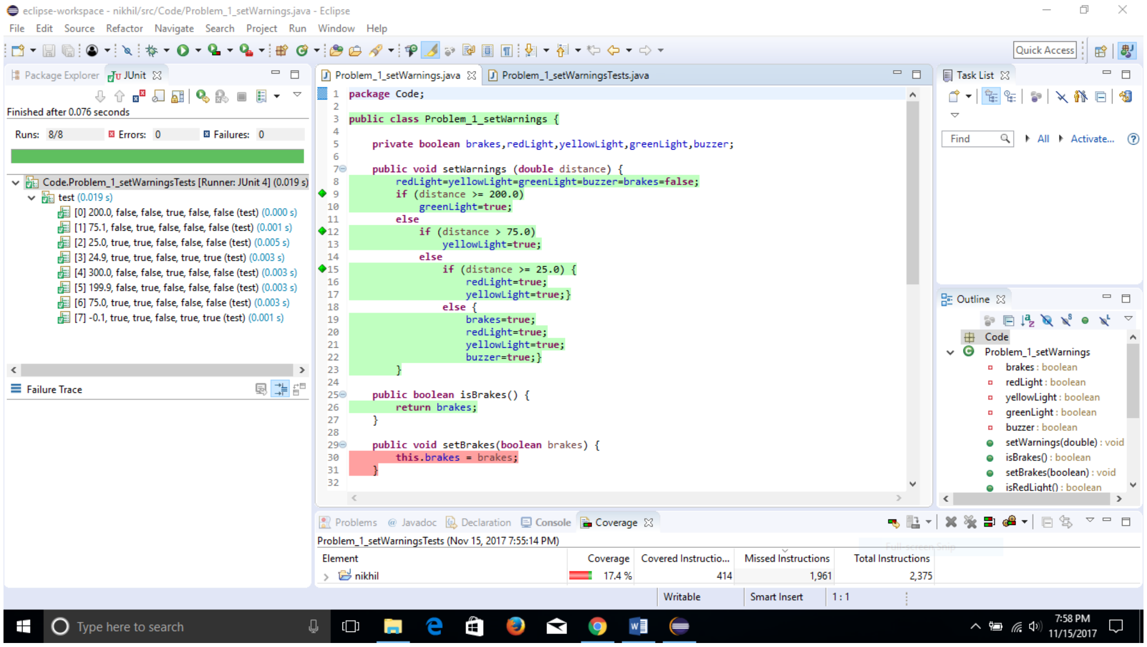
Nikhil Kajrekar, UTA ID: 1001552488

Note: Using Excel test case table data from class solutions for Problem 1 – Problem 4.
Excel csv file for Problem 5 is attached in the zip file.

Problem 1.
Solution:

JUnit green bar (expanded) and JaCoCo green lines/diamonds of method under test:



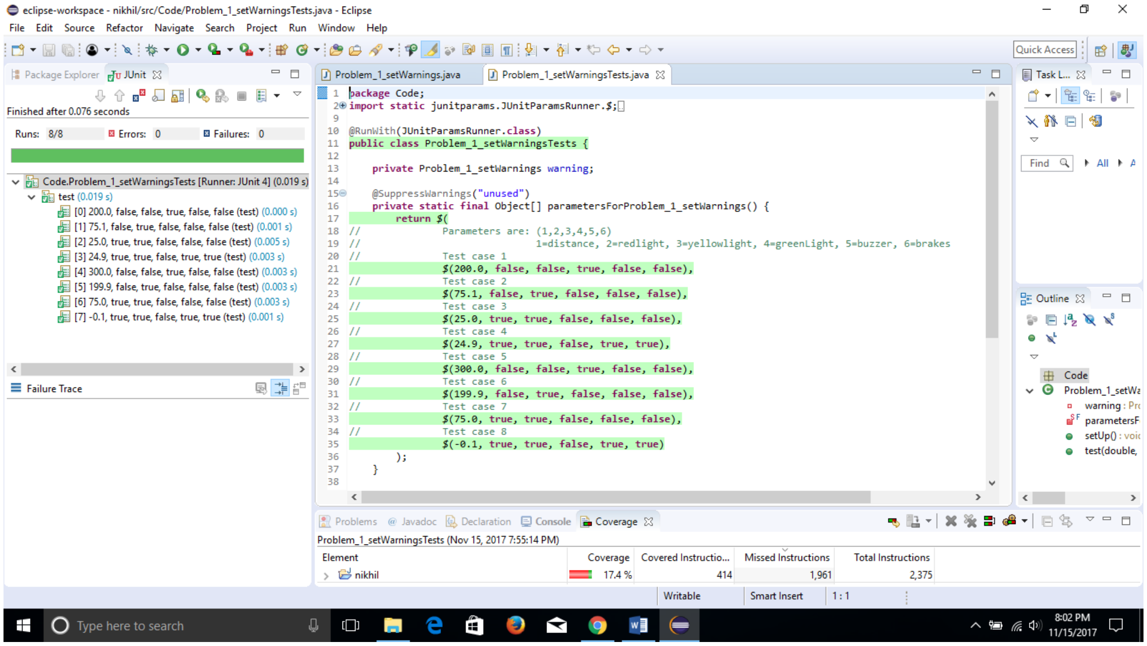
```
Finished after 0.076 seconds

Runs: 8/8    Errors: 0    Failures: 0

Code.Problem_1_setWarningsTests [Runner: JUnit 4] (0.019 s)
  test (0.019 s)
    [0] 200.0, false, false, true, false, false (test) (0.000 s)
    [1] 75.1, false, true, false, false, false (test) (0.001 s)
    [2] 25.0, true, true, false, false, false (test) (0.005 s)
    [3] 24.9, true, true, false, true, true (test) (0.003 s)
    [4] 300.0, false, false, true, false, false (test) (0.003 s)
    [5] 199.9, false, true, false, false, false (test) (0.003 s)
    [6] 75.0, true, true, false, false, false (test) (0.003 s)
    [7] -0.1, true, true, false, true, true (test) (0.001 s)
```

```java
package Code;

public class Problem_1_setWarnings {

    private boolean brakes,redLight,yellowLight,greenLight,buzzer;

    public void setWarnings (double distance) {
        redLight=yellowLight=greenLight=buzzer=brakes=false;
        if (distance >= 200.0)
            greenLight=true;
        else
            if (distance > 75.0)
                yellowLight=true;
            else
                if (distance >= 25.0) {
                    redLight=true;
                    yellowLight=true;}
                else {
                    brakes=true;
                    redLight=true;
                    yellowLight=true;
                    buzzer=true;}
        }

    public boolean isBrakes() {
        return brakes;
    }

    public void setBrakes(boolean brakes) {
        this.brakes = brakes;
    }

```

Problem_1_setWarningsTests (Nov 15, 2017 7:55:14 PM)

Element	Coverage	Covered Instructio...	Missed Instructions	Total Instructions
nikhil	17.4 %	414	1,961	2,375

