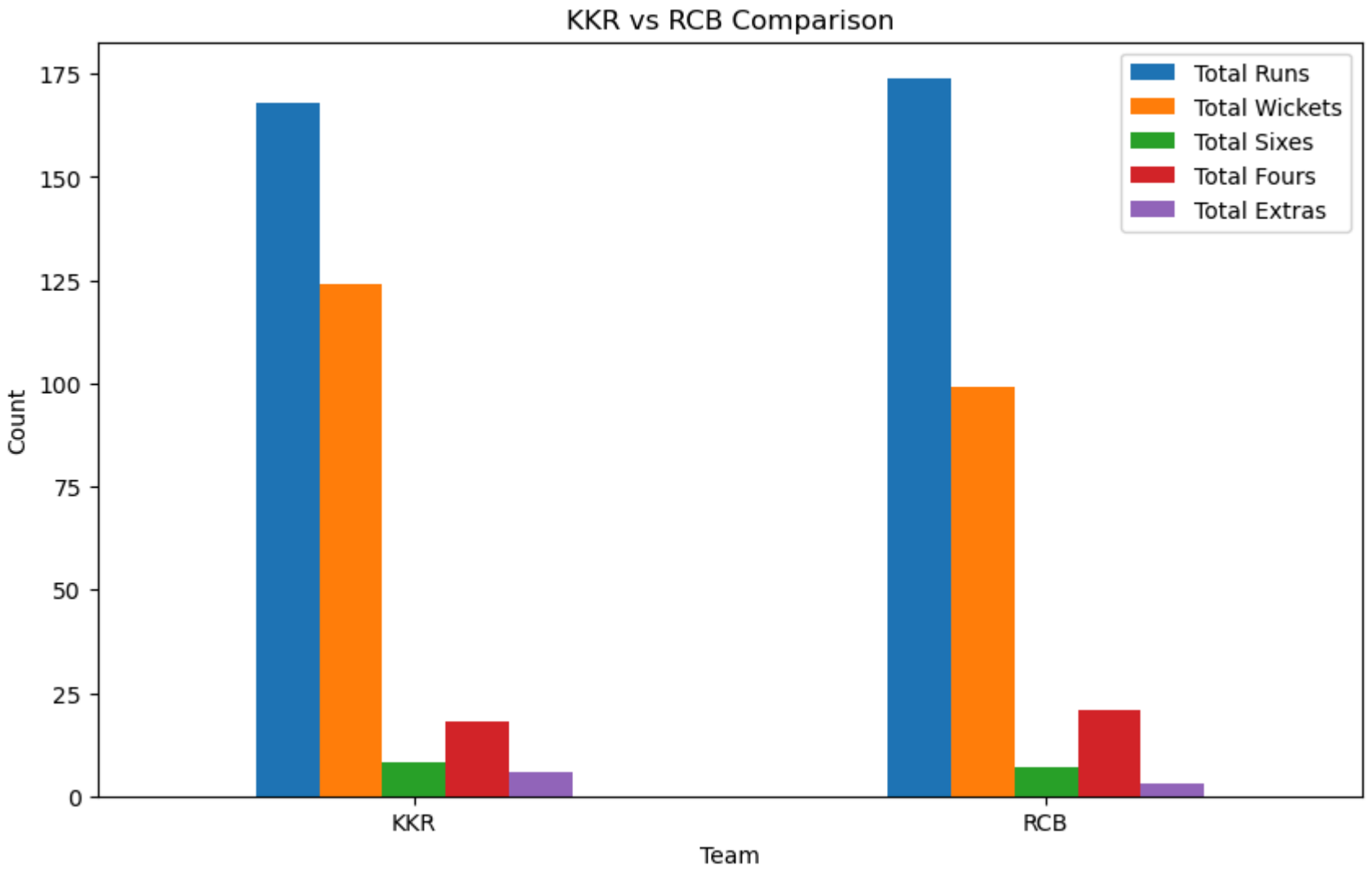
```
import pandas as pd
import matplotlib.pyplot as plt

# Ensure numeric conversion and missing value handling
df["runs_of_bat"] = pd.to_numeric(df["runs_of_bat"], errors="coerce").fillna(0)
df["extras"] = pd.to_numeric(df["extras"], errors="coerce").fillna(0)
df["wicket_type"] = df["wicket_type"].fillna("unknown")

# Count events
dot_balls = ((df["runs_of_bat"] == 0) & (df["extras"] == 0)).sum()
singles = (df["runs_of_bat"] == 1).sum()
doubles = (df["runs_of_bat"] == 2).sum()
fours = (df["runs_of_bat"] == 4).sum()
sixes = (df["runs_of_bat"] == 6).sum()
wickets = (df["wicket_type"] != "unknown").sum()
extras = (df["extras"] > 0).sum()

# Prepare data for pie chart
labels = ['Dot Balls', 'Singles', 'Doubles', 'Fours', 'Sixes', 'Wickets', 'Extras']
sizes = [dot_balls, singles, doubles, fours, sixes, wickets, extras]
colors = ['#d3d3d3', '#b0e0e6', '#add8e6', '#ff9999', '#66b3ff', '#ffcc99', '#c2c2f0']

# Plotting
plt.figure(figsize=(9, 9))
plt.pie(sizes, labels=labels, autopct='%1.1f%%', startangle=140, colors=colors)
plt.title("Match Event Distribution (Overall)")
plt.axis('equal')  # Equal aspect ratio ensures pie is round
plt.show()
```


