

# Introduction to Unit Testing with JUnit

CSC207H Summer 2009

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# Setting up JUnit

- Download the JUnit *package* as a `.jar` file from <http://www.junit.org/>.
- Include the location of JUnit in Java's search path. There are at least three equivalent options:
  - When running `java` and `javac`, use the option `-classpath .:junit-4.6.jar`
  - Set the `CLASSPATH` *environment variable* before running `java` and `javac`; the procedure for this varies depending on operating system (and also varies from shell to shell).
  - Include the JUnit package in Java's classpath through an IDE.
- For now, we will be using the first option. When we start using Eclipse, we will use the third.

# Writing A Tester Class<sup>1</sup>

- We put our test cases in a class dedicated to testing. This class must be a subclass of `junit.framework.TestCase`.
- The name of all our test methods begin with `test`.
- Inside each test method, we include one or more of JUnit's `assert` statements (cf. Java's `assert` statement) found in `org.junit.Assert`.

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<sup>1</sup>For now, we will be using syntax for writing JUnit test cases that are compatible with more versions of Java.

# Writing A Tester Class

- We can include a `setUp()` and a `tearDown()` method to initialize and clean-up after test fixtures, respectively. The `setUp()` method is called before each test case is run and `tearDown()` is called after each test case, regardless of the outcome of the test case.
- Optionally, we can make the class executable and have it run all its own test cases.

# Running Tests

- If we chose to make the class executable and have included the necessary code in the `main` method, we can run this class as we would any other Java program.
- Alternately, we can run the program by using a test runner program included with JUnit:

```
java org.junit.runner.JUnitCore OurClass
```

## Example Test Class

```
public class MyTestClass extends
    junit.framework.TestCase {

    public void testFrozzle() {
        assertTrue("frozzle() did not return true.",
            WidgetClass.frozzle());
    }
}
```

The tests can be executed by running

```
java org.junit.runner.JUnitCore MyTestClass
```

More code examples are in the course repository.