A short description:

JUnit is a popular testing framework for Java that simplifies the process of writing and executing unit tests. It provides a structured approach to ensure that individual components of an application, referred to as units, function correctly in isolation. By allowing developers to focus on testing specific methods or classes, JUnit helps identify and address issues early in the development process.

With JUnit, developers can use annotations like @Test to designate test methods, along with others such as @Before and @After to manage setup and teardown tasks around the tests. Assertions are integral to JUnit, enabling developers to compare expected outcomes with actual results, thereby confirming the correctness of the code.

Unit testing, in general, serves the purpose of validating that each part of the software operates as intended. By isolating tests, developers can ensure that changes to one component do not inadvertently affect others. This not only aids in early bug detection but also improves the overall quality of the code. Furthermore, well-structured unit tests act as documentation, providing clarity on how different parts of the application are expected to behave.

Incorporating JUnit into a continuous integration workflow allows teams to run tests automatically whenever changes are made, ensuring that any new code does not break existing functionality. Overall, JUnit is a fundamental tool in the Java ecosystem, fostering better software quality through systematic testing practices.

How JUnit can be implemented in Android Studio:

For the sake of simplicity, simple calculator app is taken into consideration

1. select the class
2. alt + enter
   3.1. create test
   3.2 select the methods you want to test
   3.3 give a test class name oor leave it as it is
4. asserEqual(expected value, (and the value from the method))
5. right click in the test class creatted -> run the test.

