In [2]:

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
df = pd.read_csv("deliveries.csv")
df
```

Out[2]:

	match_id	inning	batting_team	bowling_team	over	ball	batter	bowler	non_striker	batsman_runs	ext
0	335982	1	Kolkata Knight Riders	Royal Challengers Bangalore	0	1	SC Ganguly	P Kumar	BB McCullum	0	
1	335982	1	Kolkata Knight Riders	Royal Challengers Bangalore	0	2	BB McCullum	P Kumar	SC Ganguly	0	
2	335982	1	Kolkata Knight Riders	Royal Challengers Bangalore	0	3	BB McCullum	P Kumar	SC Ganguly	0	
3	335982	1	Kolkata Knight Riders	Royal Challengers Bangalore	0	4	BB McCullum	P Kumar	SC Ganguly	0	
4	335982	1	Kolkata Knight Riders	Royal Challengers Bangalore	0	5	BB McCullum	P Kumar	SC Ganguly	0	
...	...	...	...	...	...	...	...	...	...	...	
260915	1426312	2	Kolkata Knight Riders	Sunrisers Hyderabad	9	5	SS Iyer	AK Markram	VR Iyer	1	
260916	1426312	2	Kolkata Knight Riders	Sunrisers Hyderabad	9	6	VR Iyer	AK Markram	SS Iyer	1	
260917	1426312	2	Kolkata Knight Riders	Sunrisers Hyderabad	10	1	VR Iyer	Shahbaz Ahmed	SS Iyer	1	
260918	1426312	2	Kolkata Knight Riders	Sunrisers Hyderabad	10	2	SS Iyer	Shahbaz Ahmed	VR Iyer	1	
260919	1426312	2	Kolkata Knight Riders	Sunrisers Hyderabad	10	3	VR Iyer	Shahbaz Ahmed	SS Iyer	1	

