# CSE 373 Optional Section JUnit

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# Testing

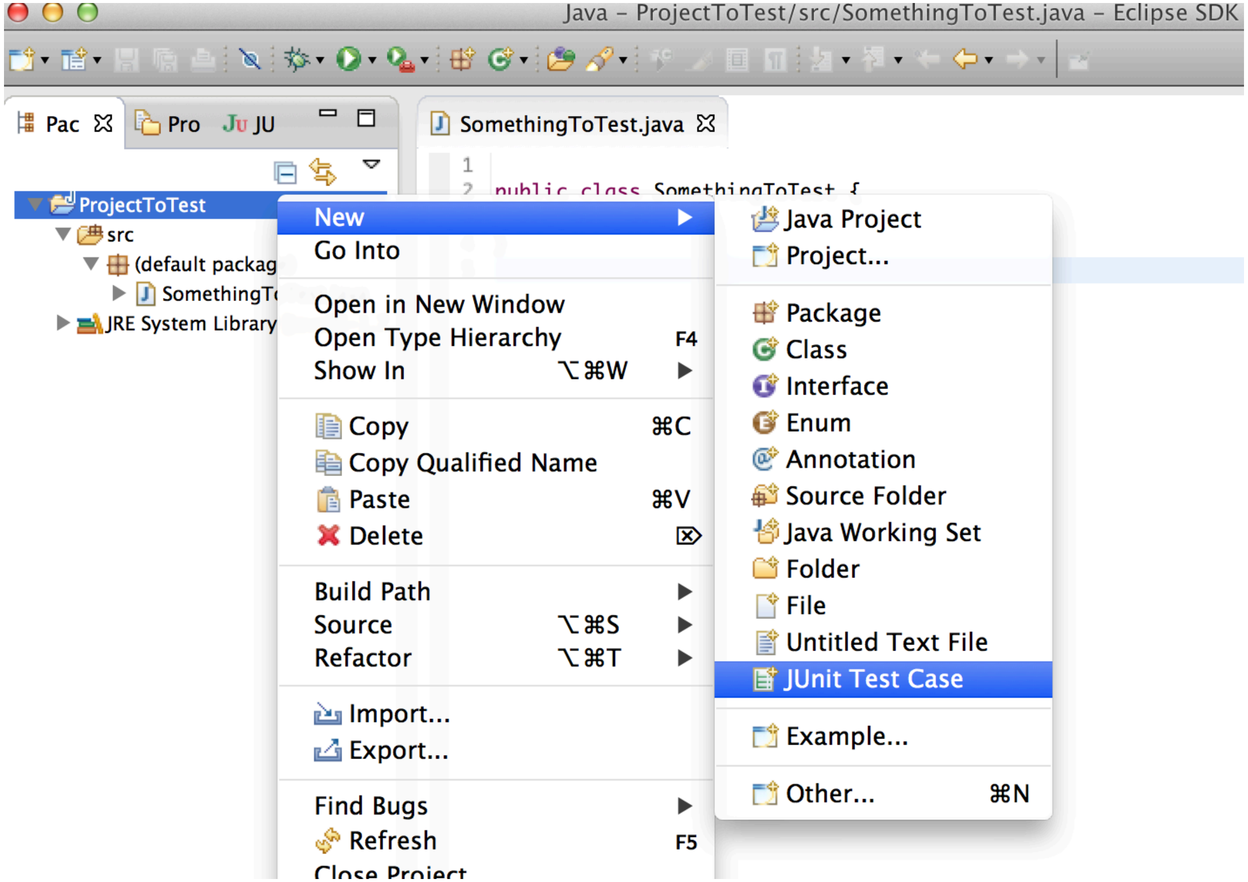
- Why bother testing?
- What are differences between testing and debugging?

# Types of Testing

- **Unit testing**: tests (smallest) individual units of source code, usually methods and functions
  - car: screws, steering wheel, windshield, etc.
- Integration testing: Looks for errors existed in the connection of multiple parts/modules
  - car: engine, transmission, A/C, etc.
- System testing: tests the entire system in terms of behavior and performance
  - car: 0 to 60 mph acceleration, fuel consumption in real road condition, etc.
- Others: reliability testing, regression testing, UI testing…

# JUnit

- A simple (unit) testing framework for Java
- Current version: JUnit 4



```
1
2 public class SomethingToTest {
```

# Assertion Methods

(org.junit.Assert)

- assertEquals(message, expected, actual)
- assertTrue(message, condition)
- assertNull(message, object)
- assertSame(message, expected obj, actual obj)
- fail(message)
- ‘message’ is optional
- assertNotEquals, assertFalse, assertNull, assertNotSame…

# Annotations ‘@’ JUnit 4

- What if you want to test whether a method throws an exception or not when it should?
  - 1. try/catch + fail **or**
  - 2. Use ‘expected’ annotation: @Test(expected=*SomeException*.class)
- What if you want to set a timeout for a method?
  - Use ‘timeout’ annotation:

    @Test(timeout=500) [i.e. 500 ms]
- Other annotations:
  - @Before/@After, @BeforeClass/@AfterClass

# DEMO