We choose our evaluation functions as a combination of the current stone in the Mancala and the potential stones which can be obtained by the next move. In our evaluation function, we evaluate the empty spot as 1 and the non empty one as 0. We add up the stone in the enemy position which is adjacent to our empty position. The evaluation function is as follows,

$$Weight * Sum\ of\ Potential\ Stones + Current\ Stones\ in\ Mancala$$

After several trials using different weights, we find out the 0.2 is the optimal weight for our evaluation function.

In our testing, we use our evaluation to compete with the simple-eval evaluation provided in the lab. Simple-eval uses the number of stones in player's Mancala (which is the result of the game at the terminal state). If our evaluation can beat the simple-eval, we would consider our evaluation works well. Our evaluation function works well when the cut-off level is larger than 3; meanwhile, the simple-eval works better when the cut-off level is smaller than 3.

We also tested other possibilities of evaluations, including:

1. Total Number of Potential Stones
2. Number of Empty Spot on our side
3. Total Number of Stones on our side
4. Possibilities of bonus turns

All of them do not work well when they played with the simple-eval. Since with enough cut-off level, the simple-eval can foresee the terminal state of the game.