

**SSN COLLEGE OF ENGINEERING`
DEPARTMENT OF CSE**

DATA STRUCTURES LABORATORY (CS8381)

Ex. No. 6 Applications using Queue ADT

i) Create a **queue ADT using array** with the following operations:

- (a) Enqueue
- (b) Dequeue
- (c) Check whether queue is full
- (d) Check whether queue is empty
- (f) Disposing queue
- (g) Display queue

The **Producer-Consumer problem** is stated as following:

The producer produces the item (any grocery item) and stores it in a container such that the item produced first should be consumed first. The consumer consumes the item, one at a time. The producer should not produce the items if the container gets overflow. The consumer cannot consume item if the producer has not produced any item or if the container does not possess any item.

Write a C program to solve the above said problem using Queue. The solution of producer consumer problem should have the following menu:

- 1) Producer
- 2) Consumer
- 3) Display the items in the container
- 4) Exit

ii) Create a **queue ADT using linked list** and perform the following operations:

- (a) Enqueue
- (b) Dequeue
- (c) Check whether queue is empty
- (d) Disposing queue
- (e) Display queue

Use the above Queue ADT to store a set of **Printer jobs** (P1, P2, etc.).