Exercise 4

General Game Playing

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Exercise 4.1

Extend the search to multiplayer games. Your program should be able to play simple multiplayer games like 'Tictactoe' perfectly, i.e. exhaustively search the game tree. Ideally, your program will be able to play the following games in the given times achieving the expected score regardless of the moves of the other players.

Game	Startclock	Playclock	Expected score
Tictactoe	300	10	$\geq$50 for both roles
Nim	300	10	100 for player2
PawnToQueen	600	10	100 for white

Exercise 4.2

Speed up the search by using the improvements from exercise 3.2. Also add search improvements like $\alpha - \beta$-search, killer heuristics, history heuristics, etc. for games where they are applicable.

Exercise 4.3

Test your program with other multiplayer games, especially games with more than 2 players or games with simultaneous moves, e.g., blocker, chinesecheckers3,4,6, chickentictactoe, othello-fourway, etc. Your player will probably not play these games well, but it should be able to compute several steps ahead.