National University
of Computer & Emerging Sciences

Program: BS (AI/SE)
Semester: Fall 2023
Course: CS2001 - Data Structures

Assignment#01
Due Date: 19-09-2023
Instructor: Waqas Ali

1. Solve the Josephus problem using a circular linked list. Suppose there are N people standing in a circle, numbered from 1 to N. Starting from person 1, you count around the circle, skipping M-1 people, and the M-th person is removed from the circle and the counting continues with the next person. This process continues until only one person remains.

   Your task is to write a C++ function with the following prototype:

   ```
   int josephus(int N, int M);
   ```

   The function should take two integers as input: N (the number of people in the circle) and M (the step size for counting). Within the function, you should create a circular linked list with N nodes, where each node represents a person. Then, simulate the Josephus problem by repeatedly counting and removing the M-th person until only one person remains. Finally, the function should return the position (or number) of the last person standing.