Match Event Distribution (Overall)
Sixes
Wickets
Fours
Extras
6.4%
4.7%
16.7%
3.8%
Doubles
3.8%
31.2%
Dot Balls
33.3%
Singles

KKR vs RCB COMPARISON

In [140…

```
import pandas as pd
import matplotlib.pyplot as plt
# Aggregate key statistics
team_stats = df.groupby("batting_team").agg(
total_runs=pd.NamedAgg(column="runs_of_bat", aggfunc="sum"),
total_wickets=pd.NamedAgg(column="player_dismissed", aggfunc="count"),
total_sixes=pd.NamedAgg(column="runs_of_bat", aggfunc=lambda x: (x == 6).sum()),
total_fours=pd.NamedAgg(column="runs_of_bat", aggfunc=lambda x: (x == 4).sum()),
total_extras=pd.NamedAgg(column="extras", aggfunc="sum")
)
# Plot the comparison chart
team_stats.plot(kind="bar", figsize=(10, 6))
plt.title("KKR vs RCB Comparison")
plt.xlabel("Team")
plt.ylabel("Count")
plt.legend(["Total Runs", "Total Wickets", "Total Sixes", "Total Fours", "Total Extras"])
plt.xticks(rotation=0)
plt.show()
```

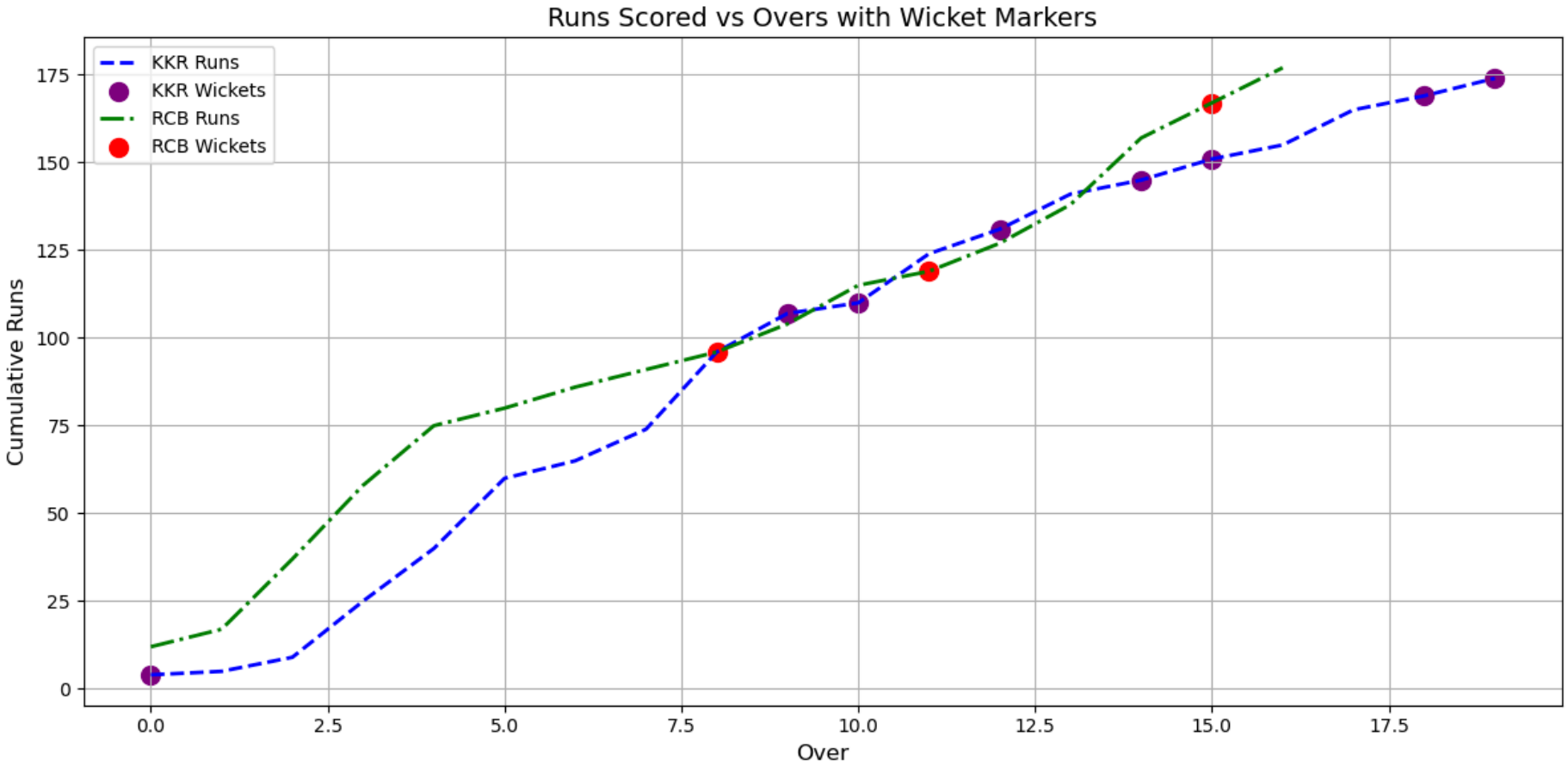


RUNS SCORED vs OVERS

In [181…

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

```
# Ensure runs_of_bat and extras are numeric
df["runs_of_bat"] = pd.to_numeric(df["runs_of_bat"], errors="coerce").fillna(0)
df["extras"] = pd.to_numeric(df["extras"], errors="coerce").fillna(0)
df["total_runs"] = df["runs_of_bat"] + df["extras"]

# Identify teams
teams = df["batting_team"].unique()
team1, team2 = teams[0], teams[1]

# Split data by team
team1_data = df[df["batting_team"] == team1]
