Unit Test Guide

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1 Introduction

This document is intended to give you the information necessary to run the provided unit tests against your project. It is not intended to be a comprehensive guide on JUnit or unit tests in general. If you want to learn more, please visit `https://junit.org/junit5/`. The provided test files are what your TAs will be using to grade your project, and the tests will contribute a significant portion of your grade for Project 3, so it is obviously in your best interests to make sure your project passes as many tests as possible.

The files you will need to run the tests are ArrayListTest.java, LinkedListTest.java, ScoringTestRule.java, and WorthPoints.java. Honors students will also require the LinkedListHonorsTest.java and ArrayListHonorsTest.java files. All of these files should be placed in your source code folder (the src folder in IntelliJ). Do not modify any of the provided files.

2 Getting Started with JUnit

After adding the test files to your src folder, you will need to add the JUnit testing libraries to your project. In IntelliJ, this is as simple as putting your cursor over one of the statements importing a JUnit library in one of the test files (these statements should be red at first), pressing ALT+ENTER, then selecting the version of JUnit to use from the drop down menu. Version 5 is the latest version and is recommended.

3 What to Understand

The only code you need to understand is in the LinkedListTest.java and ArrayListTest.java files. Each test method in the files will be marked with an *@Test* flag. Tests that contribute to your score will have a *@WorthPoints* flag as well, indicating how many points that test is worth. Inside each method there will be some statements calling methods of the list interface that you implemented and some **Assertions**. A test only passes if all of the assertions in

its definition pass. For example, consider the following test:

```
@Test
@WorthPoints(points = 1)
public void ExampleTest(){
    /*
    Do some stuff here: initialize variables a, b, c, d, and e,
    call test methods, etc.
    */
    assertFalse(a);
    assertTrue(b);
    assertNull(c);
    assertEquals(d, e);
}
```

This test will only pass if a is false, b is true, c is null, and d and e are equal. Otherwise, the entire test fails. You may also see Strings to be printed if an assertion fails as arguments to an assertion; note that they are only there to help explain why the assertion may have failed and are not part of the actual test.

4 Running Tests

To run the tests in Intellij, click the green circle to the left of the class declaration in the LinkedListTest or ArrayListTest files. This runs all tests in that class. Each test should have an identical green circle to the left of it. Click that circle to only run that test. After running any test(s), any failed assertions are underlined in red, which should help in debugging. You can also use the debugger in test classes to further assist in your debugging efforts. If you want to run the tests in some IDE other than IntelliJ or without an IDE at all, you will unfortunately have to do some research and figure out how to do this on your own, as the TAs are only knowledgeable about IntelliJ.