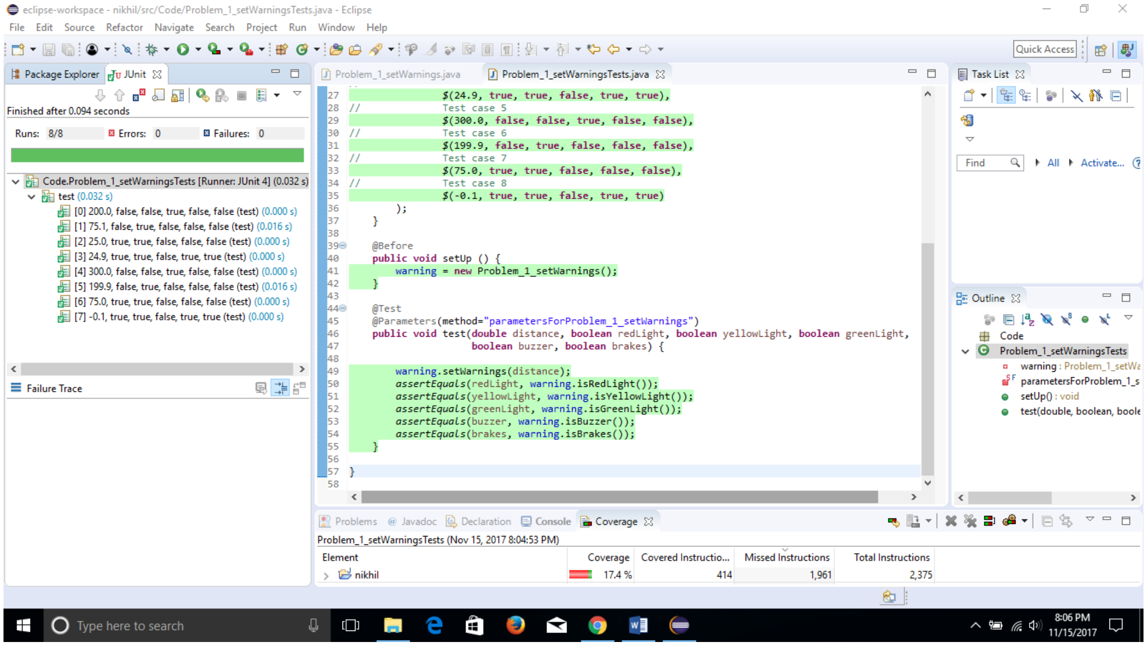
JUnit test file:



```
Finished after 0.076 seconds

Runs: 8/8    Errors: 0    Failures: 0

Code.Problem_1_setWarningsTests [Runner: JUnit 4] (0.019 s)
  test (0.019 s)
    [0] 200.0, false, false, true, false, false (test) (0.000 s)
    [1] 75.1, false, true, false, false, false (test) (0.001 s)
    [2] 25.0, true, true, false, false, false (test) (0.005 s)
    [3] 24.9, true, true, false, true, true (test) (0.003 s)
    [4] 300.0, false, false, true, false, false (test) (0.003 s)
    [5] 199.9, false, true, false, false, false (test) (0.003 s)
    [6] 75.0, true, true, false, false, false (test) (0.003 s)
    [7] -0.1, true, true, false, true, true (test) (0.001 s)
```

```java
package Code;
import static junitparams.JUnitParamsRunner.$;

@RunWith(JUnitParamsRunner.class)
public class Problem_1_setWarningsTests {

    private Problem_1_setWarnings warning;

    @SuppressWarnings("unused")
    private static final Object[] parametersForProblem_1_setWarnings() {
        return $(
//              Parameters are: (1,2,3,4,5,6)
//                              1=distance, 2=redlight, 3=yellowlight, 4=greenLight, 5=buzzer, 6=brakes
//              Test case 1
                $(200.0, false, false, true, false, false),
//              Test case 2
                $(75.1, false, true, false, false, false),
//              Test case 3
                $(25.0, true, true, false, false, false),
//              Test case 4
                $(24.9, true, true, false, true, true),
//              Test case 5
                $(300.0, false, false, true, false, false),
//              Test case 6
                $(199.9, false, true, false, false, false),
//              Test case 7
                $(75.0, true, true, false, false, false),
//              Test case 8
                $(-0.1, true, true, false, true, true)
        );
    }

```

```
Problem_1_setWarningsTests (Nov 15, 2017 7:55:14 PM)
Element                    Coverage   Covered Instructio...   Missed Instructions   Total Instructions
> nikhil                   17.4 %                      414                  1,961                2,375
```



eclipse-workspace - nikhil/src/Code/Problem_1_setWarningsTests.java - Eclipse
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Package Explorer
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```
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Runs: 8/8    Errors: 0    Failures: 0

Code.Problem_1_setWarningsTests [Runner: JUnit 4] (0.032 s)
  test (0.032 s)
    [0] 200.0, false, false, true, false, false (test) (0.000 s)
    [1] 75.1, false, true, false, false, false (test) (0.016 s)
    [2] 25.0, true, true, false, false, false (test) (0.000 s)
    [3] 24.9, true, true, false, true, true (test) (0.000 s)
    [4] 300.0, false, false, true, false, false (test) (0.000 s)
    [5] 199.9, false, true, false, false, false (test) (0.016 s)
    [6] 75.0, true, true, false, false, false (test) (0.000 s)
    [7] -0.1, true, true, false, true, true (test) (0.000 s)
```
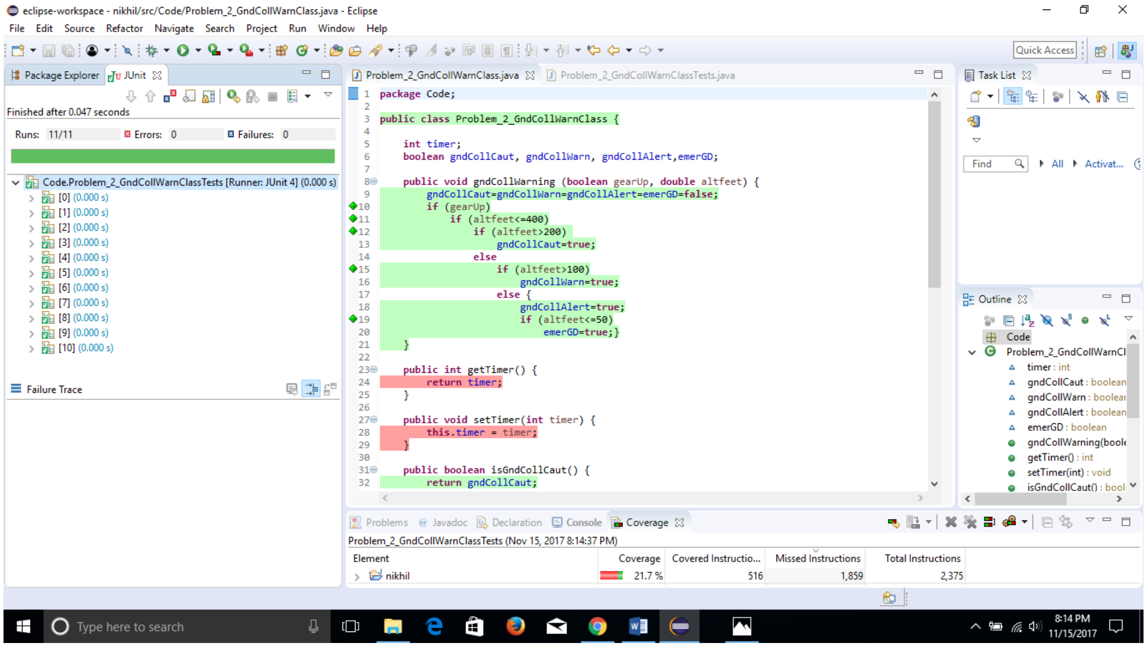

```java
                $(24.9, true, true, false, true, true),
//              Test case 5
                $(300.0, false, false, true, false, false),
//              Test case 6
                $(199.9, false, true, false, false, false),
//              Test case 7
                $(75.0, true, true, false, false, false),
//              Test case 8
                $(-0.1, true, true, false, true, true)
        );
    }

    @Before
    public void setUp () {
        warning = new Problem_1_setWarnings();
    }

    @Test
    @Parameters(method="parametersForProblem_1_setWarnings")
    public void test(double distance, boolean redLight, boolean yellowLight, boolean greenLight,
                     boolean buzzer, boolean brakes) {

        warning.setWarnings(distance);
        assertEquals(redLight, warning.isRedLight());
        assertEquals(yellowLight, warning.isYellowLight());
        assertEquals(greenLight, warning.isGreenLight());
        assertEquals(buzzer, warning.isBuzzer());
        assertEquals(brakes, warning.isBrakes());
    }

