

## Theory of Computer Game HW2

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### 1. Implemented techniques

a. UCB, UCT

b. Progressive pruning

All the functions are implemented in MCTS.h, where the entrance point is `MCTS::run()`

2. For UCT, I use the function  $UCB = (W_i / N_i) + 0.1 * \sqrt{\log(N) / N_i * Var}$ , and for progressive pruning,  $rd = 4$ . The value of  $c$  in UCT is determined by competing with each other and selecting the best one. The value of  $rd$  is fixed from the beginning because it does not seem to affect a lot.

3. Memory usage is quite small. It won't cause any memory explosion issue.