

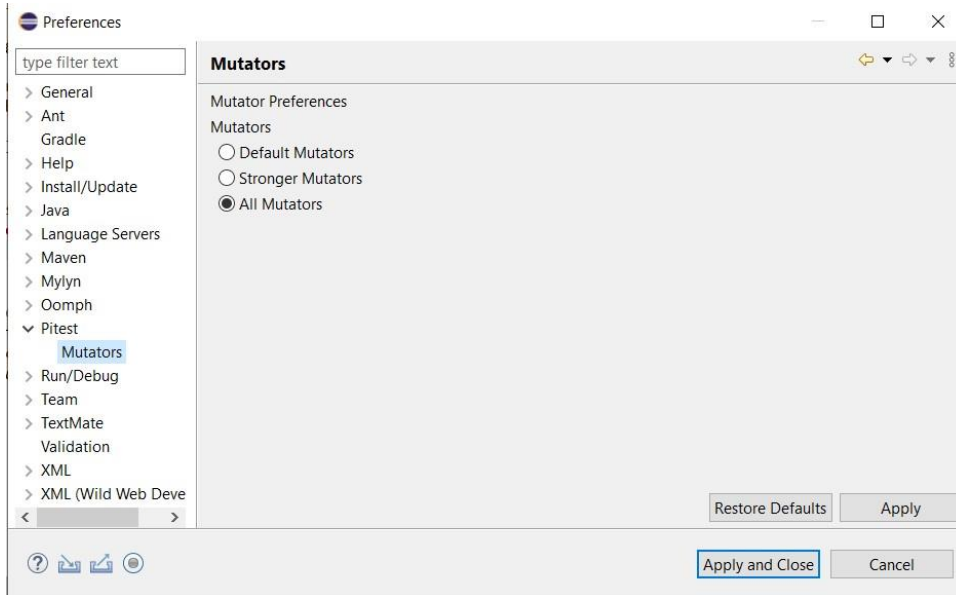
Assignment 5

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CSE 5321-001

Selected All Mutators:



Task 1:

1	TRUE	50.1	35	TRUE	5 -
2	FALSE	0	0	FALSE	0 line 9: FFT
3	TRUE	50	35.1	FALSE	15 line 9: TFF
4	TRUE	50.1	35.1	TRUE	10 line 9: TTF
5	TRUE	0	35	TRUE	15 line 9: TFT
6	TRUE	135	35	TRUE	5 -
7	TRUE	50.1	0	TRUE	5 -
8	TRUE	50.1	1000	TRUE	10 -
9	FALSE	50.1	35.1	FALSE	0 line 9: FTF

Package Explorer
JUnit
Finished after 0.062 seconds
Runs: 9/9
Errors: 0
Failures: 0

Homework5.Problem1ClassTest [Runner: JUnit 4] (0.001 s)
test (0.001 s)
[0] 1,TRUE,50.1,35,TRUE,5,- (test) (0.001 s)
[1] 2,FALSE,0,0,FALSE,0,line 9: FFT (test) (0.000 s)
[2] 3,TRUE,50,35.1,FALSE,15,line 9: TFF (test) (0.000 s)
[3] 4,TRUE,50.1,35.1,TRUE,10,line 9: TTF (test) (0.000 s)
[4] 5,TRUE,0,35,TRUE,15,line 9: TFT (test) (0.000 s)
[5] 6,TRUE,135,35,TRUE,5,- (test) (0.000 s)
[6] 7,TRUE,50.1,0,TRUE,5,- (test) (0.000 s)
[7] 8,TRUE,50.1,1000,TRUE,10,- (test) (0.000 s)
[8] 9,FALSE,50.1,35.1,FALSE,0,line 9: FTF (test) (0.000 s)

