**SSN College of Engineering, Kalavakkam**

**Department of Computer Science and Engineering**

**III Semester - CSE**

# UCS 1312 Data Structures Lab Laboratory

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| **Academic Year: 2019-2020** | **Batch: 2018-2022** |

**Exercise 5: Implementation of Linear, Circular Queue and Application of Circular Queue**

The structure Queue consists of integer array, front and rear. Implement both linear and Circular Queue using array with the following methods.

* void enqueu(Queue \*Q, int x) – Insert an element into the queue
* int dequeue(Queue \*Q) – Dequeue an element from the queue
* void disp(Queue \*Q) – Display elements from the Queue
* int isEmpty(Queue \*Q) – Check whether the queue is empty
* int isFull(Queue \*Q) – Check whether the queue is full

Note:

1. Implement linear queue with the specified operations in linearqueue.h
2. Implement circular queue with the specified operations in circularqueue.h
3. Check the linear queue by writing application program in lqueueapp.c
4. Check the circular queue by writing application program in cqueueapp. C

Application of Circular Queue

1. Modify the circular queue to contain job number and the cpu burst time
2. Instantiate 2 circular queues Q1 and Q2
3. Insert circular queue with the following contents

(J1,2), (J2,4), (J3,8), (J4,5), (J5,2), (J6,7), (J7,4), (J8,3) (J9,6) & (J10,6)

1. Insert the job into the circular queue whichever is empty. If it is not empty, insert the job into the queue whichever is having minimum average time
2. Display the jobs waiting in both the queues along with their cpu burst time.