**Lab Assignment No: 13**

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**SUBJECT CODE**: IT8002

**SUBJECT NAME**: CPP AND JAVA

**GR NO:** 119C0046

**BATCH:** B3

**PROBLEM STATEMENT:1**:-

**Write program for bubble sort using template.**

**CODE:**

#include <iostream>

using namespace std;

template <class X> void bubble(X \*items,int count)

{

X t;

for(int a=1; a<count; a++)

for(int b=count-1; b>=a; b--)

if(items[b-1] > items[b]) {

t = items[b-1];

items[b-1] = items[b];

items[b] = t;

}

}

int main()

{

int iarray[7] = {2, 10, 3, 8, 27, 99, 45};

cout << "Here is unsorted integer array: ";

for(int i=0; i<7; i++)

cout << iarray[i] << ' ';

cout << endl;

bubble(iarray, 7);

cout << "Here is sorted integer array: ";

for(int i=0; i<7; i++)

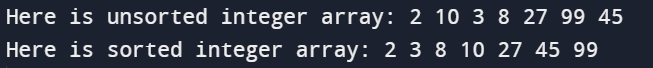
cout << iarray[i] << ' ';

cout << endl;

return 0;

}

**OUTPUT:**

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**PROBLEM STATEMENT:2**:- **Write program for linked stack using template.**

**CODE:**

#include <iostream>

using namespace std;

template <typename T>

class stack{

public:

stack();

void push(T);

void pop(T &);

bool isEmpty(void);

private:

struct node{

node(){ next = NULL; }

T data;

node\* next;

}\*top;

};

template <typename T>

stack<T>::stack(){

top = NULL;

}

template <typename T>

void stack<T>::push(T x){

//(insert at head (top))

node\* newNode = new node;

newNode->data = x;

if (top != NULL){

newNode->next = top;

top = newNode;

}

else{

newNode->next = NULL;

top = newNode;

}

}

template <typename T>

void stack<T>::pop(T &x){

if (isEmpty()){

cout << "Stack is Empty" << endl;

}

else{

x = top->data;

node\* temp = top;

top = top->next;

delete temp;

temp = NULL;

}

}

template <typename T>

bool stack<T>::isEmpty(void){

return top == NULL;

}

int main(){

stack<char> obj;

int i;

for (int i = 'A'; i<='E'; i++){

cout << "Pushing " << char(i) << endl;

obj.push(i);

}

cout << "Popping..." << endl;

char x;

for (i = 1; i<=5; i++)

{

obj.pop(x);

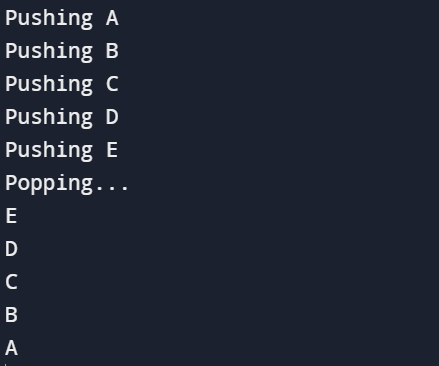
cout << x << endl;

}

return 0;

}

**OUTPUT:**

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