Name:-Devesh Bharat Hendge
Division:-ET2
Roll No :- ET2-10
PRN No :- 2024010700027

```
import pandas as pd
import numpy as np
```

```
from google.colab import drive
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

```
import pandas as pd
file_path = '/content/drive/MyDrive/ColabFiles/matches.csv'
df = pd.read_csv(file_path)
df.head()
```

	id	Season	city	date	team1	team2	toss_winner	toss_decisi
0	1	IPL-2017	Hyderabad	05-04-2017	Sunrisers Hyderabad	Royal Challengers Bangalore	Royal Challengers Bangalore	fi
1	2	IPL-2017	Pune	06-04-2017	Mumbai Indians	Rising Pune Supergiant	Rising Pune Supergiant	fi
2	3	IPL-2017	Rajkot	07-04-2017	Gujarat Lions	Kolkata Knight Riders	Kolkata Knight Riders	fi
3	4	IPL-2017	Indore	08-04-2017	Rising Pune Supergiant	Kings XI Punjab	Kings XI Punjab	fi
4	5	IPL-2017	Bangalore	08-04-2017	Royal Challengers Bangalore	Delhi Daredevils	Royal Challengers Bangalore	

```
### Problem 1: Find the total number of matches played in the IPL dataset.
```

```
total_matches = df.shape[0]
print("Total number of matches played:", total_matches)
```

```
Total number of matches played: 756
```

```
# ### Problem 2: Find the team with the highest number of wins in IPL history.

top_team = df['winner'].value_counts().idxmax()
print("Team with the highest number of wins:", top_team)
```

```
Team with the highest number of wins: Mumbai Indians
```

```
# ### Problem 3: Find the player with the most "Player of the Match" awards.

top_player = df['player_of_match'].value_counts().idxmax()
print("Player with the most 'Player of the Match' awards:", top_player)
```

```
Player with the most 'Player of the Match' awards: CH Gayle
```

```
# ### Problem 4: Find the season with the most matches played.

most_matches_season = df['Season'].value_counts().idxmax()
print("Season with the most matches played:", most_matches_season)
```

```
Season with the most matches played: IPL-2013
```

```
# ### Problem 5: Find the venue that hosted the most IPL matches.

top_venue = df['venue'].value_counts().idxmax()
print("Venue with the most matches hosted:", top_venue)
```

```
Venue with the most matches hosted: Eden Gardens
```

```
# ### Problem 6: Find the top 5 teams with the highest total wins.

top_5_teams = df['winner'].value_counts().head(5)
print("Top 5 teams with highest total wins:")
print(top_5_teams)
```

```
Top 5 teams with highest total wins:
winner
Mumbai Indians                  109
Chennai Super Kings             100
Kolkata Knight Riders            92
Royal Challengers Bangalore      84
Kings XI Punjab                  82
Name: count, dtype: int64
```

```
# ### Problem 7: Find the team that won the toss the most number of times.

top_toss_winner = df['toss_winner'].value_counts().idxmax()
print("Team that won the toss most often:", top_toss_winner)
```

```
Team that won the toss most often: Mumbai Indians
```

```
# ### Problem 8: Find how often the team that won the toss also won the match.

same_winner = df[df['toss_winner'] == df['winner']].shape[0]
print("Number of times toss winner also won the match:", same_winner)
```

```
Number of times toss winner also won the match: 393
```

```
# ### Problem 9: Find the match with the largest victory margin by runs.

max_run_win = df.loc[df['win_by_runs'].idxmax()]
print("Match with largest victory margin by runs:")
print(max_run_win)
```

```
Match with largest victory margin by runs:
id                              44
Season                     IPL-2017
city                          Delhi
date                     06-05-2017
team1                Mumbai Indians
team2              Delhi Daredevils
toss_winner        Delhi Daredevils
toss_decision                 field
result                       normal
dl_applied                        0
winner               Mumbai Indians
win_by_runs                     146
win_by_wickets                    0
player_of_match         LMP Simmons
venue              Feroz Shah Kotla
umpire1                 Nitin Menon
umpire2                   CK Nandan
umpire3                         NaN
Name: 43, dtype: object
```

```
# ### Problem 10: Find the match with the largest victory margin by wickets.

max_wicket_win  =  df.loc[df['win_by_wickets'].idxmax()]
print("Match with largest victory margin by wickets:")
print(max_wicket_win)
```

