**Project Penney Writeup:**

I worked on the simulation team, helping write an optimal way to run many simulations of Penney’s Game based on randomly shuffled cards and players’ guesses, as well as preparing data for the data management team. I worked closely with Annamarie in designing the different functions, including one to generate *n* decks based on the number of games a user requested, one to evaluate the outcome of a game based on a deck of cards, and one to evaluate the outcome for each deck generated and store it in an array. For our scheme, we decided that a deck of cards could be represented as a string of 0’s and 1’s, where red cards are 1 and black cards are 0. For *n* number of games, seeds would be set from 0 to *n* to deterministically shuffle each deck. For each shuffled deck, a “run\_game()” function would be run, where for each possible permutation of 3-card patterns, each player’s score and game outcome would be calculated for the “trick” version of the game and the “cards” version of the game.

I also worked extensively on optimizing the code, testing runtime differences between storing data in DataFrames or arrays and comparing different ways to calculate an outcome for each deck. Lastly, I created and managed the GitHub repository for our team and also worked to organize the repository into branches to avoid merge conflicts.

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