IPL Capstone Project

Importing Libraries and Default Setting

In [1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import warnings
warnings.filterwarnings("ignore")
```

Dataset Info

In [2]:
```
df = pd.read_csv(r"..\datasets\IPL.csv")
df.sample(5)
```

Out[2]:

	match_id	date	venue	team1	team2	stage	toss_winner	toss_decisior
70	71	May 24,2022	Eden Gardens, Kolkata	Gujarat	Rajasthan	Playoff	Gujarat	Fielc
11	12	April 4,2022	Dr DY Patil Sports Academy, Mumbai	Hyderabad	Lucknow	Group	Hyderabad	Fielc
6	7	March 31,2022	Brabourne Stadium, Mumbai	Chennai	Lucknow	Group	Lucknow	Fielc
35	36	April 23,2022	Brabourne Stadium, Mumbai	Banglore	Hyderabad	Group	Hyderabad	Fielc
49	50	May 5,2022	Brabourne Stadium, Mumbai	Delhi	Hyderabad	Group	Hyderabad	Fielc

In [3]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 74 entries, 0 to 73
Data columns (total 20 columns):
 #   Column               Non-Null Count  Dtype 
---  ------               --------------  ----- 
 0   match_id             74 non-null     int64 
 1   date                 74 non-null     object
 2   venue                74 non-null     object
 3   team1                74 non-null     object
 4   team2                74 non-null     object
 5   stage                74 non-null     object
 6   toss_winner          74 non-null     object
 7   toss_decision        74 non-null     object
 8   first_ings_score     74 non-null     int64 
 9   first_ings_wkts      74 non-null     int64 
 10  second_ings_score    74 non-null     int64 
 11  second_ings_wkts     74 non-null     int64 
 12  match_winner         74 non-null     object
 13  won_by               74 non-null     object
 14  margin               74 non-null     int64 
 15  player_of_the_match  74 non-null     object
 16  top_scorer           74 non-null     object
 17  highscore            74 non-null     int64 
 18  best_bowling         74 non-null     object
 19  best_bowling_figure  74 non-null     object
dtypes: int64(7), object(13)
memory usage: 11.7+ KB
```

In [4]:
```
print(f"Rows = {df.shape[0]} | Columns = {df.shape[1]}")
```

```
Rows = 74 | Columns = 20
```

In [5]:
```
df.isnull().sum()
```

Out[5]:
```
match_id              0
date                  0
venue                 0
team1                 0
team2                 0
stage                 0
toss_winner           0
toss_decision         0
first_ings_score      0
first_ings_wkts       0
second_ings_score     0
second_ings_wkts      0
match_winner          0
won_by                0
margin                0
player_of_the_match   0
top_scorer            0
highscore             0
best_bowling          0
best_bowling_figure   0
dtype: int64
```