}

```

```
Problem_1_setWarningsTests (Nov 15, 2017 8:04:53 PM)
Element                    Coverage   Covered Instructio...   Missed Instructions   Total Instructions
> nikhil                   17.4 %                      414                  1,961                2,375
```

Problem 2.
Solution:

JUnit green bar (expanded) and JaCoCo green lines/diamonds of method under test:



Finished after 0.047 seconds

Runs: 11/11 ☒ Errors: 0 ☒ Failures: 0

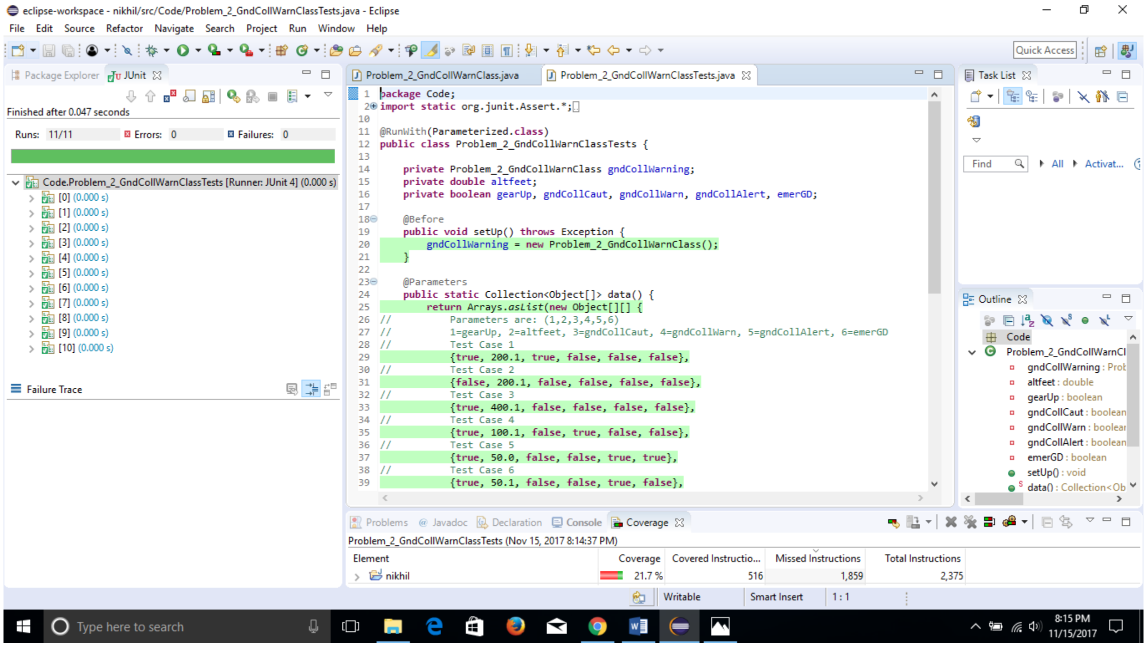
```
Code.Problem_2_GndCollWarnClassTests [Runner: JUnit 4] (0.000 s)
    [0] (0.000 s)
    [1] (0.000 s)
    [2] (0.000 s)
    [3] (0.000 s)
    [4] (0.000 s)
    [5] (0.000 s)
    [6] (0.000 s)
    [7] (0.000 s)
    [8] (0.000 s)
    [9] (0.000 s)
    [10] (0.000 s)
```

```java
package Code;

public class Problem_2_GndCollWarnClass {

    int timer;
    boolean gndCollCaut, gndCollWarn, gndCollAlert,emerGD;

    public void gndCollWarning (boolean gearUp, double altfeet) {
        gndCollCaut=gndCollWarn=gndCollAlert=emerGD=false;
        if (gearUp)
            if (altfeet<=400)
                if (altfeet>200)
                    gndCollCaut=true;
                else
                    if (altfeet>100)
                        gndCollWarn=true;
                    else {
                        gndCollAlert=true;
                        if (altfeet<=50)
                            emerGD=true;}
    }

    public int getTimer() {
        return timer;
    }

    public void setTimer(int timer) {
        this.timer = timer;
    }

    public boolean isGndCollCaut() {
        return gndCollCaut;
```

Problem_2_GndCollWarnClassTests (Nov 15, 2017 8:14:37 PM)

Element	Coverage	Covered Instructio...	Missed Instructions	Total Instructions
nikhil	21.7 %	516	1,859	2,375

JUnit test file:



eclipse-workspace - nikhil/src/Code/Problem_2_GndCollWarnClassTests.java - Eclipse

Finished after 0.047 seconds

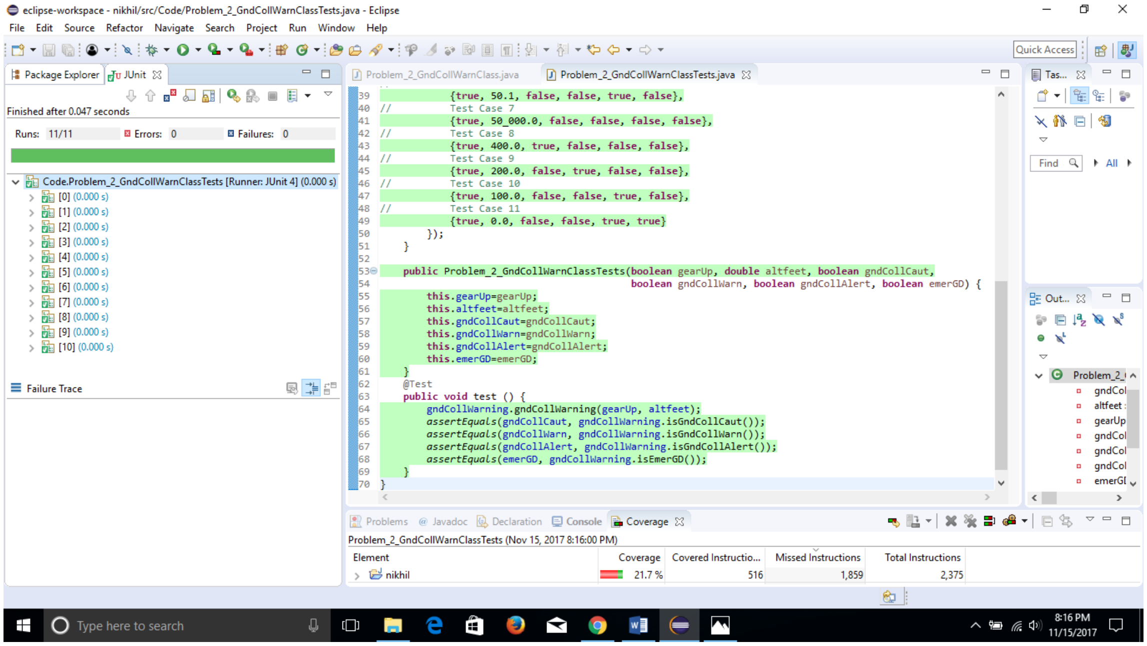
Runs: 11/11 Errors: 0 Failures: 0

```
Code.Problem_2_GndCollWarnClassTests [Runner: JUnit 4] (0.000 s)
  [0] (0.000 s)
  [1] (0.000 s)
  [2] (0.000 s)
  [3] (0.000 s)
  [4] (0.000 s)
  [5] (0.000 s)
  [6] (0.000 s)
  [7] (0.000 s)
  [8] (0.000 s)
  [9] (0.000 s)
  [10] (0.000 s)
```

```java
package Code;
import static org.junit.Assert.*;

@RunWith(Parameterized.class)
public class Problem_2_GndCollWarnClassTests {

    private Problem_2_GndCollWarnClass gndCollWarning;
    private double altfeet;
    private boolean gearUp, gndCollCaut, gndCollWarn, gndCollAlert, emerGD;

    @Before
    public void setUp() throws Exception {
        gndCollWarning = new Problem_2_GndCollWarnClass();
    }

    @Parameters
    public static Collection<Object[]> data() {
        return Arrays.asList(new Object[][] {
//          Parameters are: (1,2,3,4,5,6)
//          1=gearUp, 2=altfeet, 3=gndCollCaut, 4=gndCollWarn, 5=gndCollAlert, 6=emerGD
//          Test Case 1
            {true, 200.1, true, false, false, false},
//          Test Case 2
            {false, 200.1, false, false, false, false},
//          Test Case 3
            {true, 400.1, false, false, false, false},
//          Test Case 4
            {true, 100.1, false, true, false, false},
//          Test Case 5
            {true, 50.0, false, false, true, true},
//          Test Case 6
            {true, 50.1, false, false, true, false},
```

Problem_2_GndCollWarnClassTests (Nov 15, 2017 8:14:37 PM)

Element	Coverage	Covered Instructio...	Missed Instructions	Total Instructions
nikhil	21.7 %	516	1,859	2,375



eclipse-workspace - nikhil/src/Code/Problem_2_GndCollWarnClassTests.java - Eclipse

Finished after 0.047 seconds

Runs: 11/11 Errors: 0 Failures: 0

