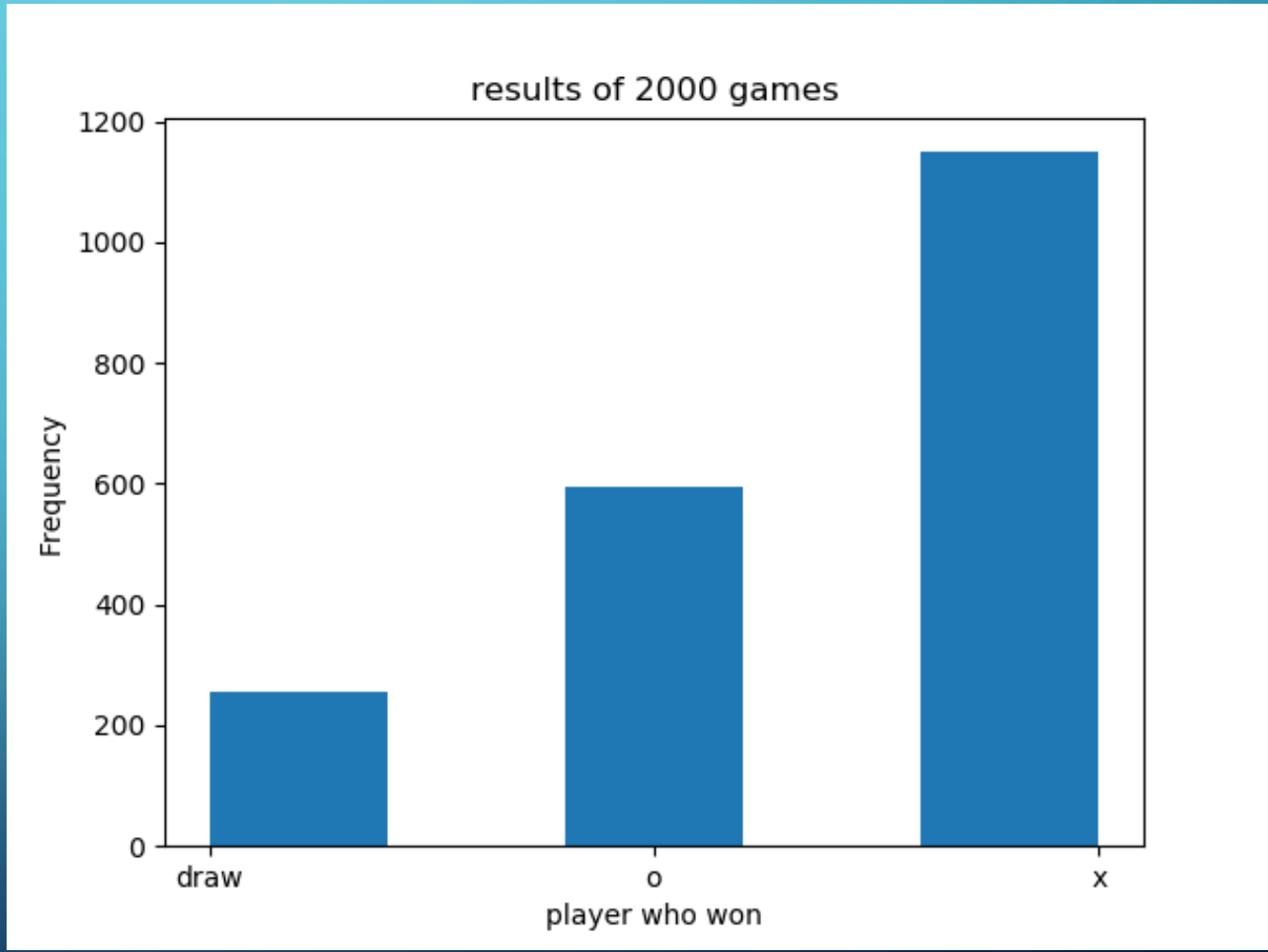
GAME AI PROJECT 1

SIMON BOTH

TIC TAC TOE RANDOM MOVES

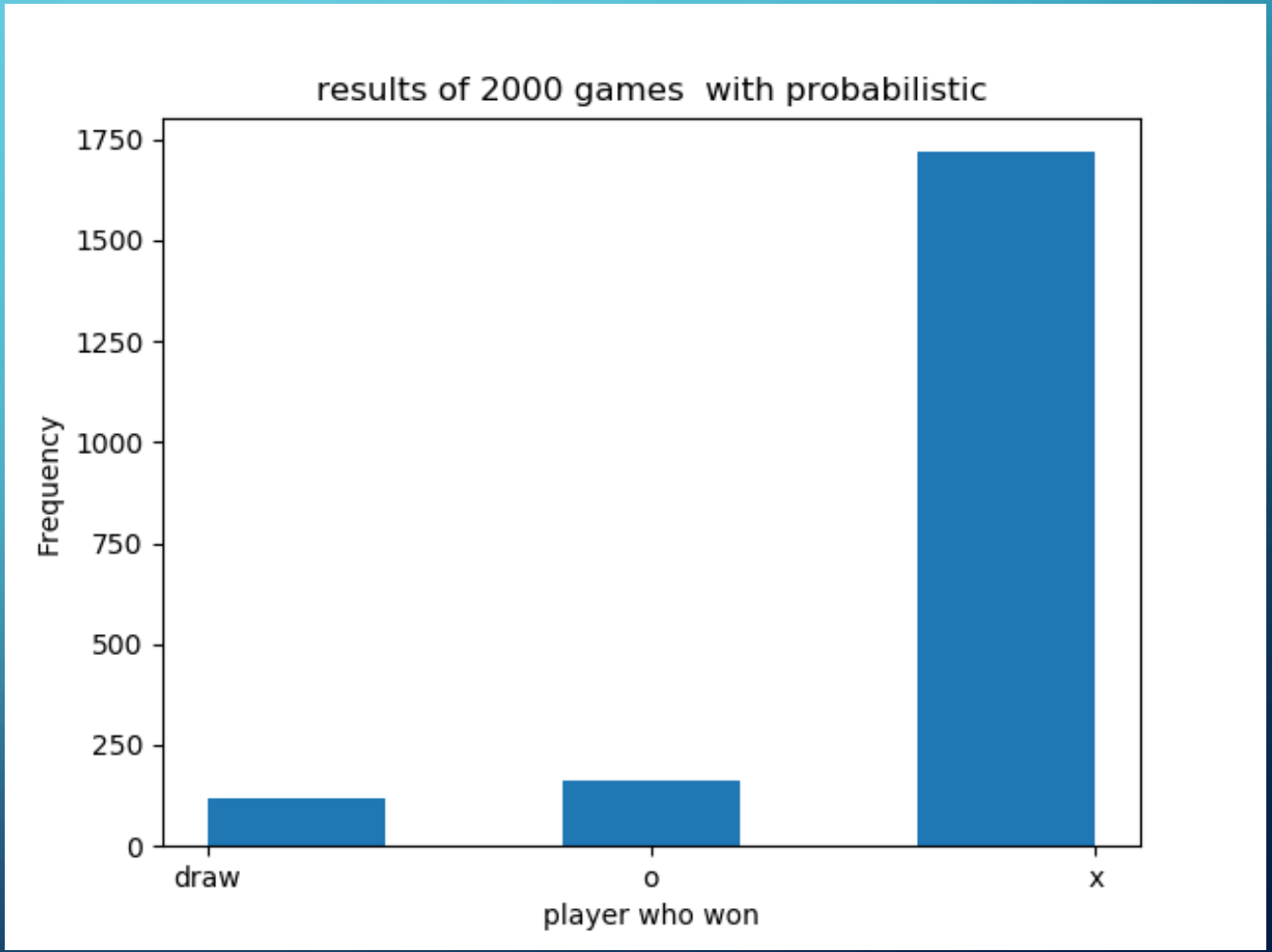
