

# PDSP 2025, Assignment 1

6 Sep 2025, due 12 Sep 2025

## Instructions

- All questions below use a table with IPL 2025 data converted to a list of tuples. The data is in the cells following the Questions.
- Write Python function(s) for each question, as specified.
- You may (and probably should) write auxiliary helper functions as needed.
- Submit your solution through Moodle as a single Python notebook with solutions to all the questions.
  - Add documentation to separate out the solutions into clearly marked areas within the notebook, and explain at a high level what your code is doing
  - Show some sample executions

## Questions

1. Which team had the highest winning percentage?
  - Write a function `max_win_percentage(m)` that takes a list of matches and returns the team that won the largest fraction of matches that it played.
2. Is it better to bowl first or bat first?
  - Write a function `bowl_first_win(m)` that takes a list of matches and returns the fraction of matches won by the team bowling first.
3. Which team(s) batted first most often?
  - Write a function `bat_first_max(m)` that takes a list of matches and returns the team(s) that batted first most often, as a list.
4. If the match goes into the final over (number of balls left is less than 6), which team has an advantage -- the team that batted first or the team that batted second?
  - Write a function `last_over_favours(m)` that takes a list of matches and returns `1` if the team batting first has an advantage and `2` if the team batting second has an advantage.
5. Which venue(s) most favour the team batting second?

- Write a function `best_chasing_venue(m)` that takes a list of matches and returns the venue(s) that most favour the team batting second, as a list

