Milestone 2 Report

Our milestone 2 objectives were: build the game module, dino agent module, define states for the q-learning model and train the model for dino agent to play the game.

The tasks done:

1) Create Game module using chrome driver for maintaining the current game state and performing actions.
2) Create Dino-agent module to maintain instance of the dino corresponding to the game environment.
3) Define state of the game using the coordinates of obstacle detected from screen capture of game in real time.
4) Integrated the object detection model created in last milestone with real-time screen capture to get state of the game.
5) Implement Q-learning model to train the dino-agent to perform actions (jump, duck, stay) based on the corresponding environment.

Obstacles faced:

Initially, when we integrated the obstacle detection, we found the time to detect not feasible for real-time play. It took almost 4s for processing a single image. To solve this issue, we updated the method of converting an image to a NumPy array. We also realised that we do not need to create a TensorFlow session again for each image, and were able to ultimately get real-time object detection faster.

Current state of the project:

We have trained and tested the model for various values of parameters but have not got a good q-learning model yet. We are still trying to tune the values of parameters (learning rate, discount factor, reward) to get a better trained model.

Final submission goal: We will try to make the agent performance better by experimenting with different values of parameters and achieve good results.