**UCS301: DATA STRUCTURES**

**LAB ASSIGNMENT-3**

**Q1)**

#include <iostream>

using namespace std;

static int m;

int st[1000];

static int top=-1;

void push(int x){

if(top == m-1){

cout<<"Stack Overflow"<<endl;

return;

}

top++;

st[top]=x;

}

void display(){

int i,n=top;

cout<<"Elements of stack are: \n";

for(i=n;i>=0;i--){

cout<<st[i]<<" ";

}

}

void pop(){

if(top==-1){

cout<<"Empty stack";

return;

}

else{

cout<<st[top];

cout<<" Element popped"<<endl;

top--;

}

}

void peek(){

if(top==-1){

cout<<"Empty stack";

return;

}

else{

cout<<"The top element of stack is: "<<st[top]<<endl;

}

}

void isEmpty(){

if(top== -1){

cout<<"Stack is empty"<<endl;

}

else{

cout<<"Stack is not empty"<<endl;

}

}

void isFull(){

if(top==m-1){

cout<< "Stack is full"<<endl;

}

else{

cout<<"Stack is not full"<<endl;

}

}

int main() {

cout<<"Enter the max size of array: ";

cin>>m;

int x;

do{

cout<<"Enter the fxn to perform: ";

cin>>x;

switch(x){

case 1:

int a;

cout<<"Enter the value to push: ";

cin>>a;

push(a);

break;

case 2:

pop();

break;

case 3:

isEmpty();

break;

case 4:

isFull();

break;

case 5:

display();

break;

case 6:

peek();

break;

}

}while(x!=7);

return 0;

}

**Q2)**