Project Part 1

- Project Summary
    - The project idea is to use machine learning to play the game, Snake.
- Project Problem/Solution
    - Snake consists of a simple set of rules and movements and has a score. The problem to solve would be how can an AI player get the best score possible while following these rules.
- Methodologies
    - We will use keras, a python library for machine learning. Custom software may have to be written to create training data for our model to learn from. A model will be used to predict the next best possible move to increase the score of the AI player.
    - Each member will make their own agent, AI player, in a separate branch and we will compete to see which one has the highest score. The one with the highest score will be merged into the master branch.
- Development / Design
    - The first reinforcement learning, an agent (AI player of snake) will use q-learning to both learn the basic rules of the games, and to maximize the score/food gained during each instance. The second method would involve using an image of the game collected by several games by an agent taken prior to a movement in the snake. This will be a pre-action snapshot then be used to train a model to predict the next correct move in the game based solely from an image.
- Tests / Demo / Validation
    - The AI should be able to play the game of snake once the model is trained. It will be verified on unseen data, and mean square error will be used to track performance of the model.
- Members
    - Cameron Jenkins
    - Dalton Norman
    - Frank Fontana, III
    - Hung Bui