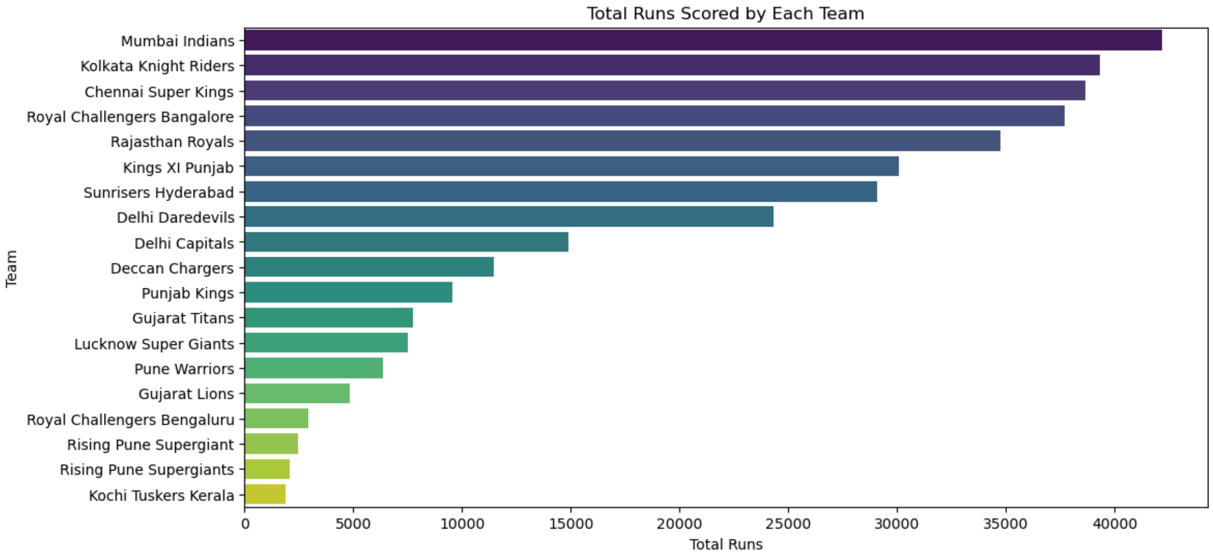
260920 rows × 17 columns

In [3]:

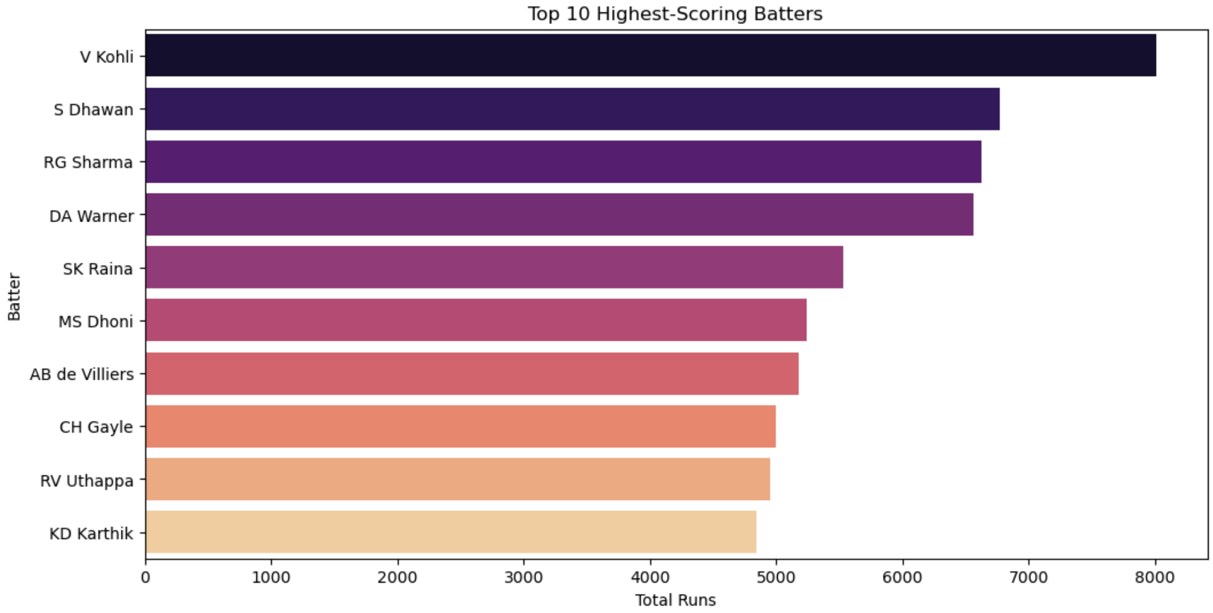
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 260920 entries, 0 to 260919
Data columns (total 17 columns):
 #   Column            Non-Null Count   Dtype 
---  ------            --------------   ----- 
 0   match_id          260920 non-null  int64 
 1   inning            260920 non-null  int64 
 2   batting_team      260920 non-null  object
 3   bowling_team      260920 non-null  object
 4   over              260920 non-null  int64 
 5   ball              260920 non-null  int64 
 6   batter            260920 non-null  object
 7   bowler            260920 non-null  object
 8   non_striker       260920 non-null  object
 9   batsman_runs      260920 non-null  int64 
 10  extra_runs        260920 non-null  int64 
 11  total_runs        260920 non-null  int64 
 12  extras_type       14125 non-null   object
 13  is_wicket         260920 non-null  int64 
 14  player_dismissed  12950 non-null   object
 15  dismissal_kind    12950 non-null   object
 16  fielder           9354 non-null    object
dtypes: int64(8), object(9)
memory usage: 33.8+ MB
```

```
In [4]: # 1. Find and visualize the total runs scored by each team.