## IPL 2025 data

- Each match is a tuple of columns
- `(Venue, Team 1, Team 2, Toss winner, Toss Decision, Win by runs, Win by wickets, Balls left, Player of the match)`
- When Team 1 wins the match, `Win by runs` denotes the winning margin
- When Team 2 wins the match, `Win by wickets` denotes the winning margin

```
In [6]: matchlist = [
("Eden Gardens, Kolkata", "KKR", "RCB", "Bowl", "", 7, 22, "Krunal Pandya"
("Rajiv Gandhi International Stadium, Hyderabad", "SRH", "RR", "RR", "Bowl", 4
("MA Chidambaram Stadium, Chennai", "CSK", "MI", "CSK", "Bowl", "", 4, 5, "Noor A
("ACA-VDCA Cricket Stadium, Vishakhapatnam", "DC", "LSG", "DC", "Bowl", "", 1, 3
("Narendra Modi Stadium, Ahmedabad", "GT", "PBKS", "GT", "Bowl", 11, "", 0, "Shre
("Barsapara Stadium, Guwahati", "RR", "KKR", "KKR", "Bowl", "", 8, 15, "Quinton d
("Rajiv Gandhi International Stadium, Hyderabad", "SRH", "LSG", "LSG", "Bowl"
("MA Chidambaram Stadium, Chennai", "CSK", "RCB", "CSK", "Bowl", 50, "", 0, "Raja
("Narendra Modi Stadium, Ahmedabad", "GT", "MI", "MI", "Bowl", 36, "", 0, "Prasid
("ACA-VDCA Cricket Stadium, Vishakhapatnam", "DC", "SRH", "SRH", "Bat", "", 7, 2
("Barsapara Stadium, Guwahati", "RR", "CSK", "CSK", "Bowl", 6, "", 0, "Nitish Ran
("Wankhede Stadium, Mumbai", "MI", "KKR", "MI", "Bowl", "", 8, 43, "Ashwani Kumar
("Ekana Cricket Stadium, Lucknow", "LSG", "PBKS", "PBKS", "Bowl", "", 8, 22, "Pra
("M. Chinnaswamy Stadium, Bangalore", "RCB", "GT", "GT", "Bowl", "", 8, 13, "Moha
("Eden Gardens, Kolkata", "KKR", "SRH", "SRH", "Bowl", 80, "", 20, "Vaibhav Arora
("Ekana Cricket Stadium, Lucknow", "LSG", "MI", "MI", "Bowl", 12, "", 0, "Digvesh
("MA Chidambaram Stadium, Chennai", "CSK", "DC", "DC", "Bat", 25, "", 0, "KL Rahu
("New PCA Cricket Stadium, Mullanpur", "PBKS", "RR", "PBKS", "Bowl", 50, "", 0, "
("Rajiv Gandhi International Stadium, Hyderabad", "SRH", "GT", "GT", "Bowl", "
("Wankhede Stadium, Mumbai", "MI", "RCB", "MI", "Bowl", 12, "", 0, "Rajat Patidar
("Eden Gardens, Kolkata", "KKR", "LSG", "KKR", "Bowl", 4, "", 0, "Nicholas Pooran
("New PCA Cricket Stadium, Mullanpur", "PBKS", "CSK", "PBKS", "Bat", 18, "", 0, "
("Narendra Modi Stadium, Ahmedabad", "GT", "RR", "RR", "Bowl", 58, "", 4, "Sai Su
("M. Chinnaswamy Stadium, Bangalore", "RCB", "DC", "DC", "Bowl", "", 6, 13, "KL R
("MA Chidambaram Stadium, Chennai", "CSK", "KKR", "KKR", "Bowl", "", 8, 59, "Suni
("Ekana Cricket Stadium, Lucknow", "LSG", "GT", "LSG", "Bowl", "", 6, 3, "Aiden M
("Rajiv Gandhi International Stadium, Hyderabad", "SRH", "PBKS", "PBKS", "Bat
("Sawai Mansingh Stadium, Jaipur", "RR", "RCB", "RCB", "Bowl", "", 9, 15, "Phil S
("Arun Jaitley Stadium, Delhi", "DC", "MI", "DC", "Bowl", 12, "", 6, "Karn Sharma
("Ekana Cricket Stadium, Lucknow", "LSG", "CSK", "CSK", "Bowl", "", 5, 3, "MS Dho
("New PCA Cricket Stadium, Mullanpur", "PBKS", "KKR", "PBKS", "Bowl", 16, "", 29,
("Arun Jaitley Stadium, Delhi", "DC", "RR", "RR", "Bowl", "super over", "super
("Wankhede Stadium, Mumbai", "MI", "SRH", "MI", "Bowl", "", 4, 11, "Will Jacks"),
("M. Chinnaswamy Stadium, Bangalore", "RCB", "PBKS", "PBKS", "Bowl", "", 5, 11, "
("Narendra Modi Stadium, Ahmedabad", "GT", "DC", "GT", "Bowl", "", 7, 4, "Jos But
("Sawai Mansingh Stadium, Jaipur", "RR", "LSG", "LSG", "Bowl", 2, "", 0, "Avesh Kh
("New PCA Cricket Stadium, Mullanpur", "PBKS", "RCB", "RCB", "Bowl", "", 7, 7, "V
("Wankhede Stadium, Mumbai", "MI", "CSK", "MI", "Bowl", "", 9, 26, "Rohit Sharma"
("Eden Gardens, Kolkata", "KKR", "GT", "KKR", "Bowl", 39, "", 0, "Shubman Gill"),
("Ekana Cricket Stadium, Lucknow", "LSG", "DC", "DC", "Bowl", "", 8, 13, "Mukesh
("Rajiv Gandhi International Stadium, Hyderabad", "SRH", "MI", "SRH", "Bowl",
("M. Chinnaswamy Stadium, Bangalore", "RCB", "RR", "RR", "Bowl", 11, "", 0, "Josh
("MA Chidambaram Stadium, Chennai", "CSK", "SRH", "SRH", "Bowl", "", 5, 8, "Harsh
("Eden Gardens, Kolkata", "KKR", "PBKS", "PBKS", "Bowl", "", "", 114, ""),
```

```
( "Wankhede Stadium, Mumbai", "MI", "LSG", "LSG", "Bowl", 54, "", 0, "Will Jacks")
("Arun Jaitley Stadium, Delhi", "DC", "RCB", "RCB", "Bowl", "", 6, 9, "Krunal Pan
("Sawai Mansingh Stadium, Jaipur", "RR", "GT", "RR", "Bowl", "", 8, 25, "Vaibhav
("Arun Jaitley Stadium, Delhi", "DC", "KKR", "DC", "Bowl", 14, "", 0, "Sunil Nari
("MA Chidambaram Stadium, Chennai", "CSK", "PBKS", "PBKS", "Bowl", "", 4, 2, "Shr
("Sawai Mansingh Stadium, Jaipur", "RR", "MI", "RR", "Bowl", 100, "", 23, "Ryan R
("Narendra Modi Stadium, Ahmedabad", "GT", "SRH", "SRH", "Bowl", 38, "", 0, "Pras
("M. Chinnaswamy Stadium, Bangalore", "RCB", "CSK", "CSK", "Bowl", 2, "", 0, "Rom
("Eden Gardens, Kolkata", "KKR", "RR", "KKR", "Bat", 1, "", 0, "Andre Russell"),
("HPCA Stadium, Dharamshala", "PBKS", "LSG", "LSG", "Bowl", 37, "", 0, "Prabhsimr
("Wankhede Stadium, Mumbai", "MI", "GT", "GT", "Bowl", "", 3, 0, "Shubman Gill"),
("Eden Gardens, Kolkata", "KKR", "CSK", "KKR", "Bat", "", 2, 2, "Noor Ahmad"),
("Sawai Mansingh Stadium, Jaipur", "RR", "PBKS", "PBKS", "Bat", 10, "", 0, "Harpr
("Arun Jaitley Stadium, Delhi", "DC", "GT", "GT", "Bowl", "", 10, 6, "Sai Sudarsh
]
```