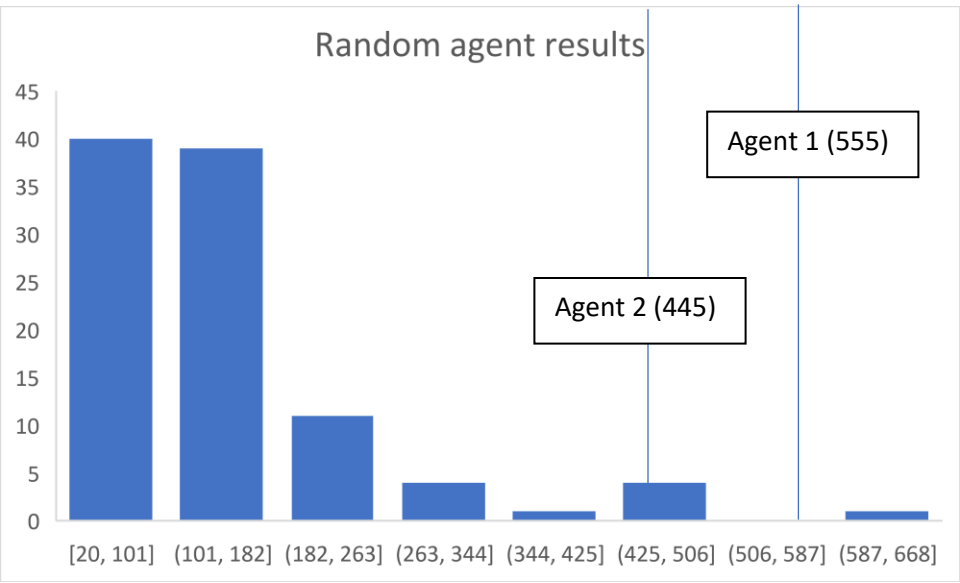
Jake Edom

i) Two agents have been created to play space invaders, where one agent works by moving back and forth on the board reversing direction of movement when there is a possible laser collision. Although when the aliens get past a certain point it will target them specifically or, else risk a game over. Additionally, starts to specifically target aliens once there are only a certain amount of aliens alive on the stage. The other agent work by working row by row targeting the row closest to the bottom. It splits the remaining aliens into two sections those on the right of the ship and those to the left of the ship, when ever it runs out of aliens to one side it goes to searching for aliens on the other side.

ii) Both agents use the same methods apart from the Agent method itself as all other methods are used to gather information which is then interpreted within the Agents methods. Fire takes in a x coordinate which is used to represent where the ship is and the coordinates of aliens that are being targeted, this can be any subset of the aliens. It will then go through the group of aliens and see if any are within a range to the x given. Find_closest takes in a subset of aliens, a starting x coordinate and a starting y coordinate. It will then go through all aliens given and return the coordinates of the closest alien. In_range takes in far which is an int, find_array which is a group of coordinates and start_x which represents an x coordinate. It will then go through the find_array and see if any x coordinates can reach the start_x in far number of moves. Blocking which takes in far an int representing how big of a box the alien will represent. The start_x and start_y represents the x and y coordinate of the starting alien block and alien_blocked which is all aliens that have already been blocked. From the starting x and y it then creates a box of far length and width unless it would intersect an already created alien. Last is the find_color which takes in spot which is a list with 3 elements that each represent one color in the rbg and then looks to see what color that is.

iii)



iv) As seen from the graph above both agents work better than the random agent by a good amount in their tests. As most of the random agent's test were par 200 while the other agents more then doubled this. Although these agents are good compared to the random agent neither agent were able to fully clear the board and make it to another level. This mainly stemming from a trouble with hitting the very last alien before it can get to the bottom.