Project

Project for CMPE 297 sec 47 Reinforcement Learning

Submitted to: Software Engineering Department at San Jose State University

**Date: October 27, 2020**

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# **Executive Summary**

## Purpose

This proposal is scoped to give a high-level view of the project for Reinforcement Learning (RL) and will be developed using state-of-the-art algorithms and techniques used in RL. The output for the project will be a web application which contains an agent can help a user to decide whether a stock needs to be bought or sold.

## Objectives

Following are the key objectives that needs to be expected from the project:

1. An agent trained on RL techniques (Basic DQN or Actor-Critic or something similar)
2. The agent needs to be able to generate high reward output
3. The agent needs to be incorporated into a web application for prediction
4. A web application with an active agent for doing predictions or check performance of Stocks

## Deliverables

Following are the key deliverables that will be provided for the project:

1. A Jupyter notebook with agent trained on RL techniques
2. Environment details and configurations
3. Dataset details (If any is used)
4. Performance report
5. Source code of web application
6. Project report
7. Installation instructions
8. GitHub access
9. Testing reports

## Scope

Following is the scope of the project:

1. The project will be limited to scope and will have only three companies’ stocks to be validated.
2. The agent will not be using an active learning mechanism.
3. Although the application will be tested it may not have extensive testing. (Preferably unit tests).
4. The environment used for training the agent will be a preconfigured environment. (Preferably OpenAI Gym).

## Requirements and Dependencies

Following are the key requirements and dependencies for the project:

1. A HPC machine will be required for training the agent
2. The web application will be hosted on a Cloud Service Environment (AWS or Azure or GCP)