```
Code.Problem_2_GndCollWarnClassTests [Runner: JUnit 4] (0.000 s)
  [0] (0.000 s)
  [1] (0.000 s)
  [2] (0.000 s)
  [3] (0.000 s)
  [4] (0.000 s)
  [5] (0.000 s)
  [6] (0.000 s)
  [7] (0.000 s)
  [8] (0.000 s)
  [9] (0.000 s)
  [10] (0.000 s)
```

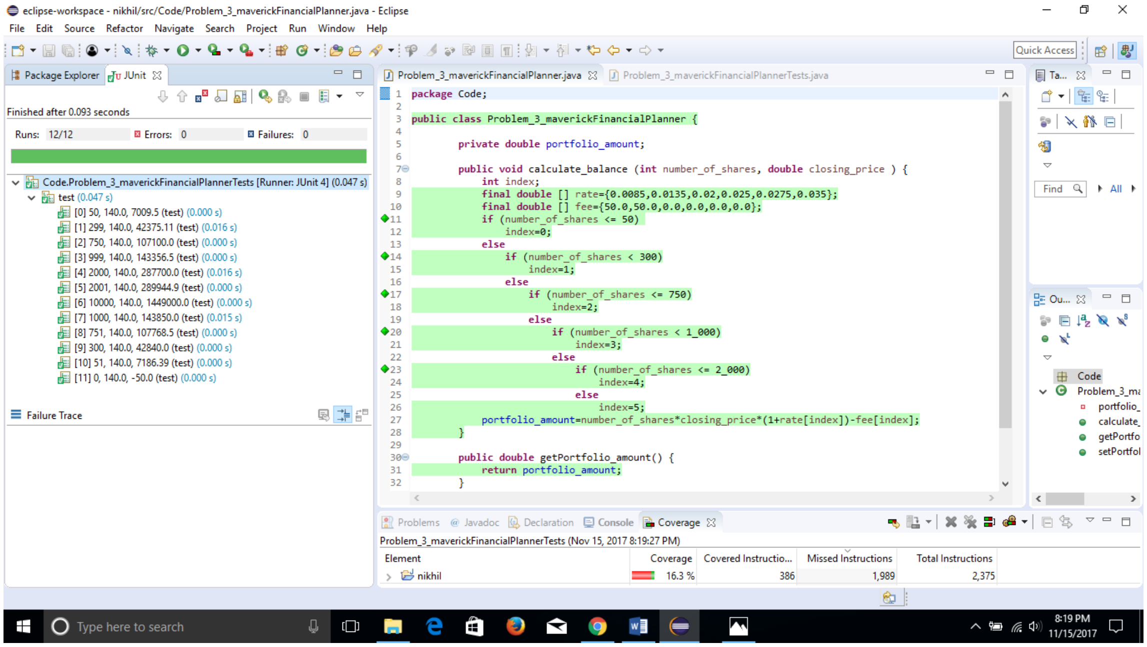
```java
            {true, 50.1, false, false, true, false},
//          Test Case 7
            {true, 50_000.0, false, false, false, false},
//          Test Case 8
            {true, 400.0, true, false, false, false},
//          Test Case 9
            {true, 200.0, false, true, false, false},
//          Test Case 10
            {true, 100.0, false, false, true, false},
//          Test Case 11
            {true, 0.0, false, false, true, true}
        });
    }

    public Problem_2_GndCollWarnClassTests(boolean gearUp, double altfeet, boolean gndCollCaut,
                                           boolean gndCollWarn, boolean gndCollAlert, boolean emerGD) {
        this.gearUp=gearUp;
        this.altfeet=altfeet;
        this.gndCollCaut=gndCollCaut;
        this.gndCollWarn=gndCollWarn;
        this.gndCollAlert=gndCollAlert;
        this.emerGD=emerGD;
    }
    @Test
    public void test () {
        gndCollWarning.gndCollWarning(gearUp, altfeet);
        assertEquals(gndCollCaut, gndCollWarning.isGndCollCaut());
        assertEquals(gndCollWarn, gndCollWarning.isGndCollWarn());
        assertEquals(gndCollAlert, gndCollWarning.isGndCollAlert());
        assertEquals(emerGD, gndCollWarning.isEmerGD());
    }
}
```

Problem_2_GndCollWarnClassTests (Nov 15, 2017 8:16:00 PM)

Element	Coverage	Covered Instructio...	Missed Instructions	Total Instructions
nikhil	21.7 %	516	1,859	2,375

Problem 3.
Solution:

JUnit green bar (expanded) and JaCoCo green lines/diamonds of method under test:


eclipse-workspace - nikhil/src/Code/Problem_3_maverickFinancialPlanner.java - Eclipse
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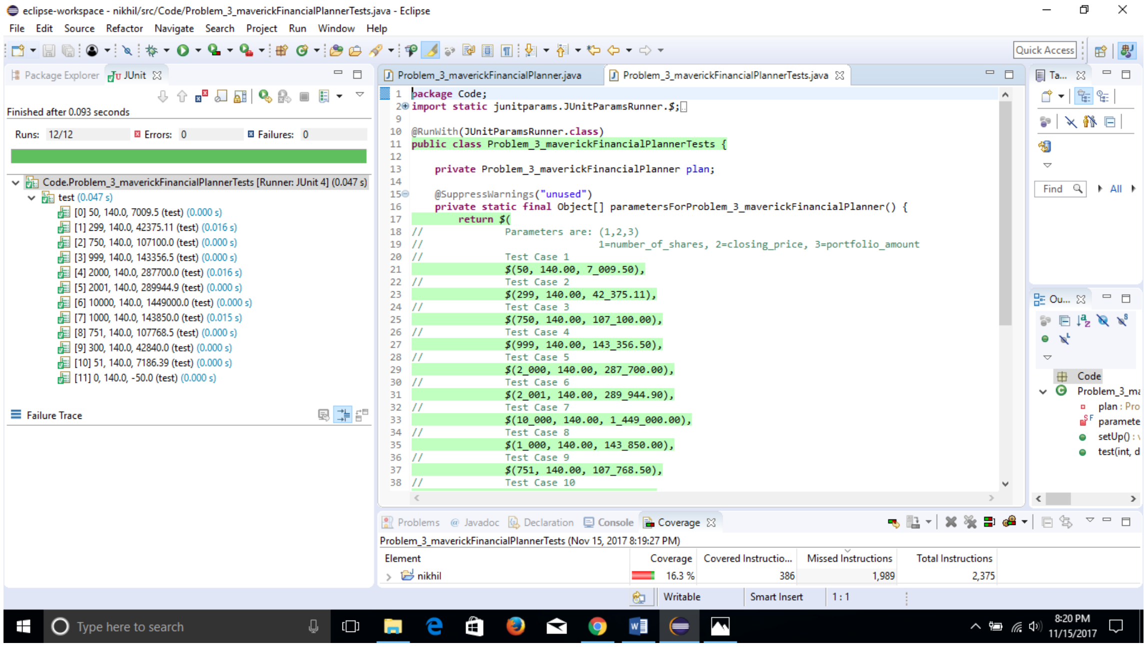
```
Finished after 0.093 seconds

Runs: 12/12    Errors: 0    Failures: 0

Code.Problem_3_maverickFinancialPlannerTests [Runner: JUnit 4] (0.047 s)
  test (0.047 s)
    [0] 50, 140.0, 7009.5 (test) (0.000 s)
    [1] 299, 140.0, 42375.11 (test) (0.016 s)
    [2] 750, 140.0, 107100.0 (test) (0.000 s)
    [3] 999, 140.0, 143356.5 (test) (0.000 s)
    [4] 2000, 140.0, 287700.0 (test) (0.016 s)
    [5] 2001, 140.0, 289944.9 (test) (0.000 s)
    [6] 10000, 140.0, 1449000.0 (test) (0.000 s)
    [7] 1000, 140.0, 143850.0 (test) (0.015 s)
    [8] 751, 140.0, 107768.5 (test) (0.000 s)
    [9] 300, 140.0, 42840.0 (test) (0.000 s)
    [10] 51, 140.0, 7186.39 (test) (0.000 s)
    [11] 0, 140.0, -50.0 (test) (0.000 s)

