**Problem 1:TESTNG Annotation**

package com.testng.TestNG\_Projects;

import java.util.Scanner;

public class Calculator {

int add(int n1,int n2) {

return n1+n2;

}

int sub(int n1,int n2) {

return n1-n2;

}

int mul(int n1,int n2) {

return n1\*n2;

}

float div(int n1,int n2) {

if(n2!=0) {

return n1/n2;

}

else {

throw new ArithmeticException();

}

}

public static void main(String args[]) {

Calculator cal = new Calculator();

Scanner sc = new Scanner(System.in);

System.out.println("Enter the 1st number : ");

int n1 = sc.nextInt();

sc.nextLine();

System.out.println("Enter the 2nd number : ");

int n2 = sc.nextInt();

sc.nextLine();

System.out.println("Choose which operation you want to perform ");

System.out.println("+");

System.out.println("-");

System.out.println("\*");

System.out.println("/");

System.out.println("---------------------");

System.out.println("---------------------");

char operation = sc.next().charAt(0);

int IntResult;

double DoubleResult;

switch(operation)

{

case '+':

IntResult = cal.add(n1, n2);

System.out.println("Sum of "+ n1 + " and " + n2 +" is " + IntResult);

break;

case '-':

IntResult = cal.sub(n1, n2);

System.out.println("Substraction of "+n1+ " and "+n2+" is "+IntResult);

break;

case '\*':

IntResult = cal.mul(n1, n2);

System.out.println("Multiplication of "+n1+ " and "+n2+" is "+IntResult);

break;

case '/':

DoubleResult = cal.div(n1, n2);

System.out.println("Division of "+n1+ " and "+n2+" is "+DoubleResult);

break;

}

}

}

**2**

package com.testng.TestNG\_Projects;

import org.testng.Assert;

import org.testng.annotations.AfterClass;

import org.testng.annotations.BeforeClass;

import org.testng.annotations.Test;

public class CalculatorTest {

Calculator cal;

@BeforeClass

public void calculatorObjectCreation() {

cal = new Calculator();

}

@Test(priority = 1)

public void testAdd() {

int actual = cal.add(5, 5);

int expected = 10;

Assert.assertEquals(actual, expected,"testAdd Failed!");

}

@Test(priority = 2)

public void testSub() {

int actual = cal.sub(6, 2);

int expected = 4;

Assert.assertEquals(actual, expected,"testSub Failed!");

}

@Test

public void testMul() {

int actual = cal.mul(4, 5);

int expected = 20;

Assert.assertEquals(actual, expected,"testMul Failed!");

}

@Test

public void testDiv() {

double actual = cal.div(15, 5);

double expected = 3.0;

Assert.assertEquals(actual, expected,"testDiv Failed!");

}

@AfterClass

public void testComplete() {

System.out.println("Test cases are executed Successfully");

}

}

**3**

package com.testng.TestNG\_Projects;

import org.testng.Assert;

import org.testng.annotations.AfterClass;

import org.testng.annotations.BeforeClass;

import org.testng.annotations.Test;

public class CalculatorTest {

Calculator cal;

@BeforeClass

public void calculatorObjectCreation() {

cal = new Calculator();

}

@Test(priority = 1)

public void testAdd() {

int actual = cal.add(5, 5);

int expected = 10;

Assert.assertEquals(actual, expected,"testAdd Failed!");

}

@Test(priority = 2)

public void testSub() {

int actual = cal.sub(6, 2);

int expected = 4;

Assert.assertEquals(actual, expected,"testSub Failed!");

}

@Test(priority = 3)

public void testMul() {

int actual = cal.mul(4, 5);

int expected = 20;

Assert.assertEquals(actual, expected,"testMul Failed!");

}

@Test(priority = 4)

public void testDiv() {

double actual = cal.div(15, 5);

double expected = 3.0;

Assert.assertEquals(actual, expected,"testDiv Failed!");

}

@AfterClass

public void testComplete() {

System.out.println("Test cases are executed Successfully");

}

}

**4**

<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE suite SYSTEM "https://testng.org/testng-1.0.dtd">

<suite name="Calculator Test Suite">

<test name="regression Test">

<groups>

<run>

<include name = "regression"/>

</run>

</groups>

</test>

</suite> <!-- Suite -->

package com.testng.TestNG\_Projects;

import org.testng.Assert;

import org.testng.annotations.AfterClass;

import org.testng.annotations.BeforeClass;

import org.testng.annotations.Test;

public class CalculatorTest {

Calculator cal;

@BeforeClass

public void calculatorObjectCreation() {

cal = new Calculator();

}

@Test(groups = "regression")

public void testAdd() {

int actual = new Calculator().add(5, 5);

int expected = 10;

Assert.assertEquals(actual, expected,"testAdd Failed!");

}

@Test(groups = "regression")

public void testSub() {

int actual = new Calculator().sub(6, 2);

int expected = 4;

Assert.assertEquals(actual, expected,"testSub Failed!");

}

@Test(groups = "basic")

public void testMul() {

int actual = cal.mul(4, 5);

int expected = 20;

Assert.assertEquals(actual, expected,"testMul Failed!");

}

@Test(groups = "basic")

public void testDiv() {

double actual = cal.div(15, 5);

double expected = 3.0;

Assert.assertEquals(actual, expected,"testDiv Failed!");

}

@AfterClass(groups = "regression")

public void testComplete() {

System.out.println("Test cases are executed Successfully");

}

}

**5**

<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE suite SYSTEM "https://testng.org/testng-1.0.dtd">

<suite name="Calculator Test Suite" parallel="tests" thread-count="1">

<test name="Parallel Test">

<classes>

<class name="CalculatorTest"/>

</classes>

</test>

</suite> <!-- Suite -->

package com.testng.TestNG\_Projects;

import org.testng.Assert;

import org.testng.annotations.AfterClass;

import org.testng.annotations.BeforeClass;

import org.testng.annotations.Test;

public class CalculatorTest {

Calculator cal;

@BeforeClass

public void calculatorObjectCreation() {

cal = new Calculator();

}

@Test

public void testAdd() {

int actual = new Calculator().add(5, 5);

int expected = 10;

Assert.assertEquals(actual, expected,"testAdd Failed!");

}

@Test

public void testSub() {

int actual = new Calculator().sub(6, 2);

int expected = 4;

Assert.assertEquals(actual, expected,"testSub Failed!");

}

@Test

public void testMul() {

int actual = cal.mul(4, 5);

int expected = 20;

Assert.assertEquals(actual, expected,"testMul Failed!");

}

@Test

public void testDiv() {

double actual = cal.div(15, 5);

double expected = 3.0;

Assert.assertEquals(actual, expected,"testDiv Failed!");

}

@AfterClass

public void testComplete() {

System.out.println("Test cases are executed Successfully");

}

}