



Hacettepe University

Department of Computer Engineering

BBM 104 – Introduction to Programming Laboratory II

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Assignment IV

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PROBLEM DEFINITION

In this assignment, I am expected to implement own stack and queue and basic operation of them in Java programming language by using additional operation. This program provided deleting, adding, sorting etc for stack and queue data structures.

STEPS OF ALGORITHMS

I parsed to command.txt and according to commands, added numbers to stack/queue. For each operation, added numbers to temporary stack/queue from real stack/queue (removed numbers). And then did necessary implement again and added numbers to real stack/queue from temporary stack/queue (removed numbers). For some operations, I added to numbers both temporary stack/queue and arrayList and then, I used reverse and sort method of arrayList. End of the every operation; real stack/queue have updated and temporary stack/queue cleared for next operation in this program.

For example, for ***S removeGreater 5*** operation, I used two separate while loop. Complexity of pop/push method $O(1)$. For first while loop repeat n times so complexity is n and for second loop complexity is n . $O(n+n)$ equivalent is $O(n)$. Therefore for this operation, It is complexity: $O(n)$.

And algorithm has shown in this figure for this operation.