Failure Trace
```

```java
package Code;

public class Problem_3_maverickFinancialPlanner {

        private double portfolio_amount;

        public void calculate_balance (int number_of_shares, double closing_price ) {
            int index;
            final double [] rate={0.0085,0.0135,0.02,0.025,0.0275,0.035};
            final double [] fee={50.0,50.0,0.0,0.0,0.0,0.0};
            if (number_of_shares <= 50)
                index=0;
            else
                if (number_of_shares < 300)
                    index=1;
                else
                    if (number_of_shares <= 750)
                        index=2;
                    else
                        if (number_of_shares < 1_000)
                            index=3;
                        else
                            if (number_of_shares <= 2_000)
                                index=4;
                            else
                                index=5;
            portfolio_amount=number_of_shares*closing_price*(1+rate[index])-fee[index];
        }

        public double getPortfolio_amount() {
            return portfolio_amount;
        }
```

Problem_3_maverickFinancialPlannerTests (Nov 15, 2017 8:19:27 PM)

Element	Coverage	Covered Instructio...	Missed Instructions	Total Instructions
nikhil	16.3 %	386	1,989	2,375

JUnit test file:


eclipse-workspace - nikhil/src/Code/Problem_3_maverickFinancialPlannerTests.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
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Package Explorer
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```
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Runs: 12/12    Errors: 0    Failures: 0

Code.Problem_3_maverickFinancialPlannerTests [Runner: JUnit 4] (0.047 s)
  test (0.047 s)
    [0] 50, 140.0, 7009.5 (test) (0.000 s)
    [1] 299, 140.0, 42375.11 (test) (0.016 s)
    [2] 750, 140.0, 107100.0 (test) (0.000 s)
    [3] 999, 140.0, 143356.5 (test) (0.000 s)
    [4] 2000, 140.0, 287700.0 (test) (0.016 s)
    [5] 2001, 140.0, 289944.9 (test) (0.000 s)
    [6] 10000, 140.0, 1449000.0 (test) (0.000 s)
    [7] 1000, 140.0, 143850.0 (test) (0.015 s)
    [8] 751, 140.0, 107768.5 (test) (0.000 s)
    [9] 300, 140.0, 42840.0 (test) (0.000 s)
    [10] 51, 140.0, 7186.39 (test) (0.000 s)
    [11] 0, 140.0, -50.0 (test) (0.000 s)
```
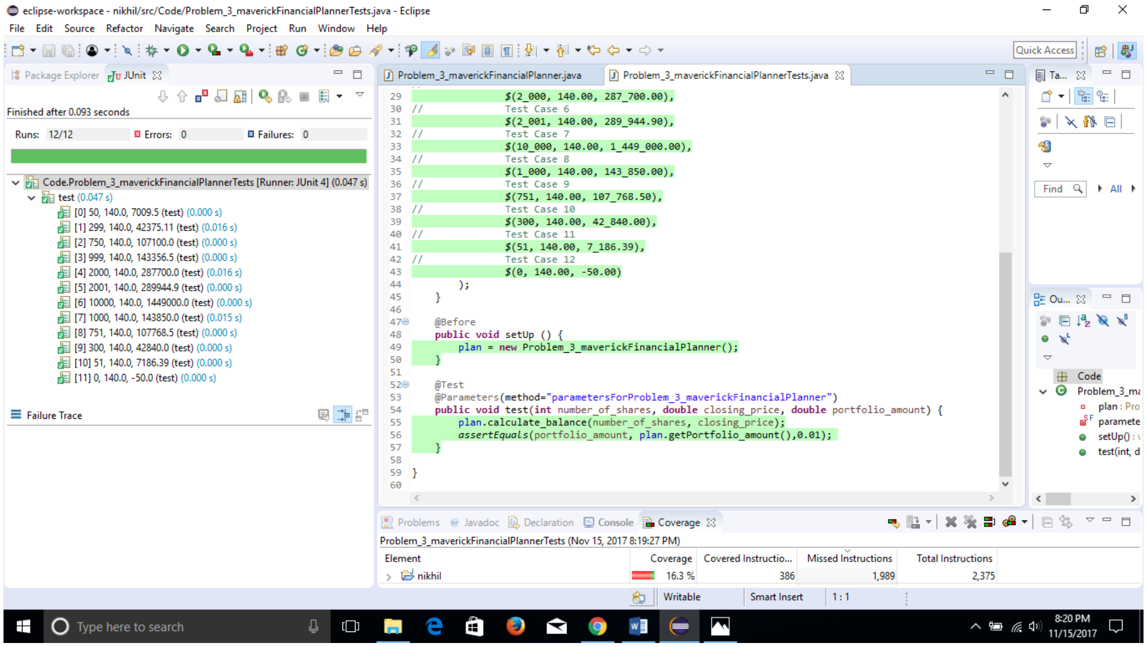

```java
package Code;
import static junitparams.JUnitParamsRunner.$;□

@RunWith(JUnitParamsRunner.class)
public class Problem_3_maverickFinancialPlannerTests {

    private Problem_3_maverickFinancialPlanner plan;

    @SuppressWarnings("unused")
    private static final Object[] parametersForProblem_3_maverickFinancialPlanner() {
        return $(
//              Parameters are: (1,2,3)
//                              1=number_of_shares, 2=closing_price, 3=portfolio_amount
//              Test Case 1
                $(50, 140.00, 7_009.50),
//              Test Case 2
                $(299, 140.00, 42_375.11),
//              Test Case 3
                $(750, 140.00, 107_100.00),
//              Test Case 4
                $(999, 140.00, 143_356.50),
//              Test Case 5
                $(2_000, 140.00, 287_700.00),
//              Test Case 6
                $(2_001, 140.00, 289_944.90),
//              Test Case 7
                $(10_000, 140.00, 1_449_000.00),
//              Test Case 8
                $(1_000, 140.00, 143_850.00),
//              Test Case 9
                $(751, 140.00, 107_768.50),
//              Test Case 10
```

Problem_3_maverickFinancialPlannerTests (Nov 15, 2017 8:19:27 PM)

Element	Coverage	Covered Instructio...	Missed Instructions	Total Instructions
nikhil	16.3 %	386	1,989	2,375


eclipse-workspace - nikhil/src/Code/Problem_3_maverickFinancialPlannerTests.java - Eclipse
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Quick Access
Package Explorer
JUnit
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11/15/2017

```
Finished after 0.093 seconds

Runs: 12/12    Errors: 0    Failures: 0

Code.Problem_3_maverickFinancialPlannerTests [Runner: JUnit 4] (0.047 s)
  test (0.047 s)
    [0] 50, 140.0, 7009.5 (test) (0.000 s)
    [1] 299, 140.0, 42375.11 (test) (0.016 s)
    [2] 750, 140.0, 107100.0 (test) (0.000 s)
    [3] 999, 140.0, 143356.5 (test) (0.000 s)
    [4] 2000, 140.0, 287700.0 (test) (0.016 s)
    [5] 2001, 140.0, 289944.9 (test) (0.000 s)
    [6] 10000, 140.0, 1449000.0 (test) (0.000 s)
    [7] 1000, 140.0, 143850.0 (test) (0.015 s)
    [8] 751, 140.0, 107768.5 (test) (0.000 s)
    [9] 300, 140.0, 42840.0 (test) (0.000 s)
    [10] 51, 140.0, 7186.39 (test) (0.000 s)
    [11] 0, 140.0, -50.0 (test) (0.000 s)
```

