Assignment 4

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CSE 5321-001

Task 1:

Test Case Number	Input AGL (feet)	Expected Outputs motorState	chuteState	Basis Path
1	7500.2	Off	Off	16-17-38
2	4100.2	RB5	Off	16-19-20-38
3	2250.1	RB4	Off	16-19-22-23-38
4	1100.2	RB3	Off	16-19-22-25-26-38
5	400.2	RB2	Deployed	16-19-22-25-28-29-38
6	250.1	RB2	Released	16-19-22-25-28-31-32-38
7	0.1	RB1	Released	16-19-22-25-28-31-34-35-38
8	0.0	Off	Released	16-19-22-25-28-31-34-37-38
9	250.0	RB1	Released	-
10	400.1	RB2	Released	-
11	1100.1	RB2	Deployed	-
12	2250.0	RB3	Off	-
13	4100.1	RB4	Off	-
14	7500.1	RB5	Off	-
15	10000.0	Off	Off	-

Package Explorer   JUnit

Finished after 0.099 seconds

Runs: 15/15   Errors: 0   Failures: 0

∨ Homework4.Problem1ClassTestJUnitParams [Runner: JUnit 4] (0.048 s)
  ∨ test (0.048 s)
    [0] 7500.2, Off, Off (test) (0.002 s)
    [1] 4100.2, RB5, Off (test) (0.007 s)
    [2] 2250.1, RB4, Off (test) (0.005 s)
    [3] 1100.2, RB3, Off (test) (0.003 s)
    [4] 400.2, RB2, Deployed (test) (0.004 s)
    [5] 250.1, RB2, Released (test) (0.003 s)
    [6] 0.1, RB1, Released (test) (0.002 s)
    [7] 0.0, Off, Released (test) (0.003 s)
    [8] 250.0, RB1, Released (test) (0.004 s)
    [9] 400.1, RB2, Released (test) (0.003 s)
    [10] 1100.1, RB2, Deployed (test) (0.002 s)
    [11] 2250.0, RB3, Off (test) (0.003 s)
    [12] 4100.1, RB4, Off (test) (0.002 s)
    [13] 7500.1, RB5, Off (test) (0.002 s)
    [14] 10000.0, Off, Off (test) (0.003 s)

```java
 1  package Homework4;
 2  import static junitparams.JUnitParamsRunner.$;
12
13  @RunWith(JUnitParamsRunner.class)
14  public class Problem1ClassTestJUnitParams {
15
16      private Problem1Class prb1;
17
18      @SuppressWarnings("unused")
19      private static final Object[] parametersForProblem1ClassTest () {
20          return $(
21  //          Parameters are: (1,2,3)
22  //                          1=AGL, 2=motorState, 3=chuteState
23  //          Test case 1
24              $(7_500.2,   motorStates.Off,   chuteStates.Off),
25  //          Test case 2
26              $(4_100.2,   motorStates.RB5,   chuteStates.Off),
27  //          Test case 3
28              $(2_250.1,   motorStates.RB4,   chuteStates.Off),
29  //          Test case 4
30              $(1_100.2,   motorStates.RB3,   chuteStates.Off),
31  //          Test case 5
32              $(400.2,   motorStates.RB2, chuteStates.Deployed),
33  //          Test case 6
34              $(250.1,   motorStates.RB2, chuteStates.Released),
35  //          Test case 7
36              $(0.1,   motorStates.RB1,   chuteStates.Released),
37  //          Test case 8
38              $(0.0,   motorStates.Off,   chuteStates.Released),
39  //          Test case 9
40              $(250.0,   motorStates.RB1, chuteStates.Released),
41  //          Test case 10
42              $(400.1,   motorStates.RB2, chuteStates.Released),
43  //          Test case 11
44              $(1_100.1,   motorStates.RB2,   chuteStates.Deployed),
45  //          Test case 12
46              $(2_250.0,   motorStates.RB3,   chuteStates.Off),
47  //          Test case 13
48              $(4_100.1,   motorStates.RB4, chuteStates.Off),
49  //          Test case 14
50              $(7_500.1,   motorStates.RB5,   chuteStates.Off),
51  //          Test case 15
52              $(10_000.0,   motorStates.Off,   chuteStates.Off)
```

