

# *American University of Armenia, CSE*

## *Data Structures*

### *PSS 6 - Queues, Dequeues and ArrayList*

#### **Past Topics.**

- 1. Sorting algorithms. Complexities and approaches.*
- 2. Data structures. Complexities and approaches.*

#### **Queues**

- 1. Implement max() method for Queue which returns the max value in the queue.*

#### **ArrayList**

- 1. Insert a new element at index 0 in  $O(1)$ . You can assume that size is always smaller than capacity. Hint: Content of the initial array is not important.*
- 2. Rotate 90 degrees left given  $N \times N$  matrix in place (without additional memory).*
- 3. Circularly shift given array left by  $K$  elements in place (without additional memory).  $K < N$ .*

#### **If time permits**

- 1. Given two dimensional array of ' ', '\*', 'S' and 'E' characters. Write an algorithm which finds a way from start (S) to end (E). You can move up, down, left or right. '\*' character stands for wall. It means you can move only by empty ( ' ') cells.*
- 2. Review the past homework.*