**Reinforcement Learning**

**Stock Trading Using Deep Q-Learning**

DESCRIPTION

Prepare an agent by implementing Deep Q-Learning that can perform unsupervised trading in stock trade. The aim of this project is to train an agent that uses Q-learning and neural networks to predict the profit or loss by building a model and implementing it on a dataset that is available for evaluation.

The stock trading environment provides the agent with a set of actions:

* Buy
* Sell
* Sit

This project has following sections:

* Import libraries
* Create a DQN agent
* Preprocess the data
* Train and build the model
* Evaluate the model and agent

**Note:**All the above sections (in an .ipynb file) are provided except the section,  
**“Create a DQN agent”**.

**Dependencies:**

Problem\_statement\_dependency\_deepqlearningstocktrading.zip  [](https://lms.simplilearn.com/user/project/download-attachment?file=1604389372_problem_statement_dependency_deepqlearningstocktrading.zip)

**Download the dataset from here** **:** [](https://lms.simplilearn.com/user/project/download-attachment?file=1594032178_dataset.zip)

**Steps to perform:**

In the section “Creating a DQN agent”, create a class called agent where:

* Action size is defined as 3
* Experience replay memory to deque is 1000
* Empty list for stocks that have already been bought
* The agent must possess the following hyperparameters:
  + gamma= 0.95
  + epsilon = 1.0
  + epsilon\_final = 0.01
  + epsilon\_decay = 0.995

**Note:** It is advised to compare the results using different values in hyperparameters.

* Neural network has 3 hidden layers
* Action and experience replay are defined