AI Mini-Project: Snake AI

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Problem Statement and Analysis

- Develop an AI system capable of playing Snake
- Accomplished through neural networks, deep Q-learning, and reinforcement learning techniques
- The Snake AI learns the best strategies to achieve high scores through multiple training iterations

Use-Case Scenarios

01

Entertainment and Gaming

02

Educational Tools

03

Benchmarking and Evaluation

04

Adaptive UI

05

Robotic Control and Navigation

06

AI Competition Platforms

AI Algorithm and Model

STATE:

[danger straight, danger right, danger left,

direction left, direction right, direction up, direction down,

Food left, Food right, Food up, Food down]

Ex.

[1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 1]

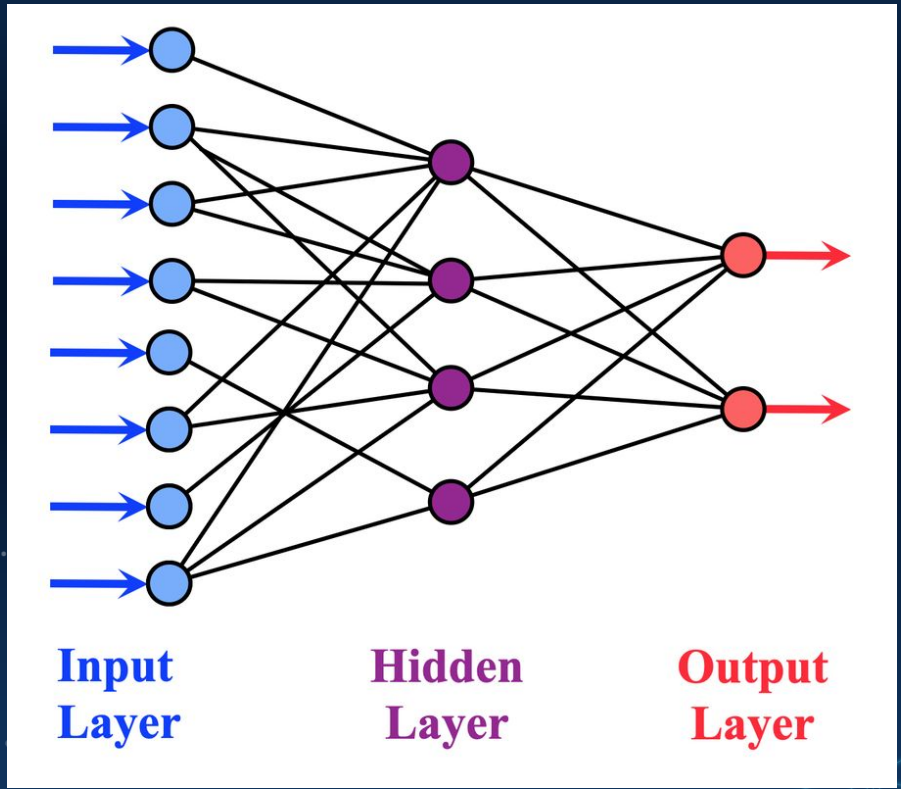
AI Algorithm and Model

Apple Eaten: +10

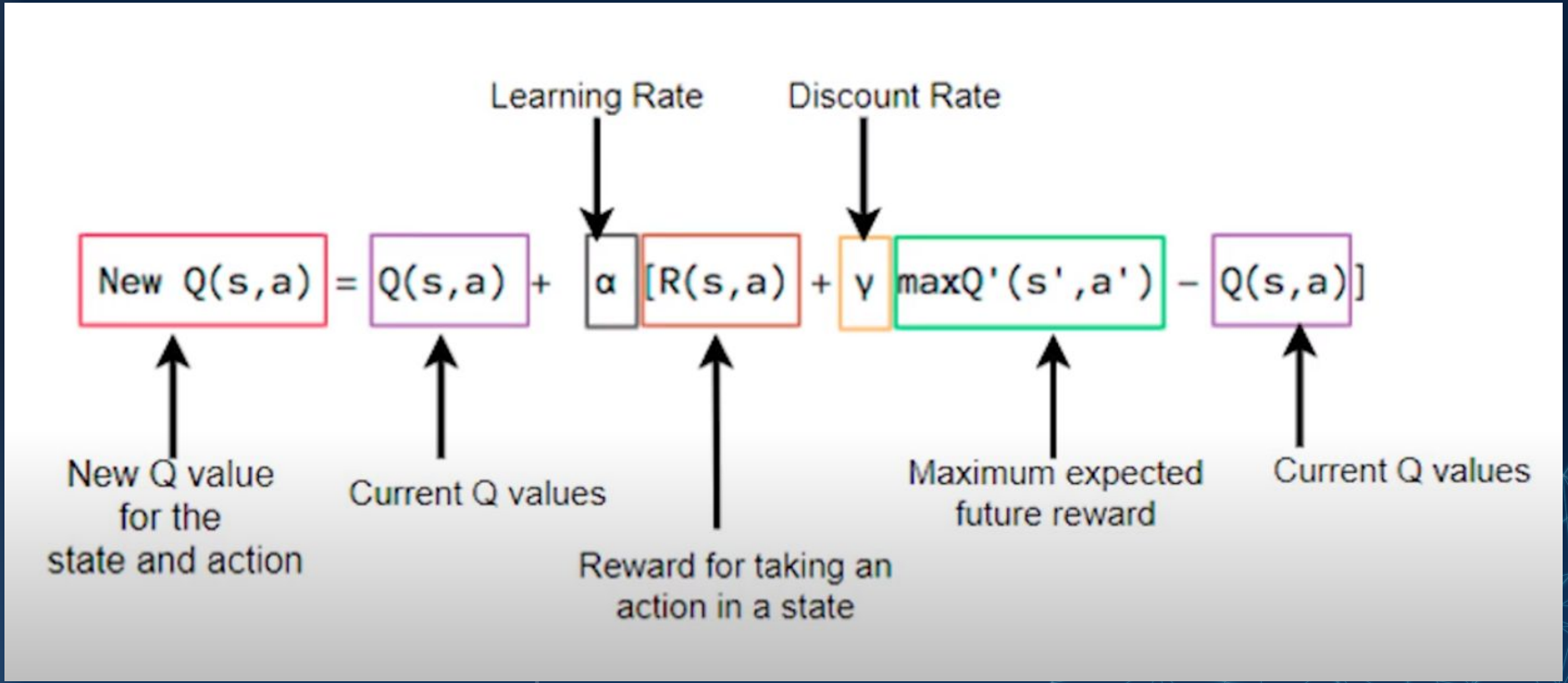