Player x moves first



TIC TAC TOE BASED ON PROBABILITY MATRIX

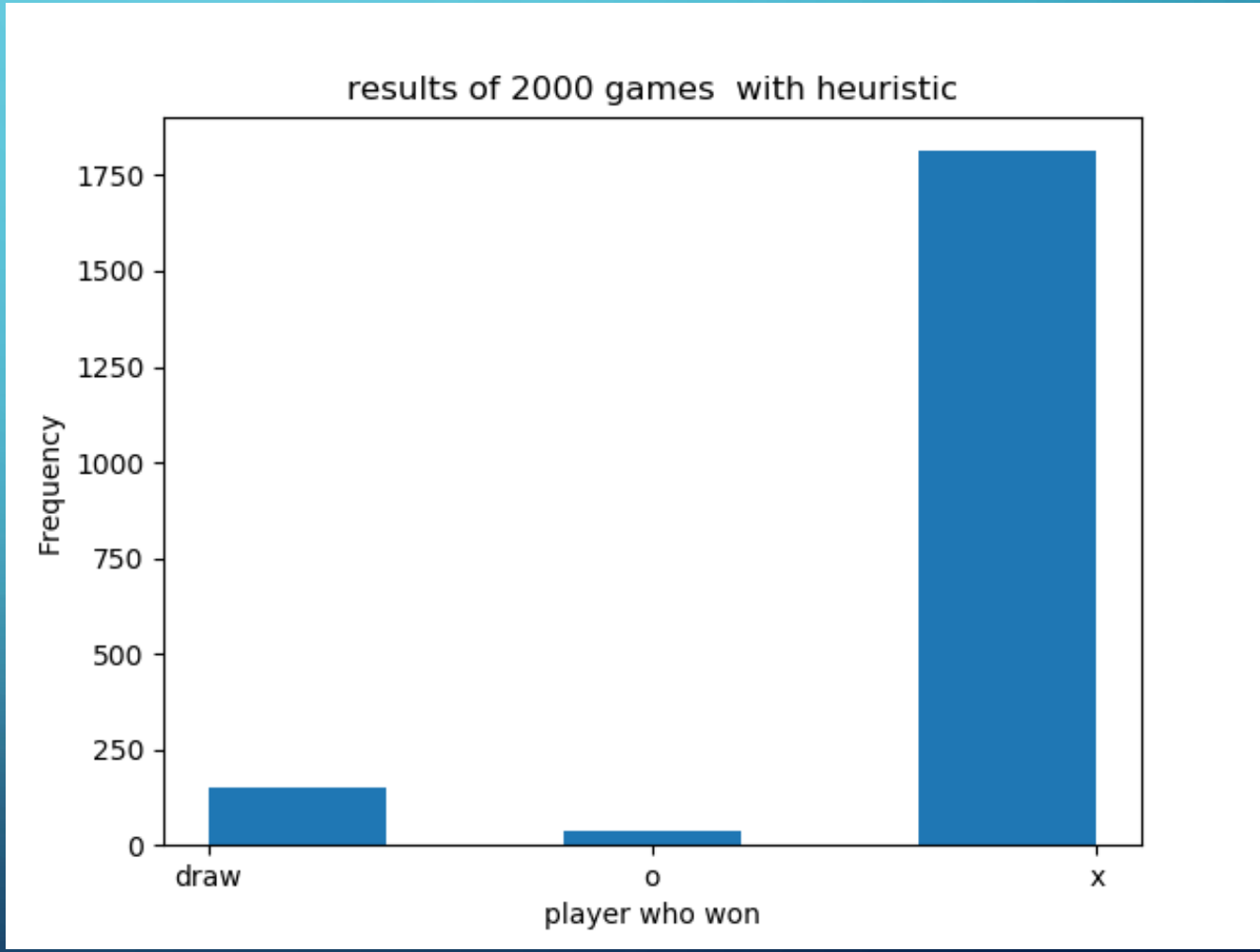
Probability of position in a *win* for player x

```
[[ 0.115   0.107   0.12 ]
 [ 0.095   0.138   0.1  ]
 [ 0.116   0.092   0.116]]
```



