

Activity No. <n>**<Replace with Title>****Course Code:** CPE010**Program:** Computer Engineering**Course Title:** Data Structures and Algorithms**Date Performed:** 08/28/25**Section:** CPE21S4**Date Submitted:** 08/28/25**Name(s):** CATUNGAL KERWIN JAN B**Instructor:** Engr. Jimlord Quejado**6. Output****stacks**

```
#ifndef STACK_H
#define STACK_H
#define MAX 10
#include <iostream>
template <typename T>
class stack{
private:
    int top = -1;
    int arr[MAX];
public:
    bool isEmpty() {
        return (top < 0);
    }
    //isFull
    bool isFull(){
        return (top >= MAX-1);
    }
    //peek
    void peek(){
        if (isEmpty()){
            std::cout<<"The stack is Empty\n";
        }
        else{
            std::cout<<"The value of the top is: " <<arr[top]<< std::endl;
        }
    }
    //push
    void push(T value){
        if (isFull()){
            std::cout<<"STACK OVERFLOW!!"<<std::endl;
        }
        else{
            arr[++top]=value;
            std::cout<<"Successfully pushed"<<value<<std::endl;
        }
    }
};
```

```
//pop
void pop(){
    if (isEmpty()){
        std::cout<<"The Stack is Empty. ";
    }
    else {
        std::cout<<"Successfully popped " <<arr[--top] <<std::endl;
    }
}

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68 //display
void display(){
    if (isEmpty()){
        std::cout<<"The stack is Empty. " <<std::endl;
    }
    else{
        for(int i=top; i >=0; i--){
            std::cout<< arr[i] <<std::endl;
        }
    }
};

,
```

Maincpp:

```
1 #include <iostream>
2 #include "stack.h"
3 int main(){
4     stack <int> s1;
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6
7     s1.peek();
8     s1.push(10);
9     s1.push(9);
0     s1.push(8);
1     s1.push(7);
2     s1.push(6);
3     s1.peek();
4     s1.pop();
5     s1.display();
```

```
6
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8
9     return 0;
0
1 }
```

Output:

```
C:\Users\TIPQC\Documents\c X + ▾  
The stack is Empty  
Successfully pushed 10  
Successfully pushed 9  
Successfully pushed 8  
Successfully pushed 7  
Successfully pushed 6  
The value of the top is: 6  
Successfully popped 7  
7  
8  
9  
10  
  
-----  
Process exited after 0.008791 seconds with return value 0  
Press any key to continue . . . |
```

8. Conclusion

Here I learned how to do the stacks step by step with the guide of our prof. I learned what used is, isFull, peek, push, pop and display for. And we briefly go one by one with each code for us to better understand how the code works and for us to learn it though I know I'm still practicing with this I learned something new.

9. Assessment Rubric