Activity No. 4.2	
STACKS	
Course Code: CPE010	**Program:** Computer Engineering
Course Title: Data Structures and Algorithms	**Date Performed:** Aug 28, 2025
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6. Output

```
#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;
}
```

Output:

```
Stack is Empty
Successfully pushed the value 10
Successfully pushed the value 9
Successfully pushed the value 8
Successfully pushed the value 7
Successfully pushed the value 6
The value of the top is: 6
Successfully Popped 6
7
8
9
10
```

Header File

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

        //peek
        void peek()
        {
            if(isEmpty())
                {std::cout<<"Stack is Empty\n";}
            else{std::cout<<"The value of the top is: "<<arr[top]<<std::endl;}
        };

        //pop
        void pop()
        {
            if(isEmpty())
            {std::cout<<"The Stack is Empty"<<std::endl;}

            else{
                std::cout<<"Successfully Popped "<<arr[top--]<<std::endl;}
        }

        //isEmpty
        bool isEmpty()
        {return (top < 0);}

        //isFull
        bool isFull()
```

```
        bool isFull()
        {return(top >= MAX-1);};

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

        //push
        void push(T value)
        {
            if(isFull())
                {std::cout<<"STACK OVERFLOW!"<<std::endl;}
            else
            {
                arr[++top] = value;
                std::cout<<"Successfully pushed the value "<<value<<std::endl;
            }
        }
};



#endif
```

7. Supplementary Activity

8. Conclusion

To conclude, we were able to do the stack activity with everyone's ideas. With that we were able to learn the operations of stack and how arrays are applied in using stack.

9. Assessment Rubric