

## Playoff Contention Elimination Write-up

My initial approach to the problem was defined by seeing which tools and which information was most useful. First and foremost, I decided to use Python because the Pandas library provides an absolutely fantastic grip on large data sets. My experience with Excel is marred with crash reports, freezing, and unsaved progress so I decided not to proceed down that route.

When looking at the three sheets provided, I only used the first two as the last was more of a template. Given that the problem is asking for playoff elimination relative to conference, the division column is not needed. In the 'scores' sheet, the actual scores of the home and away teams are not required.

To keep track of the wins, losses, and elimination date for each team, I created three new columns in the 'division' sheet. To make it easier to iterate through the 'scores' sheet, I created a multi-index architecture that grouped games played on the same day. Then, by iterating through each day consecutively, I could update the win-loss record for each team by using their team name in the 'score' sheet to identify the right row in the 'division' sheet.

After successfully iterating through all games in one day, I split the teams into their respective conferences and compared the last-place, non-eliminated team with the eighth-place team. If  $(\text{last seed wins} + \text{remaining games}) < 8\text{th seed wins}$ , the last seed is eliminated. When a team is eliminated, the latest date is registered in the 'division' sheet's elimination column.

Based on the results I received, I believe my algorithm worked quite well. The only obstacle I failed to overcome was resolving tiebreakers. This year, the Chicago Bulls and the Miami Heat tied for the eighth seed in the Eastern Conference. In reality, the Chicago Bulls broke the tie by having a better conference record. However, my program only tracks the raw win-loss record, not conference or home wins and losses, so the Bulls and Heat are listed as both making the playoffs. In addition, the ties between the Cleveland Cavaliers- Indiana Pacers and LA Clippers – Utah Jazz are suspect to being in the wrong order. Otherwise, I believe the code produces the desired results.