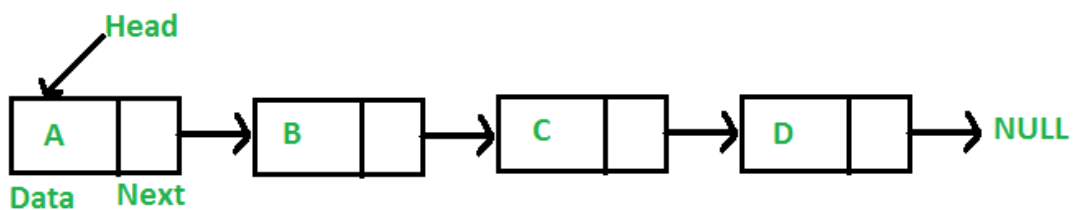**EXPERIMENT NO-5**

Title: Write a class to implement Linked List

Objectives:
> 1. Study of linked list operations.
> 2. Implementation of linked list using Class.

Theory:

A linked list is a linear data structure, in which the elements are not stored at contiguous memory locations. The elements in a linked list are linked using pointers as shown in the below image:

In simple words, a linked list consists of nodes where each node contains a data field and a reference(link) to the next node in the list.

Linked list Node declaration:

```
class Node
{
   public:
            int data;
            Node *next;
   Node()
   {
      data=0;
      next = NULL;
   }
}
```

Operations supported by linked list:

1. Insert data using attach node operation:
    a. Insert data in the beginning of the list.
    b. Insert data at the end of the list.
    c. Insert data in the middle of the list.
2. Delete data using detach node operation:
    a. Delete data from the head of the list.
    b. Delete data from the middle of the list.
    c. Delete data from the end of the list.

3. Traverse list
4. Search from the list.

Linked list class declaration:

```
class  LinkedList
{
        private:
        Node *head;
        Node* createNode();
        void initNode( Node *nd, int data);

        public:
        LinkedList();
        ~LinkedList();
        void attachBegin(int data);
        void attachEnd(int data);
        Node* detachBegin();
        Node* detachEnd();
        void traverse();
        Node * search( int data);
}
```

Procedure:

1. Implement Linked list class.
2. Create linked list object.
3. Store data in the linked list object.
4. Traverse linked list.
5. Search data in the linked list

Keywords:

Node, linked list, attach node, detach node, traverse.