

CSE220 Practice Sheet 4

1. Suppose you are given a queue, write down a **recursive function** that reverses the given queue.

Allowed operations: enqueue(elem), dequeue() and isEmpty()

Sample Input	Sample Output
Q = [1, 3, 4, 5, 6, 8] reverseQueue(Q)	Q = [8, 6, 5, 4, 3, 1]

2. Given a queue with even number of elements, your task is to exchange the elements in such an order that the last half elements will be interleaved with the first half.

[You are allowed to use only a Stack and its operations and queue operations, no additional structures can be used].

Sample Input	Sample Output
Q = [1, 2, 3, 4, 5, 6, 7, 8]	Q = [1, 5, 2, 6, 3, 7, 4, 8]

3. Write a **recursive** function that, given two strings, returns whether the first string is a subsequence of the second or not.

Sample Input	Sample Output
S1 = hac and S2 = cathartic	True
S1 = bat and S2 = table	False
S1 = abe and S2 = table	True

4. Write a program in that find Greatest Common Divisor (GCD) of two numbers using **recursion**.

Sample Input	Sample Output
GCD (10, 50)	10

5. Write a **recursive** function that given a string creates a new string where if the given string contains the same character in the consecutive position, those characters will be separated by '@' in the new string.

Sample Input	Sample Output
seperatePair("hello")	"hel@lo"
seperatePair("aatetsstskfmmmtt")	"a@atets@stskfm@mt@t"
seperatePair("bbbb")	"b@b@b@b"