CS 420 Artificial Intelligence, Fall 2020
Project 4
Elene Karangozishvili and Sorawit Roongruengratanakul
Automated Konane Playing Program

This programs lets users play Konane, a Brazilian checkers game, either completely automated (computer plays against itself) or half automated (player plays against computer).

Rules of the game can be found here

To start, the program, go to the directory this readme file is located in, and in the command prompt type in

> python Play.py

Note that the program only runs with Python 2. Later versions of Python would result in syntax errors.

After that, the program will prompt the user to input the mode of play - type

> 'Y' if you want to play versus the computer and
> 'N' if you want the computer to play against itself

Then it will ask the user for another prompt. Type in

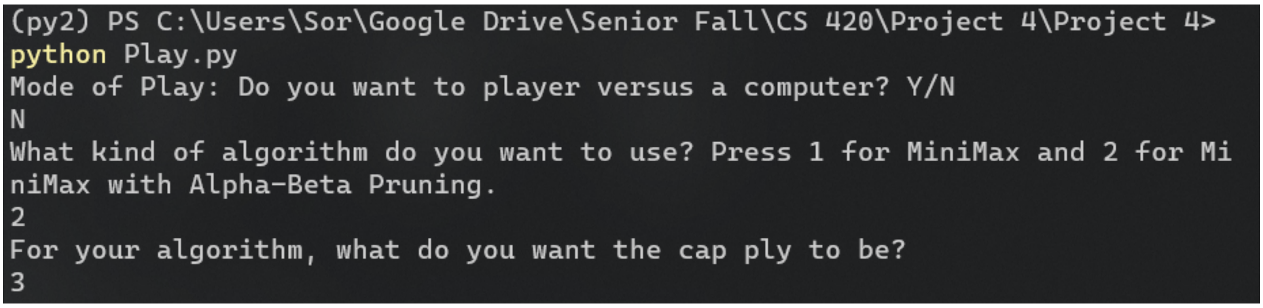
> '1' if you want to use the regular minimax algorithm
> '2' if you want to use minimax with alpha-beta pruning

Finally, the player should choose the maximum number of ply the minimax algorithm should be run over:

> suggested values are 1,2, and 3. Note that 1 ply = 2 rounds (black plays then white plays)

If the player chose to play against the computer, a he/she must choose a side. Type in

> '1' if the player wants to play black (starts first)
> '2' if the player wants to play white



```
(py2) PS C:\Users\Sor\Google Drive\Senior Fall\CS 420\Project 4\Project 4>
python Play.py
Mode of Play: Do you want to player versus a computer? Y/N
N
What kind of algorithm do you want to use? Press 1 for MiniMax and 2 for Mi
niMax with Alpha-Beta Pruning.
2
For your algorithm, what do you want the cap ply to be?
3
```

The first turn is a removal, so player should type in

> "X Y"

where (x,y) is the coordinate of the piece intended to be removed.
X runs from 1 to 8 top to bottom and Y runs from 1 to 8 left to right

---

Any subsequent turn played by the player must be typed in in the following format:

> "X Y DIRECTION NO_OF_JUMPS"

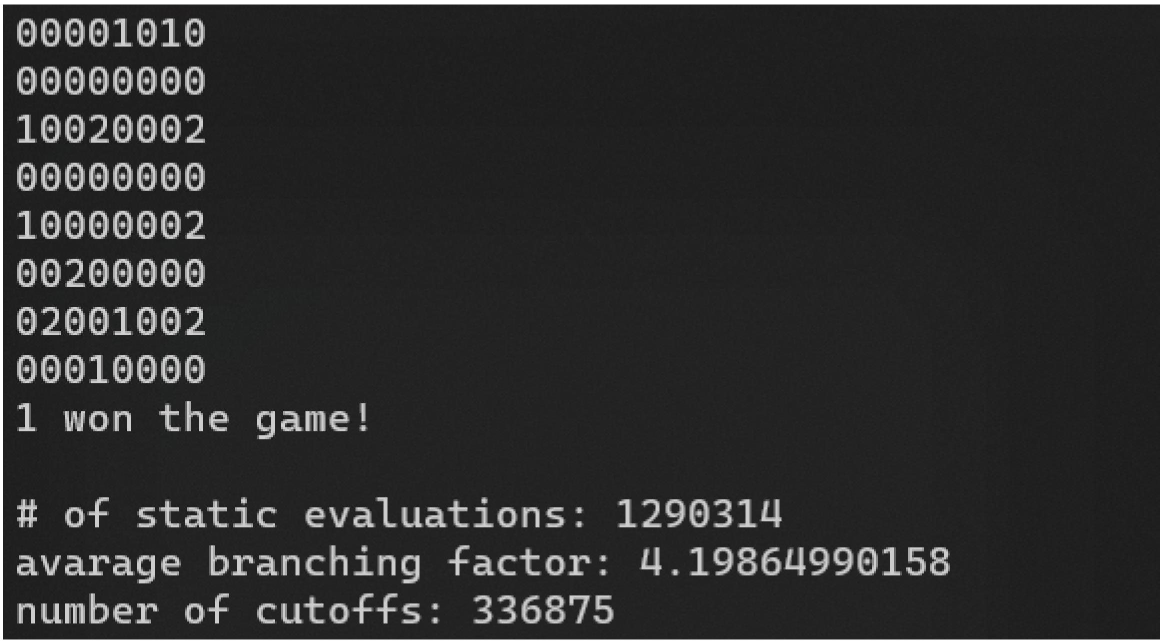
where

> X refers to the x-coordinate of the starting piece
> Y refers to the y-coordinate of the starting piece
> DIRECTION can be 'U' for up, 'D' for down, 'L' for left, 'R' for right
> NO_OF_JUMPS can be 1,2, or 3. Jumps have to be in the same direction.

Invalid entries might result in errors and termination of the program.

After the game finishes, the program will print out the following statistics:

1. Number of times a static evaluation was done
2. Average branching factor
3. Number of cutoffs that took place



```
00001010
00000000
10020002
00000000
10000002
00200000
02001002
00010000
1 won the game!

# of static evaluations: 1290314
avarage branching factor: 4.19864990158
number of cutoffs: 336875
```

Hope you enjoy the game!