**Assignments on Junit**

1. **Write a class called MinMaxFinder. Define a method in it called findMinMax() which accepts an int array and returns new array of size 2, wherein the 0th index will have the min value of the array and 1st index will have max value of the array. Perform Junit testing of the method findMinMax with as many test cases you can think of (min 3 test cases)**

**E.g.**

**MinMaxFinder.findMinMax( new int[]{56, 34, 7,3, 54, 3, 34, 34, 53} ); should return a new array with min and max values {3, 56} at 0th and 1st index respectively**

**CODE :**

**For main:**

**package** com.junit;

**import** java.util.Arrays;

**class** MinMaxFinder{

**public** **int**[] findMinMax(**int**[] arr){

**int**[] ans = **new** **int**[2];

Arrays.*sort*(arr);

ans[0] = arr[0];

ans[1] = arr[arr.length-1];

**return** ans;

}

}

**For test :**

**package com.junit;**

**import org.junit.jupiter.api.AfterEach;**

**import org.junit.jupiter.api.Assertions;**

**import org.junit.jupiter.api.BeforeEach;**

**import org.junit.jupiter.api.Test;**

**public class TestMinMaxFinder {**

**private MinMaxFinder minMaxFinder;**

**private int[] expected;**

**private int[] actual;**

**@BeforeEach**

**public void init(){**

**minMaxFinder = new MinMaxFinder();**

**expected = new int[]{3, 56};**

**}**

**@Test**

**public void TestminMaxFinder(){**

**actual = minMaxFinder.findMinMax(new int[]{56, 34, 7,3, 54, 3, 34, 34, 53});**

**Assertions.assertArrayEquals(expected,actual);**

**}**

**@AfterEach**

**public void Clean(){**

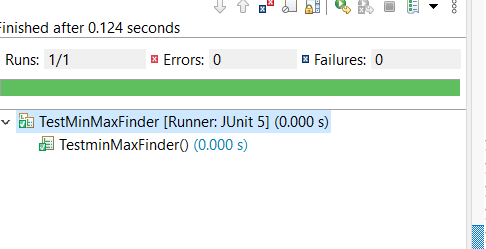
**minMaxFinder = null;**

**expected = actual = null;**

**}**

**}**

**OUTPUT :**



1. **Modify the above method to return a single object representing min and max value of the pass array. Define new sets of Junit Test cases of this modified method.**

**CODE :**

**For Main :**

**package** com.junit;

**import** java.util.Arrays;

**class** MinMaxFinder1{

**int** max;

**int** min;

MinMaxFinder1(){}

MinMaxFinder1(**int** min, **int** max){

**this**.min = min;

**this**.max = max;

}

**public** MinMaxFinder1 minMaxFinder1(**int**[] arr){

**int** min;

**int** max;

Arrays.*sort*(arr);

min = arr[0];

max = arr[arr.length-1];

**return** **new** MinMaxFinder1(min,max);

}

}

**For Test :**

**package** com.junit;

**import** org.junit.jupiter.api.\*;

@TestMethodOrder(MethodOrderer.OrderAnnotation.**class**)

**public** **class** TestMinMaxFinder1 {

MinMaxFinder1 expected;

MinMaxFinder1 actual;

@BeforeEach

**public** **void** init(){

expected = **new** MinMaxFinder1(3,56);

actual = **new** MinMaxFinder1();

actual = actual.minMaxFinder1(**new** **int**[]{56, 34, 7,3, 54, 3, 34, 34, 53});

}

@Test()

@Order(1)

**public** **void** testMinFinder1(){

Assertions.*assertEquals*(expected.min,actual.min);

}

@Test

@Order(2)

**public** **void** testMaxFinder1(){

Assertions.*assertEquals*(expected.max,actual.max);

}

@AfterEach

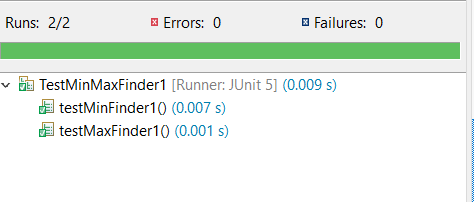
**public** **void** Clean(){

actual = expected = **null**;

}

}

**OUTPUT :**



1. **Write a BankAccount class with method withdraw which accepts amount to be withdrawn from the account (amount to be deducted from the balance of the account). In case there are insufficient funds a InsufficientFundsExpcetion should be raised. After defining the method perform Junit testing to check whether the InsufficientFundsException is raised when you try to withdraw amount that is over and above the account balance.**

**bankAccount.withdraw(20,000); should raise the InsufficientFundsException if the balance in the account is less than 20,000.**

**CODE :**

**For Main :**

**package** com.junit;

**class** BankAccount{

**private** **final** **long** amount;

BankAccount(**long** amount){

**this**.amount = amount;

}

**public** **long** withDraw(**long** withdrawalAmount) **throws** InsufficientFundsExpcetion{

**if**(amount-withdrawalAmount<=20000){

**throw** **new** InsufficientFundsExpcetion();

}

**return** amount-withdrawalAmount;

}

}

**For Test :**

**package com.junit;**

**import org.junit.jupiter.api.Assertions;**

**import org.junit.jupiter.api.BeforeEach;**

**import org.junit.jupiter.api.Test;**

**public class TestMinMaxFinder1 {**

**private BankAccount bankAccount;**

**private long withDrawAmount;**

**@BeforeEach**

**public void init(){**

**//Initialize the Bank Amount;**

**bankAccount = new BankAccount(50000);**

**}**

**@Test**

**public void testBankAccount(){**

**withDrawAmount = 40000;**

**Assertions.assertThrows(InsufficientFundsExpcetion.class,()->{**

**System.out.println(bankAccount.withDraw(withDrawAmount));**

**},"YOU HAVE INSUFFICIENT BALANCE!!!");**

**}**

**@Test**

**public void testBankAccount1(){**

**withDrawAmount = 20000;**

**Assertions.assertDoesNotThrow(()->{**

**System.out.println("BALANCE AFTER WITHDRAWAL : "+bankAccount.withDraw(withDrawAmount));**

**});**

**}**

**}**

**OUTPUT :**

