ADT STACK

Aim:

To write a java console application to design a java interface for ADT Stack. Implement this interface using array and to verify the implementation by pushing a string.

Requirement:

Design a java interface for ADT Stack.
Implement this interface using array.
Provide necessary exception handling in both the implementation.
Verify the implementation by pushing a string data.

Algorithm:

Step 1: Create a mystack package.
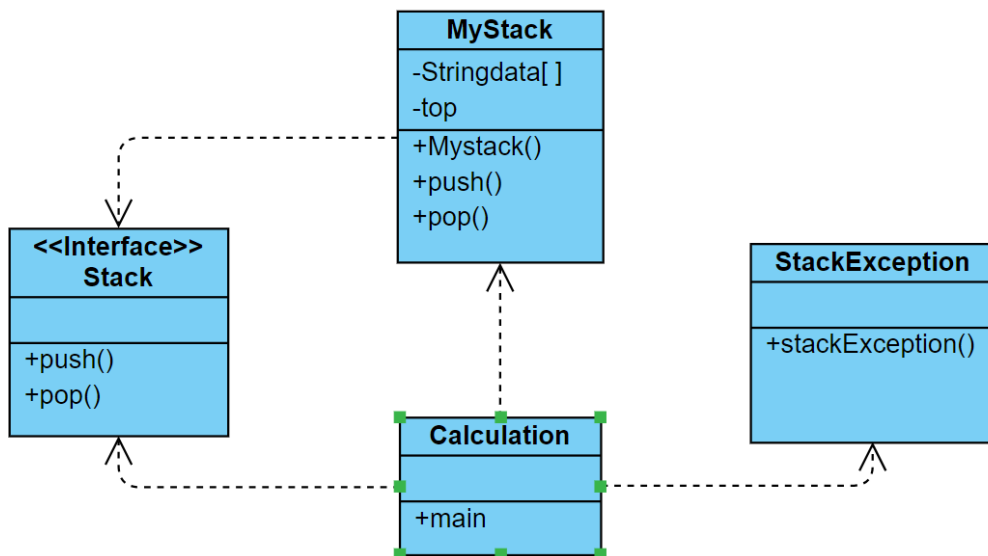**Step 2**: Create a separate class for calculation, mystack and stackexception.
Step 3: Create an interface class stack and implement it to all other class.
Step 4: Create the exception for seperate stackexception in the interface stack.
Step 5: Create a public void push() and string pop() and throw stack exception.
Step 6: Display the results.

CLASS DIAGRAM:

PROGRAM:

/*created by rohitha

```java
 * gmail id:rohithakorrapati21@gmail.com
 * program for Designing a Java interface for ADT Stack.
 */
package mystack;
import java.util.*;

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

RESULT:

Thus the java console application for performing the string operation to push and pop using arraylist and thus the output is verified.