**Data\_Structures\_Implementation**

**Stack:**

#include <iostream>

#include <stack>

using namespace std;

int main()

{

stack<int> stack;

stack.push(21);

stack.push(22);

stack.push(24);

stack.push(25);

cout << "Size: " << stack.size() << endl;

cout << "Top: " << stack.top() << endl;

stack.pop();

stack.push(70);

stack.push(80);

stack.pop();

cout << "Top: " << stack.top() << endl;

cout << "Empty(1) or not(0): " << stack.empty() << endl << endl;

while (!stack.empty()) {

cout << stack.top() << " ";

stack.pop();

}

return 0;

}

**Queue:**

#include <iostream>

#include <queue>

using namespace std;

int main()

{

queue<int> queue;

queue.push(21);

queue.push(22);

queue.push(24);

queue.push(25);

cout << "Size: " << queue.size() << endl;

cout << "Front: " << queue.front() << endl;

cout << "Back: " << queue.back() << endl;

queue.pop();

queue.push(70);

queue.push(80);

queue.pop();

cout << "Front: " << queue.front() << endl;

cout << "Back: " << queue.back() << endl;

cout << "Empty(1) or not(0): " << queue.empty() << endl << endl;

while (!queue.empty()) {

cout << queue.front() << " ";

queue.pop();

}

return 0;

}

**Priority Queue:**

#include <iostream>

#include <queue>

using namespace std;

int main()

{

priority\_queue<int> priority\_queue;

priority\_queue.push(21);

priority\_queue.push(22);

priority\_queue.push(24);

priority\_queue.push(15);

cout << "Size: " << priority\_queue.size() << endl;

cout << "Top: " << priority\_queue.top() << endl;

priority\_queue.pop();

priority\_queue.push(70);

priority\_queue.push(80);

priority\_queue.pop();

cout << "Top: " << priority\_queue.top() << endl;

cout << "Empty(1) or not(0): " << priority\_queue.empty() << endl << endl;

while (!priority\_queue.empty()) {

cout << priority\_queue.top() << ", ";

priority\_queue.pop();

}

return 0;

}

**Linked List:**

#include <cstddef>

#include <iostream>

using namespace std;

class Node {

public:

int data;

Node\* next;

};

void print\_list(Node\* n) {

while (n != NULL) {

cout << n->data << " ";

n = n->next;

}

}

int main() {

Node\* head = NULL;

Node\* second = NULL;

Node\* third = NULL;

Node\* fourth = NULL;

Node\* fifth = NULL;

head = new Node();

second = new Node();

third = new Node();

fourth = new Node();

fifth = new Node();

head->data = 1;

head->next = second;

second->data = 2;

second->next = third;

third->data = 3;

third->next = fourth;

fourth->data = 4;

fourth->next = fifth;

fifth->data = 5;

fifth->next = NULL;

print\_list(head);

}

**Array:**

#include <iostream>

using namespace std;

int main() {

int numbers[5];

cout << "Enter 5 numbers : " << endl;

for (int i = 0; i < 5; ++i) {

cin >> numbers[i];

}

cout << "The numbers are : ";

for (int n = 0; n < 5; ++n) {

cout << numbers[n] << " ";

}

return 0;

}