Activity No:1

EDS

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ET1-52

202401070059

ET1

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```
[9] import pandas as pd

    file_path = "ipl2019.csv"
    ipl_2019_df = pd.read_csv(file_path)
    print(ipl_2019_df)
```

```
    Match_ID       Date Team_A Team_B Winner  Margin      Venue
0          1 2019-03-23     MI    RCB     MI       4     Mumbai
1          2 2019-03-25    RCB    CSK    CSK       6  Bangalore
2          3 2019-03-27    CSK    KKR    KKR       5    Chennai
3          4 2019-03-29    KKR    SRH    SRH       7    Kolkata
4          5 2019-03-31    SRH   PBKS   PBKS       3  Hyderabad
5          6 2019-04-02   PBKS     RR     RR       2     Mohali
6          7 2019-04-04     RR     DC     DC       6     Jaipur
7          8 2019-04-06     DC     MI     MI       8      Delhi
8          9 2019-04-08     MI    KKR     MI      10     Mumbai
9         10 2019-04-10    RCB    SRH    SRH       1  Bangalore
10        11 2019-04-12    CSK   PBKS   PBKS      14    Chennai
11        12 2019-04-14    KKR     RR     RR       5    Kolkata
12        13 2019-04-16    SRH     DC     DC       6  Hyderabad
13        14 2019-04-18   PBKS     MI    KKR       9     Mohali
14        15 2019-04-20     RR    RCB    RCB       4     Jaipur
15        16 2019-04-22     DC    CSK    CSK       7      Delhi
16        17 2019-04-24     MI   PBKS   PBKS       3     Mumbai
17        18 2019-04-26    RCB     RR     RR       6  Bangalore
18        19 2019-04-28    CSK     DC    CSK      10    Chennai
19        20 2019-04-30    KKR     MI     MI       8    Kolkata
20        21 2019-05-02    SRH    RCB    RCB       7  Hyderabad
21        22 2019-05-04   PBKS    CSK   PBKS      11     Mohali
22        23 2019-05-06     RR    KKR    KKR       9     Jaipur
23        24 2019-05-08     DC    SRH    SRH       5      Delhi
24        25 2019-05-10     MI     DC     DC       6     Mumbai
25        26 2019-05-12    RCB     MI     MI       3  Bangalore
26        27 2019-05-14    CSK    RCB    RCB       7    Chennai
27        28 2019-05-16    KKR    CSK    CSK       4    Kolkata
28        29 2019-05-18    SRH    KKR    KKR       2  Hyderabad
29        30 2019-05-20   PBKS     RR     RR       5     Mohali
30        31 2019-05-22     RR   PBKS   PBKS       6     Jaipur
```

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```
29        30 2019-05-20   PBKS     RR     RR       5     Mohali
30        31 2019-05-22     RR   PBKS   PBKS       6     Jaipur
31        32 2019-05-24     DC    SRH    SRH       8      Delhi
32        33 2019-05-26     MI    SRH    SRH       7     Mumbai
33        34 2019-05-28    RCB   PBKS   PBKS       3  Bangalore
34        35 2019-05-30    CSK     RR     RR       5    Chennai
35        36 2019-06-01    KKR     DC     DC       9    Kolkata
36        37 2019-06-03    SRH     MI     MI      10  Hyderabad
37        38 2019-06-05   PBKS    RCB    RCB      11     Mohali
38        39 2019-06-07     RR    CSK    CSK       6     Jaipur
39        40 2019-06-09     DC    KKR    KKR       4      Delhi
40        41 2019-06-11     MI     RR     RR       7     Mumbai
41        42 2019-06-13    RCB     DC     DC       8  Bangalore
42        43 2019-06-15    CSK     MI     MI       5    Chennai
43        44 2019-06-17    KKR    RCB    RCB       6    Kolkata
44        45 2019-06-19    SRH    CSK    CSK       7  Hyderabad
45        46 2019-06-21   PBKS   PBKS   PBKS       4     Mohali
46        47 2019-06-23     RR    SRH    SRH       3     Jaipur
47        48 2019-06-25     DC     RR     RR       2      Delhi
```

```
# Problem 1: List all matches played at "Chennai"
mumbai_matches = ipl_df[ipl_df['Venue'] == "Chennai"]
print("1. Matches played at Mumbai:\n", mumbai_matches, "\n")
```

```
1. Matches played at Mumbai:
    Match_ID Team_A Team_B Winner  Margin Top_Scorer Man_of_the_Match    Venue
0          1    SRH    CSK     DC      58    Player1          Player4  Chennai
1          2    KKR    CSK    CSK      51    Player1          Player4  Chennai
3          4    CSK    KKR     DC      10    Player2          Player1  Chennai
5          6     RR    SRH    RCB      46    Player5          Player5  Chennai
8          9     DC    RCB    CSK      70    Player1          Player3  Chennai
17        18    RCB    KKR     RR      61    Player4          Player5  Chennai
31        32     RR    CSK    KKR      86    Player3          Player1  Chennai
36        37     MI     MI    KKR      32    Player5          Player4  Chennai
39        40   PBKS     DC   PBKS       8    Player2          Player5  Chennai
40        41    KKR     MI    CSK      13    Player5          Player1  Chennai
43        44     DC     RR   PBKS      88    Player4          Player5  Chennai
45        46     RR     MI    KKR      48    Player4          Player1  Chennai
```