Failure Trace

Problem1Class.java
Problem1ClassTest.java

```

1 package Homework5;
2
3 public class Problem1Class {
4
5     int pulseCount;
6     boolean emerBrake;
7
8     public void emerBrakeFunction (boolean cruiseEngaged, double speed, double distance) {
9         emerBrake = (cruiseEngaged && (speed>50.0 || distance<=35.0));
10        pulseCount = (cruiseEngaged) ? (speed>50.0 ? (distance<=35.0 ? 5: 10) : 15) : 0;
11    }
12
13    public int getPulseCount() {
14        return pulseCount;
15    }
16
17    public void setPulseCount(int timer) {
18        this.pulseCount = timer;
19    }
20
21    public boolean isEmerBrake() {
22        return emerBrake;
23    }
24
25    public void setAutoDisengage(boolean autoDisengage) {
26        this.emerBrake = autoDisengage;
27    }
28 }

```

Problem1Class.java

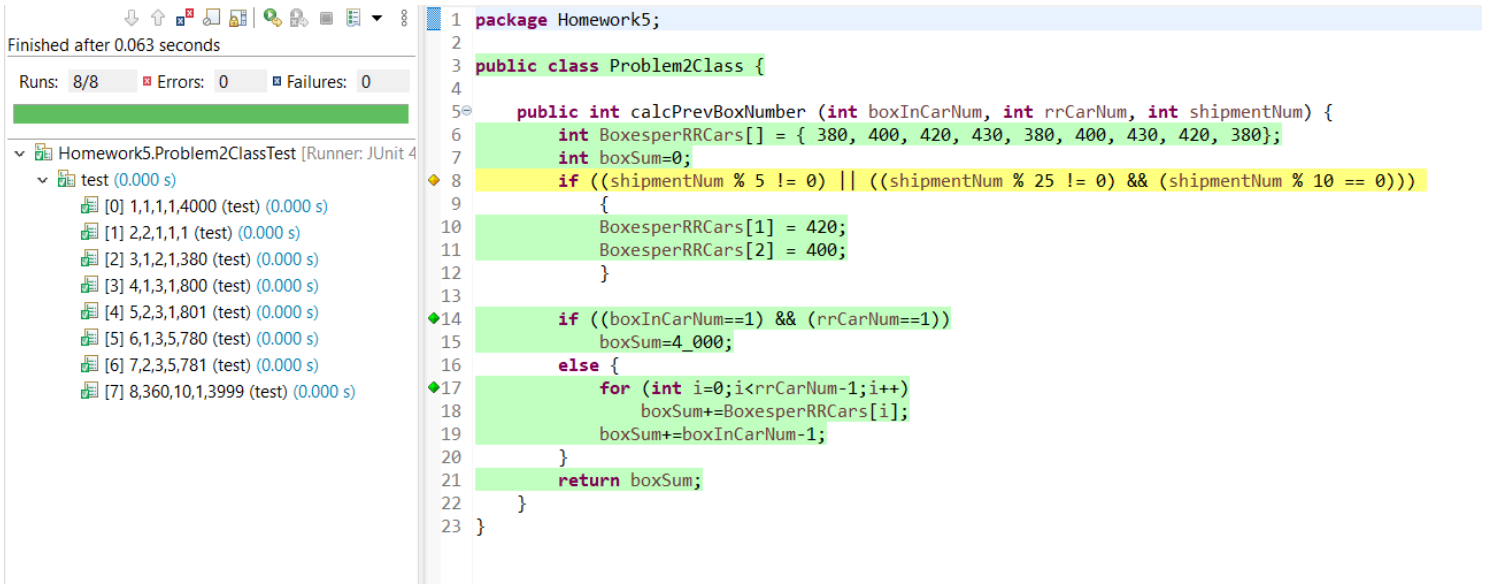
```

1 package Homework5;
2
3 public class Problem1Class {
4
5     int pulseCount;
6     boolean emerBrake;
7
8     public void emerBrakeFunction (boolean cruiseEngaged, double speed, double distance) {
9         emerBrake = (cruiseEngaged && (speed>50.0 || distance<=35.0));
10        pulseCount = (cruiseEngaged) ? (speed>50.0 ? (distance<=35.0 ? 5: 10) : 15) : 0;
11    }
12
13    public int getPulseCount() {
14        return pulseCount;
15    }
16
17    public void setPulseCount(int timer) {
18        this.pulseCount = timer;
19    }
20
21    public boolean isEmerBrake() {
22        return emerBrake;
23    }
24
25    public void setAutoDisengage(boolean autoDisengage) {
26        this.emerBrake = autoDisengage;
27    }
28 }

