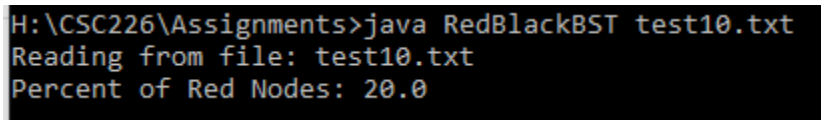
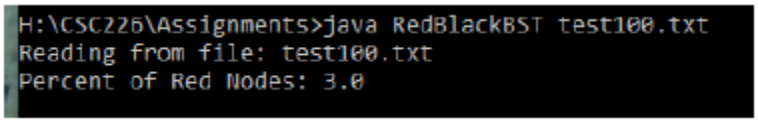
Assignment 1:

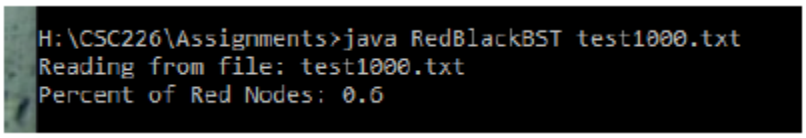
Hypothesis:

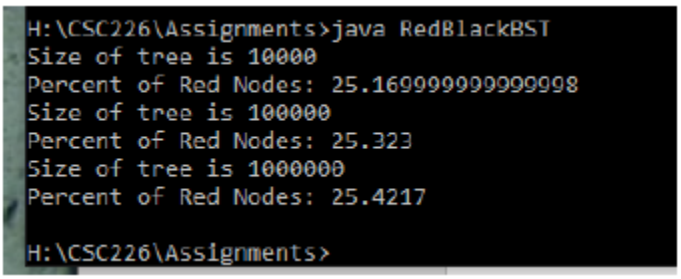
Due to the nature of the RB-trees I hypothesize that the percentage of red nodes should be roughly around 25% of the total tree. This is due to the fact that every red node will have 2 black children, and if there can never be 2 red nodes in sequence. Thus I believe that roughly 1 out of every 4 nodes will be red.

Test Cases:









The expected results of 25 percent became much better once the RB-trees were created with random numbers. Essentially the trees at this point became much more balanced.