

# ASSIGNMENT-02(Circular Linked List)

By-Sujal Aggarwal(21105036) ECE

Q1. While traversing a single-circular linked list, which condition establishes that the traversing element/variable has reached the first element?

Ans. This can easily be checked via the address stored in Headnode. While we traverse our list as soon as the current Node's Address matches the address stored in the Headnode

we know that we have reached the start of the list.

```
//CODE
```

```
current=head->next;
```

```
while (current!=head) {
```

```
    current=current->next;
```

```
}
```

The above code stops when we reach at the beginning of the list again.

Q2. What are the practical applications of a circular linked list? (Try to find applications in your respective fields)

Ans. Applications:

1. Implementation of queue:

Useful for implementation of a queue. Unlike the standard implementation, we don't need to maintain two-pointers for the front and rear if we use a circular linked list. We can maintain a pointer to the last inserted node and the front can always be obtained as next of last

2. Advanced Data Structures:

Circular Doubly Linked Lists are used for the implementation of advanced data structures like the Fibonacci Heap.

3. Snake mobile Game:

The circular linked list stores the x,y position of each point in the snake's body. The head of the list is the snake's head. The tail is its tail. And the really nice property is that as we advance the head to a new position, the list wraps around because it is circular. This erases the tail, and leaves all other body parts as they are. So, we get the movement of the whole snake simply by adding a new head position.

4. Media Player:

A media playlist that repeats endlessly where the "tail" song node would point to the first song in the CL

5. Multiplayer Games:

All the Players are kept in a Circular Linked List and the pointer keeps on moving forward as a player's chance ends.

6. Computer Networking:

Circular Linked List can also be used in C.N. for token scheduling

7. Looping Playlist in YouTube:

At the end of the playlist, it is linked to the head of the playlist and hence the loop continues.