



CMSC 131

Fall 2018

Is our Code “Correct”?

- Formal Verification
 - What’s good about it?
 - What’s bad about it?
 - Where might this be used?
- Testing
 - What’s good about it?
 - What’s bad about it?
 - Where might this be used?
 - What is “Unit Testing”?
 - What is “Integrated Testing”?

JUnit

- What is JUnit?
 - Used on our Submission Server
- When are tests written?
- Where are they kept?
- How long are they kept?

Assertions

- `assertTrue(<boolean expression>)`
- `assertFalse(<boolean expression>)`
- `assertEquals(x, y)`
- Many others

Demonstration: AddNumbers

This class has some bugs. Let's test it with JUnit!

```
public double addDoubles(double a, double b)
```

returns sum of a and b

```
public String returnName(String c, String d)
```

returns a concatenated string

Recommendations

- Lots of tests!
- Keep test code “simple”

Observations

- Tests are run in an arbitrary order!
 - Two ways to fail:
 - Failing an assertion
 - Throwing an exception (more about this later)
 - All tests will run, even if one (or more) fail
 - If an assertion fails, the test is aborted. (Subsequent assertions are not attempted).
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- Note: Project #3 does NOT lend itself to use of JUnit.