Data Structures and Algorithms

Lab 4 – Stack & Queue

1. Implement a stack along with some basic operations:
    a. Create: Creates an empty linked stack.
    b. Push: Pushes new data into a stack.
    c. Pop: Pops an element from the top of a stack.
    d. Top: Retrieves data on the top of a stack without changing the stack.
    e. isEmpty: Determines if a stack is empty.
    f. isFull: Determines if a stack is full.
    g. Clear: Clear a stack to make it empty.
    h. Size: Determines the current number of elements in a stack.
2. Implement a queue along with some basic operations:
    a. Create: Creates an empty linked queue.
    b. EnQueue: Inserts one element at the rear of a queue.
    c. DeQueue: Deletes one element at the front of a queue.
    d. QueueFront: Retrieves data at the front of a queue without changing the queue.
    e. QueueRear: Retrieves data at the rear of a queue without changing the queue.
    f. isEmpty: Determines if a queue is empty.
    g. isFull: Determines if a queue is full.
    h. Clear: Clear a queue to make it empty.
    i. Size: Determines the current number of elements in a queue.