Teach AI To Play Snake

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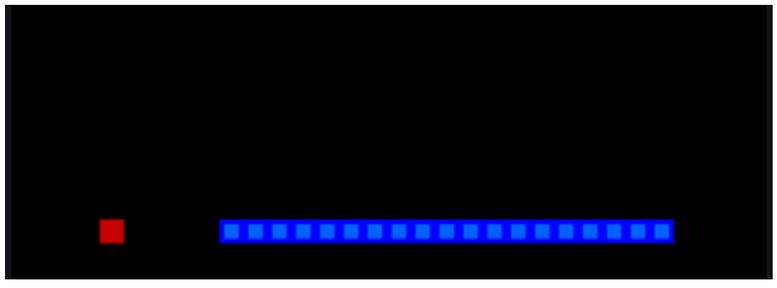
Research objective

The research objective of this project is to develop an AI-driven Snake game using Deep Q Learning algorithm to demonstrate the effectiveness of reinforcement learning in game development.

Research question

How effective is the use of Deep Q Learning algorithm in developing an AI-driven Snake game, and how does it compare to traditional game development techniques?



Results

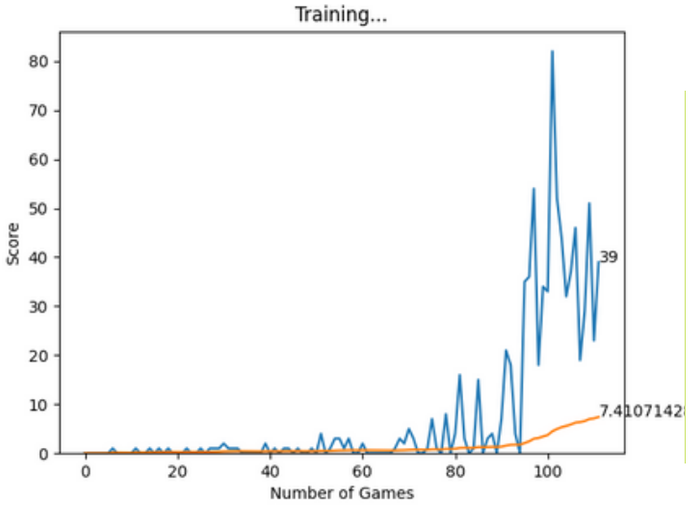
1. The results of this project demonstrate the potential of deep reinforcement learning techniques, such as Deep Q Learning, in developing intelligent game agents that can learn and improve their performance over time.
2. The results of the experiments conducted on the trained agent showed that it was able to learn effective strategies for playing the game, which resulted in higher scores and longer game durations.
3. The results of the AI-driven Snake game using Deep Q Learning showed significant improvements in the performance of the game agent, including higher scores, increased game duration, and improved decision-making abilities, demonstrating the effectiveness of reinforcement learning in game development.

Conclusion

In conclusion, the implementation of Deep Q Learning in the creation of an AI-driven snake game showcases the potential of artificial intelligence to learn and improve upon traditional gaming algorithms.

Relevance

The relevance of this project lies in showcasing the potential of artificial intelligence and deep reinforcement learning techniques in developing engaging and intelligent games.



Research methods

The research methods for this project involve implementing and training the Deep Q Learning algorithm on the Snake game environment, analyzing the performance of the AI agent, and comparing it with a traditional rule-based approach.

Literature sources

How To implement Snake Game in Python?/[tiešsaite]. [Skatīts 25.11.2022.]. Pieejams:https://www.edureka.co/blog/snake-game-with-pygame/

Reinforcement Q-Learning from Scratch in Python with OpenAI Gym/[tiešsaite]. [Skatīts 25.11.2022.]. Pieejams:https://www.learndatasci.com/tutorials/reinforcement-q-learning-scratch-python-openai-gym/