Cairo University
Faculty of Computers & Artificial Intelligence
Department of Computer Science
Artificial Intelligence Course

Project

Basic (7 Marks):

1. Implement an AI agent for a board game (Chess, Connect 4, or Checkers).
2. You can implement it using Prolog, or Python.
3. In case of prolog, play against human, in case of python, it is computer vs agent
4. Implement Minimax algorithm. (2 Marks)
5. Attached is an example for a connect-4 project setup in python, that take input from the game, and perform actions based on your selected column, http://kevinshannon.com/connect4/ , feel free to use it, and continue based on it, or you got the idea if you want to choose another board game
6. Refine the AI agent using the Alpha-Beta pruning algorithm. (4 Marks)
7. Feel free to use any AI tool (ChatGTP, Copilot) to help with the project.
8. Create a GitHub repository for the project with a minimum of 5 commits, with each team member contributing at least 1 commits that contain significant changes. (1 Mark)

Bonus (3 Marks):

1. Implement a GUI to select the algorithm type and difficulty level of the game. (1 Mark)
2. (1 Mark)
    a. Write a post on LinkedIn to share your experience and discuss the benefits and risks of using AI tools to help you in the project.
    b. Measure the performance of the two algorithms and create a graph to compare them.
    c. Screenshots of how the AI tool helped you, for example, chat conversations in ChatGPT, for significant help.
3. Implement different game than connect-4 (1 Mark)

Policy:

1. Students must work in groups of 4-5 for their project. Students have to be from the same lab or from another lab taught by the same TA.
2. **Cheating Policy**: Negative the project grade, if during the discussion, any of the team member do not understand any part of the code
3. You cannot implement the games that is provided in the lab

4. Submission folder to include:
    a. Source code
    b. Link to github repo
    c. Link to linkedin post (if exist)
    d. Screenshots of conversation (if exist)
    e. Graph (if exist)
5. Reference: https://youtube.com/playlist?list=PLyLtvBVWUxsF7c4JvI-z6MwTWZiTT3rQN