Dies: -10

Other: 0

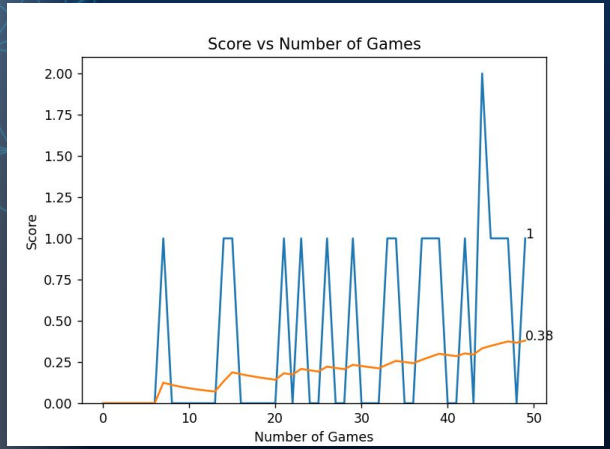
AI Algorithm and Model

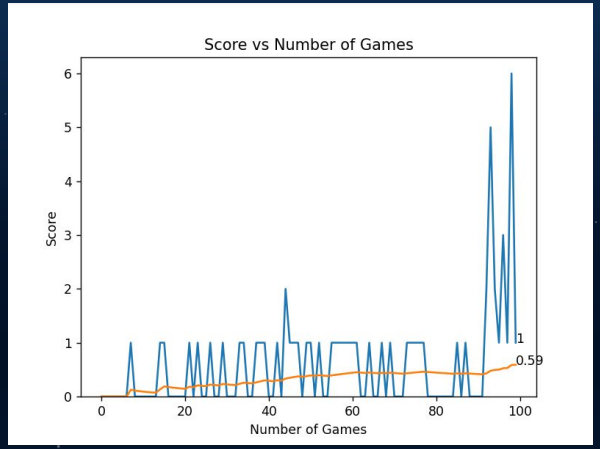


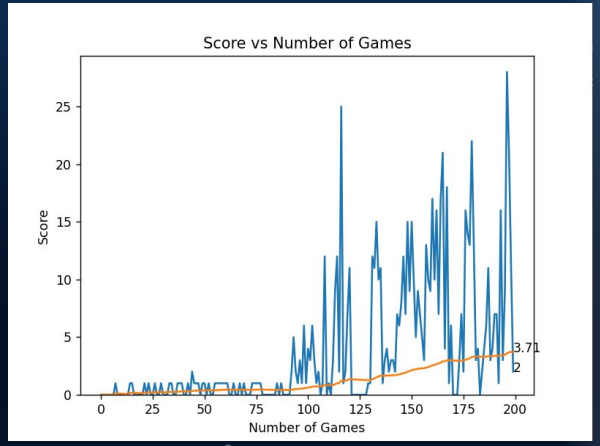
AI Algorithm and Model

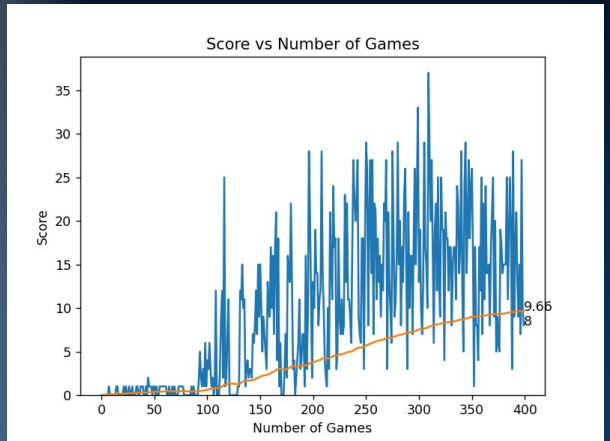


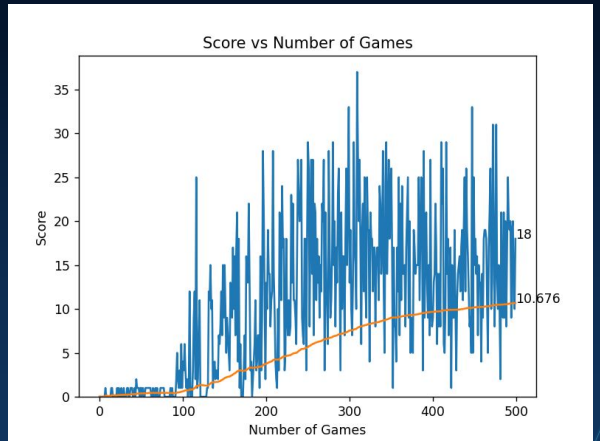
Results and Demonstration

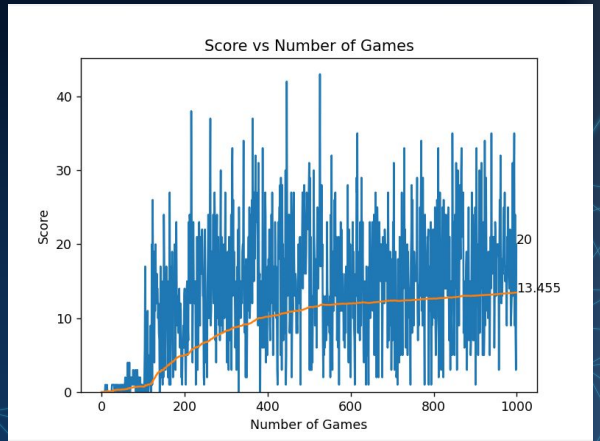












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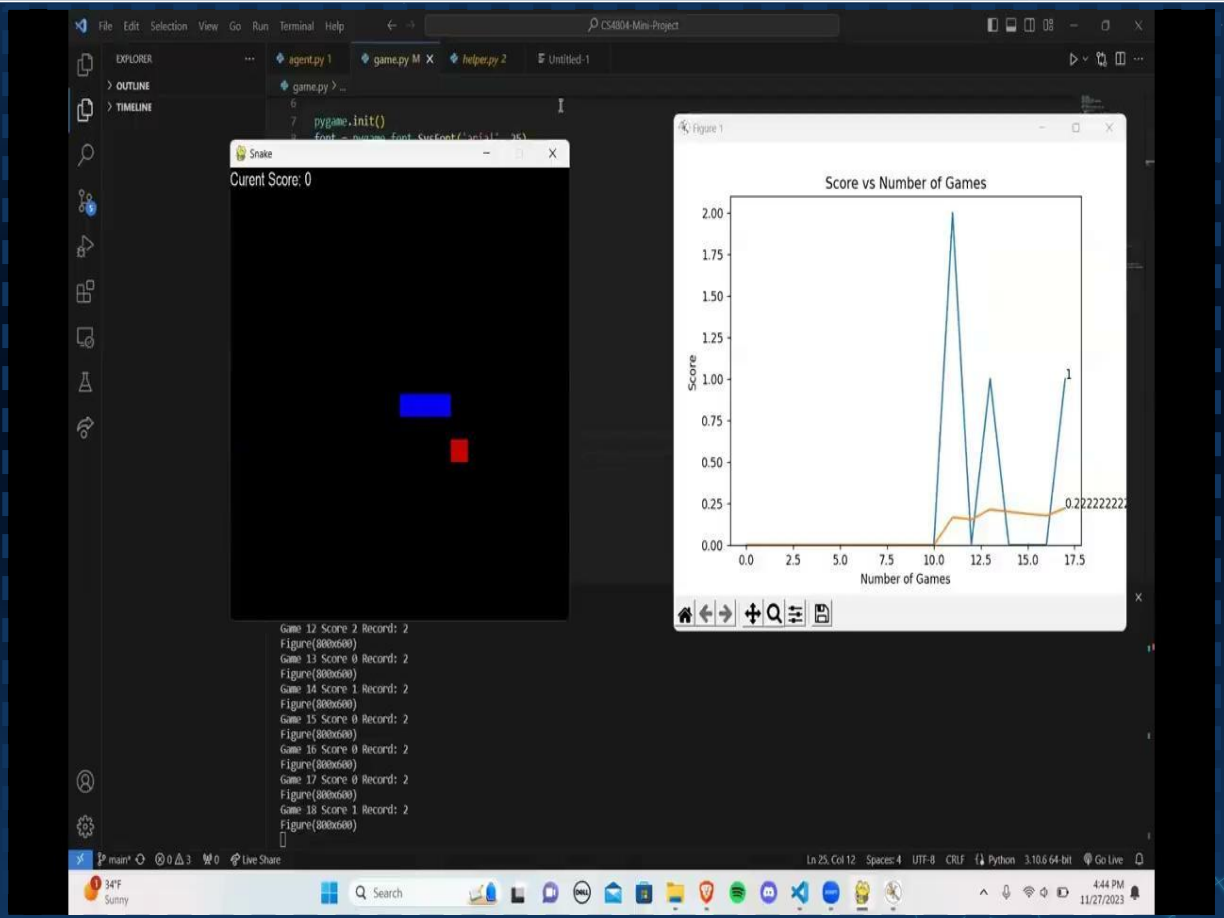

Lessons Learned

- Learning improvement tapers off over a large number of iterations
- Repetitive behavior indicates a need for improved decision-making and strategic planning.
- Achieving a balance between exploration and exploitation is challenging but essential for effective learning
- Recognizing and addressing edge cases, is crucial for improving the overall robustness of the Snake AI

Q & A

Thank you for listening to our presentation!

Questions?