Analysis

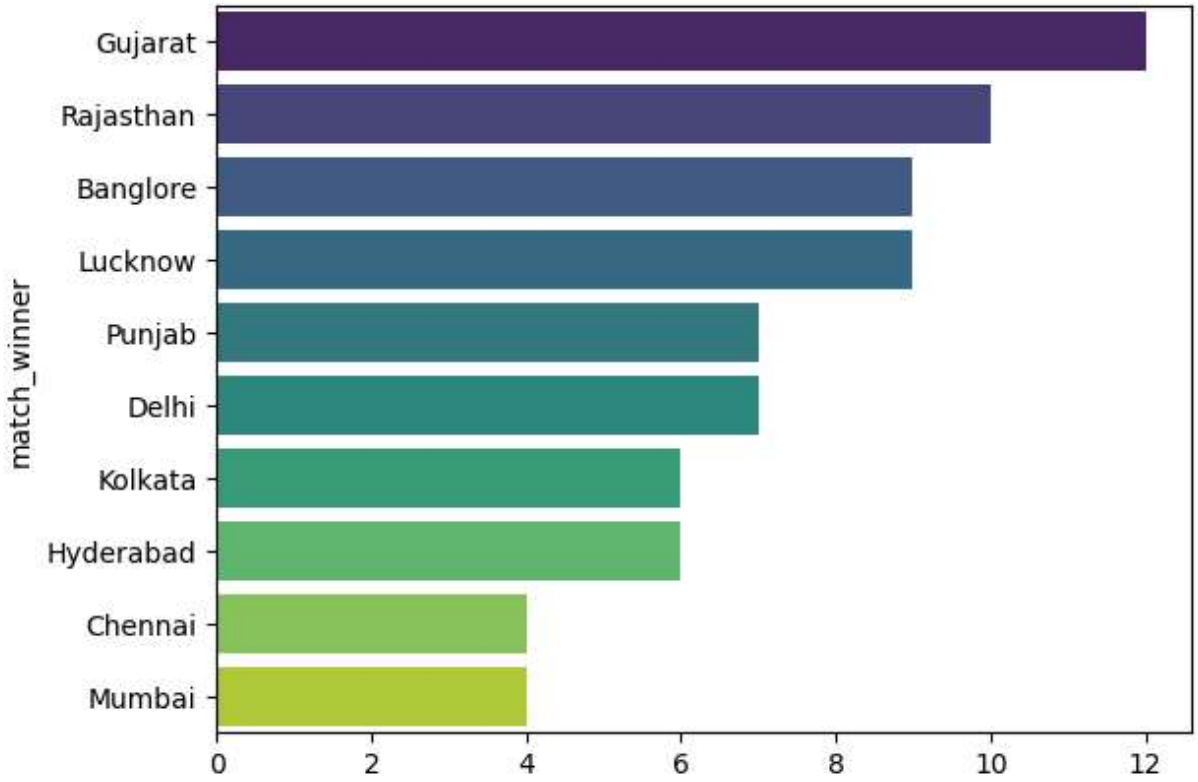
⚡ 1. Most Match Winner

In [6]:
```
match_wins = df['match_winner'].value_counts()
match_wins
```

Out[6]:
```
match_winner
Gujarat      12
Rajasthan    10
Banglore      9
Lucknow       9
Punjab        7
Delhi         7
Kolkata       6
Hyderabad     6
Chennai       4
Mumbai        4
Name: count, dtype: int64
```

In [7]:
```
sns.barplot(y=match_wins.index, x=match_wins.values,palette='viridis')
```

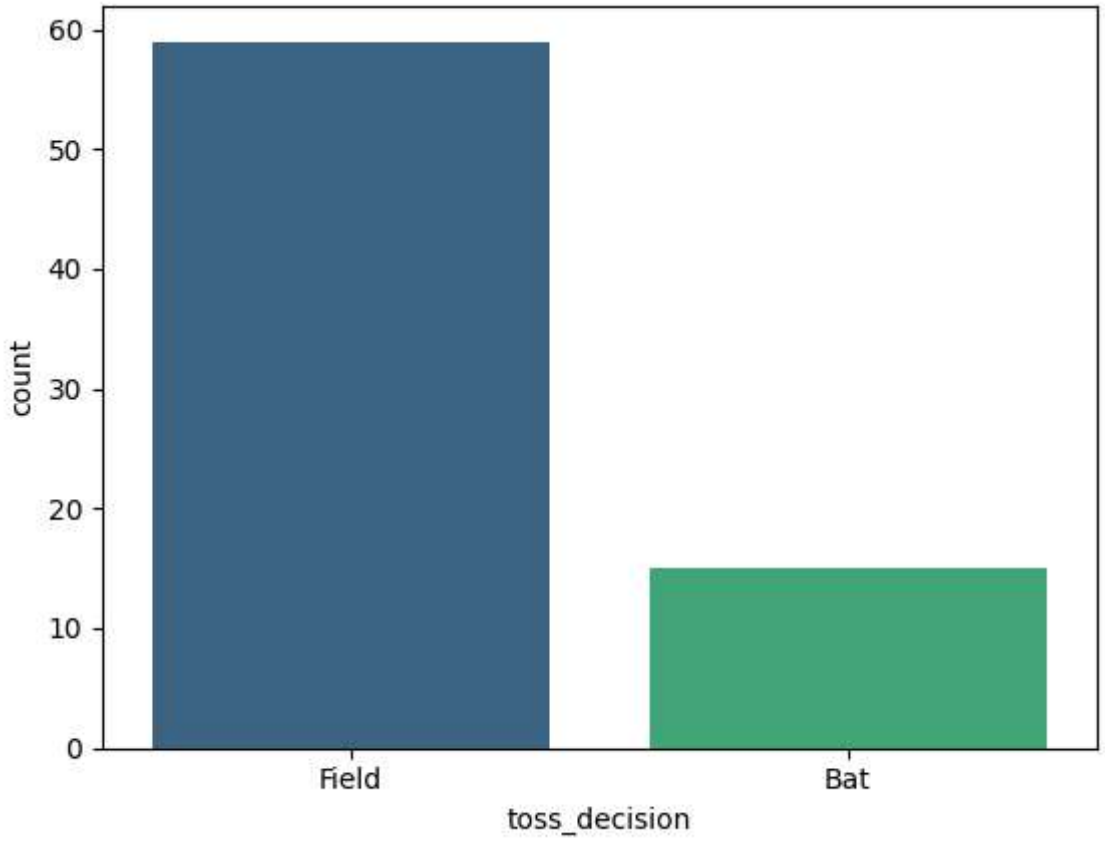
Out[7]:
```
<Axes: ylabel='match_winner'>
```



