Answer Sheet for Lab Exercise 2

Debugging with Eclipse

CS 2334, Spring 2016

Due by: Friday, January 29, 2016, 4:00 pm CST

This lab is a group exercise. Students must complete this assignment with at least one partner.

1. List all group members' names here (add lines to the table as needed).

Name 1:	Hunter Black
Name 2:	Andrew Easley
Name 3:	
Name 4:	
Name 5:	

3. List the 12 Classes here.
   - Acceleration.java
   - AccelerationUnits.java
   - Distance.java
   - DistanceUnits.java
   - PhysicsCalculator.java
   - SpaceshipDriver.java
   - SpaceshipModel.java
   - Speed.java
   - SpeedUnits.java
   - TestSpaceshipModel.java
   - Time.java
   - TimeUnits.java

5. What is the name of the variable that refers to the new spaceship model created here?
   - ship

6. Run **SpaceshipDriver** and list here the output that it prints.
   Distance traveled is calculated to be 677.7563333333334 METERS
   Maximum acceleration encountered will be 0.0 METERSPERSECONDPERSECOND
   Minimum acceleration encountered will be null

7. How can you tell what kinds of errors are in a project?
   Logic errors because everything compiled and ran without any errors, yet the outputs are clearly off their intended values

8. Why is the minimum acceleration being reported as "null"?
   Because the calculateMinAcceleration method has not been completed yet

9. What is the value reported for maximum acceleration and why must it be wrong?
   Value reported = 0.0 METERSPERSECONDPERSECOND
   This is wrong because we know from the updated ship speeds that the ship experienced some form of acceleration during its flight.

10. What did Eclipse create when you clicked “Finish”?

Eclipse created a new test class focusing on the testCalcAccelerationFromSpeedsAndTimes

11. What was the result and what does that tell you about the method `calcAccelerationFromSpeedsAndTimes`?

There was a failure that occurred somewhere during the JUnit test, so this method is the problem causing the calculateMaxAcceleration

12. Explain here what you did to fix the problem with `calcAccelerationFromSpeedsAndTimes`.

The problem was that two variables in the calcAccelerationFromSpeedsAndTimes method were switched and put in the wrong place. To fix this, you simply switch the variables (time1 and time2) so that they are in the right position (time2… - time1…)

13. Explain how you used JUnit to find at least one additional error in the project.

By further observing the code, we noticed that the distance traveled was most likely wrong. To check this, we created another JUnit test that would test the Distance class to find the error. Below is our JUnit test:

```
@Test
	public void testCanonicalDistance()
	{
		Distance distance = new Distance(1.0, DistanceUnits.FEET);

		assertEquals(0.3048, Distance.convertFeetToMeters(distance).getValue(), 0.0);
	}
```