Instructions: Please read carefully

- Please rename this file as only your ID number **(e.g. 18-*****-1.doc or 18-*****-1.pdf).**
- Submit the file before **11:59pm on 16/02/2020** in the Portal Lab Performance section labeled **Lab task 4.** **If you cannot complete the full task, do not worry. Just upload what you have completed.**

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Section:- [F]

1. Write a code to implement an array (static) based stack and its operations (Push and Pop). Get options from the user to push, pop and display the stack. If the stack is full and you want to push another value show message "Stack overflowed!!!". If empty show "Stack is empty"

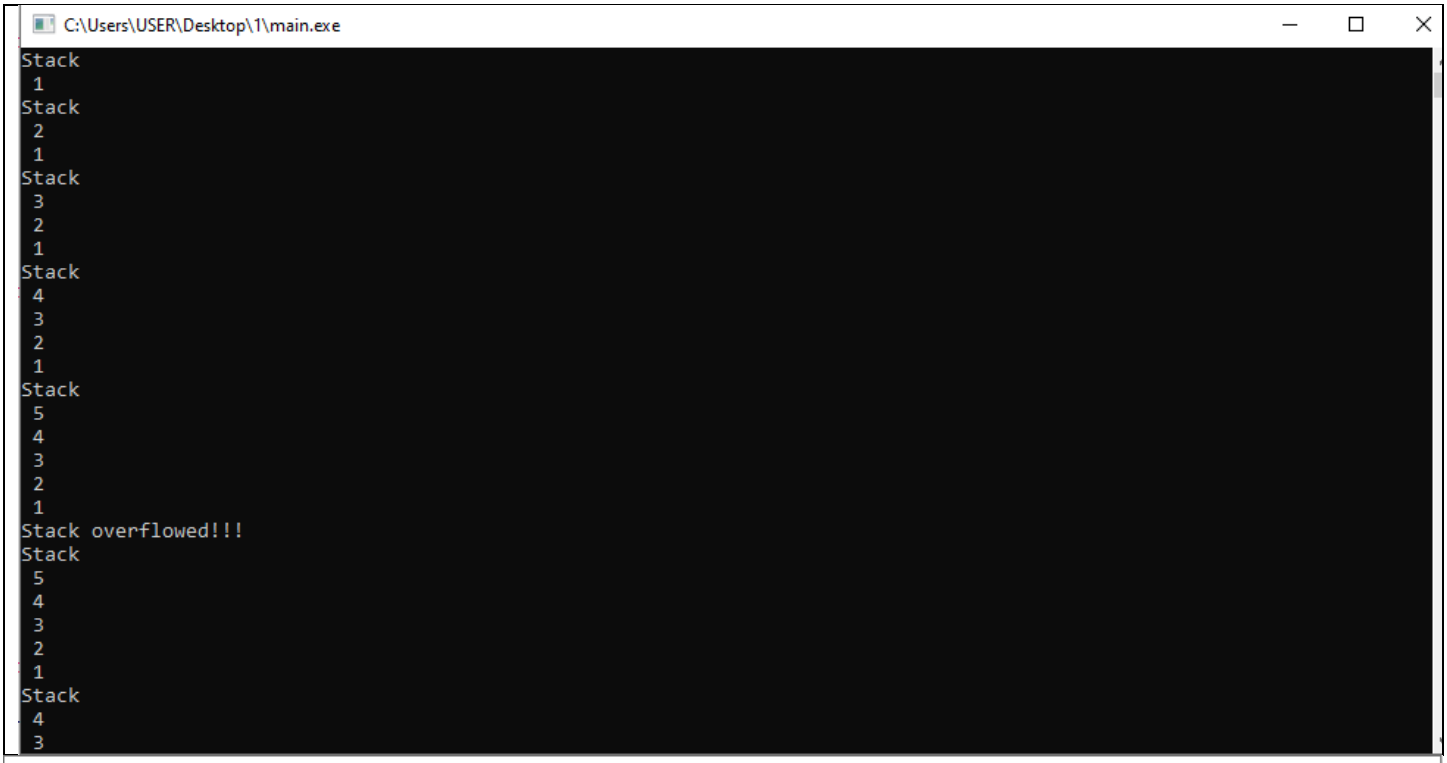
Example:
What you want to do?
1. Push element in the stack
2. Pop element from the stack
3. Display the stack

Your code here:

```
#include <iostream>
#define Capacity 5

int a[Capacity];
int top=-1;

void Push(int x)
{
   if(top==Capacity-1)
   {
      std::cout<<"Stack overflowed!!!"<<std::endl;
      return;
   }
   a[++top]=x;
}

void Pop()
{
   if(top==-1)
   {
      std::cout<<"Stack is empty"<<std::endl;
      return;
   }
   top--;
}
int Top()
{
   return a[top];
```

```
}

void Print()
{
   if(top>=0)
   {
      int i;
      std::cout<<"Stack"<<std::endl;

      for(i=top;i>=0;i--)
      {
         std::cout<<" "<<a[i];
         std::cout<<std::endl;
      }
   }
}
using namespace std;

int main()
{
   Push(1);Print();

   Push(2);Print();

   Push(3);Print();

   Push(4);Print();

   Push(5);Print();

   Push(6);Print();

   Pop();Print();

   Pop();Print();

   Pop();Print();

   Pop();Print();

   Pop();Print();

   Pop();Print();

   return 0;
}
```

Your whole Screenshot here: (Console Output):



2. Write a code to implement an array (static) based queue and its operations (Enqueue and Dequeue). Get options from the user to Enqueue, Dequeue and display the queue. If the Queue is full and you want to enqueue another value show message “Queue overflowed!!!”. If empty show “Queue is empty”

Example:
What you want to do?
1. Enqueue element in the queue
2. Dequeue element in the queue
3. Display the stack

Your code here:

Your whole Screenshot here: (Console Output):

3. Write a code to implement a dynamic (memory) array based stack and its operations (Push and Pop). Get options from the user to push, pop and display the stack. If the stack is full and you want to push another value, it will allow you to increase the size of stack and push the data. If empty show "Stack is empty"

Example:

What you want to do?
1. Push element in the stack
2. Pop element in the stack
3. Display the stack

Your code here:

Your whole Screenshot here: (Console Output):