2. Toss Decision Trend

In [8]:
```
sns.countplot(x=df['toss_decision'],palette='viridis')
```

Out[8]:
```
<Axes: xlabel='toss_decision', ylabel='count'>
```



3. Toss Winner VS Match Winner

In [9]:
```
count_tw_mw = df[df['toss_winner'] == df['match_winner']]['match_id'].count()
percentage = count_tw_mw * 100 / df.shape[0]
print(f"Winning Chance = {percentage.round(2)}")
```

```
Winning Chance = 48.65
```

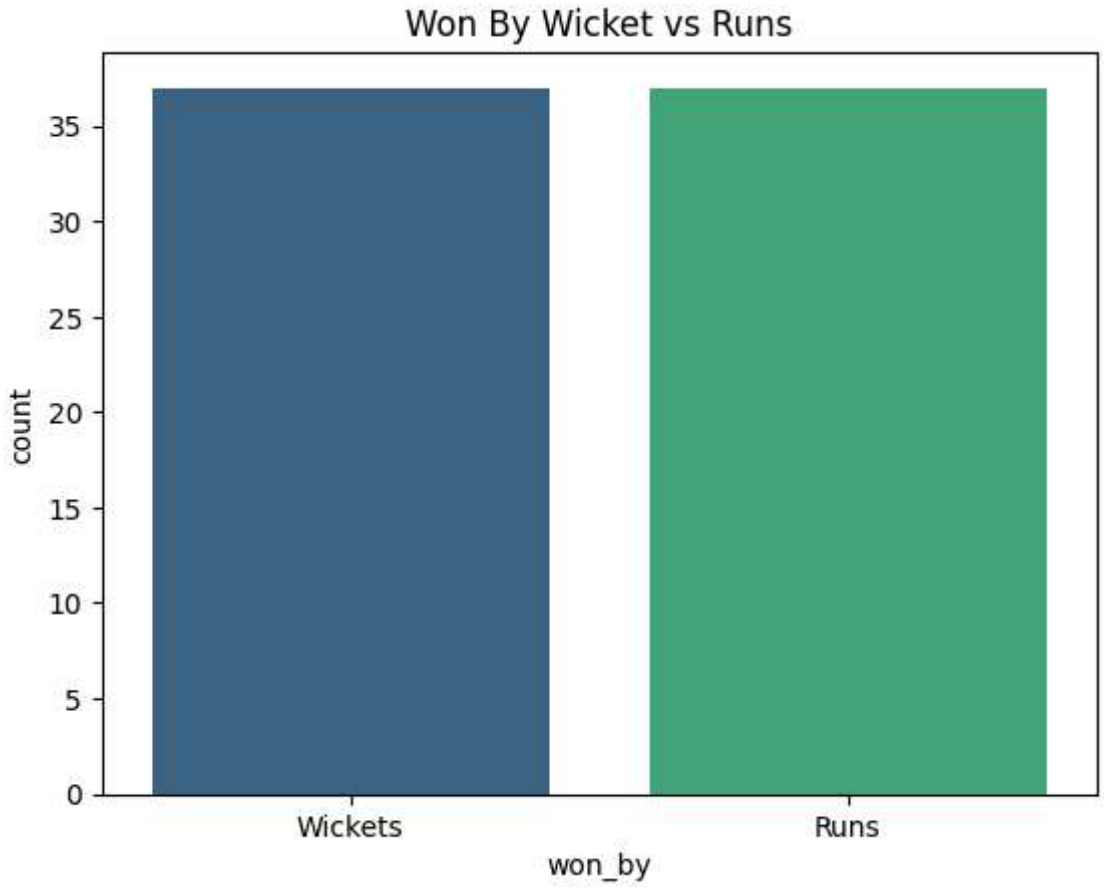
4. How team wins - Run or Wicket

In [10]:
```
df['won_by'].value_counts()
```

Out[10]:
```
won_by
Wickets    37
Runs       37
Name: count, dtype: int64
```

In [11]:
```
plt.title("Won By Wicket vs Runs")
sns.countplot(x=df['won_by'],palette='viridis')
```

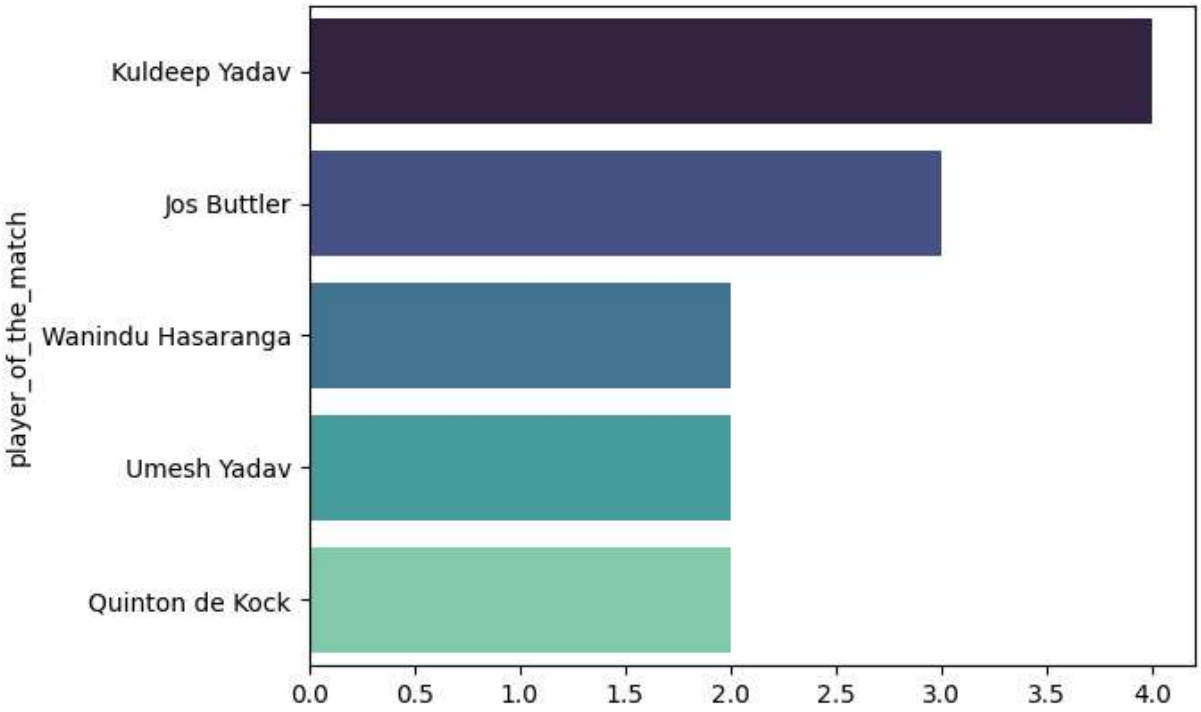
Out[11]:
```
<Axes: title={'center': 'Won By Wicket vs Runs'}, xlabel='won_by', ylabel='count'>
```