```

Task 2:

1,1,1,1,4000
2,2,1,1,1
3,1,2,1,380
4,1,3,1,800
5,2,3,1,801
6,1,3,5,780
7,2,3,5,781
8,360,10,1,3999



The screenshot shows an IDE with two panels. The left panel displays test results for `Homework5.Problem2ClassTest`. The right panel shows the source code for `Problem2Class.java`.

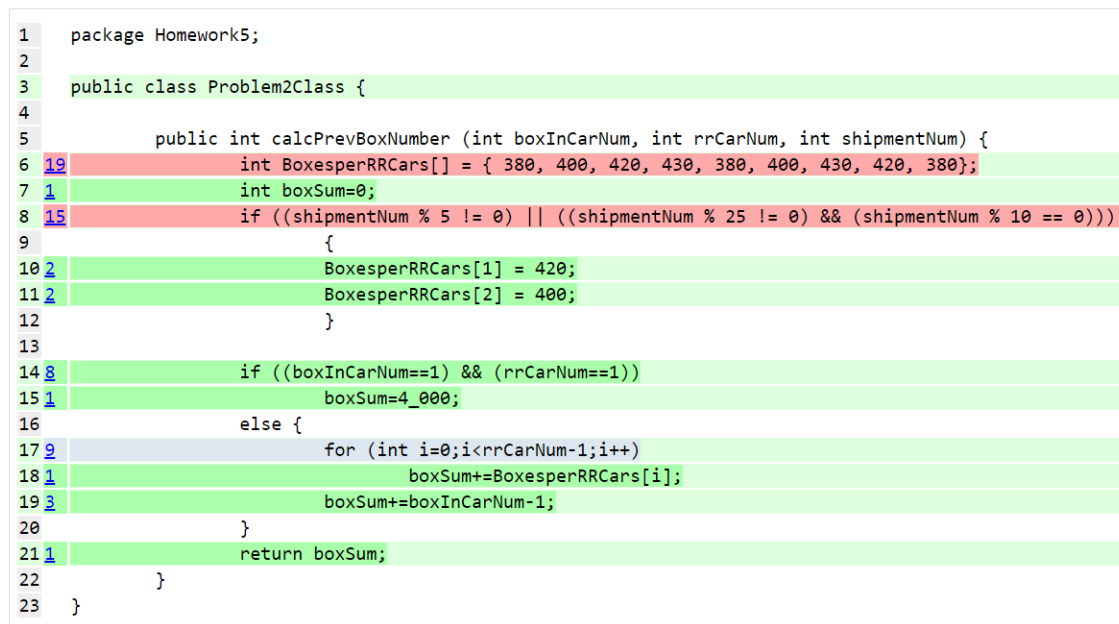
Test Results:

- Finished after 0.063 seconds
- Runs: 8/8
- Errors: 0
- Failures: 0
- Test cases passed: 8/8

Source Code:

```
1 package Homework5;
2
3 public class Problem2Class {
4
5     public int calcPrevBoxNumber (int boxInCarNum, int rrCarNum, int shipmentNum) {
6         int BoxesperRRCars[] = { 380, 400, 420, 430, 380, 400, 430, 420, 380};
7         int boxSum=0;
8         if ((shipmentNum % 5 != 0) || ((shipmentNum % 25 != 0) && (shipmentNum % 10 == 0)))
9         {
10             BoxesperRRCars[1] = 420;
11             BoxesperRRCars[2] = 400;
12         }
13
14         if ((boxInCarNum==1) && (rrCarNum==1))
15             boxSum=4_000;
16         else {
17             for (int i=0;i<rrCarNum-1;i++)
18                 boxSum+=BoxesperRRCars[i];
19             boxSum+=boxInCarNum-1;
20         }
21         return boxSum;
22     }
23 }
```

