Activity No. <n>	
<Replace with Title>	
Course Code: CPE010	**Program:** Computer Engineering
Course Title: Data Structures and Algorithms	**Date Performed: 8/28/25**
Section:CPE21S4	**Date Submitted: 8/28/25**
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6. Output

Quioyo_CPP.cpp | Stack.h

```cpp
#include <iostream>
#include "Stack.h"


int main(){

    stack <int> s1;

    s1.peek();
    s1.push(10);
    s1.push(9);
    s1.push(8);
    s1.push(7);
    s1.push(6);
    s1.peek();
    s1.pop();
    s1.display();


    return 0;
}
```

Quioyo_CPP.cpp | Stack.h

```cpp
#ifndef STACK_H
#define STACK_H
#define MAX 10
#include <iostream>
template<typename T>
class stack{
    private:
        int top = -1;
        T arr[MAX];

    public:


    //isEmpty
    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()){
```

```
    }


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

        }

    }
    //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;
            }
        }
    }
};
#endif
```

```
C:\Users\TIPQC\Documents\C
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 6
7
8
9
10

--------------------------------
Process exited after 0.006769 seconds with return value 0
Press any key to continue . . .
```

7. Supplementary Activity

8. Conclusion

In this activity, we manage to build a program using stacks and arrays. We each individually build the program where the we push and pop the main header with 10 on top and 6 on the bottom. Using template and the typename to used its value like the letter T and our array MAX. We used bool, and void for push and peek and display. Every code counts organizing it from isEmpty to display. The activity manages to gain some knowledge and learn little by little.

9. Assessment Rubric