5. Player of the Match

In [12]:
```
arr = df['player_of_the_match'].value_counts().head()
sns.barplot(y= arr.index, x = arr.values,palette='mako')
```

Out[12]:
```
<Axes: ylabel='player_of_the_match'>
```



6. 2 Top Scorer

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

Out[13]:

	match_id	date	venue	team1	team2	stage	toss_winner	toss_decisio
0	1	March 26,2022	Wankhede Stadium, Mumbai	Chennai	Kolkata	Group	Kolkata	Fiel
1	2	March 27,2022	Brabourne Stadium, Mumbai	Delhi	Mumbai	Group	Delhi	Fiel
2	3	March 27,2022	Dr DY Patil Sports Academy, Mumbai	Banglore	Punjab	Group	Punjab	Fiel
3	4	March 28,2022	Wankhede Stadium, Mumbai	Gujarat	Lucknow	Group	Gujarat	Fiel
4	5	March 29,2022	Maharashtra Cricket Association Stadium,Pune	Hyderabad	Rajasthan	Group	Hyderabad	Fiel

In [14]:
```
df['top_scorer'].value_counts().head(2)
```

Out[14]:
```
top_scorer
Jos Buttler        7
Quinton de Kock    5
Name: count, dtype: int64
```

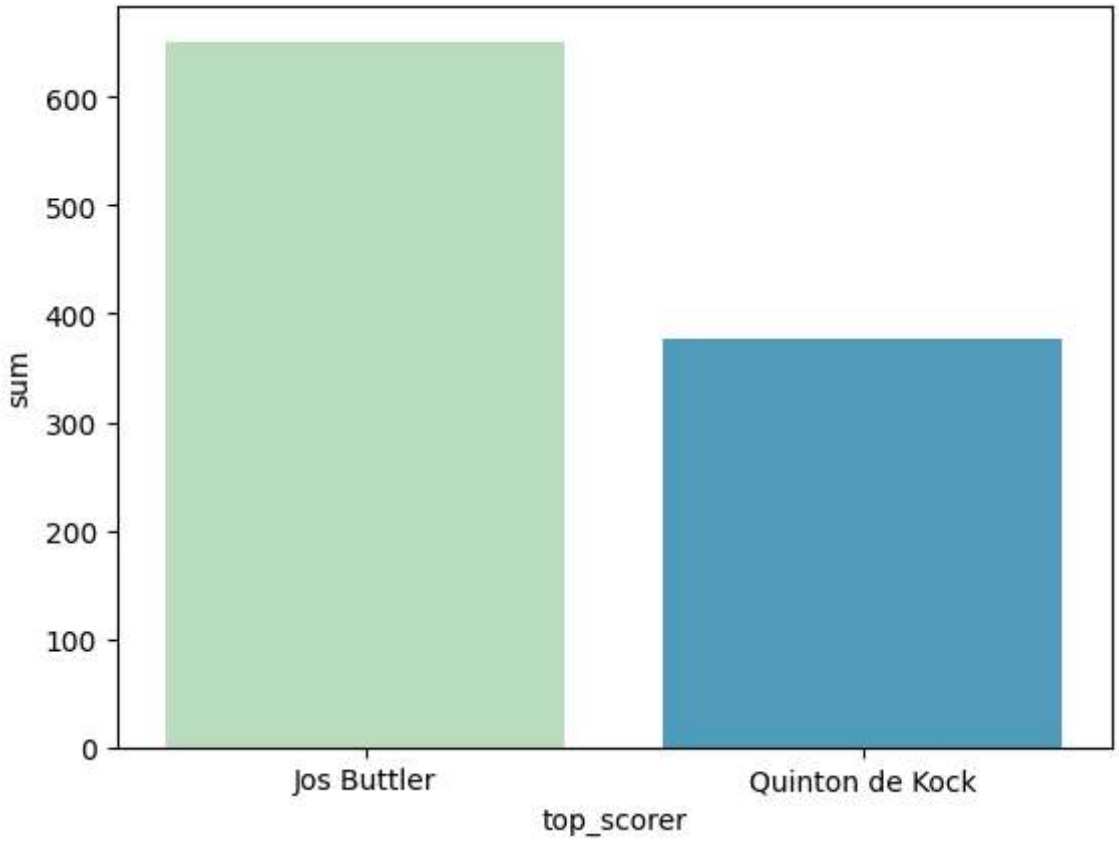
In [15]:
```
high = df.groupby('top_scorer')['highscore'].agg(['sum','mean']).sort_values(by='su
high
```