Element	Coverage
HW4	56.7 %
src	56.7 %
Homework4	56.7 %
Problem2Class.java	0.0 %
Problem4Class.java	0.0 %
Problem5Class.java	0.0 %
Problem3Class.java	0.0 %
Problem2ClassAlarm.java	0.0 %
Problem6Class.java	0.0 %
Problem1Class.java	96.8 %
Problem1ClassTestJUnitParams.java	100.0 %

```java
28              $(2_250.1,   motorStates.RB4,   chuteStates.Off),
29  //          Test case 4
30              $(1_100.2,   motorStates.RB3,   chuteStates.Off),
31  //          Test case 5
32              $(400.2,   motorStates.RB2, chuteStates.Deployed),
33  //          Test case 6
34              $(250.1,   motorStates.RB2, chuteStates.Released),
35  //          Test case 7
36              $(0.1,   motorStates.RB1,   chuteStates.Released),
37  //          Test case 8
38              $(0.0,   motorStates.Off,   chuteStates.Released),
39  //          Test case 9
40              $(250.0,   motorStates.RB1, chuteStates.Released),
41  //          Test case 10
42              $(400.1,   motorStates.RB2, chuteStates.Released),
43  //          Test case 11
44              $(1_100.1,   motorStates.RB2,   chuteStates.Deployed),
45  //          Test case 12
46              $(2_250.0,   motorStates.RB3,   chuteStates.Off),
47  //          Test case 13
48              $(4_100.1,   motorStates.RB4, chuteStates.Off),
49  //          Test case 14
50              $(7_500.1,   motorStates.RB5,   chuteStates.Off),
51  //          Test case 15
52              $(10_000.0,   motorStates.Off,   chuteStates.Off)
53
54          );
55      }
56
57      @Before
58      public void setUp () {
59          prb1 = new Problem1Class();
60      }
61
62      @Test
63      @Parameters(method="parametersForProblem1ClassTest")
64      public void test(double AGL, Problem1Class.motorStates expMS, Problem1Class.chut
65          prb1.controlLanding(AGL);
66          assertEquals(expMS, prb1.getMs());
67          assertEquals(expCS, prb1.getCs());
68      }
69  }
70
```

Task 2:

Test Case Number	Input batteryLevel (watts)	red	yellow	green	strobe	bell	Basis Path
1	0.0	TRUE	TRUE	TRUE	FALSE	TRUE	14-15-34
2	35.1	TRUE	TRUE	TRUE	TRUE	FALSE	14-17-18-34
3	60.0	FALSE	TRUE	TRUE	FALSE	TRUE	14-17-20-21-34
4	99.7	FALSE	FALSE	TRUE	FALSE	TRUE	14-17-20-23-24-34
5	99.9	FALSE	FALSE	FALSE	FALSE	TRUE	14-17-20-23-26-27-34
6	200.1	TRUE	TRUE	TRUE	FALSE	TRUE	14-17-20-23-26-29-30-34
7	200.2	FALSE	FALSE	FALSE	FALSE	TRUE	14-17-20-23-26-29-32-34
8	0.1	TRUE	TRUE	TRUE	TRUE	FALSE	-
9	35.2	FALSE	TRUE	TRUE	FALSE	TRUE	-
10	60.1	FALSE	FALSE	TRUE	FALSE	TRUE	-
11	99.8	FALSE	FALSE	FALSE	FALSE	TRUE	-
12	100.0	TRUE	TRUE	TRUE	FALSE	TRUE	-
13	1,000.0	FALSE	FALSE	FALSE	FALSE	TRUE	-

Package Explorer / JUnit

inished after 0.079 seconds

Runs: 13/13   Errors: 0   Failures: 0

- Homework4.Problem2ClassTestFileParams [Runner: JUnit 4] (0.034 s)
  - test (0.034 s)
    - [0] 1,0.0,TRUE,TRUE,TRUE,FALSE,TRUE,14-15-34 (test) (0.000 s)
    - [1] 2,35.1,TRUE,TRUE,TRUE,TRUE,FALSE,14-17-18-34 (test) (0.004 s)
    - [2] 3,60.0,FALSE,TRUE,TRUE,FALSE,TRUE,14-17-20-21-34 (test) (0.003 s)
    - [3] 4,99.7,FALSE,FALSE,TRUE,FALSE,TRUE,14-17-20-23-24-34 (test) (0.003 s)
    - [4] 5,99.9,FALSE,FALSE,FALSE,FALSE,TRUE,14-17-20-23-26-27-34 (test) (0.003 s)
    - [5] 6,200.1,TRUE,TRUE,TRUE,FALSE,TRUE,14-17-20-23-26-29-30-34 (test) (0.004 s)
    - [6] 7,200.2,FALSE,FALSE,FALSE,FALSE,TRUE,14-17-20-23-26-29-32-34 (test) (0.004 s)
    - [7] 8,0.1,TRUE,TRUE,TRUE,TRUE,FALSE,- (test) (0.002 s)
    - [8] 9,35.2,FALSE,TRUE,TRUE,FALSE,TRUE,- (test) (0.002 s)
    - [9] 10,60.1,FALSE,FALSE,TRUE,FALSE,TRUE,- (test) (0.003 s)
    - [10] 11,99.8,FALSE,FALSE,FALSE,FALSE,TRUE,- (test) (0.002 s)
    - [11] 12,100.0,TRUE,TRUE,TRUE,FALSE,TRUE,- (test) (0.002 s)
    - [12] 13,1000.0,FALSE,FALSE,FALSE,FALSE,TRUE,- (test) (0.002 s)