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```
[11] # Problem 2: Find the total number of matches won by "MI"
     mi_wins = len(ipl_df[ipl_df['Winner'] == "MI"])
     print("2. Total matches won by MI:", mi_wins, "\n")
```

```
2. Total matches won by MI: 6
```

```
[12] # Problem 3: Identify the team with the maximum wins
     max_wins_team = ipl_df['Winner'].value_counts().idxmax()
     print("3. Team with maximum wins:", max_wins_team, "\n")
```

```
3. Team with maximum wins: KKR
```

```
# Problem 4: Calculate the average winning margin for all matches
avg_margin = ipl_df['Margin'].mean()
print("4. Average winning margin:", avg_margin, "\n")
```

```
4. Average winning margin: 51.92
```

```
[30] # Problem 5: Find top 5 matches where the winning margin was greater than 10 runs/wickets
     large_margin_matches = ipl_df[ipl_df['Margin'] > 10]
     print("5. Matches with winning margin > 10:\n", large_margin_matches.head(), "\n")
```

```
5. Matches with winning margin > 10:
    Match_ID Team_A Team_B Winner  Margin Top_Scorer Man_of_the_Match  \
0         1    SRH    CSK     DC      58    Player1          Player4
1         2    KKR    CSK    CSK      51    Player1          Player4
2         3     DC     MI     DC      38    Player2          Player4
5         6     RR    SRH    RCB      46    Player5          Player5
6         7    CSK    RCB     DC      89    Player1          Player5

      Venue
0   Chennai
1   Chennai
2 Bangalore
5   Chennai
```

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```
6   Kolkata
```

```
# Problem 6: How many matches did "RCB" play?
rcb_matches = len(ipl_df[(ipl_df['Team_A'] == "RCB") | (ipl_df['Team_B'] == "RCB")])
print("6. Total matches played by RCB:", rcb_matches, "\n")
```

```
6. Total matches played by RCB: 11
```

```
[16] # Problem 7: List all matches where "CSK" played against "MI"
     csk_vs_mi_matches = ipl_df[
         ((ipl_df['Team_A'] == "CSK") & (ipl_df['Team_B'] == "MI")) |
         ((ipl_df['Team_A'] == "MI") & (ipl_df['Team_B'] == "CSK"))
     ]
     print("7. Matches where CSK played against MI:\n", csk_vs_mi_matches, "\n")
```

```
7. Matches where CSK played against MI:
    Match_ID Team_A Team_B Winner  Margin Top_Scorer Man_of_the_Match   Venue
7         8     MI    CSK    KKR      67    Player3          Player3  Mumbai
```

```
# Problem 8: Find the venue where "KKR" won most matches
kkr_venues = ipl_df[ipl_df['Winner'] == "KKR"]['Venue'].value_counts()
most_common_venue = kkr_venues.idxmax()
print("8. Venue where KKR won most matches:", most_common_venue, "\n")
```

```
8. Venue where KKR won most matches: Chennai
```

```
[18] # Problem 9: How many matches ended with a margin of 6 runs/wickets?
     six_margin_matches = len(ipl_df[ipl_df['Margin'] == 6])
     print("9. Matches with margin = 6:", six_margin_matches, "\n")
```

```
9. Matches with margin = 6: 1
```

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```
[19] # Problem 10: Determine the winning percentage of "SRH"
     srh_matches = len(ipl_df[(ipl_df['Team_A'] == "SRH") | (ipl_df['Team_B'] == "SRH")])
     srh_wins = len(ipl_df[ipl_df['Winner'] == "SRH"])
     win_percentage = (srh_wins / srh_matches) * 100 if srh_matches > 0 else 0
     print("10. Winning percentage of SRH:", win_percentage, "%\n")

10. Winning percentage of SRH: 21.428571428571427 %

[20] # Problem 11: Matches where the venue was "Delhi" and the margin was < 5
     close_delhi_matches = ipl_df[(ipl_df['Venue'] == "Delhi") & (ipl_df['Margin'] < 5)]
     print("11. Close matches at Delhi:\n", close_delhi_matches, "\n")

