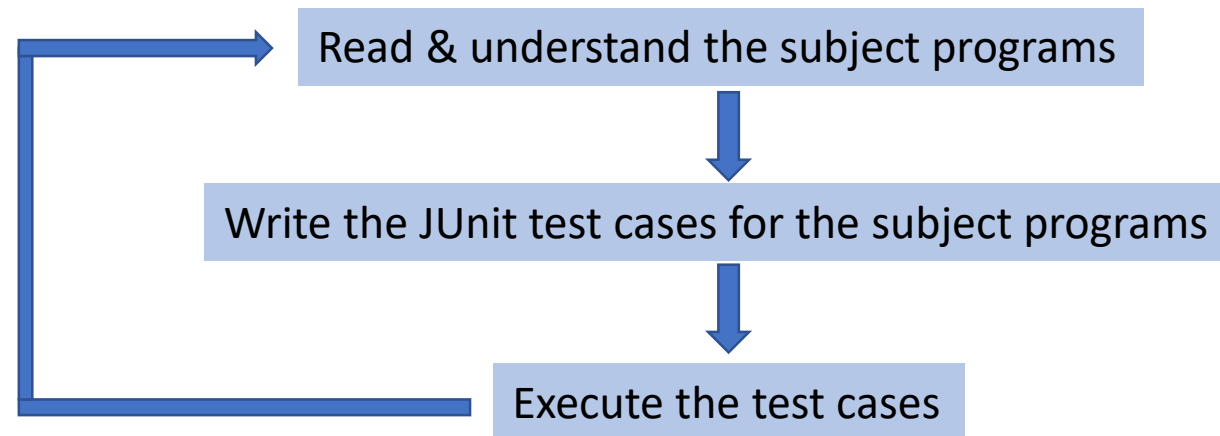


JUnit and Testing Tutorial

What Do You Need to Do In the Exam?



What is Branch Coverage (in Mooctest)