Problem2Class.java   Problem2ClassAlarm.java   Problem2ClassTestFileParams.java

```java
1  package Homework4;
2  import static org.junit.Assert.*;
9
10 @RunWith(JUnitParamsRunner.class)
11 public class Problem2ClassTestFileParams {
12
13     private Problem2Class prb2;
14     private Problem2ClassAlarm prb2Alarm;
15
16     @Before
17     public void setUp () {
18         prb2 = new Problem2Class();
19         prb2Alarm = new Problem2ClassAlarm();
20     }
21
22     @Test
23     @FileParameters("src/Homework4/Problem2TestCaseTable11.csv")
24     public void test(int testcaseNumber, double batteryLevel, boolean redLight, boolean
25         prb2.calcLights(batteryLevel, prb2Alarm);
26         assertEquals(redLight, prb2Alarm.isRedLight());
27         assertEquals(yellowLight, prb2Alarm.isYellowLight());
28         assertEquals(greenLight, prb2Alarm.isGreenLight());
29         assertEquals(strobe, prb2Alarm.isStrobe());
30         assertEquals(bell, prb2Alarm.isBell());
31     }
32 }
33
```

Coverage

Problem2ClassTestFileParams (Jul 31, 2020 4:34:46 PM)

Element	Coverage
HW4	22.8 %
src	22.8 %
Homework4	22.8 %
Problem1ClassTestJUnitParams.java	0.0 %
Problem1Class.java	0.0 %
Problem4Class.java	0.0 %
Problem5Class.java	0.0 %
Problem3Class.java	0.0 %
Problem6Class.java	0.0 %
Problem3ClassTestFileParams.java	0.0 %
Problem4ClassTestFileParams.java	0.0 %
Problem2Class.java	100.0 %
Problem2ClassAlarm.java	100.0 %
Problem2ClassTestFileParams.java	100.0 %

Task 3:

Test Case	Inputs			Exp Out	
Number	prime	memberPoints	total	Return	Basis Path
1	TRUE	1001	6500.01	TRUE	8-9-10-20 stmts 9-14 TFT
2	FALSE	551	6500.01	TRUE	8-16-17-18-19-20 stmts 16-19 TTT
3	TRUE	1000	2500.01	TRUE	8-9-12-13-14-20 stmts 9-14 FTT
4	FALSE	550	6500.01	FALSE	8-16-20 stmts 16-19 FTT
5	TRUE	1000	6500.01	FALSE	8-9-12-20 stmts 9-14 FFT
6	FALSE	551	9000.00	FALSE	8-16-17-20 stmts 16-19 TFT
7	TRUE	1000	2500.00	FALSE	8-9-12-13-20 stmts 9-14 FTF
8	FALSE	551	6500.00	FALSE	8-16-17-18-20 stmts 16-19 TTF
9	TRUE	1000	6500.00	TRUE	stmts 9-14 other FTT BV
10	FALSE	551	8999.99	TRUE	stmts 16-19 other TT BV
11	TRUE	0	6500.00	TRUE	ER memberPoints
12	TRUE	9999	6500.00	TRUE	ER memberPoints
13	TRUE	550	0.00	FALSE	ER total
14	TRUE	550	20000.00	FALSE	ER total