        team_runs = df.groupby("batting_team")["total_runs"].sum().sort_values(ascending=False)
        plt.figure(figsize=(12, 6))
        sns.barplot(x=team_runs.values, y=team_runs.index, palette="viridis")
        plt.xlabel("Total Runs")
        plt.ylabel("Team")
        plt.title("Total Runs Scored by Each Team")
        plt.show()
```

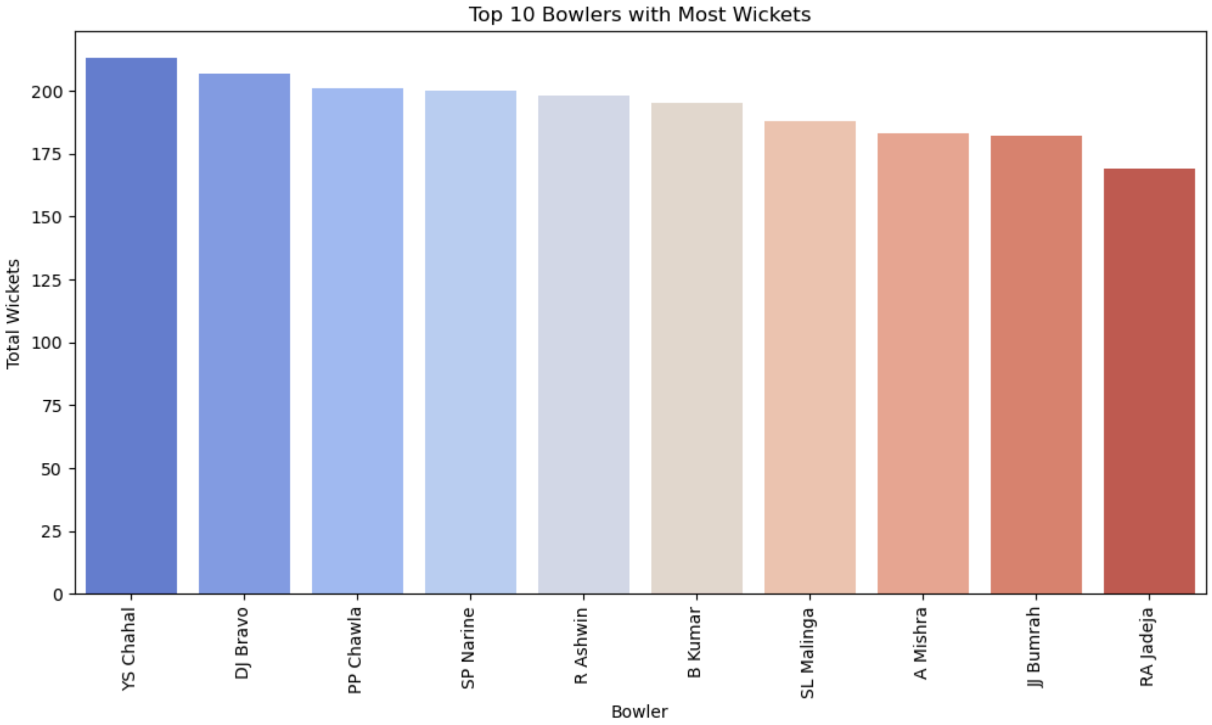


```
In [5]: # 2. Identify and display the names of the top 10 highest-scoring batters with their total runs
        top_batters = df.groupby("batter")["batsman_runs"].sum().nlargest(10)
        plt.figure(figsize=(12, 6))
        sns.barplot(x=top_batters.values, y=top_batters.index, palette="magma")
        plt.xlabel("Total Runs")
        plt.ylabel("Batter")
        plt.title("Top 10 Highest-Scoring Batters")
        plt.show()
```



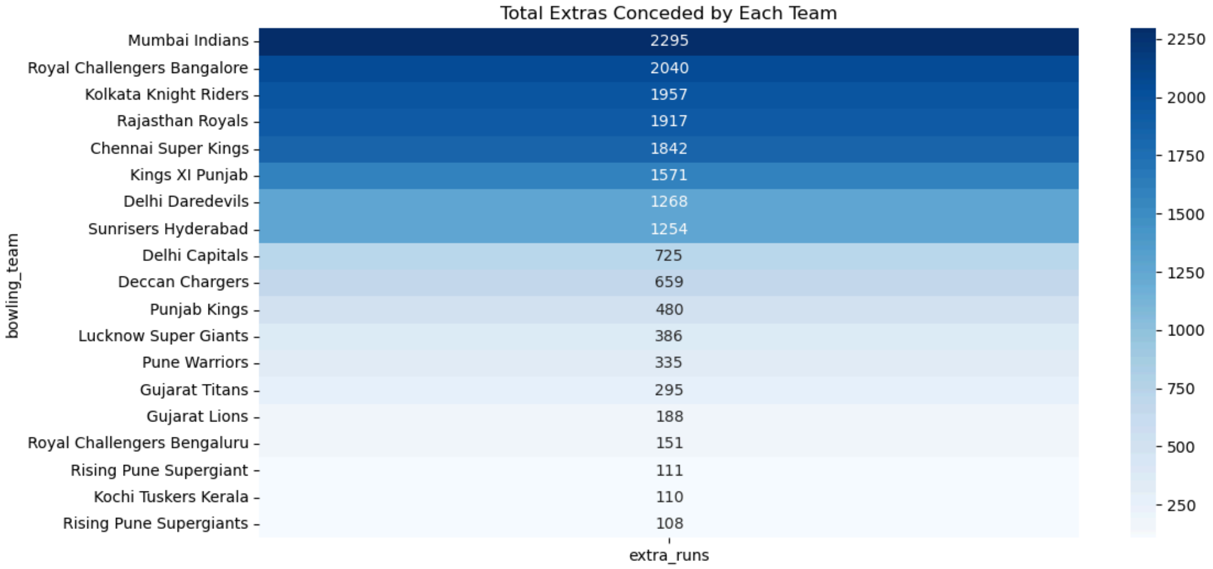
In [6]:

