

# CMSC 123 Data Structures Mini Problem

## Second Semester 2015-2016 MTh 1:00-2:30 section 2

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### Instruction

1. Form a group of four members each group.
2. Assign two members to work on linked list and two members on stacks and queue.
3. Defense will be before the Second Long Examination (March 30).

### Mini Problems

Complete the Data Structures by coding their different methods.

#### Linked List

##### Singly Linked List

- |                            |                           |
|----------------------------|---------------------------|
| 1. Method getSize()        | 6. Method insert(int,int) |
| 2. Method isEmpty()        | 7. Method deleteFirst()   |
| 3. Method find(int)        | 8. Method deleteLast()    |
| 4. Method insertFirst(int) | 9. Method delete(int)     |
| 5. Method insertLast(int)  |                           |

##### Doubly Linked List

- |                            |                           |
|----------------------------|---------------------------|
| 1. Method getSize()        | 7. Method insertLast(int) |
| 2. Method isEmpty()        | 8. Method insert(int,int) |
| 3. Method find(int)        | 9. Method deleteFirst()   |
| 4. Method findNext(int)    | 10. Method deleteLast()   |
| 5. Method findPrev(int)    | 11. Method delete(int)    |
| 6. Method insertFirst(int) |                           |

##### Circular Linked List

- |                            |                          |
|----------------------------|--------------------------|
| 1. Method getSize()        | 7. Method deleteFirst()  |
| 2. Method isEmpty()        | 8. Method deleteLast()   |
| 3. Method find(int)        | 9. Method delete(int)    |
| 4. Method insertFirst(int) | 10. Method rotateLeft()  |
| 5. Method insertLast(int)  | 11. Method rotateRight() |
| 6. Method insert(int,int)  |                          |

## **Stack**

1. Method `getSize()`
2. Method `isEmpty()`
3. Method `push(int)`
4. Method `pop()`
5. Method `top()`

## **Queue**

1. Method `getSize()`
2. Method `isEmpty()`
3. Method `enqueue(int)`
4. Method `dequeue()`
5. Method `first()`

## **Circular Queue**

1. Method `getSize()`
2. Method `isEmpty()`
3. Method `enqueue(int)`
4. Method `dequeue()`
5. Method `first()`
6. Method `rotate()`

## **Double Ended Queue**

1. Method `getSize()`
2. Method `isEmpty()`
3. Method `addFirst(int)`
4. Method `addLast(int)`
5. Method `removeFirst()`
6. Method `removeLast()`
7. Method `first()`
8. Method `Last()`