team2_data = df[df["batting_team"] == team2]

# Calculate cumulative runs by over
team1_runs = team1_data.groupby("over")["total_runs"].sum().cumsum()
team2_runs = team2_data.groupby("over")["total_runs"].sum().cumsum()

# Identify fall of wickets by over
team1_wickets = team1_data[team1_data["player_dismissed"] != "unknown"].groupby("over")["player_dismissed"].count()
team2_wickets = team2_data[team2_data["player_dismissed"] != "unknown"].groupby("over")["player_dismissed"].count()

# Plot the graph
plt.figure(figsize=(12, 6))

# Team 1 line and wicket markers
plt.plot(team1_runs.index, team1_runs.values, color="blue", linestyle="--", linewidth=2, label=f"{team1} Runs")
plt.scatter(team1_wickets.index, team1_runs[team1_wickets.index], color="purple", marker='o', s=100, label=f"{team1} Wickets")

# Team 2 line and wicket markers
plt.plot(team2_runs.index, team2_runs.values, color="green", linestyle="-.", linewidth=2, label=f"{team2} Runs")
plt.scatter(team2_wickets.index, team2_runs[team2_wickets.index], color="red", marker='o', s=100, label=f"{team2} Wickets")

# Final plot labels
plt.title("Runs Scored vs Overs with Wicket Markers", fontsize=14)
plt.xlabel("Over", fontsize=12)
plt.ylabel("Cumulative Runs", fontsize=12)
plt.legend()
plt.grid(True)
plt.tight_layout()
plt.show()
```


Runs Scored vs Overs with Wicket Markers
KKR Runs
KKR Wickets
RCB Runs
RCB Wickets
Cumulative Runs
Over
0
25
50
75
100
125
150
175
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5