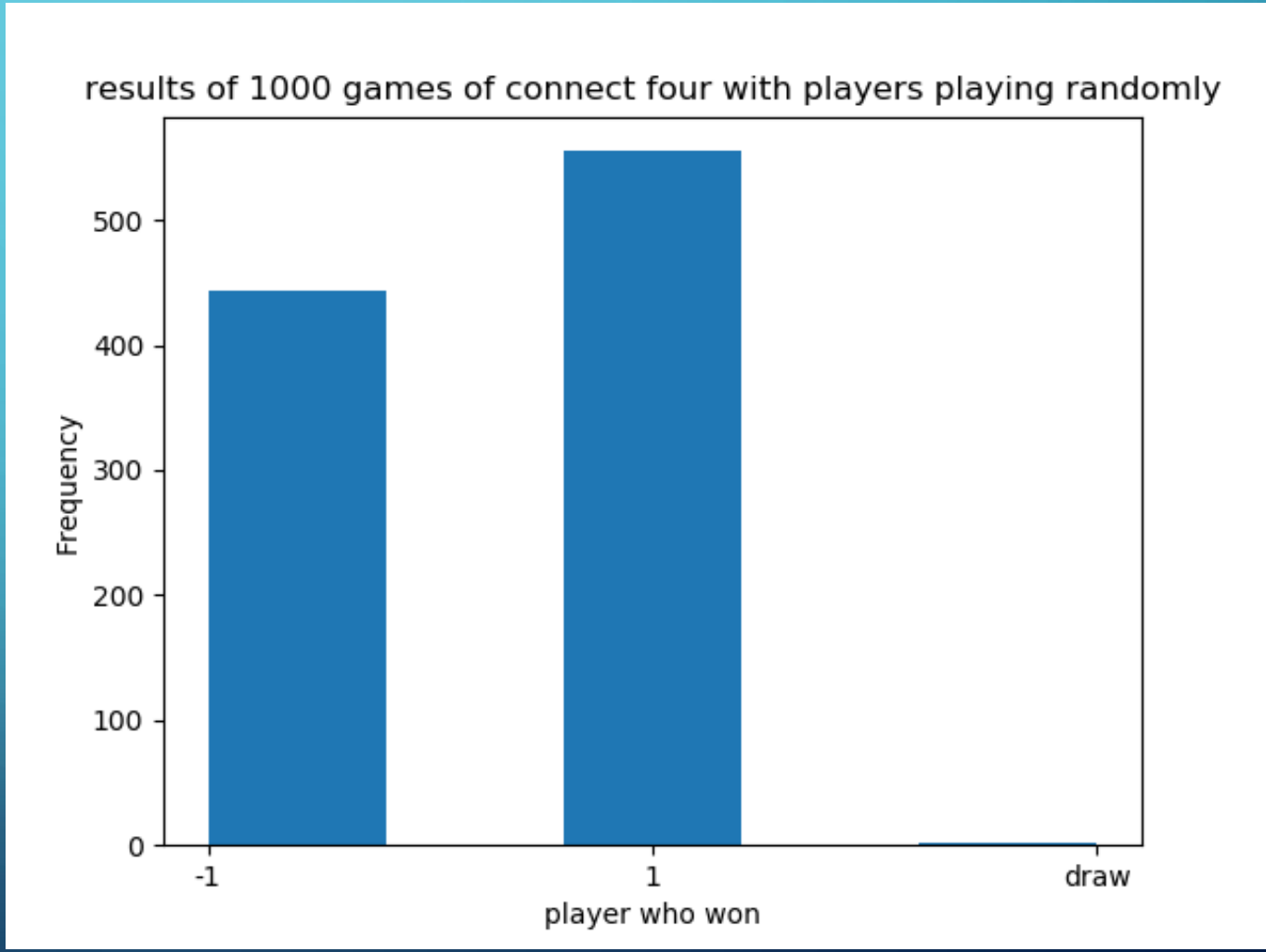
TIC TAC TOE BASED ON HEURISTIC

evalutation function
from lecture slides
(number of winning lines)



CONNECT FOUR

Player 1 starts



CONNECT FOUR

- Probability matrix of player1´s token-positions (using games where player1 won)

```
[[ 0.006   0.005   0.005   0.006   0.006   0.006   0.005]
 [ 0.01    0.01    0.009   0.009   0.01    0.011   0.01 ]
 [ 0.02    0.016   0.02    0.017   0.02    0.022   0.019]
 [ 0.024   0.025   0.029   0.028   0.029   0.025   0.024]
 [ 0.033   0.033   0.035   0.039   0.039   0.035   0.033]
 [ 0.042   0.047   0.048   0.056   0.05    0.045   0.041]]
```

PROBABILITY MATRIX DRAWBACKS

- horizontal layers higher probability
  - get filled more likely (game rules)
- Not a good indicator for diagonal strategy
  - Horizontal layers would have to be filled to reach diagonal win

CONNECT FOUR

GUI realised
Using pygame