**Department of Computer Science and Engineering**

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| **Course Code: CSE220** | **Credits: 1.5** |
| **Course Name: Data Structure** | **Semester: Fall’18** |

**Lab 05  
Dummy Headed Doubly Linked Circular List**

1. **Topic Overview:**

Students will be able to create Dummy Headed Doubly Linked Circular List practically. They will have hands-on practice over the basic operations Dummy Headed Doubly Linked Circular List.

1. **Lesson Fit:**

The lab itself should be followed by the previous lab and theory knowledge on the LinkedList data structure and the basic knowledge of programming. Moreover, students need to be familiar with basic programming in Java and IDE (Dr. Java),

1. **Learning Outcome:**

After this lecture, the students will be able to:

* 1. Implement doubly linked circular list
  2. Implement basic operations like insert, delete, update on doubly linked list.

1. **Anticipated Challenges and Possible Solutions**
2. Students may run into **NullPointerException** during implementation of stack by linked list

**Solution:** Special care is to be taken so that the nodes are properly declared and initialized.

1. **Acceptance and Evaluation**

Students will be evaluated according to their progress in the lab as they complete each problem.

Some of the students may not be able to finish all the 14 tasks; they will submit them later

and give an oral justification to get their performance mark.

1. **Activity Detail**
   1. **Hour: 1  
      Discussion:**i. A short quiz on the previous lab topic.  
      ii. Evaluating and discussing the quiz question. **Problem Task:**
      1. Quiz question will be prepared by the lab faculty members
   2. **Hour: 2**

**Discussion:**

* + 1. A quick review of the previous lab and recap the theory and basic structure of doubly linked list that is already demonstrated in the classroom.
    2. Implementation of some basic operation on LinkedList.

**Problem Task:**

* + 1. Task 1 to Task 6 (Page 4)
  1. **Hour: 3**

**Discussion:**

Check Task 1 to 6 while the students implement the insert, delete operations on

LinkedList.

**Problem Task:**

* + 1. Task 7 and Task 8 (Page 4)

1. **Home tasks**
   1. All unfinished tasks

**Lab 5 Activity List**

**Task 1**

Build a doubly linked circular list

**Task 2**

Implement a method which will show the total number of node

**Task 3**

Implement a method which will forward print the linked list

**Task 4**

implement a method which will print the linked list in backward direction.

**Task 5**

Implement a method which will show the content of a specified node.

**Task 6**

Implement a method which will return the index of a content

**Task 7**

Implement a method to insert an element in the LinkedList

**Task 8**

Implement a method which will delete a node from the LinkedList.