

EX NO: 06
DATE:31-08-19

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.

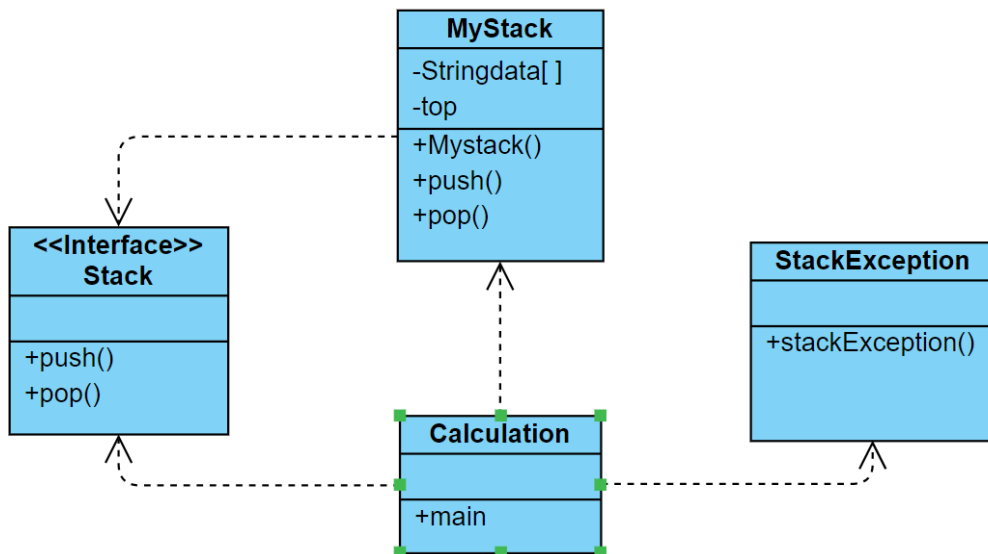
Step 3: Create an interface class stack and implement it to all other class.

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 manikanta

```
* gmail id: amanikanta69@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.