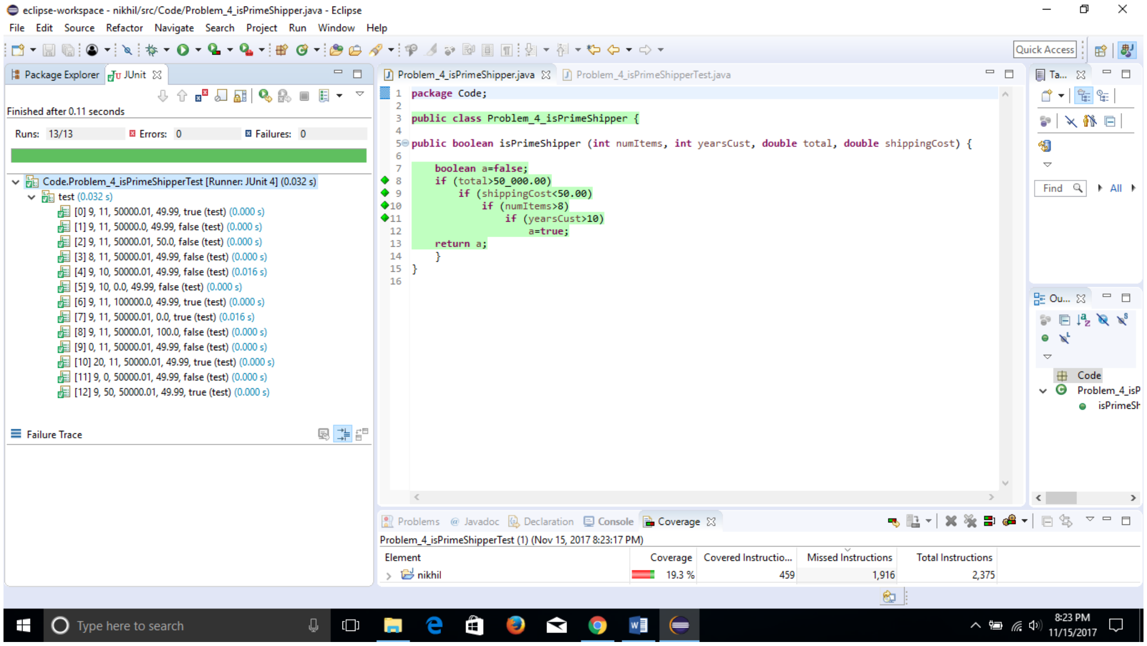
```java
                $(2_000, 140.00, 287_700.00),
//              Test Case 6
                $(2_001, 140.00, 289_944.90),
//              Test Case 7
                $(10_000, 140.00, 1_449_000.00),
//              Test Case 8
                $(1_000, 140.00, 143_850.00),
//              Test Case 9
                $(751, 140.00, 107_768.50),
//              Test Case 10
                $(300, 140.00, 42_840.00),
//              Test Case 11
                $(51, 140.00, 7_186.39),
//              Test Case 12
                $(0, 140.00, -50.00)
        );
    }

    @Before
    public void setUp () {
        plan = new Problem_3_maverickFinancialPlanner();
    }

    @Test
    @Parameters(method="parametersForProblem_3_maverickFinancialPlanner")
    public void test(int number_of_shares, double closing_price, double portfolio_amount) {
        plan.calculate_balance(number_of_shares, closing_price);
        assertEquals(portfolio_amount, plan.getPortfolio_amount(),0.01);
    }

}
```

Problem_3_maverickFinancialPlannerTests (Nov 15, 2017 8:19:27 PM)

Element	Coverage	Covered Instructio...	Missed Instructions	Total Instructions
nikhil	16.3 %	386	1,989	2,375

Problem 4.
Solution:

JUnit green bar (expanded) and JaCoCo green lines/diamonds of method under test:



eclipse-workspace - nikhil/src/Code/Problem_4_isPrimeShipper.java - Eclipse
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Package Explorer
JUnit
Problem_4_isPrimeShipper.java
Problem_4_isPrimeShipperTest.java
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Failure Trace
Problems
Javadoc
Declaration
Console
Coverage
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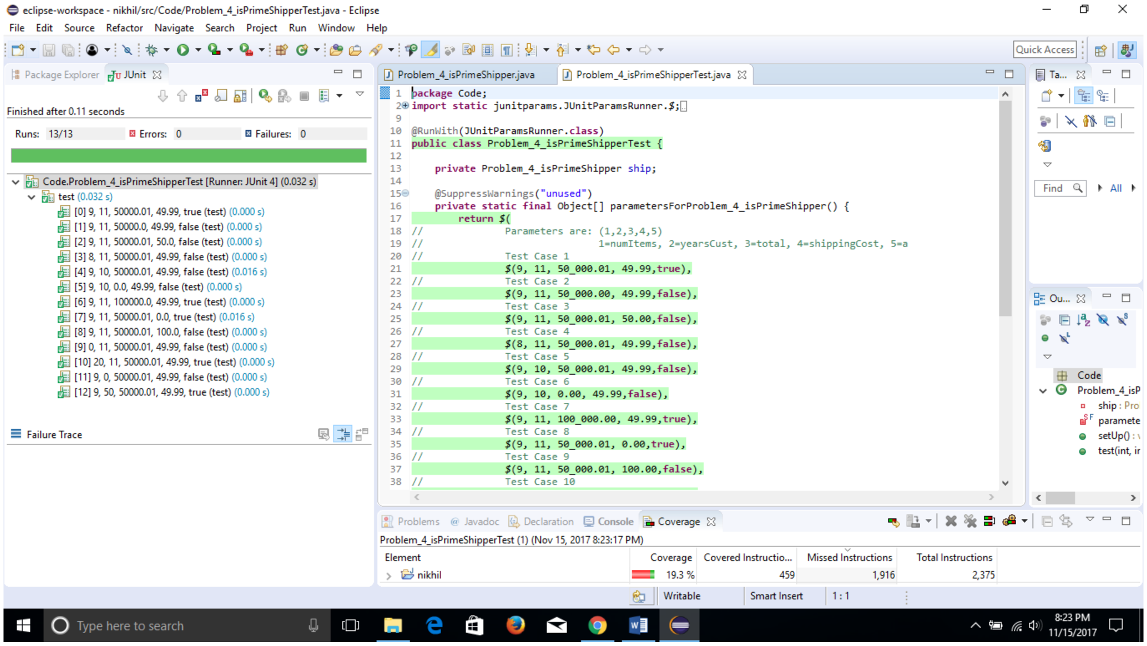
```
Finished after 0.11 seconds
Runs: 13/13    Errors: 0    Failures: 0

Code.Problem_4_isPrimeShipperTest [Runner: JUnit 4] (0.032 s)
  test (0.032 s)
    [0] 9, 11, 50000.01, 49.99, true (test) (0.000 s)
    [1] 9, 11, 50000.0, 49.99, false (test) (0.000 s)
    [2] 9, 11, 50000.01, 50.0, false (test) (0.000 s)
    [3] 8, 11, 50000.01, 49.99, false (test) (0.000 s)
    [4] 9, 10, 50000.01, 49.99, false (test) (0.016 s)
    [5] 9, 10, 0.0, 49.99, false (test) (0.000 s)
    [6] 9, 11, 100000.0, 49.99, true (test) (0.000 s)
    [7] 9, 11, 50000.01, 0.0, true (test) (0.016 s)
    [8] 9, 11, 50000.01, 100.0, false (test) (0.000 s)
    [9] 0, 11, 50000.01, 49.99, false (test) (0.000 s)
    [10] 20, 11, 50000.01, 49.99, true (test) (0.000 s)
    [11] 9, 0, 50000.01, 49.99, false (test) (0.000 s)
    [12] 9, 50, 50000.01, 49.99, true (test) (0.000 s)
```

```java
package Code;

public class Problem_4_isPrimeShipper {

public boolean isPrimeShipper (int numItems, int yearsCust, double total, double shippingCost) {

    boolean a=false;
    if (total>50_000.00)
        if (shippingCost<50.00)
            if (numItems>8)
                if (yearsCust>10)
                    a=true;
    return a;
    }
}
```

Problem_4_isPrimeShipperTest (1) (Nov 15, 2017 8:23:17 PM)

Element	Coverage	Covered Instructio...	Missed Instructions	Total Instructions
nikhil	19.3 %	459	1,916	2,375

