East West University
Department of Computer Science and Engineering
Course: CSE246 Algorithm
Section : (2,11)

Problem Statement

1.You are given an array of integers and a target integer. Your task is to find all unique pairs of elements in the array that sum up to the target. Return the pairs in the format specified.

Sample Input	Sample Output
6 2 7 11 15 3 6 9	(2, 7) (3, 6)

2.given an array of integers and an integer k. Your task is to rotate the array to the right by k steps. Print the rotated array as output.

Sample Input	Sample Output
5 1 2 3 4 5 2	4 5 1 2 3

3. You are given a string. Your task is to reverse the string using pointer manipulation. Print the reversed string.

Sample Input	Sample Output
Hello, World!	!dlroW ,olleH

4. You are given a pointer to the head of a linked list. Your task is to determine the length of the linked list by traversing it using pointers.

Sample Input	Sample Output
1 -> 2 -> 3 -> 4 -> NULL	4

5. You are given two sorted linked lists. Your task is to merge them into a single sorted linked list and print the resulting list.

Sample Input	Sample Output
1 -> 3 -> 5 2 -> 4 -> 6	1 -> 2 -> 3 -> 4 -> 5 -> 6

6. You are given a linked list with possible duplicate values. Your task is to remove duplicates so that each element appears only once, and print the modified list.

Sample Input	Sample Output
1 -> 2 -> 3 -> 2 -> 1	1 -> 2 -> 3

7. You are required to implement a queue using two stacks. Provide methods for enqueue and dequeue. Print the elements in the queue after performing a series of enqueue and dequeue operations.

Sample Input	Sample Output
enqueue(1) enqueue(2) dequeue()	1

8. You are given an array to implement a circular queue. Implement the methods enqueue, dequeue, and display. Print the contents of the queue after performing several operations.

Sample Input	Sample Output

enqueue(5) enqueue(10) dequeue() enqueue(15)	10 15

9.You are given two matrices. Your task is to multiply them together and print the resulting matrix.

Sample Input	Sample Output
2 3 1 2 3 4 5 6 3 2 7 8 9 10	58 64 139 154

10. You are given a directed graph represented as an adjacency list. Your task is to perform a DFS traversal starting from a given vertex and print the visited vertices

Sample Input	Sample Output

5 0 -> 1 0 -> 4 1 -> 2 1 -> 3 1 -> 4 3 -> 4 2 -> 3	Visited: 0, 1, 2, 3, 4

11. You are given an undirected graph represented as an adjacency list. Your task is to count the number of connected components in the graph.

Sample Input	Sample Output
4 0 -> 1 1 -> 2 3 -> 3	Number of connected components: 2

Note: Try implementing the following code examples in C++.