**Written Report (130 Points)**

More specifically, this written description should include:

1. (5 points) a one-paragraph abstract, giving a brief description of relevant data and any major findings.

In my shiny application I explored data from the 2024 march madness tournament which included the team’s offensive and defensive statistics along with win probabilities. Then, I also explored another dataset examining tournament winners from 1985 to 2019, showing each playoff round winners and losers as well as their scores results throughout the years. Through some of my analysis I was able to determine that during the 2024 march madness that teams with the higher two-point percentage and a lower two-point percentage conceded while on defense tended to be the more successful teams based off the outcome of the tournament. While looking at the historical data for the tournament I found that…..

1. (10 points) an introduction section, further introducing the data and giving the questions of interest you will be exploring in your project.

More specifically, when observing results from the 2024 march madness, can conclude that the teams with higher seeds tended to have higher chances of winning, however, still does not account for any potential upsets. For example, in the most recent tournament, Houston was upset by North Carolina state, where Houston did technically have a higher chance of winning but was still beaten. Now, looking at the final four teams from ’24 tournament, UConn, Purdue, NC state, and Alabama, by offensive stats NC state had the lowest rates, and was the overall lowest seed, but still made it to the final four. Looking at UConn and Purdue the final two teams, where UConn is from the Big East conference and Purdue the big ten, both are the same playoff seed, UConn holds a higher chance of beating a D1 team, Purdue has the strong adjusted defensive efficiency, and looking at two-point shot percentage UConn is more successful, which can ultimately lead to them being able to put up more points, then finally look at wins above bubble, UConn had the better chance of making the tournament to begin with. Overall, UConn holds the stronger tournament stats, with a few areas where Purdue does excel in better but not enough to have helped them win. Now Looking at, tournament winners and losers along with the scores from throughout the years, there is no real outstanding trend to the scores, other than when looking at only the championship rounds for 1985 to 2019, there is only one game in which the winners had scored more than 100 points in the final round, next closest score only makes it to 89 points. The winners of that highest score game was in 1990 where University of Las Vegas Nevada beat Duke, 103 pts to 73 pts.

1. (110 points) a section showing relevant visualizations. Keep in mind that you do not need to write this as though it is a “step-by-step” thought-process. Instead, you should include your most interesting visualizations, along with interpretations for each. This section will likely be the longest, and, if you are answering multiple different questions of interest, you might break this section up into subsections.
   1. optionally, you can reference a Shiny app in this section, perhaps providing static visuals from your app. If you did build a Shiny app for your project, then this section is expected to be shorter than if you did not build a Shiny app. But, you should still describe major findings from the Shiny app.
2. (5 points) a concluding section describing future work that you would complete if you had more time as well as any limitations to your visualizations.