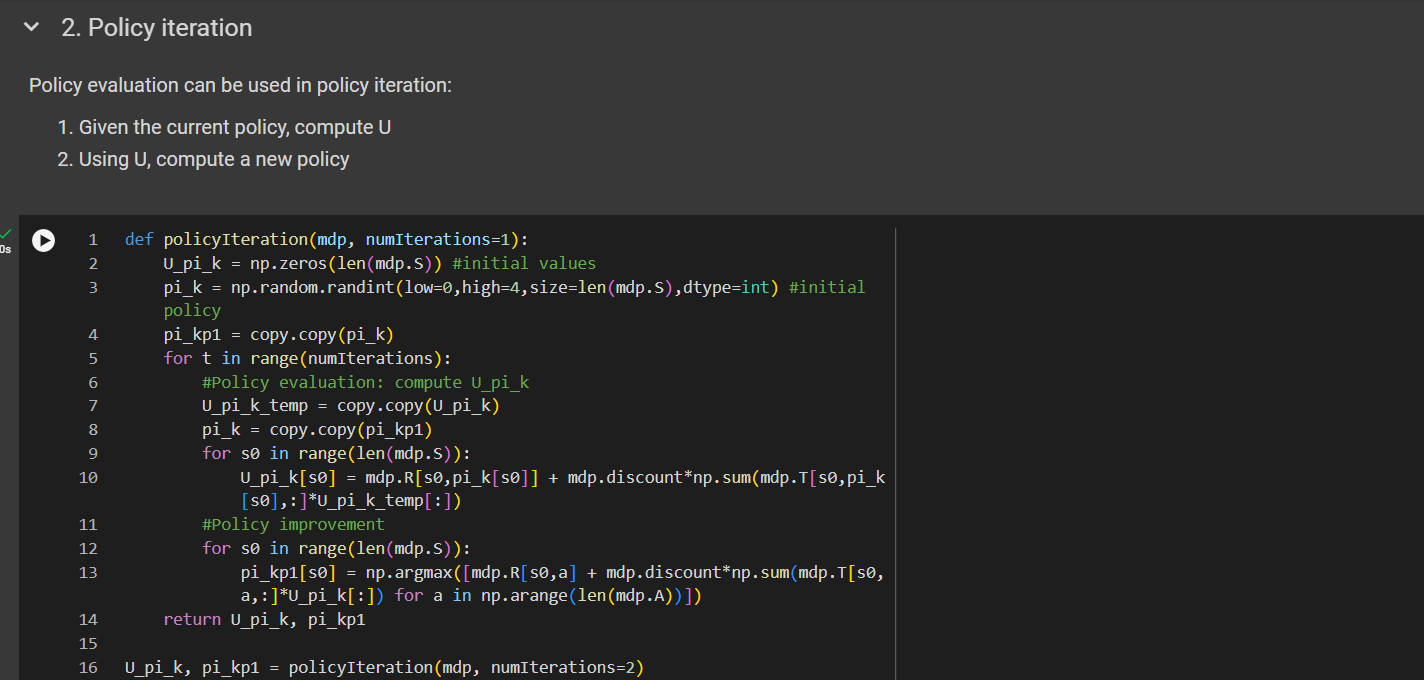
