1. **Australian Open:** The Australian Open is an annual tennis tournament in Melbourne, Australia. 128 players take part in the singles tournament and are matched up in the first round based on their rank at the time. We have [data](https://www.kaggle.com/datasets/valentinfiorenza/tennis-data) from the men’s tournament in the years 2008-2022 with variables for who the winner and loser of each match was, along with information such as what hand they play with and their Association of Tennis Professionals (ATP) rank.

**Goal:** Be able to calculate proportions from a two-way table

## higher\_rank\_won

## same\_handedness No Yes

## No 113 314

## Yes 373 1071

Table 1: 2x2 comparison of rank difference to whether the higher rank won over the whole tournament

* 1. What is the number of times that the higher rank won?
  2. What is the proportion of times that the higher rank won?
  3. What is the number of times the higher rank lost in a matchup where the players had the same handedness?
  4. What is the proportion of times that the higher seed lost in a matchup where the players had the same handedness?