```
# 3. Find and visualize the top 10 bowlers with the most wickets.
top_bowlers = df[df["is_wicket"] == 1].groupby("bowler")["is_wicket"].count().nlargest(10)
plt.figure(figsize=(12, 6))
sns.barplot(x=top_bowlers.index, y=top_bowlers.values, palette="coolwarm")
plt.xticks(rotation=90)
plt.xlabel("Bowler")
plt.ylabel("Total Wickets")
plt.title("Top 10 Bowlers with Most Wickets")
plt.show()
```

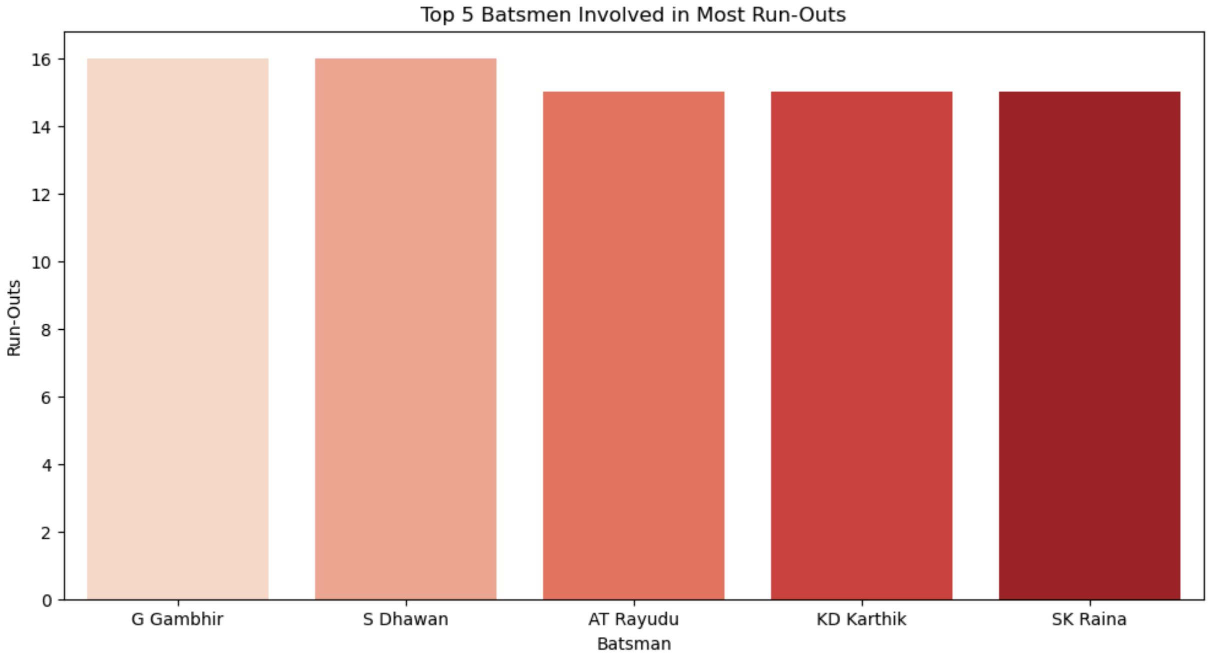


In [7]:

```
# 4. Tabulate and visualize the total number of extras conceded by each team.
team_extras = df.groupby("bowling_team")["extra_runs"].sum().sort_values(ascending=False)
plt.figure(figsize=(12, 6))
sns.heatmap(team_extras.to_frame(), annot=True, cmap="Blues", fmt="d")
plt.title("Total Extras Conceded by Each Team")
plt.show()
```

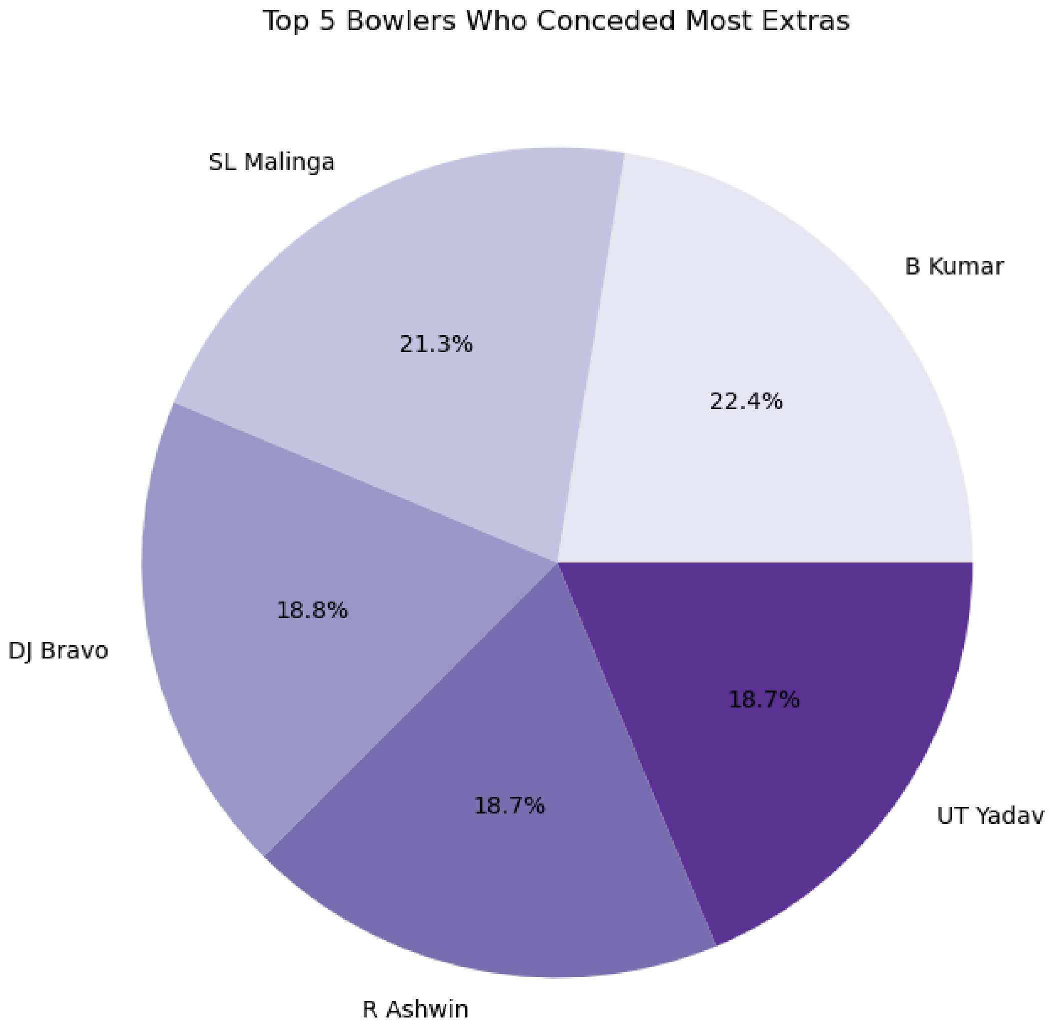


```
In [8]: # 5. Tabulate and visualize the batsmen (top 5) involved in the most run-outs.