`if (x==1 && y==1)`



Branch 1



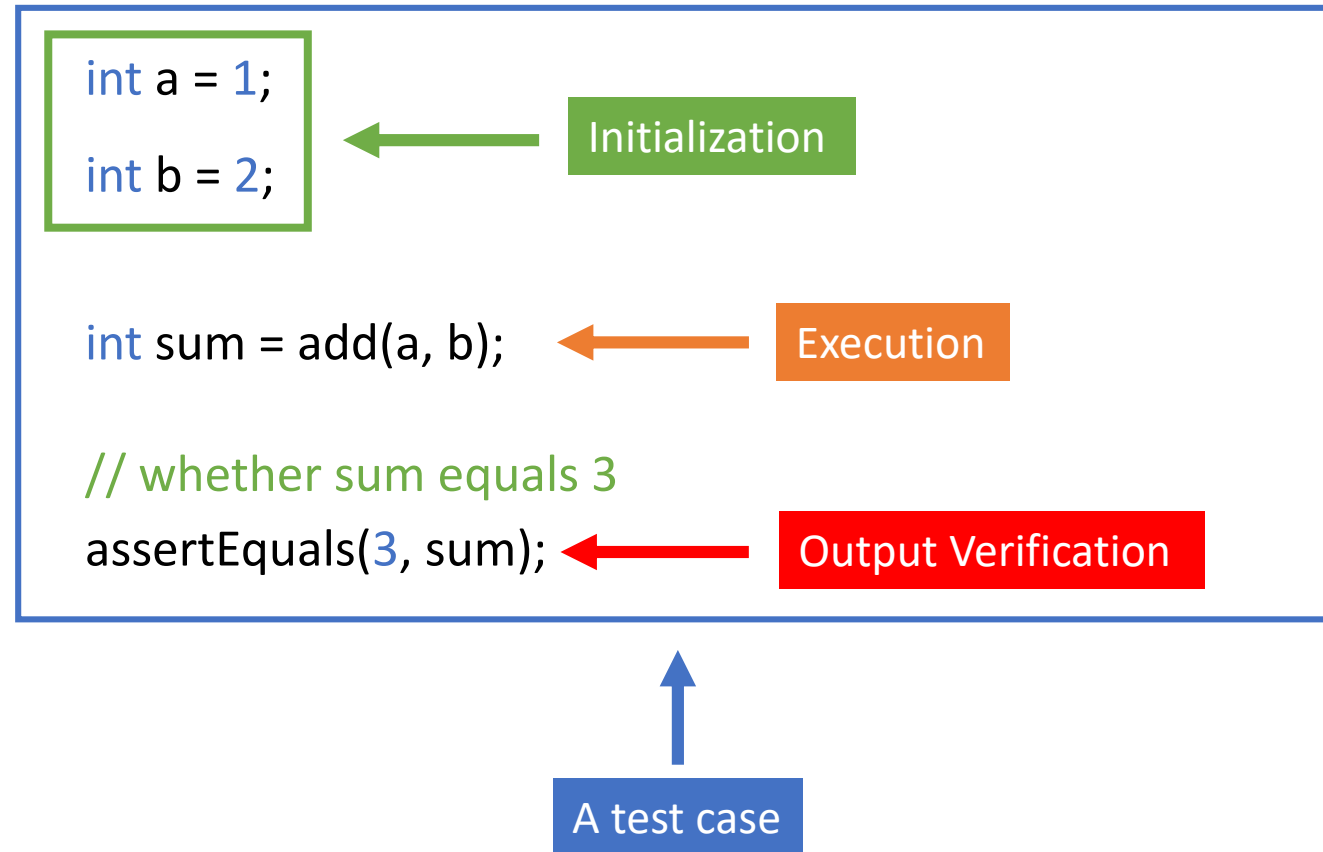
Branch 2

$$Decision_{cov} = \frac{\text{the number of executed outcomes}}{\text{the number of total possible outcomes}}$$

Our Exam

- Each contestant needs to use JUnit to write test cases
- MoocTest will execute these submitted JUnit test cases to evaluate the accumulative branch coverage and mutation score

How to write a JUnit test case



Common Assertion Methods

- `assertArrayEquals()`
- `assertEquals()`
- `assertTrue()` & `assertFalse()`
- `assertNull()` & `assertNotNull()`
- `assertSame()` & `assertNotSame()`

Be Careful

- Make sure your JUnit code can pass all the assertions. Otherwise your branch coverage and mutation score will not be updated
- Make sure to click “Submit” button to submit your code MoocTest to receive score

assertArrayEquals(expected, actual)

Test whether two arrays are equal to each other.

It compares based on the order, if mismatch in order results in failure.

```
String[] str1 = {"apple", "mango", "grape"};
```

```
String[] str2 = {"apple", "mango", "grape"};
```

```
String[] str3 = {"banana", "mango", "grape"};
```

```
assertArrayEquals(str1, str2); //will pass the test
```

```
assertArrayEquals(str1, str3); //will fail the test
```


assertEquals(expected, actual)

Checks that two objects are equal.

```
String str1 = new String ("abc");
```

```
String str2 = new String ("abc");
```

```
String str3 = new String ("cba");
```

```
assertEquals(str1, str2); //will pass the test
```

```
assertEquals(str1, str3); //will fail the test
```

assertTrue() & assertFalse()

Test a single variable to see if its value is either true, or false.

```
int val1 = 5;
```

```
int val2 = 6;
```

```
assertTrue (val1 < val2); //will pass the test
```

```
assertFalse(val1 > val2); //will pass the test
```

assertNull() & assertNotNull()

Test a single variable to see if it is null or not null.

```
String str1 = new String ("abc");  
String str2 = null;  
assertNotNull(str1); //will pass the test  
assertNull(str2);    //will pass the test
```

assertSame() & assertNotSame()

Test if two object references point to the same object or not.

```
String str1 = new String ("abc");
```

```
String str2 = new String ("abc");
```

```
String str3 = "abc";
```

```
String str4 = "abc";
```

```
assertSame(str3, str4);    //will pass the test
```

```
assertNotSame(str1, str2); //will pass the test
```