Finished after 0.09 seconds

Runs: 14/14   Errors: 0   Failures: 0

- Homework4.Problem3ClassTestFileParams [Runner: JUnit 4] (0.045 s)
  - test (0.045 s)
    - [0] 1,TRUE,1001,6500.01,TRUE,8-9-10-20 stmts 9-14 TFT (test) (0.000 s)
    - [1] 2,FALSE,551,6500.01,TRUE,8-16-17-18-19-20 stmts 16-19 TTT (test) (0.005 s)
    - [2] 3,TRUE,1000,2500.01,TRUE,8-9-12-13-14-20 stmts 9-14 FTT (test) (0.004 s)
    - [3] 4,FALSE,550,6500.01,FALSE,8-16-20 stmts 16-19 FTT (test) (0.006 s)
    - [4] 5,TRUE,1000,6500.01,FALSE,8-9-12-20 stmts 9-14 FFT (test) (0.004 s)
    - [5] 6,FALSE,551,9000.00,FALSE,8-16-17-20 stmts 16-19 TFT (test) (0.004 s)
    - [6] 7,TRUE,1000,2500.00,FALSE,8-9-12-13-20 stmts 9-14 FTF (test) (0.003 s)
    - [7] 8,FALSE,551,6500.00,FALSE,8-16-17-18-20 stmts 16-19 TTF (test) (0.003 s)
    - [8] 9,TRUE,1000,6500.00,TRUE,stmts 9-14 other FTT BV (test) (0.004 s)
    - [9] 10,FALSE,551,8999.99,TRUE,stmts 16-19 other TT BV (test) (0.003 s)
    - [10] 11,TRUE,0,6500.00,TRUE,ER memberPoints (test) (0.002 s)
    - [11] 12,TRUE,9999,6500.00,TRUE,ER memberPoints (test) (0.002 s)
    - [12] 13,TRUE,550,0.00,FALSE,ER total (test) (0.003 s)
    - [13] 14,TRUE,550,20000.00,FALSE,ER total (test) (0.002 s)

```java
1  package Homework4;
2  import static junitparams.JUnitParamsRunner.$;
11
12 @RunWith(JUnitParamsRunner.class)
13 public class Problem3ClassTestFileParams {
14
15     private Problem3Class prb3;
16
17     @Before
18     public void setUp () {
19         prb3 = new Problem3Class();
20     }
21
22     @Test
23     @FileParameters("src/Homework4/Problem3TestCaseTable.csv")
24     public void test(int testcaseNumber, boolean prime, int memberPoints, double total, bool
25         //prb3.approveCart(prime, memberPoints, total);
26         assertEquals(output, prb3.approveCart(prime, memberPoints, total));
27     }
28 }
```

Coverage

Problem3ClassTestFileParams (Jul 31, 2020 4:53:20 PM)

Element	Coverage	Co
HW4	5.5 %	
src	5.5 %	
Homework4	5.5 %	
Problem1ClassTestJUnitParams.java	0.0 %	
Problem1Class.java	0.0 %	
Problem2Class.java	0.0 %	
Problem4Class.java	0.0 %	
Problem5Class.java	0.0 %	
Problem2ClassTestFileParams.java	0.0 %	
Problem2ClassAlarm.java	0.0 %	
Problem6Class.java	0.0 %	
Problem4ClassTestFileParams.java	0.0 %	
Problem3Class.java	100.0 %	
Problem3ClassTestFileParams.java	100.0 %	

Task 4:

Test Case Number	Inputs			Exp Out			
	autoclave	temperature (degrees F)	pressure (psi)	return	Basis Path	Comments	
1	TRUE	212.1	4999.9	FullySterilized	10-11-12-13-14-22	stmts 9-14 TTT	
2	FALSE	212.1	4999.9	SomeSterilized	10-21-22		
3	TRUE	100.1	3499.9	PartialSterilized	10-11-16-17-18-19-22	stmts 16-19 TTT	
4	TRUE	212.1	3499.9	NoSterilization	10-11-12-22	stmts 9-14 TFT	
5	TRUE	100.0	3499.9	NoSterilization	10-11-16-22	stmts 16-19 FTT	
6	TRUE	212.1	5000.0	NoSterilization	10-11-12-13-22	stmts 9-14 TTF	
7	TRUE	100.1	1900.0	NoSterilization	10-11-16-17-22	stmts 16-19 TFT	
8	TRUE	100.1	3500.0	NoSterilization	10-11-16-17-22	stmts 16-19 TTF	
9	TRUE	212.0	4999.9	NoSterilization	10-11-16-17-18-22	stmts 9-14 FTT	
10	TRUE	212.1	3500.0	FullySterilized	-	TTT 2nd BV for stmts 9-14	
11	TRUE	100.1	1900.1	PartialSterilized	-	TTT 2nd BV for stmts 16-19	
12	TRUE	0.0	3499.9	NoSterilization	-	ER temperature	
13	TRUE	500.0	3499.9	NoSterilization	-	ER temperature	
14	TRUE	212.1	0.0	NoSterilization	-	ER pressure	
15	TRUE	212.1	10000.0	NoSterilization	-	ER pressure	