Out[15]:

top_scorer	sum	mean
Jos Buttler	651	93.0
Quinton de Kock	377	75.4

In [16]:
```
sns.barplot(x = high.index , y = high['sum'],palette='GnBu')
```

Out[16]:
```
<Axes: xlabel='top_scorer', ylabel='sum'>
```



7. 10 Best Bowling Figure

In [17]:
```
# Data Extraction on best bowling figure

#new col - Wicket_Figure
df['wicket_figure'] = df['best_bowling_figure'].apply(lambda x : int(x[0]))
```

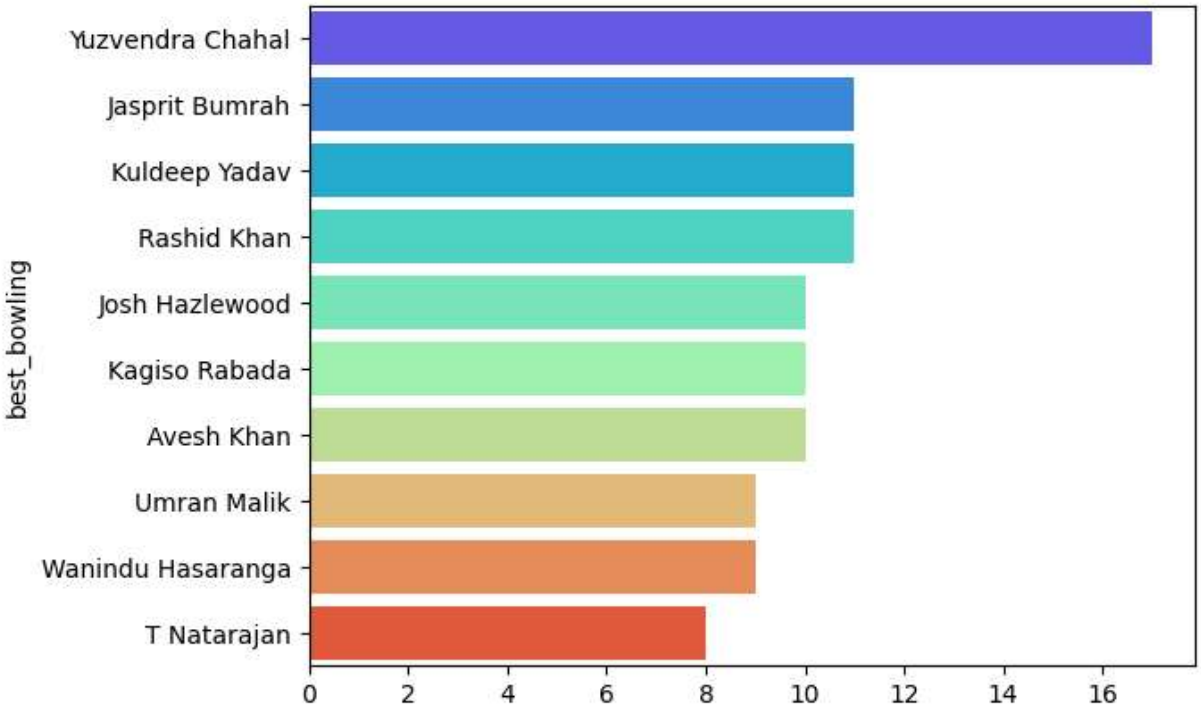
In [18]:
```
data = df.groupby('best_bowling')['wicket_figure'].sum().sort_values(ascending=Fals
```

```
data
```

