**Project Update**

**General:**

For the first attempt at implementing the rock, paper, scissors AI I decided to try and implement the Naïve Bayes classifier. The first iteration I created used the Bayes rule to predict what the user was going to select by calculating the probability a user would win a game given a selection of either rock, paper, or scissors. By predicting what the user would input I just had the computer guess the opposite. In human trials the max win percentage after roughly 400 games was 41%. I then used the algorithm to play with a random bot for roughly 366,000 games, however the algorithm performed no better than a random selection.

For the second iteration I decided to not use the user input at all in the Naïve Bayes classifier. Instead, I used the Bayes rule to calculate the probability of a win given the computers selection. In human trials this performed horribly, after around 400 games the agent had a win percentage of 25%, which could have been much worse. Once the agent had a win it stuck to that specific guess and would not change making the game very easy for the player to win. I then let the algorithm play a random bot and after a few minutes and it was clear it would have similar results to the first iteration.

After theses two iterations I have come to the conclusion that Naïve Bayes classifier is not the appropriate algorithm to be applied to the rock, paper, scissors AI since it does not take into account time or the sequence in which the user selects inputs.

**Dataset Description:**

The dataset for this project is extremely variable as it depends on each user who plays the agent. Once a player has started playing my agent the dataset contains each game the user has played which stores: what the user input, what the agent selected, and the game outcome.

**Results:**

**Iteration 1 – Predict User Input (vs random bot)**

A computer screen capture

Description automatically generated with low confidence

**Iteration 2 – Agent guess (vs random bot)**

A picture containing text, electronics

Description automatically generated