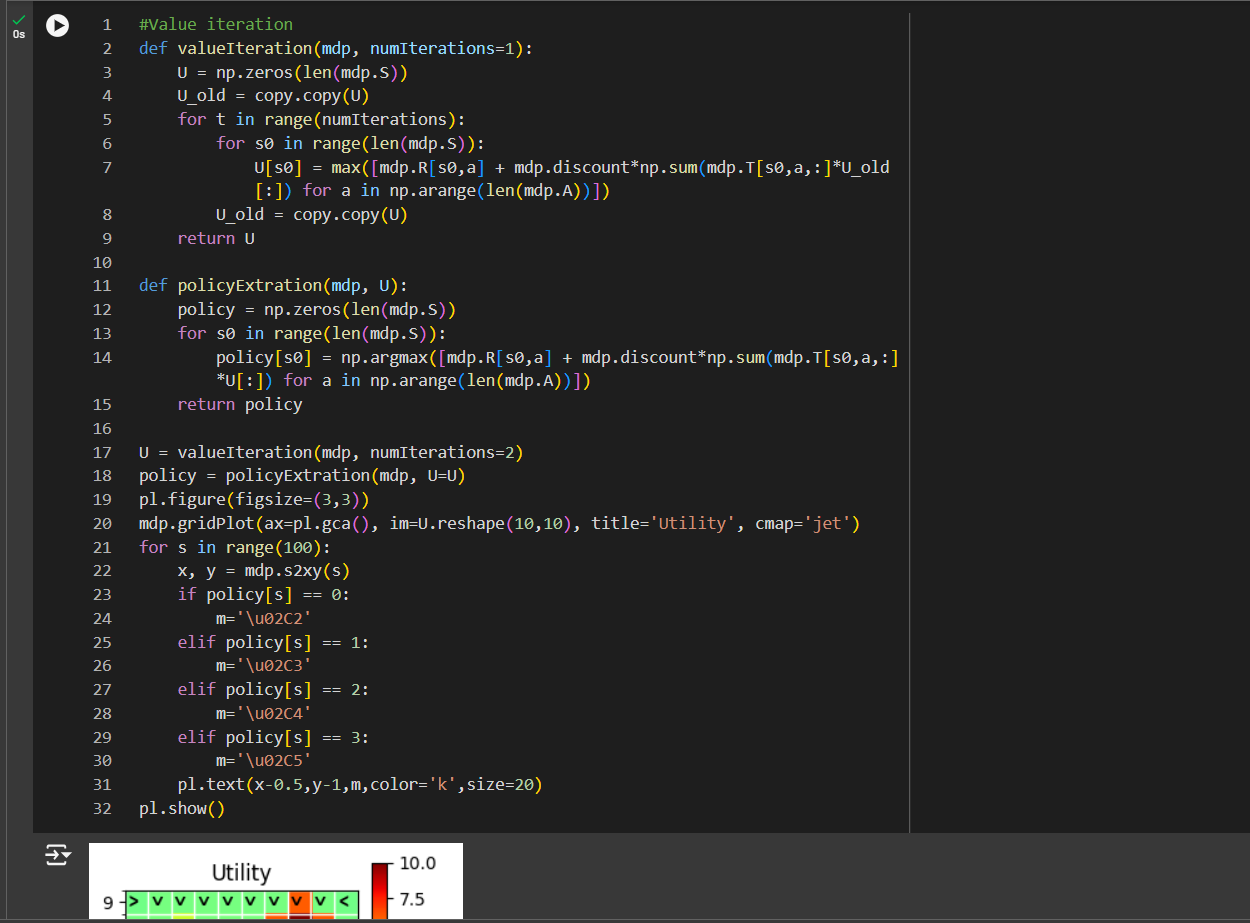
**GitHub repository link: -**

