Unit Test Cheat-Sheet

Frankly, the unit testing library for Python is fairly well documented, but it can be a bit of a dry read. Instead, we suggest covering the core module concepts, and then reading in more detail later.

Best of Unit Testing Standard Library Module

Understand a Basic Example:

- https://docs.python.org/3/library/unittest.html#basic-example

Understand how to run the tests using the Command Line:

- https://docs.python.org/3/library/unittest.html#command-line-interface

Understand various Unit Test Design Patterns:

- https://docs.python.org/3/library/unittest.html#organizing-test-code
- Understand the uses of setUp, tearDown; setUpModule and tearDownModule

Understand basic assertions:

Method	Checks that	New in
assertEqual(a, b)	a == b	
assertNotEqual(a, b)	a != b	
assertTrue(x)	bool(x) is True	
assertFalse(x)	bool(x) is False	
assertIs(a, b)	a is b	3.1
assertIsNot(a, b)	a is not b	3.1
assertIsNone(x)	x is None	3.1
assertIsNotNone(x)	x is not None	3.1
assertIn(a, b)	a in b	3.1
assertNotIn(a, b)	a not in b	3.1
assertIsInstance(a, b)	isinstance(a, b)	3.2
assertNotIsInstance(a, b)	not isinstance(a, b)	3.2

Understand more specific assertions such as assertRaises

- https://docs.python.org/3/library/unittest.html#unittest.TestCase.assertRaises

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More About Tests

Check out the following links for more information:

- https://landing.google.com/sre/sre-book/chapters/monitoring-distributed-systems/
- https://landing.google.com/sre/sre-book/chapters/testing-reliability/
- https://testing.googleblog.com/2007/10/performance-testing.html
- https://www.guru99.com/smoke-testing.html
- https://www.guru99.com/exploratory-testing.html
- https://testing.googleblog.com/2008/09/test-first-is-fun_08.html

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Handling Errors Cheat-Sheet

Raise allows you to throw an exception at any time.

- https://docs.python.org/3/tutorial/errors.html#raising-exceptions

Assert enables you to verify if a certain condition is met and throw an exception if it isn't.

- https://docs.python.org/3/reference/simple_stmts.html#the-assert-statement
- https://stackoverflow.com/questions/5142418/what-is-the-use-of-assert-in-python

The standard library documentation is kind of unclear. Basically `assert <something false>` will raise AssertionError, which the caller may need to handle.

In the try clause, all statements are executed until an exception is encountered.

- https://docs.python.org/3/tutorial/errors.html#handling-exceptions

Except is used to catch and handle the exception(s) that are encountered in the try clause.

- https://docs.python.org/3/library/exceptions.html#bltin-exceptions

Other interesting Exception handling readings:

- https://doughellmann.com/posts/python-exception-handling-techniques/