        runouts = df[df["dismissal_kind"] == "run out"].groupby("player_dismissed")["dismissal_kind"].c
        plt.figure(figsize=(12, 6))
        sns.barplot(x=runouts.index, y=runouts.values, palette="Reds")
        plt.xlabel("Batsman")
        plt.ylabel("Run-Outs")
        plt.title("Top 5 Batsmen Involved in Most Run-Outs")
        plt.show()
```



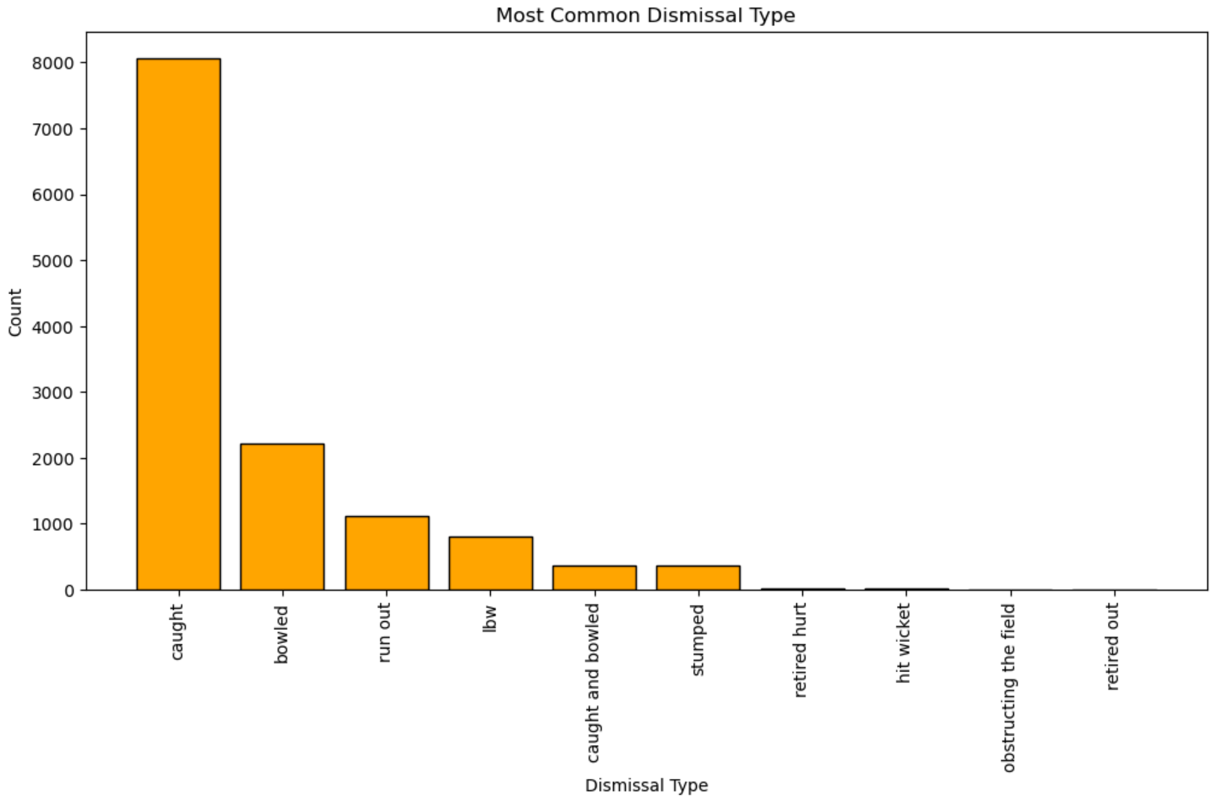
In [9]:

```python
# 6. Tabulate and visualize the top 5 bowlers who conceded the most extras.
top_extra_bowlers = df.groupby("bowler")["extra_runs"].sum().nlargest(5)
plt.figure(figsize=(8, 8))
