Assignment 3

Linked List

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Class: BSc CDS FY

Roll No.: 24

Subject: CDS-116: Data Structures Using Python (CDS-236)

Question No.: 1

Dynamic implementation of Singly Linked List and Doubly Linked List, Performed all operations on the Linked List.

Code:

```
#Assignment 3: Dynamic implementation of Singly Linked List and Doubly Linked List,
#Performed all operations on the Linked List.
#By Hanumant More

class Node:
    def _init_self(self, data):
        self.data = data
        self.next = None
        self.prev = None

class DoublyLinkedList:

    def _init_(self):
        self.head = None

    def push(self, new_data):
        new_node = Node(new_data)
```

```
    new_node.next = self.head

    if self.head is not None:
        self.head.prev = new_node

    self_head = new_node

def insertAfter (self, prev_node, new_data):

    if prev_node is None:
        print("the given previous node cannot be Null")
        return

    new_node = Node(new_data)
    new_node.next = prev_node.next
    prev_node.next = new_node
    new_node.prev = prev_node

    if new_node.next:
        new_node.next.prev = new_node

def append(self, new_data):
    new_node = Node(new_node)

    if self.head is None:
        self.head = new_node
        return

    last = self.head
```

```
        while last.next:
            last = last.next

        last.next = new_node
        new_node.prev = last
        return

    def printList(self, node):

        print("¥nTransversal in forward direction")
        while node:
            print(" {}".format(node.data))
            last = node
            node = node.next

        print("¥nTransversal in reverse direction")
        while last:
            print(" {}".format(last.data))
            last = last.prev

llist = DoublyLinkedList()

llist.append(10)

llist.push(25)

llist.push(37)

llist.append(76)
```

```
llist.insertAfter(llist.head.next, 49)

print("Created DLL is: ")
llist.printList(llist.head)
```

Output:

```
Created DLL is:

Transversal in forward direction
37
25
49
10
76

Transersal in reverse direction
76
10
49
25
37
```