Out[18]:
```
best_bowling
Yuzvendra Chahal     17
Jasprit Bumrah       11
Kuldeep Yadav        11
Rashid Khan          11
Josh Hazlewood       10
Kagiso Rabada        10
Avesh Khan           10
Umran Malik           9
Wanindu Hasaranga     9
T Natarajan           8
Name: wicket_figure, dtype: int64
```

In [19]:
```
sns.barplot( x = data.values, y = data.index,palette='rainbow')
```

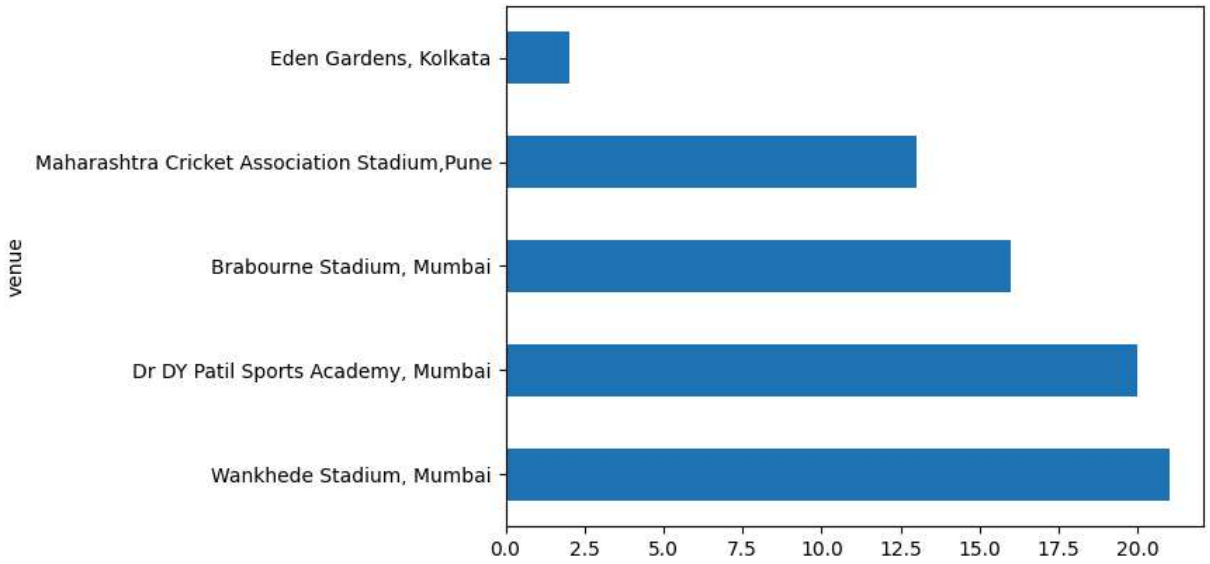
Out[19]:
```
<Axes: ylabel='best_bowling'>
```



8. Most match played - venue

In [20]:
```
ven = df['venue'].value_counts().head()
ven.plot(kind='barh')
```

Out[20]:
```
<Axes: ylabel='venue'>
```



9. Who won the highest margin by RUNS

In [21]:
```
df[df['won_by'] == 'Runs'].sort_values(by='margin',ascending=False).head(1)[['match
```

Out[21]:

	match_winner	margin
54	Chennai	91

10. Highest Individual Score in a match

In [22]:
```
df[df['highscore'] == df['highscore'].max()][['player_of_the_match','highscore','st
```

