AI PROJECT

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DECISION MAKING FOR CAB DRIVERS

Using Reinforcement Techniques

Statement of Project

- The project's goal is to create an intelligent agent that helps cab drivers make judgments about rides in order to increase their profitability.

- This approach will help drivers choose transportation effectively, particularly during off-peak hours, over difficult distances, and by highlighting the best possibilities.

Project Approach:

In order to determine the best transport requests for taxi drivers in intricate and unpredictable situations, an environment is developed for the agent to use reinforcement learning.

Methods used: Deep Q-Learning (DQN) and Markov Decision Process.
Platform: Jupyter Notebook
Python packages Used: NumPy, MATLAB, and Keras

Project Deliverables

1) Using the neural network model (DQN), an agent is developed and trained to choose the best ride to accept.

2) Every sample has its target Q value determined.

3) Changes are made to the source state and the output values.

4) Use the DQN model with the changed source and the generated values after that.

5) Many functions and methods are developed for each purpose (such as calculating distance, cost, profits, and loss for each ride request) in a class named env.py, which is produced for the environment.

Project Evaluation Methodology:

The model's foundation is reinforcement learning, in which the agent continuously learns and gets better thanks to the incentives it receives. The agent's objective is to achieve the most benefits over extended periods of time.

The following are the performance metrics:

1)Each episode's reward

2)The convergence of the Q value

THANK YOU!!