plt.pie(top_extra_bowlers.values, labels=top_extra_bowlers.index, autopct='%1.1f%%', colors=sns
plt.title("Top 5 Bowlers Who Conceded Most Extras")
plt.show()
```



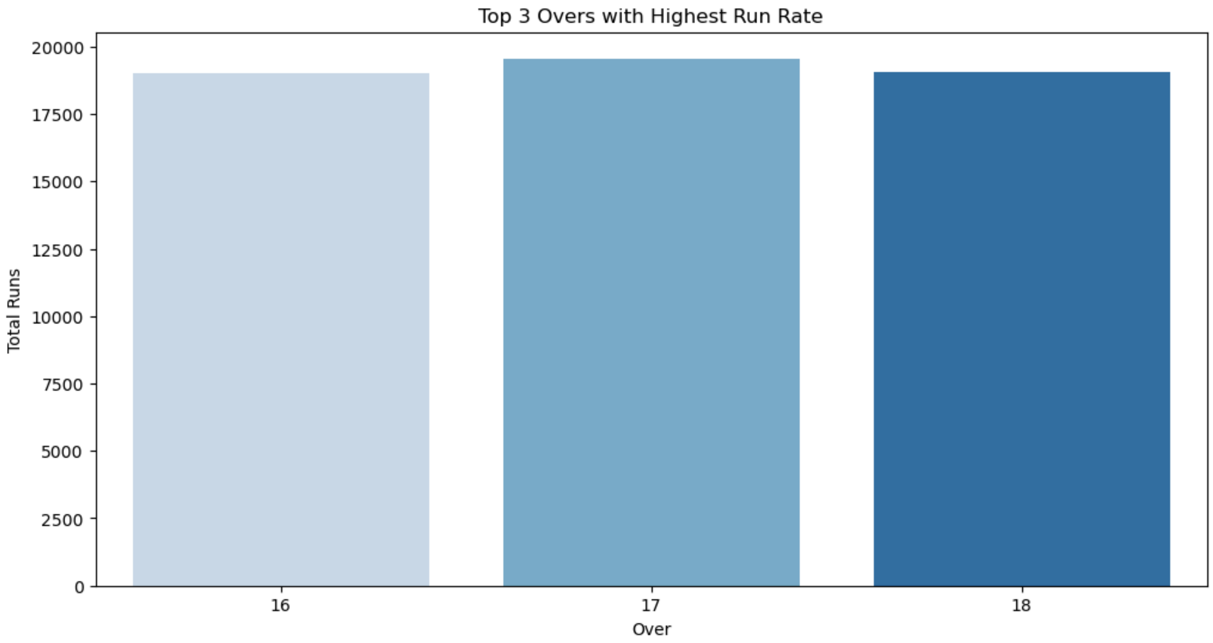
In [10]:

```python
# 7. Tabulate and visualize the most common dismissal type.
dismissal_types = df["dismissal_kind"].value_counts()
plt.figure(figsize=(12, 6))
plt.bar(dismissal_types.index, dismissal_types.values, color="orange", edgecolor="black")
plt.xticks(rotation=90)
plt.xlabel("Dismissal Type")
plt.ylabel("Count")
plt.title("Most Common Dismissal Type")
plt.show()
```



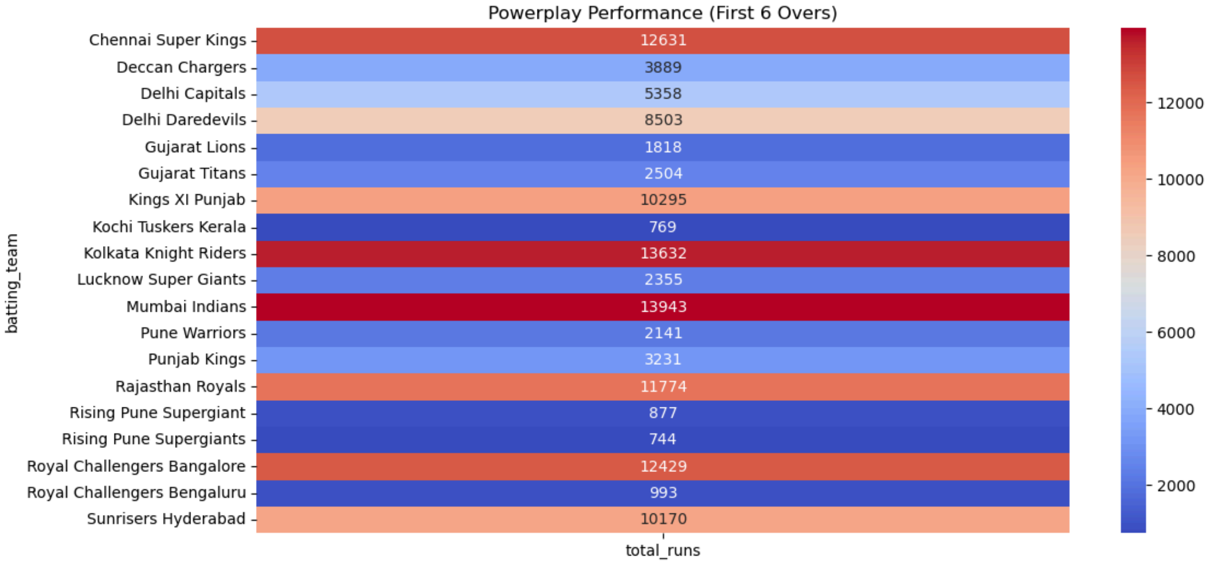
In [11]:

