L a b s e s s i o n 8 : C i r c u l a r L i n k e d L i s t

O b j e c t i v e

The objective of **lab session 8** is

- To create an empty circular linked list using singly and doubly linked list
- To write a full C++ program for the given problem using circular linked list

Pre-lab Exercise

1. A circular linked can be implemented with singly or doubly linked list.
   - A. True
   - B. False

2. How can we create a circular linked list? By making
   - A. The **first** element points to the **last** element
   - B. The **last** element points to the **first** element.
   - C. The **first** and **last** elements point to themself.
   - D. A and C
   - E. A and B

3. In circular linked list, the last link's next points to the first link of the list. What can you say about the circular linked list?
   - A. It is singly circular linked list
   - B. It is doubly circular linked list
   - C. A and B
   - D. We can't determine

4. What is the advantage of circular linked list A. Finding end of list and loop control is harder
   - B. Fewer special case when coding (all nodes have a node before and after it)
   - C. The entire list can be traversed starting from any code D. All

5. Implement the following algorithm using C++ ○ **Step 1:** Create a

newNode with given value and **newNode** → **next** as **head**

○ **Step 2:** Check whether list is **Empty** (**head** == **NULL**) ○ **Step 3:** If

it is **Empty** then, set

▪ **newNode→next** = **head, head** =**newNode** and **tail** =**newNode.**

○ **Step 4:** If it is **Not Empty** then, set **newNode→previous** = **tail** ,

tail→next = **newNode,** and **tail** =**newNode.**

In-lab Exercise

1. Ethiopian premier league soccer result

☐ Write a C++ program that shows team standing for Ethiopian premier league,
the program should uses singly circular linked list and contains the following
functions

    i.   A function that enable to add teams and points

    ii.   A function that enable to edit teams points

    iii.   A function that shows all standing

Here is a sample output

No.	Teams	Points
1	Ethiopian Coffee	6
2	Dedebit	5
3	St. George	3
4	Mebrat hail	2
..	…	…

Post-lab Exercise

1. What is the disadvantage of using circular linked list?

2. Write the algorithm and implementation for inserting an element at the
beginning in doubly circular linked list?