

1) (10 pts) ANL (Algorithm Analysis)

Determine the average case and worst case run-times, using Big-Oh notation, for the following algorithms or data structure operations. In order to earn credit, your answers must be in terms of the appropriate variables given in the question.

Algorithm/Operation	Average Case	Worst Case
Push operation onto a stack implemented with a linked list storing n elements.		
Printing out each permutation of the integers 1, 2, 3, ..., n . (Note: printing a single integer takes $O(1)$ time.)		
Insertion of a single node into a binary search tree with n nodes.		
Deletion of a single node of an AVL tree with n nodes.		
Merging a sorted array of size P with another sorted array of size Q , producing a newly allocated sorted array of $P+Q$ elements.		