```python
# 8. Find and display which of the top 3 overs has the highest run rate.
over_runrate = df.groupby("over")["total_runs"].sum().nlargest(3)
plt.figure(figsize=(12, 6))
sns.barplot(x=over_runrate.index, y=over_runrate.values, palette="Blues")
plt.xlabel("Over")
plt.ylabel("Total Runs")
plt.title("Top 3 Overs with Highest Run Rate")
plt.show()
```



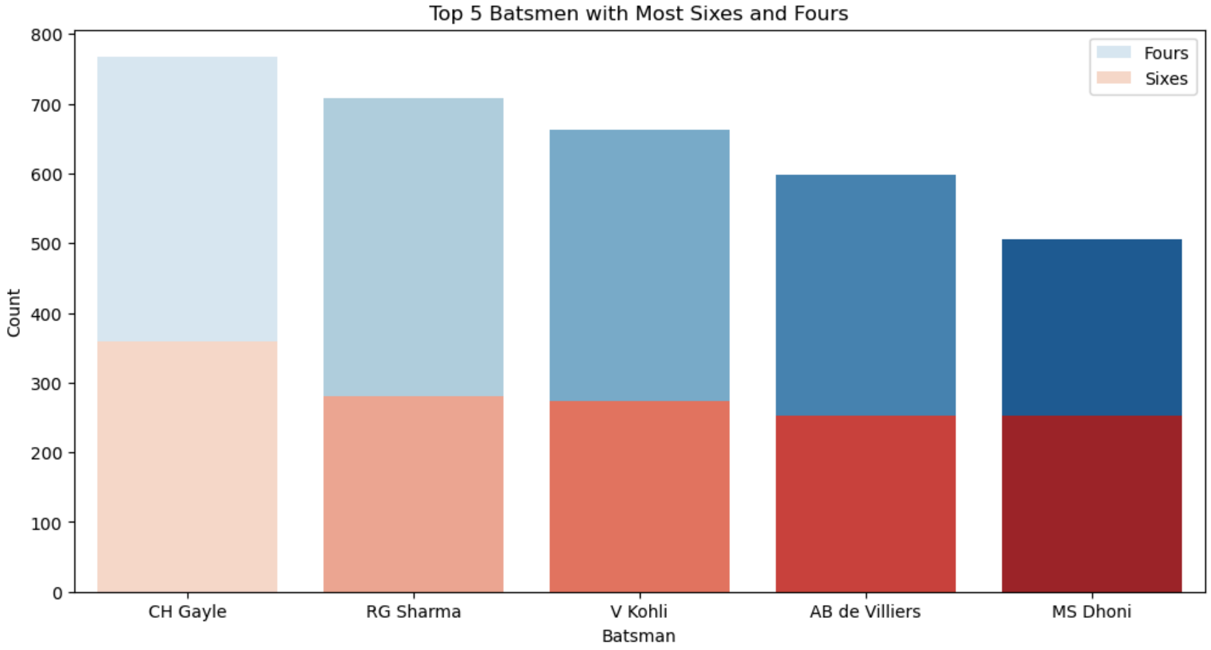
In [14]:

```python
# 9. Analyze and visualize powerplay performance (first 6 overs).
powerplay = df[df["over"] <= 6].groupby("batting_team")["total_runs"].sum()
plt.figure(figsize=(12, 6))
sns.heatmap(powerplay.to_frame(), annot=True, cmap="coolwarm", fmt="d")
plt.title("Powerplay Performance (First 6 Overs)")
plt.show()
```



In [15]:

```python
# 10. Tabulate and visualize the top 5 batsmen with the most sixes and fours.
fours = df[df["batsman_runs"] == 4].groupby("batter")["batsman_runs"].count().nlargest(5)
sixes = df[df["batsman_runs"] == 6].groupby("batter")["batsman_runs"].count().nlargest(5)
plt.figure(figsize=(12, 6))
sns.barplot(x=fours.index, y=fours.values, palette="Blues", label="Fours")
sns.barplot(x=sixes.index, y=sixes.values, palette="Reds", label="Sixes")
plt.xlabel("Batsman")
plt.ylabel("Count")
plt.title("Top 5 Batsmen with Most Sixes and Fours")
plt.legend()
plt.show()
```


Top 5 Batsmen with Most Sixes and Fours
Fours
Sixes
Count
CH Gayle
RG Sharma
V Kohli
AB de Villiers
MS Dhoni
Batsman