EXP.NO:06	ADT APPLICATION
DATE:19.08.19	

AIM:

To design a java program for ADT stack and to implement this interface using array by providing necessary handling in both the implementatin by
pushing and poping string data

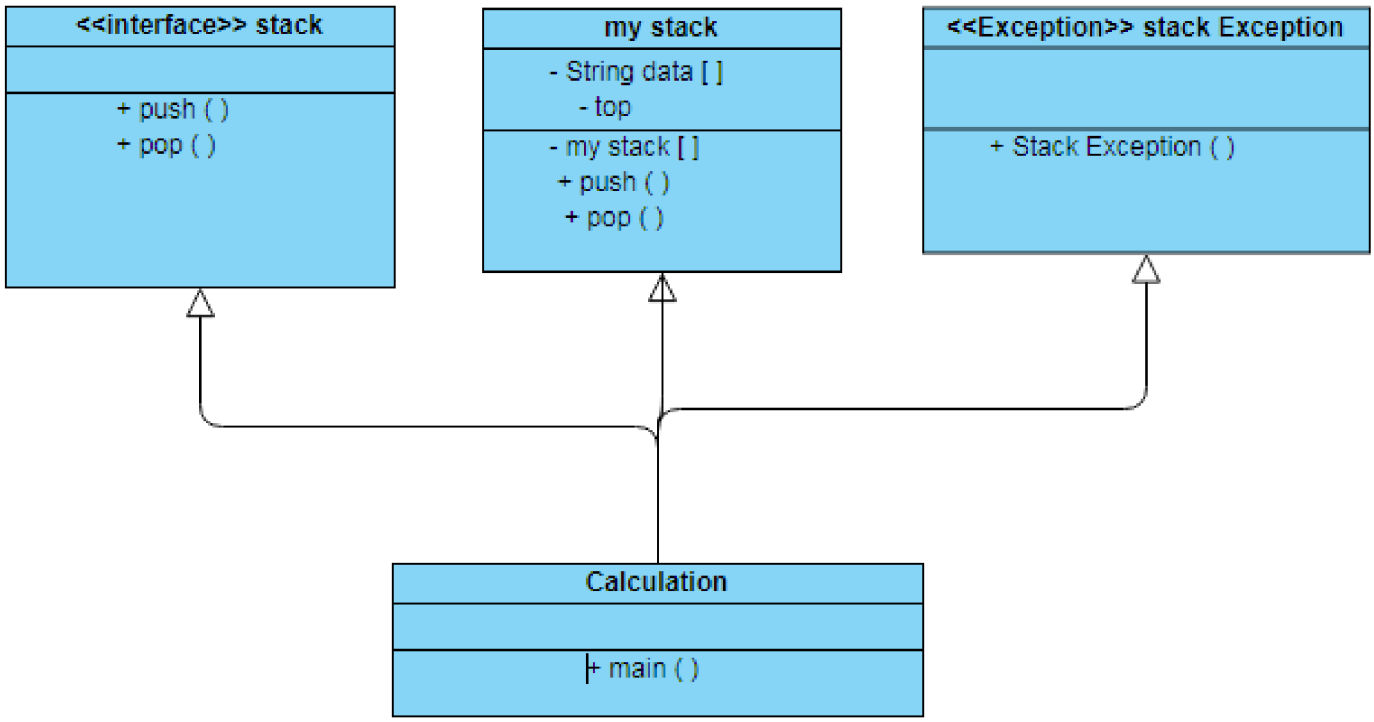
REQUIREMENT:

-knowledge of push and pop
-Exception handling
-Handling of array
-Interface implementation

ALGORITHM:

STEP 1: Start
STEP 2: create classes Mystack,Stack,Calculation and StackException
STEP 3: Define StackException with string in it
STEP 4: Define the interface by using throw exception
STEP 5:To add data define the data type i.e. string for describing different cases define the operation of each case to meet the requirement STEP 6:Finish the coding with calculation class coding for the required
output
STEP 7:
Stop

CLASS DIAGRAM:



PROGRAM:

```
/**created by v tharun,
* eee-b, 212217105059
*  */ package mystack; public interface Stack { public
  void push(String v)  throws StackException; public
  String pop() throws StackException;
}
package mystack;
public class StackException extends
     Exception { public
     StackException(String m)
     { super(m);
     }
}
package mystack;
public class MyStack implements
Stack {  private String data[];
private int top;
public MyStack(int s)
         {
     top=-1;
              data=new String[s];
         }
```

```
            @Override     public void
     push(String v) throws StackException

{             if(top>=(data.le
ngth-1))
             {
              throw new StackException("Stack Full: It is
     already having
"+(top+1)+" elements");
             }
     top=top+1;
     data[top]=v;
                }
              @Override      public String
     pop()throws StackException
         {
             String result;
     if(top<0)
             {
                 throw new StackException("Stack is empty");
             }

     result=data[top];
     top=top-1;
     return result;
         }
}
package mystack;
import
java.util.Scanner;
public class
Calculation {
public static void main(String[] args) {
          String value1;
                 int
option;
Stack st;
    Scanner sc=new Scanner(System.in);
        st=new MyStack(5);
      while(true)
        {
try
{
                 System.out.println("1. Push a String");
                 System.out.println("2. Pop a String");
```

```
                System.out.println("3. Exit");
                System.out.print("Enter your
choice:");              option=sc.nextInt();
switch(option)                  {
case 1:
                    System.out.print("Enter a String:");
                    value1=sc.next();
st.push(value1);
                    System.out.println("Push completed.");
                    break;
case 2:
value1=st.pop();
                    System.out.printf("Stack top value=
%s\n",value1);
                    break;
default:
                    System.out.print("Please enter a valid
number !!!");
                }
                if(option==3)
                {
                    System.out.print("Thankyou for using
stack application
!!!");
                    break;
                }
            }catch(StackException e1)
            {
                System.out.println("Error:"+e1.getMessage());
            }catch(NumberFormatException e2)
            {
                System.out.println("Error:"+e2.getMessage());
            }
            }
        }
}
```

OUTPUT:

```
1. Push a String
2. Pop a String
3. ExitEnter your choice:1
Enter a
String:sumanth Push
completed.
1. Push a String
2. Pop a String
```

3. ExitEnter your choice:1
Enter a
String:mahesh Push
completed.
1. Push a String
2. Pop a String
3. ExitEnter your choice:1
Enter a String:uday
Push completed.
1. Push a String
2. Pop a String
3. ExitEnter your choice:2
Stack top value=uday
1. Push a String
2. Pop a String
3. ExitEnter your choice:2
Stack top value=mahesh
1. Push a String
2. Pop a String
3. ExitEnter your choice:3 Please enter a valid number !!!
   Thankyou for using stack application !!!

RESULT:Hence,A java program for ADT stack and to implement this interface using array by providing necessary handling in both the
implementatin by pushing and poping string data is done