Out[22]:

	player_of_the_match	highscore	stage
65	Quinton de Kock	140	Group

11. Best Bowling figure in a match

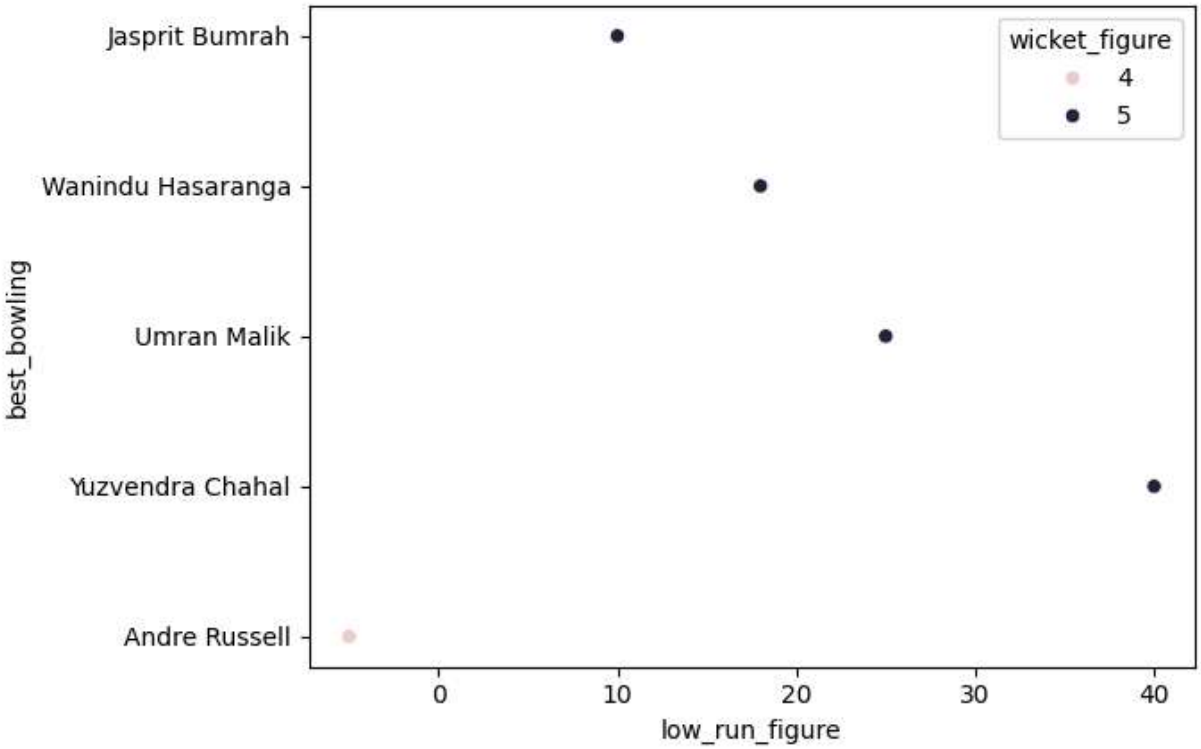
In [23]:
```
df['low_run_figure'] = df['best_bowling_figure'].apply(lambda x : int(x[-2:]))
```

In [24]:
```
best_bowler = df.sort_values(by=['wicket_figure','low_run_figure'],ascending=[False
best_bowler['best_bowling']
```

Out[24]:
```
55       Jasprit Bumrah
53    Wanindu Hasaranga
39          Umran Malik
29     Yuzvendra Chahal
34        Andre Russell
Name: best_bowling, dtype: object
```

In [25]:
```
sns.scatterplot(data= best_bowler, y = 'best_bowling', hue = 'wicket_figure',x='low
```

Out[25]:
```
<Axes: xlabel='low_run_figure', ylabel='best_bowling'>
```


Jasprit Bumrah
Wanindu Hasaranga
Umran Malik
Yuzvendra Chahal
Andre Russell
best_bowling
0
10
20
30
40
low_run_figure
wicket_figure
4
5