

# Exercise 5

## Same Game

### Artificial Intelligence for Games

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#### 1 Project Proposal

Project proposal was already sent by me on SKOS - I am in group with Szymon Kosakowski and Kacper Szufnarowski.

#### 2 SameGame Easy

In order to get at least 6500 points from the SameGame puzzle I have just written random agent - pick any legal action and perform it.

#### 3 SameGame Medium

In order to get at least 30000 points from the SameGame puzzle I have written BeamSearch algorithm with no additional enhancements - 50ms for every round (including the first one despite 20s limit, search did not use any state). To be more exact, I got something around 30500 points. I have used beam width equal to 100.

#### 4 Zobrist Hashing

With state hashing I have achieved score of about 38000 (37900 to be exact) - every state was hashed depending on the position of individual tiles. Better score is understandable as with the SameGame, we can get to one state with a different sequence of moves - especially on some levels and especially at the beginning, which could lead to duplicate states in our search, which will lead to worse search effectiveness.

#### 5 Selective Policy