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***Assignment no 3***

***Name . Aqeel Abbas***

***Submitted to***

***Sir Rasikh Sahab***

***Roll no . 056***

***Subject . Lab Data structure***

***Lab . 3***

Questions no 1 Implement a singly linked list with functions to insert a node at the start and at the end. Display the list after each insertion

Answer. #include <iostream>

using namespace std;

class Node {

public:

int data;

Node\* next;

Node(int data) {

this->data = data;

this->next = nullptr;

}

};

class SinglyLinkedList {

public:

Node\* head;

SinglyLinkedList() {

head = nullptr;

}

void insert\_at\_start(int data) {

Node\* new\_node = new Node(data);

new\_node->next = head;

head = new\_node;

display();

}

void insert\_at\_end(int data) {

Node\* new\_node = new Node(data);

if (head == nullptr) {

head = new\_node;

} else {

Node\* current = head;

while (current->next != nullptr) {

current = current->next;

}

current->next = new\_node;

}

display();

}

void display() {

if (head == nullptr) {

cout << "List is empty." << endl;

return;

}

Node\* current = head;

while (current != nullptr) {

cout << current->data << " -> ";

current = current->next;

}

cout << "None" << endl;

}

};

int main() {

SinglyLinkedList linked\_list;

linked\_list.insert\_at\_start(10);

linked\_list.insert\_at\_start(20);

linked\_list.insert\_at\_end(30);

linked\_list.insert\_at\_end(40);

return 0;

}