**https://github.com/GayashanDeshapriya/DL-Lab08-IT21156656.git**

## Question 1: Markov Decision Process and Q-Learning

1. Policy Evaluation

## Question 2: Model-Based vs Model-Free Reinforcement Learning

A screen shot of a computer program

Description automatically generated

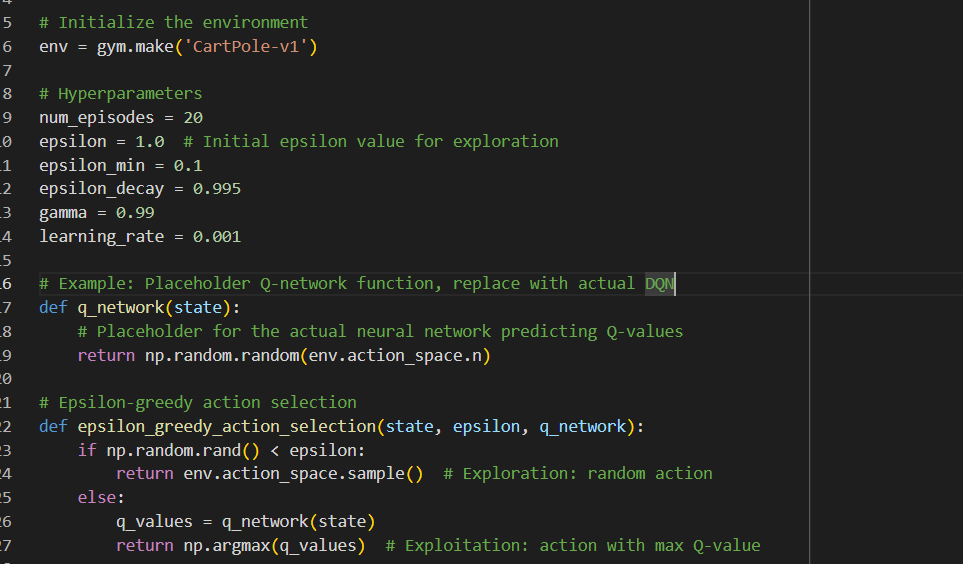
### Difference Between Model Based and Model Free Algorithms

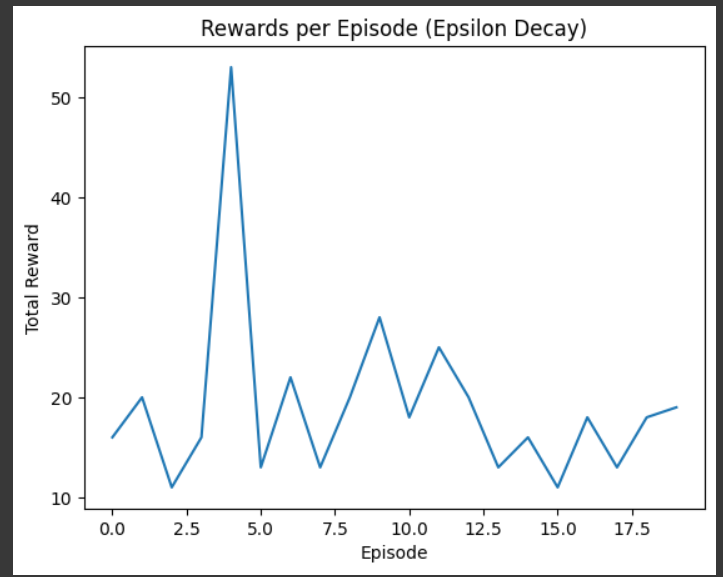
|  |  |
| --- | --- |
| Model Based Algorithms | Model Free Algorithms |
| Explicitly learns a model of the environment | Does not learn a model of the environment; learns from direct interaction with the environment. |
| Typically converges faster when the model is accurate. | Converges slower, especially in complex environments. |
| Uses the learned model to simulate and plan actions, allowing foresight | Learns directly from trial and error without planning ahead. |
| More sample-efficient since it can plan by simulating many possible outcomes. | Less sample-efficient, relies on more interactions with the environment to improve |

## Question 3: Introduction to Deep Q-Learning (DQN)

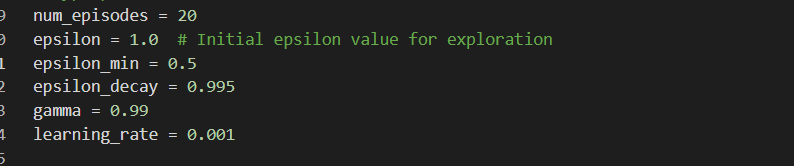
A screenshot of a computer program

Description automatically generated

 For Epsilon Val: 0.1



For Epsilon Value 0.5



A graph of a chart

Description automatically generated with medium confidence

Foe Epsilon Value 0.9

A screen shot of a computer

Description automatically generated

A graph of a line

Description automatically generated

# Gridworld.ipynb Changes

A screen shot of a computer code

Description automatically generatedA screen shot of a computer program

Description automatically generated