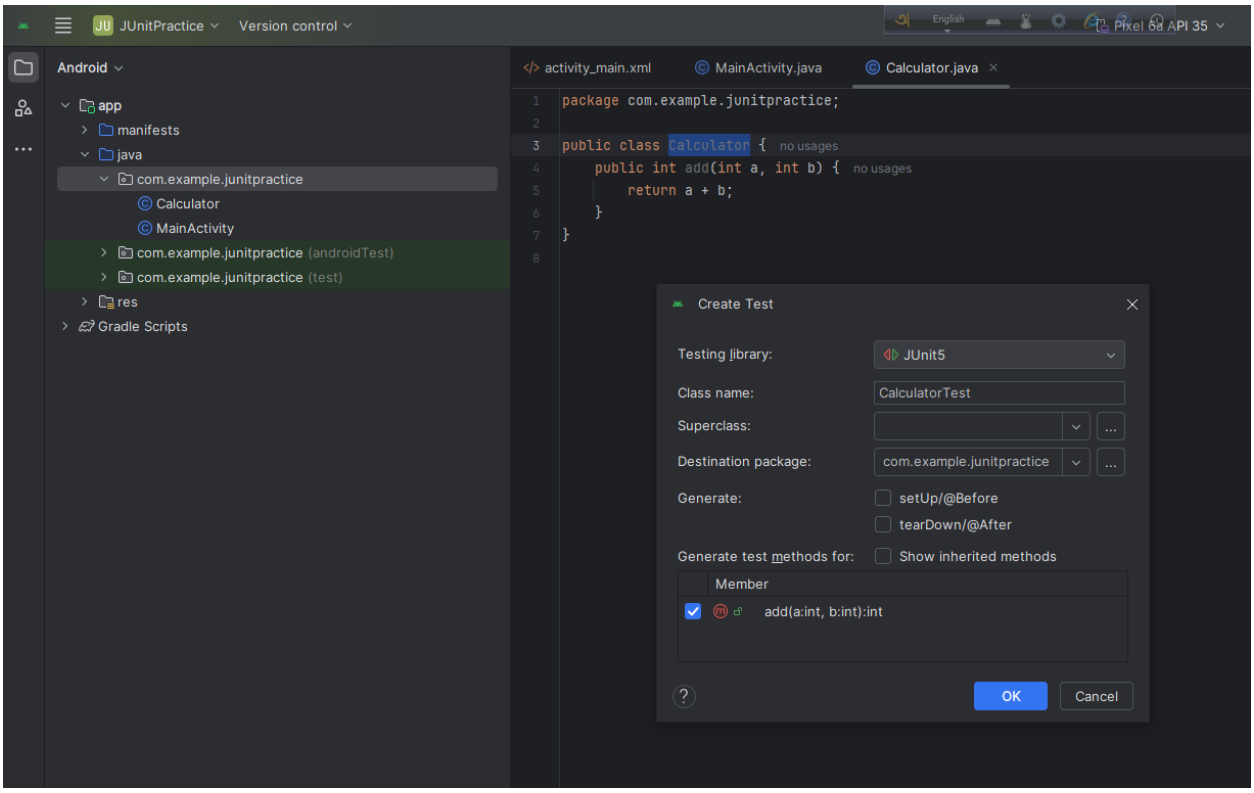

Figure 1 Selecting the class which test case is applied on

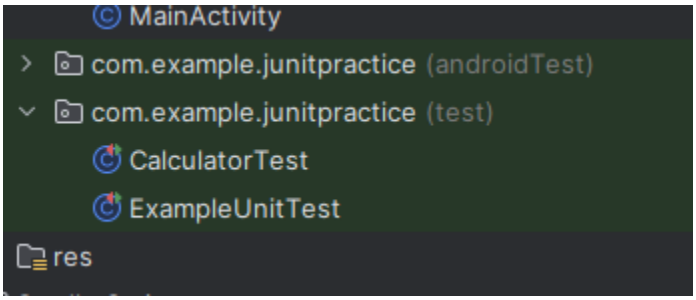

Figure 2 location of the test class

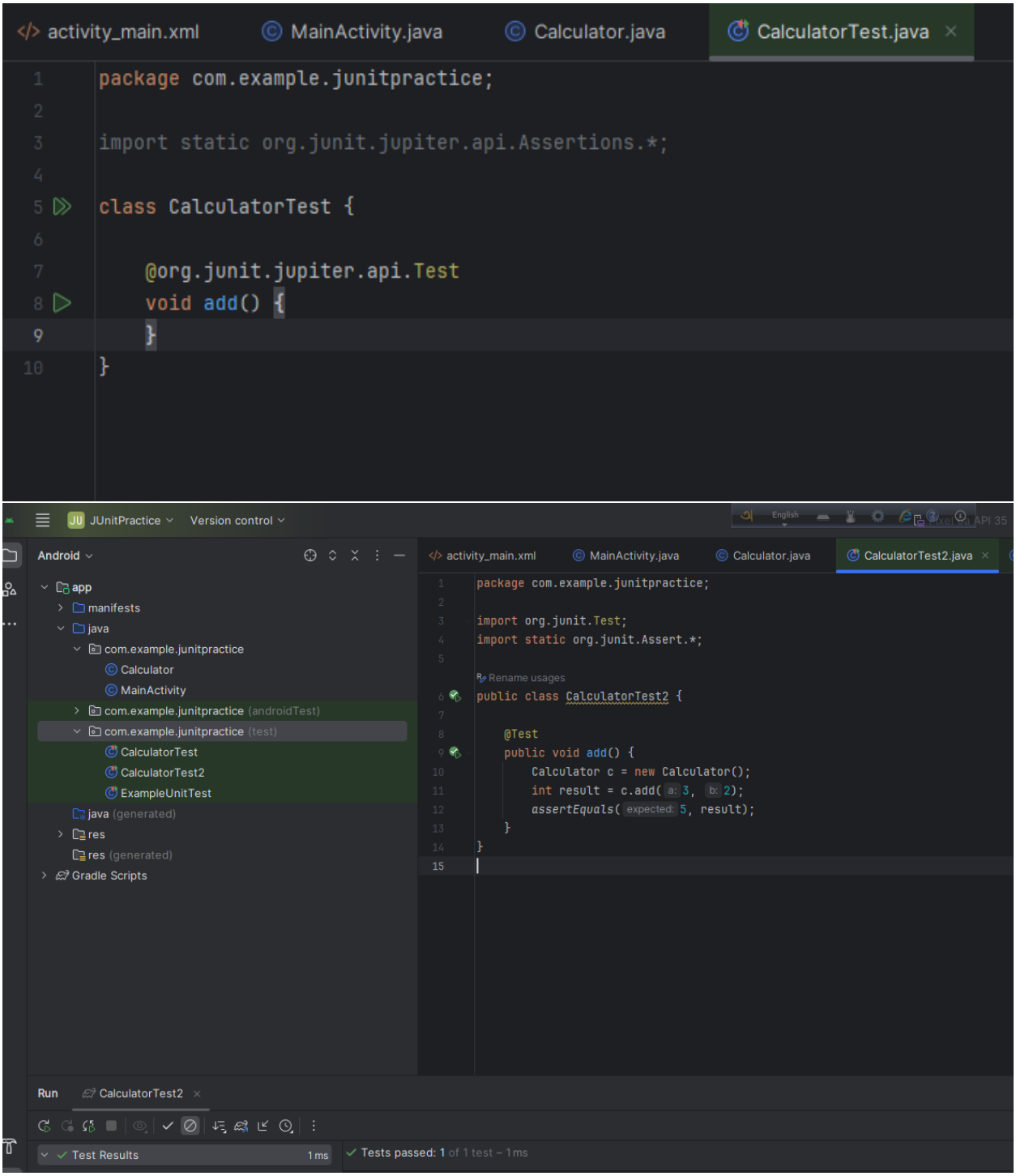

Figure 3 test passed