

Heaven's Light is Our Guide  
Rajshahi University of Engineering & Technology  
Department of Computer Science & Engineering

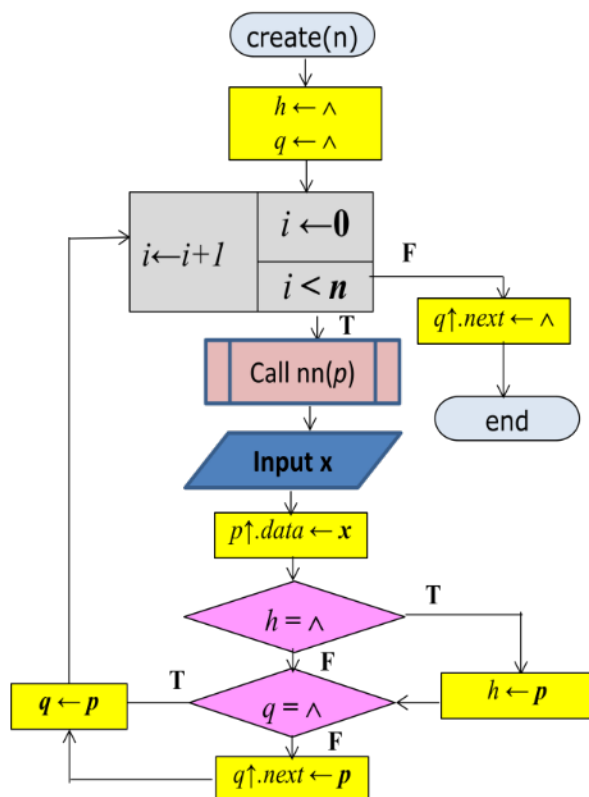
## **Lab Manual**

Course Code: **CSE 1203 (Sec A)**  
Course Title: Sessional based on CSE 1201

**CSE 1202 (Data Structure Lab)**  
**Module 4 [Linked List]: (for Week 4)**

**Topic 1: [Creating a Single Linked List]**

- i) Draw a flowchart create a linked list with 5 integer data. The new node addresses and the **x** values are found in Table 1. Then fill up the following Table 2 for each iteration of **i**. Also draw the linked list after each iteration of **i** showing all the node nodes and pointers.



i	x	New Node Address
1	10	1120
2	30	1130
3	50	1240
4	25	1350
5	15	1650

Table 1:

i	h	q	p	p↑.data	q↑.data
1					
2					
3					
4					
5					

Table 2:

**Topic 2: [Menu Program]:** Write a menu program using C++ to automate the operations of a single linked list with the following constraints:

- Create menu creates a new link with specified number of nodes
- Insert menu inserts a new node in an existing linked list. Insertion should be done after an existing node.
- Delete menu deletes a node from an existing linked list. Delete multiple nodes if the specified data matches with multiple nodes.
- Update menu updates data element of a node. Update multiple nodes if required.
- Display menu displays all the node data of the existing linked list.

vi) Use the following classes nodes and linked list

```
class Node{
    int data;
    Node *next;
};

class LinkedList{

    private:
        //declare data members if required

    public:
        void Create(){
        }
        void Insert(){
        }
        void Delete(){
        }
        void Update(){
        }
        void Display(){
        }
        //Write more methods if required.
};
```

\*\*\*\*\* Menu \*\*\*\*\*

1. Create
2. Insert
3. Delete
4. Update
5. Display
6. Exit

Enter your option[1-6]:

**Topic 3:** Repeat Topic 2 using Circular linked list.

**Topic 4:** Repeat Topic 2 using Double Circular linked list.