

METU Department of Computer Engineering
CENG 707 Data Structures and Algorithms
Homework 2 – Fall 2020
Deadline: 12.12.2020
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Given two data structures s_1 and s_2 , you will swap the content landing in the given interval [lower, upper]. Populate the structures with n random prime numbers (don't manually write prime numbers, do it automatically by generating random numbrs and testing their primality).

Given a data structure s_1 , you will swap its i^{th} and j^{th} nodes (not the values in the nodes but the nodes themselves!).

Structures will be Linked List, Stacks, and Queue.

Nodes are numbered starting from the head, front, and top for the List, Stack, and Queue, respectively. You must use ADT services to accomplish these tasks, e.g., enqueue() for Queue.

Swap between 2 structures (the first part) will take place using the structures of the same type, e.g., from List to List, and also of different types, e.g., from List to Stack. Here is a concrete example for the former: $s_1 = 11 \rightarrow 3 \rightarrow 7 \rightarrow 29 \rightarrow 5$, $s_2 = 13 \rightarrow 31 \rightarrow 17 \rightarrow 19 \rightarrow 23$, lower = 2, upper = 4; output: $s_1 = 11 \rightarrow 31 \rightarrow 17 \rightarrow 19 \rightarrow 5$, $s_2 = 13 \rightarrow 3 \rightarrow 7 \rightarrow 29 \rightarrow 23$

Print the process to the screen as intuitively as possible. Get the necessary inputs (n , lower, upper, i , j) from keyboard. Also allow user to switch between test modes via keyboard input.

Submission: Email to ys@ceng.metu.edu.tr your source code, executable, and screenshots.