11. Close matches at Delhi:
 Empty DataFrame
Columns: [Match_ID, Team_A, Team_B, Winner, Margin, Top_Scorer, Man_of_the_Match, Venue]
Index: []

[21] # Problem 12: Match with the highest winning margin
     max_margin_match = ipl_df[ipl_df['Margin'] == ipl_df['Margin'].max()]
     print("12. Match with highest margin:\n", max_margin_match, "\n")

12. Match with highest margin:
     Match_ID Team_A Team_B Winner  Margin Top_Scorer Man_of_the_Match  Venue
11        12    CSK   PBKS     MI      96    Player1          Player2  Delhi

[22] # Problem 13: Count of matches played in each venue
     matches_per_venue = ipl_df['Venue'].value_counts()
     print("13. Matches per venue:\n", matches_per_venue, "\n")

13. Matches per venue:
 Venue
Mumbai       13
Chennai      12
```

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```
Kolkata      10
Delhi         8
Bangalore     7
Name: count, dtype: int64

[23] # Problem 14: Identify the team that played the most matches
     team_counts = pd.concat([ipl_df['Team_A'], ipl_df['Team_B']]).value_counts()
     most_matches_team = team_counts.idxmax()
     print("14. Team that played the most matches:", most_matches_team, "\n")

14. Team that played the most matches: MI

[24] # Problem 15: Matches where "PBKS" lost
     pbks_lost_matches = ipl_df[(ipl_df['Winner'] != "PBKS") &
                                ((ipl_df['Team_A'] == "PBKS") | (ipl_df['Team_B'] == "PBKS"))]
     print("15. Matches where PBKS lost:\n", pbks_lost_matches, "\n")

15. Matches where PBKS lost:
     Match_ID Team_A Team_B Winner  Margin Top_Scorer Man_of_the_Match    Venue
11        12    CSK   PBKS     MI      96    Player1          Player2    Delhi
16        17    SRH   PBKS    SRH      54    Player2          Player1  Kolkata
19        20    SRH   PBKS     MI      81    Player1          Player1   Mumbai
21        22     RR   PBKS    KKR      18    Player2          Player5    Delhi
34        35   PBKS     MI    KKR      64    Player3          Player3  Kolkata

[25] # Problem 16: Average number of matches per venue
     avg_matches_per_venue = matches_per_venue.mean()
     print("16. Average matches per venue:", avg_matches_per_venue, "\n")

16. Average matches per venue: 10.0

[26] # Problem 17: First match where "RR" won
     rr_first_win = ipl_df[ipl_df['Winner'] == "RR"].iloc[0]
     print("17. First match where RR won:\n", rr_first_win, "\n")
```

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```
17. First match where RR won:
 Match_ID                  13
Team_A                     MI
Team_B                     MI
Winner                     RR
Margin                     40
Top_Scorer            Player1
Man_of_the_Match      Player2
Venue                Bangalore
Name: 12, dtype: object
```

```
[27] # Problem 18: Count of matches won by each team
matches_won_by_team = ipl_df['Winner'].value_counts()
print("18. Matches won by each team:\n", matches_won_by_team, "\n")
```

```
18. Matches won by each team:
 Winner
KKR     9
RR      8
PBKS    7
CSK     7
MI      6
DC      6
RCB     4
SRH     3
Name: count, dtype: int64
```

```
[28] # Problem 19: Number of matches "KKR" played at "Kolkata"
kkr_kolkata_matches = ipl_df[((ipl_df['Team_A'] == "KKR") | (ipl_df['Team_B'] == "KKR")) &
                             (ipl_df['Venue'] == "Kolkata")]
print("19. Matches KKR played in Kolkata:", len(kkr_kolkata_matches), "\n")
```

```
19. Matches KKR played in Kolkata: 1
```

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```
RR      8
PBKS    7
CSK     7
MI      6
DC      6
RCB     4
SRH     3
Name: count, dtype: int64
```

```
[28] # Problem 19: Number of matches "KKR" played at "Kolkata"
kkr_kolkata_matches = ipl_df[((ipl_df['Team_A'] == "KKR") | (ipl_df['Team_B'] == "KKR")) &
                             (ipl_df['Venue'] == "Kolkata")]
print("19. Matches KKR played in Kolkata:", len(kkr_kolkata_matches), "\n")
```

```
19. Matches KKR played in Kolkata: 1
```

```
[29] # Problem 20: Team with the lowest winning margin overall
min_margin_team = ipl_df[ipl_df['Margin'] == ipl_df['Margin'].min()]['Winner'].iloc[0]
print("20. Team with lowest winning margin:", min_margin_team, "\n")
```

```
20. Team with lowest winning margin: MI
```

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

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