

Workshop Week 5

Game Tree Search

COMP250: Artificial Intelligence

Mancala

Player 2

Store



Store

Player 1

Mancala - Rules

- Choose a non-empty space on your side of the board
- Pick up all the stones from that space
- Moving counter-clockwise, place 1 stone in each space
 - Including your store, but **not** including your opponent's store
- If the last stone lands in your store, take a free turn
- If the last stone lands in an empty space on your side of the board, pick up all stones from the opposite space and put them in your store
- Game ends when either player's spaces are all empty
 - Other player takes all stones from their side of the board and places them in store
 - Winner is the player with the most stones in their store

Workshop Activity 1

- As we saw in this week's lecture, minimax search requires a **heuristic evaluation** for nonterminal states
- I.e. a function which takes a state, and returns a numerical evaluation
- What might such an evaluation function look like for Mancala?
- Discuss in your breakout rooms
- Download the Unity project from GamesGit (link on LearningSpace and in chat) – this will let you play the game to experiment with it
- Reconvene and discuss in **20 minutes** time

Workshop Activity 2

- Let's put your heuristics into practice!
- Enable the AI in the GameManager object (by setting the AI class name in the inspector to SimpleAI)
- Edit `SimpleAI.cs` (or use as the basis for your own class)
- Mob program in your breakout groups
- Reconvene at **5:30pm** and we'll see who has the best AI!