JUnit test file:



Finished after 0.11 seconds

Runs: 13/13 Errors: 0 Failures: 0

```
Code.Problem_4_isPrimeShipperTest [Runner: JUnit 4] (0.032 s)
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    [5] 9, 10, 0.0, 49.99, false (test) (0.000 s)
    [6] 9, 11, 100000.0, 49.99, true (test) (0.000 s)
    [7] 9, 11, 50000.01, 0.0, true (test) (0.016 s)
    [8] 9, 11, 50000.01, 100.0, false (test) (0.000 s)
    [9] 0, 11, 50000.01, 49.99, false (test) (0.000 s)
    [10] 20, 11, 50000.01, 49.99, true (test) (0.000 s)
    [11] 9, 0, 50000.01, 49.99, false (test) (0.000 s)
    [12] 9, 50, 50000.01, 49.99, true (test) (0.000 s)
```
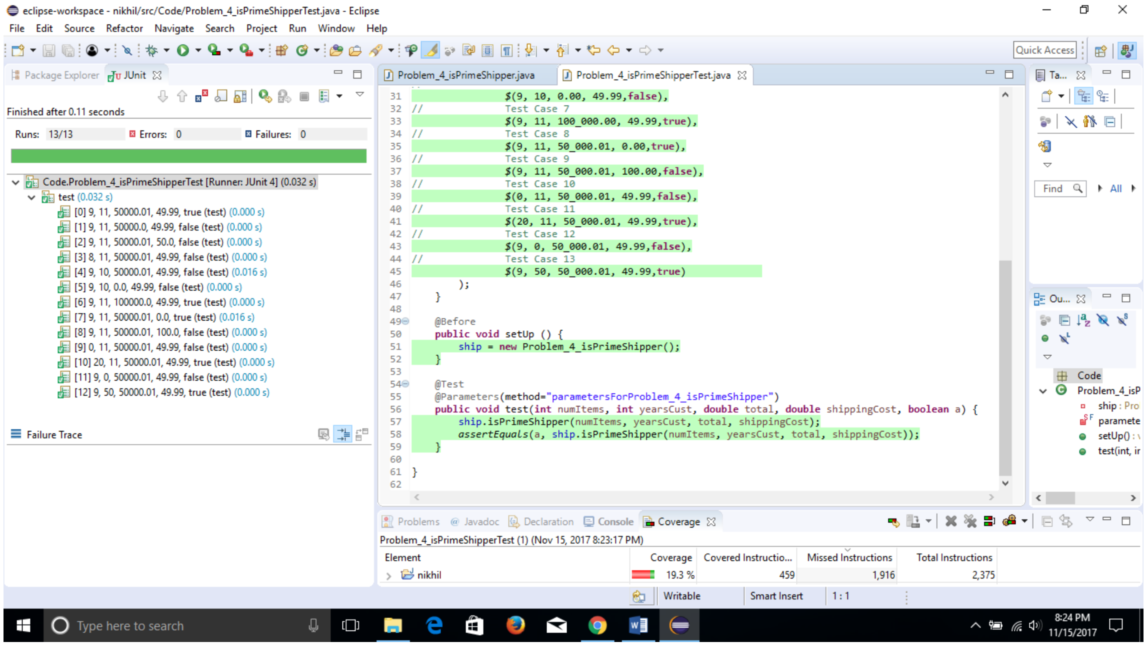

Failure Trace

```java
package Code;
import static junitparams.JUnitParamsRunner.$;

@RunWith(JUnitParamsRunner.class)
public class Problem_4_isPrimeShipperTest {

    private Problem_4_isPrimeShipper ship;

    @SuppressWarnings("unused")
    private static final Object[] parametersForProblem_4_isPrimeShipper() {
        return $(
//              Parameters are: (1,2,3,4,5)
//                              1=numItems, 2=yearsCust, 3=total, 4=shippingCost, 5=a
//              Test Case 1
                $(9, 11, 50_000.01, 49.99,true),
//              Test Case 2
                $(9, 11, 50_000.00, 49.99,false),
//              Test Case 3
                $(9, 11, 50_000.01, 50.00,false),
//              Test Case 4
                $(8, 11, 50_000.01, 49.99,false),
//              Test Case 5
                $(9, 10, 50_000.01, 49.99,false),
//              Test Case 6
                $(9, 10, 0.00, 49.99,false),
//              Test Case 7
                $(9, 11, 100_000.00, 49.99,true),
//              Test Case 8
                $(9, 11, 50_000.01, 0.00,true),
//              Test Case 9
                $(9, 11, 50_000.01, 100.00,false),
//              Test Case 10
```

Problem_4_isPrimeShipperTest (1) (Nov 15, 2017 8:23:17 PM)

Element	Coverage	Covered Instructio...	Missed Instructions	Total Instructions
nikhil	19.3 %	459	1,916	2,375



Finished after 0.11 seconds

Runs: 13/13 Errors: 0 Failures: 0

```
Code.Problem_4_isPrimeShipperTest [Runner: JUnit 4] (0.032 s)
  test (0.032 s)
    [0] 9, 11, 50000.01, 49.99, true (test) (0.000 s)
    [1] 9, 11, 50000.0, 49.99, false (test) (0.000 s)
    [2] 9, 11, 50000.01, 50.0, false (test) (0.000 s)
    [3] 8, 11, 50000.01, 49.99, false (test) (0.000 s)
    [4] 9, 10, 50000.01, 49.99, false (test) (0.016 s)
    [5] 9, 10, 0.0, 49.99, false (test) (0.000 s)
    [6] 9, 11, 100000.0, 49.99, true (test) (0.000 s)
    [7] 9, 11, 50000.01, 0.0, true (test) (0.016 s)
    [8] 9, 11, 50000.01, 100.0, false (test) (0.000 s)
    [9] 0, 11, 50000.01, 49.99, false (test) (0.000 s)
    [10] 20, 11, 50000.01, 49.99, true (test) (0.000 s)
    [11] 9, 0, 50000.01, 49.99, false (test) (0.000 s)
    [12] 9, 50, 50000.01, 49.99, true (test) (0.000 s)
```

Failure Trace

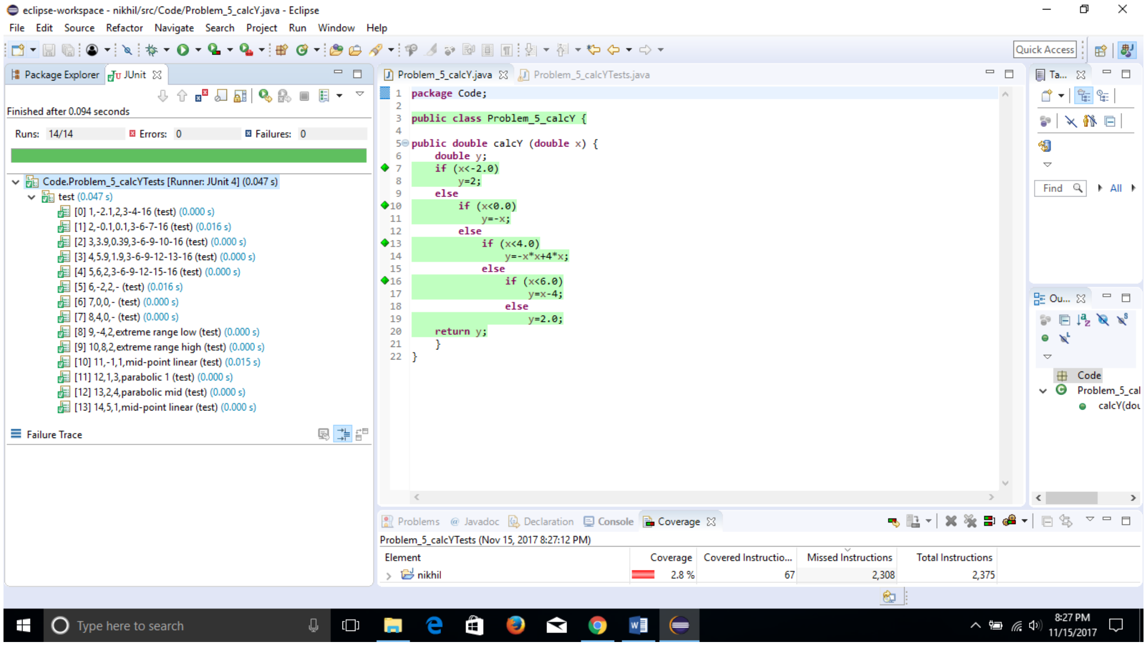
```java
                $(9, 10, 0.00, 49.99,false),
//              Test Case 7
                $(9, 11, 100_000.00, 49.99,true),
//              Test Case 8
                $(9, 11, 50_000.01, 0.00,true),
//              Test Case 9
                $(9, 11, 50_000.01, 100.00,false),
//              Test Case 10
                $(0, 11, 50_000.01, 49.99,false),
//              Test Case 11
                $(20, 11, 50_000.01, 49.99,true),
//              Test Case 12
                $(9, 0, 50_000.01, 49.99,false),
//              Test Case 13
                $(9, 50, 50_000.01, 49.99,true)
        );
    }

    @Before
    public void setUp () {
        ship = new Problem_4_isPrimeShipper();
    }

    @Test
    @Parameters(method="parametersForProblem_4_isPrimeShipper")
    public void test(int numItems, int yearsCust, double total, double shippingCost, boolean a) {
        ship.isPrimeShipper(numItems, yearsCust, total, shippingCost);
        assertEquals(a, ship.isPrimeShipper(numItems, yearsCust, total, shippingCost));
    }

}
```

