Artyom Martirosyan

Assignment 4 writeup

For this assignment we created the towers of hanoi and implemented 2 options: one for solving the program using recursions and one for using stacks. Personally I created 3 stacks for the stack aspect and 3 arrays which will be treated as stacks for the recursion aspect of the program as we weren't allowed to use stacks in the recursion function and vice versa what I did was for the loop or function I had 3 if statements which would move the first peg to a certain point (from right to left or left to right), after this I would have some if statements which will check which ring is larger than the other and it would move the smaller ring to the peg with the larger ring or vice versa(with else statements) at the end of the program will run 2 if statements if the number of rings is odd move right if even move left. There is a breaker statement which is in the if statement which checks if ring one is on peg b and check if the peg is full. This logic is implemented in both programs however is seems more effective when using the program in the stack aspect rather then the recursive aspect. I did not use the boolean statement for stack_empty as it would cause problems with the if statements inside of the stack aspect of the program therefore I had several counters for each peg checking how many rings were in each peg. I also had a move counter which will print out the number of moves needed for reaching peg b. There currently is an infer error with pushing values onto stack ‘a’ I think that this issue is due to the fact that the if the stacks option is not selected then there will not be anything pushed onto the stacks which would make it null. One solution could have been creating null checkers, but I do not believe that it is necessary as there should not be any memory leaks(valgrind was also ran with no issues so i believe that the infer tester doesnt look into if statements).