1. Develop a menu driven program demonstrating the following operations on a Stack using array: (i) push(), (ii) pop(), (iii) isEmpty(), (iv) isFull(), (v) display(), and (vi) peek().

#include<iostream>

using namespace std;

#define MAX 5

int stack[MAX];

int top=-1;

bool isEmpty() {

return (top== -1);

}

bool isFull() {

return (top == MAX-1);

}

void push(int ele) {

if(isFull()) {

cout<<"Stack Overflow! Cannot push"<<endl;

}

else {

top++;

stack[top] = ele;

cout<<"Pushed into stack."<<endl;

}

}

void pop() {

if(isEmpty()) {

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

}

else {

cout << stack[top--] << " popped from stack." <<endl;

}

}

void display() {

if(isEmpty()) {

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

}

else {

cout<< "Stack element (top to bottom)"<<endl;

for(int i=top; i>=0; i--) {

cout << stack[i] << " ";

}

cout<<endl;

}

}

void peek() {

if(isEmpty()) {

cout << "Stack is empty, nothing at top."<<endl;

}

else {

cout << "Top element is : " <<stack[top] <<endl;

}

}

int main() {

int choice,value;

do {

cout << "\n--- Stack Menu ---\n";

cout << "1. Push\n";

cout << "2. Pop\n";

cout << "3. isEmpty\n";

cout << "4. isFull\n";

cout << "5. Display\n";

cout << "6. Peek\n";

cout << "7. Exit\n";

cout << "Enter your choice : ";

cin >> choice;

switch(choice) {

case 1:

cout << "Enter value to push : ";

cin >> value;

push(value);

break;

case 2:

pop();

break;

case 3:

if (isEmpty())

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

else

cout << "Stack is not Empty." << endl;

break;

case 4:

if (isFull())

cout << "Stack is Full." << endl;

else

cout << "Stack is not Full." << endl;

break;

case 5:

display();

break;

case 6:

peek();

break;

case 7:

cout << "Exiting program..." << endl;

break;

default:

cout << "Invalid choice! Try again." << endl;

}

} while (choice != 7);

return 0;

}

OUTPUT :





