Unit testing is a [software](http://searchsoa.techtarget.com/definition/software) development process in which the smallest testable parts of an [application](http://searchsoftwarequality.techtarget.com/definition/application), called units, are individually and independently scrutinized for proper operation.

Unit testing is a component of [test-driven development (TDD)](http://searchsoftwarequality.techtarget.com/definition/test-driven-development), a pragmatic methodology that takes a meticulous approach to building a product by means of continual testing and revision. Test-driven development requires that developers first write failing unit tests. Then they write code and refactor the application until the test passes. TDD typically results in an explicit and predictable code base.

**A good unit test is:**

* Able to be fully **automated**
* Has full control over all the pieces running (Use mocks or stubs to achieve this isolation when needed)
* Can be run in any **order**  if part of many other tests
* Runs in **memory** (no DB or File access, for example)
* **Consistently** returns the same result (You always run the same test, so no random numbers, for example. save those for integration or range tests)
* Runs **fast**
* Tests a **single logical concept** in the system
* **Readable**
* **Maintainable**
* **Trustworthy** (when you see its result, you don’t need to debug the code just to be sure)