```
Match with largest victory margin by wickets:
id                                                    3
Season                                          IPL-2017
city                                               Rajkot
date                                           07-04-2017
team1                                        Gujarat Lions
team2                              Kolkata Knight Riders
toss_winner                        Kolkata Knight Riders
toss_decision                                      field
result                                            normal
dl_applied                                             0
winner                             Kolkata Knight Riders
win_by_runs                                            0
win_by_wickets                                        10
player_of_match                                CA Lynn
venue              Saurashtra Cricket Association Stadium
umpire1                                       Nitin Menon
umpire2                                         CK Nandan
umpire3                                               NaN
Name: 2, dtype: object
```

```
# ### Problem 11: Find the player who received the most "Player of the Match" a

finals = df[df['result'] == 'normal']
finals_awards = finals['player_of_match'].value_counts().idxmax()
print("Player with most 'Player of the Match' awards in finals:", finals_awards
```

```
Player with most 'Player of the Match' awards in finals: CH Gayle
```

```
# ### Problem 12: Find the total number of matches decided by super over.

super_over_matches = df[df['result'] == 'tie'].shape[0]
print("Total number of matches decided by super over:", super_over_matches)
```

```
Total number of matches decided by super over: 9
```

```
# ### Problem 13: Find the team with the most wins while chasing (batting secon

bat_second_wins = df[df['win_by_wickets'] > 0]['winner'].value_counts().idxmax(
print("Team with most wins while chasing:", bat_second_wins)
```

```
Team with most wins while chasing: Kolkata Knight Riders
```

```
# ### Problem 14: Find the team with the most wins while defending (batting fir

bat_first_wins = df[df['win_by_runs'] > 0]['winner'].value_counts().idxmax()
print("Team with most wins while defending:", bat_first_wins)
```

```
Team with most wins while defending: Mumbai Indians
```

```
# ### Problem 15: Find the number of matches where no result was declared.

no_result_matches = df[df['result'] == 'no result'].shape[0]
print("Number of matches with no result:", no_result_matches)
```

```
Number of matches with no result: 4
```

```
# ### Problem 16: Find the number of matches played in each city.

matches_per_city = df['city'].value_counts()
print("Number of matches played in each city:")
print(matches_per_city)
```

```
Number of matches played in each city:
city
Mumbai             101
Kolkata             77
Delhi               74
Bangalore           66
Hyderabad           64
Chennai             57
Jaipur              47
Chandigarh          46
Pune                38
Durban              15
Bengaluru           14
Visakhapatnam       13
Centurion           12
Ahmedabad           12
Mohali              10
Rajkot              10
Dharamsala           9
Indore               9
Johannesburg         8
Port Elizabeth       7
Abu Dhabi            7
Cape Town            7
Ranchi               7
Cuttack              7
Sharjah              6
Raipur               6
Kochi                5
Kanpur               4
Kimberley            3
Nagpur               3
East London          3
Bloemfontein         2
Name: count, dtype: int64
```

```
# ### Problem 17: Find the most successful city for Mumbai Indians (where they

mi_wins = df[df['winner'] == 'Mumbai Indians']
best_city_mi = mi_wins['city'].value_counts().idxmax()
print("City where Mumbai Indians won the most matches:", best_city_mi)
```

```
City where Mumbai Indians won the most matches: Mumbai
```

```
# ### Problem 18: Find the match where the margin of victory was the smallest b

smallest_run_win = df[df['win_by_runs'] > 0].nsmallest(1, 'win_by_runs')
print("Match with smallest victory margin by runs:")
print(smallest_run_win)
```

```
Match with smallest victory margin by runs:
     id    Season       city        date           team1  \
58   59   IPL-2017  Hyderabad  21-05-2017  Mumbai Indians

                        team2     toss_winner toss_decision   result  dl_applie
58  Rising Pune Supergiant  Mumbai Indians           bat  normal

              winner  win_by_runs  win_by_wickets player_of_match   \
58  Mumbai Indians             1               0       KH Pandya

                                          venue   umpire1 umpire2 umpire3
58  Rajiv Gandhi International Stadium, Uppal  NJ Llong  S Ravi     NaN
```

```
# ### Problem 19: Find the team that won the most tosses in finals matches.

finals_matches = df[df['result'] == 'normal']
top_toss_final = finals_matches['toss_winner'].value_counts().idxmax()
print("Team with most toss wins in finals:", top_toss_final)
```

```
Team with most toss wins in finals: Mumbai Indians
```

```
# ### Problem 20: Find the city which hosted the most number of finals.

finals_cities = df[df['result'] == 'normal']['city'].value_counts().idxmax()
print("City that hosted the most finals:", finals_cities)
```

```
City that hosted the most finals: Mumbai
```

```
Start coding or generate with AI.
```