**Running-Time Analysis**

Push *n* items:

Each call to push(x) is O(N), but the total running time required to push *n* items to the stack would be O(N2) as the program must compute N\*N or N2 operations. Furthermore, mathematically it would follow:

Therefore, the highest order is N2 which equals O(N2).

Pop *n* items:

Each call to pop() is O(N), but the total running time required to pop *n* items from the stack would be O(N2) as the program must compute N\*N or N2 operations. Furthermore, mathematically it would follow:

Therefore, the highest order is N2 which equals O(N2).