Problem_4_isPrimeShipperTest (1) (Nov 15, 2017 8:23:17 PM)

Element	Coverage	Covered Instructio...	Missed Instructions	Total Instructions
nikhil	19.3 %	459	1,916	2,375

Problem 5.
Solution:

JUnit green bar (expanded) and JaCoCo green lines/diamonds of method under test:



Finished after 0.094 seconds

Runs: 14/14 Errors: 0 Failures: 0

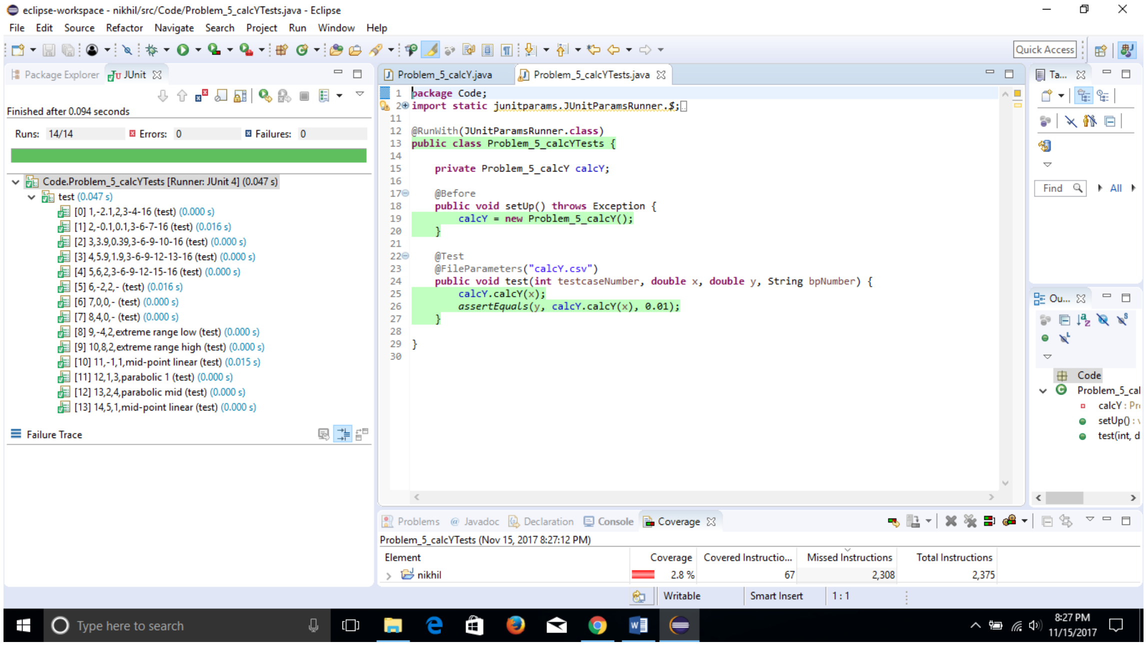
```
Code.Problem_5_calcYTests [Runner: JUnit 4] (0.047 s)
  test (0.047 s)
    [0] 1,-2.1,2,3-4-16 (test) (0.000 s)
    [1] 2,-0.1,0.1,3-6-7-16 (test) (0.016 s)
    [2] 3,3.9,0.39,3-6-9-10-16 (test) (0.000 s)
    [3] 4,5.9,1.9,3-6-9-12-13-16 (test) (0.000 s)
    [4] 5,6,2,3-6-9-12-15-16 (test) (0.000 s)
    [5] 6,-2,2,- (test) (0.016 s)
    [6] 7,0,0,- (test) (0.000 s)
    [7] 8,4,0,- (test) (0.000 s)
    [8] 9,-4,2,extreme range low (test) (0.000 s)
    [9] 10,8,2,extreme range high (test) (0.000 s)
    [10] 11,-1,1,mid-point linear (test) (0.015 s)
    [11] 12,1,3,parabolic 1 (test) (0.000 s)
    [12] 13,2,4,parabolic mid (test) (0.000 s)
    [13] 14,5,1,mid-point linear (test) (0.000 s)
```

```java
package Code;

public class Problem_5_calcY {

public double calcY (double x) {
    double y;
    if (x<-2.0)
        y=2;
    else
        if (x<0.0)
            y=-x;
        else
            if (x<4.0)
                y=-x*x+4*x;
            else
                if (x<6.0)
                    y=x-4;
                else
                    y=2.0;
    return y;
    }
}
```

Problem_5_calcYTests (Nov 15, 2017 8:27:12 PM)

Element	Coverage	Covered Instructio...	Missed Instructions	Total Instructions
nikhil	🟥 2.8 %	67	2,308	2,375

JUnit test file:



Finished after 0.094 seconds

Runs: 14/14 Errors: 0 Failures: 0

```
Code.Problem_5_calcYTests [Runner: JUnit 4] (0.047 s)
  test (0.047 s)
    [0] 1,-2.1,2,3-4-16 (test) (0.000 s)
    [1] 2,-0.1,0.1,3-6-7-16 (test) (0.016 s)
    [2] 3,3.9,0.39,3-6-9-10-16 (test) (0.000 s)
    [3] 4,5.9,1.9,3-6-9-12-13-16 (test) (0.000 s)
    [4] 5,6,2,3-6-9-12-15-16 (test) (0.000 s)
    [5] 6,-2,2,- (test) (0.016 s)
    [6] 7,0,0,- (test) (0.000 s)
    [7] 8,4,0,- (test) (0.000 s)
    [8] 9,-4,2,extreme range low (test) (0.000 s)
    [9] 10,8,2,extreme range high (test) (0.000 s)
    [10] 11,-1,1,mid-point linear (test) (0.015 s)
    [11] 12,1,3,parabolic 1 (test) (0.000 s)
    [12] 13,2,4,parabolic mid (test) (0.000 s)
    [13] 14,5,1,mid-point linear (test) (0.000 s)
```

Failure Trace

```java
package Code;
import static junitparams.JUnitParamsRunner.$;

@RunWith(JUnitParamsRunner.class)
public class Problem_5_calcYTests {

    private Problem_5_calcY calcY;

    @Before
    public void setUp() throws Exception {
        calcY = new Problem_5_calcY();
    }

    @Test
    @FileParameters("calcY.csv")
    public void test(int testcaseNumber, double x, double y, String bpNumber) {
        calcY.calcY(x);
        assertEquals(y, calcY.calcY(x), 0.01);
    }

}
```

Problem_5_calcYTests (Nov 15, 2017 8:27:12 PM)

Element	Coverage	Covered Instructio...	Missed Instructions	Total Instructions
nikhil	🟥 2.8 %	67	2,308	2,375