

# UnitTest Framework - Overview

Unit testing is a software testing method by which individual units of source code, such as functions, methods, and class are tested to determine whether they are fit for use. Intuitively, one can view a unit as the smallest testable part of an application. Unit tests are short code fragments created by programmers during the development process. It forms the basis for component testing.

Unit testing can be done in the following two ways –

Manual Testing	Automated Testing
<p>Executing the test cases manually without any tool support is known as manual testing.</p> <ul style="list-style-type: none"><li>• Since test cases are executed by human resources so it is very <b>time consuming and tedious</b>.</li><li>• As test cases need to be executed manually so more testers are required in manual testing.</li><li>• It is less reliable as tests may not be performed with precision each time because of human errors.</li><li>• No programming can be done to write sophisticated tests which fetch hidden information.</li></ul>	<p>Taking tool support and executing the test cases by using automation tool is known as automation testing.</p> <ul style="list-style-type: none"><li>• Fast Automation runs test cases significantly faster than human resources.</li><li>• The <b>investment over human resources is less</b> as test cases are executed by using automation tool.</li><li>• Automation tests perform precisely same operation each time they are run and <b>are more reliable</b>.</li><li>• Testers <b>can program sophisticated tests</b> to bring out hidden information.</li></ul>

JUnit is a unit testing framework for the Java programming language. JUnit has been important in the development of test-driven development, and is one of a family of unit testing frameworks collectively known as xUnit that originated with JUnit. You can find out JUnit Tutorial [here](https://www.tutorialspoint.com/unittest_framework/unittest_framework_overview.htm).

The Python unit testing framework, sometimes referred to as “PyUnit,” is a Python language version of JUnit developed by Kent Beck and Erich Gamma. PyUnit forms part of the Python Standard Library as of Python version 2.1.

Python unit testing framework supports test automation, sharing of setup and shutdown code for tests, aggregation of tests into collections, and independence of the tests from the reporting framework. The unittest module provides classes that make it easy to support these qualities for a set of tests.

This tutorial has been prepared for the beginners to help them understand the basic functionality of Python testing framework. After completing this tutorial you will find yourself at a moderate level of expertise in using Python testing framework from where you can take yourself to the next levels.

You should have reasonable expertise in software development using Python language. Our Python tutorial is a good place to start learning Python. Knowledge of basics of software testing is also desirable.

## Environment Setup

The classes needed to write tests are to be found in the 'unittest' module. If you are using older versions of Python (prior to Python 2.1), the module can be downloaded from <http://pyunit.sourceforge.net/>. However, unittest module is now a part of the standard Python distribution; hence it requires no separate installation.

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