Task 5:

Test Case Number	Inputs x	Exp Out y	Basis Path
1	-1.01	6.00	8-9-27
2	-0.01	7.00	8-11-12-27
3	2.00	0.00	8-11-14-15-27
4	6.00	0.00	8-11-14-17-18-27
5	8.00	6.00	8-11-14-17-20-21-27
6	9.00	6.00	8-11-14-17-20-23-24-27
7	9.01	7.00	8-11-14-17-20-23-26-27
8	-2.00	6.00	extreme range
9	10.00	7.00	extreme range
10	-1.00	7.00	-
11	0.00	7.00	-
12	2.01	0.04	-
13	6.01	0.03	-
14	8.01	6.00	-
15	1.00	3.50	mid-point linear
16	4.00	4.00	parabolic mid
17	5.00	3.00	parabolic 1
18	7.00	3.00	mid-point linear

Package Explorer | JUnit

Finished after 0.095 seconds

Runs: 18/18   Errors: 0   Failures: 0

- Homework4.Problem5ClassTestFileParams [Runner: JUnit 4] (0.051 s)
  - test (0.051 s)
    - [0] 1,-1.01,6,08-09-27 (test) (0.001 s)
    - [1] 2,-0.01,7,8-11-12-27 (test) (0.003 s)
    - [2] 3,2,0,8-11-14-15-27 (test) (0.005 s)
    - [3] 4,6,0,8-11-14-17-18-27 (test) (0.004 s)
    - [4] 5,8,6,8-11-14-17-20-21-27 (test) (0.003 s)
    - [5] 6,9,6,8-11-14-17-20-23-24-27 (test) (0.003 s)
    - [6] 7,9.01,7,8-11-14-17-20-23-26-27 (test) (0.003 s)
    - [7] 8,-2,6,extreme range (test) (0.003 s)
    - [8] 9,10,7,extreme range (test) (0.003 s)
    - [9] 10,-1,7,- (test) (0.003 s)
    - [10] 11,0,7,- (test) (0.002 s)
    - [11] 12,2.01,0.04,- (test) (0.002 s)
    - [12] 13,6.01,0.03,- (test) (0.003 s)
    - [13] 14,8.01,6,- (test) (0.002 s)
    - [14] 15,1,3.5,mid-point linear (test) (0.003 s)
    - [15] 16,4,4,parabolic mid (test) (0.004 s)
    - [16] 17,5,3,parabolic 1 (test) (0.002 s)
    - [17] 18,7,3,mid-point linear (test) (0.002 s)

Problem4ClassTestFileParams.java | Problem5Class.java | Problem5ClassTestFileParams.java

```java
1  package Homework4;
2
3  import static junitparams.JUnitParamsRunner.$;
11
12 @RunWith(JUnitParamsRunner.class)
13 public class Problem5ClassTestFileParams {
14
15     private Problem5Class prb5;
16
17     @Before
18     public void setUp () {
19         prb5 = new Problem5Class();
20     }
21
22     @Test
23     @FileParameters("src/Homework4/Problem5TestCaseTable.csv")
24     public void test(int testcaseNumber, double x, double y, String bpNumber) {
25         assertEquals(y, prb5.calcY(x), 0.001);
26     }
27 }
```

Coverage

Problem5ClassTestFileParams (Jul 31, 2020 5:21:10 PM)

Element	Coverage
HW4	8.4 %
src	8.4 %
Homework4	8.4 %
Problem1ClassTestJUnitParams.java	0.0 %
Problem1Class.java	0.0 %
Problem2Class.java	0.0 %
Problem4Class.java	0.0 %
Problem2ClassTestFileParams.java	0.0 %
Problem3Class.java	0.0 %
Problem2ClassAlarm.java	0.0 %
Problem6Class.java	0.0 %
Problem3ClassTestFileParams.java	0.0 %
Problem4ClassTestFileParams.java	0.0 %
Problem5Class.java	94.9 %
Problem5ClassTestFileParams.java	100.0 %