CSL333 - Assignment 3
Quoridor

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2013CS50275

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2013EE10462

1 Game State Representation

Our game state is quite lightweight and consists of the following :

- Positions of both players.
- No. of walls left of both players.
- The player whose turn it is.
- Two 2-d vectors of booleans which represents the walls placed so far.

2 Algorithm

We use minimax with alpha-beta pruning with a depth cutoff of 3 for the most part (This varies slightly based on time left). We went for depth 3 because it performed better than depth 2 in practice and because depth 4 timed out in a few cases. Instead of generating new game states, we modify a single goal state by applying and un-applying moves, which speeds up the search.

3 Evaluation Function

We use a fairly simple evaluation function which is a combination of the following features:

- Shortest path difference : Difference between the shortest paths of the first and the second player.
- Wall difference : Difference in the number of walls of the first and second player.
- Winning : A move resulting in a win has large positive incentive while a move resulting in a loss has large negative penalty.

The weights for these features have currently been set by us and not been learnt.

Discussed assignment with : Surag Nair, Kabir Chhabra, Haroun Habeeb, Shreyas Padhy