Problem2Class.java



```
1 package Homework5;
2
3 public class Problem2Class {
4
5     public int calcPrevBoxNumber (int boxInCarNum, int rrCarNum, int shipmentNum) {
6         19 int BoxesperRRCars[] = { 380, 400, 420, 430, 380, 400, 430, 420, 380};
7         1 int boxSum=0;
8         15 if ((shipmentNum % 5 != 0) || ((shipmentNum % 25 != 0) && (shipmentNum % 10 == 0)))
9         {
10             2 BoxesperRRCars[1] = 420;
11             2 BoxesperRRCars[2] = 400;
12         }
13
14         8 if ((boxInCarNum==1) && (rrCarNum==1))
15             1 boxSum=4_000;
16         else {
17             9 for (int i=0;i<rrCarNum-1;i++)
18                 1 boxSum+=BoxesperRRCars[i];
19             3 boxSum+=boxInCarNum-1;
20         }
21         1 return boxSum;
22     }
23 }
```

Task 3:

Corrections:

Line 22: Changed X=3 to X=2

Line 25: Changed state.L to state.OFF

Line 27, Changed X=2 to X=1

Line 28, Changed B==1 to P==1

Line 29, Changed state.U to state.X5

Line 34, Changed T to I (2 T's)

Line 35, Changed P==1 to Z==1

Line 36, Changed state.OFF to state.U

Line 36, Changed T to I (2 T's)

Line 42, Changed T to I (2 T's)

Line 46, Changed I to T (2 I's)

Added **break** after all switch cases.

1	Start	OFF	0	0	0	0	0	0	0	0
2	OFF	OFF	0	0	0	1	0	0	0	0
3	OFF	OFF	1	0	0	0	0	0	0	0
4	OFF	U	0	0	1	0	1	0	0	1
5	OFF	L	0	1	0	0	1	0	1	0
6	U	OFF	0	0	1	0	0	0	0	0
7	U	U	1	0	0	0	1	0	0	1
8	U	U	0	1	0	0	1	0	0	1
9	U	X5	0	0	0	1	1	0	0	2
10	X5	X5	0	1	0	0	1	0	0	2
11	X5	X5	0	0	1	0	1	0	0	2
12	X5	N	1	0	0	0	1	1	0	2
13	X5	X10	0	0	0	1	1	0	0	3
14	N	N	0	1	0	0	1	1	0	2
15	N	N	0	0	1	0	1	1	0	2
16	N	N	0	0	0	1	1	1	0	2
17	N	X5	1	0	0	0	1	0	0	2
18	X10	X10	1	0	0	0	1	0	0	3
19	X10	X10	0	1	0	0	1	0	0	3
20	X10	X10	0	0	1	0	1	0	0	3
21	X10	U	0	0	0	1	1	0	0	1
22	L	L	1	0	0	0	1	0	1	0
23	L	L	0	1	0	0	1	0	1	0
24	L	L	0	0	0	1	1	0	1	0
25	L	OFF	0	0	1	0	0	0	0	0

Finished after 0.135 seconds

Runs: 25/25 Errors: 0 Failures: 0

Homework5.Problem3ClassTest [Runner: JUnit 4] (0.039 s)

test (0.039 s)

- [0] 1,Start,OFF,0,0,0,0,0,0,0 (test) (0.000 s)
- [1] 2,OFF,OFF,0,0,0,1,0,0,0 (test) (0.000 s)
- [2] 3,OFF,OFF,1,0,0,0,0,0,0 (test) (0.000 s)
- [3] 4,OFF,U,0,0,1,0,1,0,0,1 (test) (0.000 s)
- [4] 5,OFF,L,0,1,0,0,1,0,1,0 (test) (0.000 s)
- [5] 6,U,OFF,0,0,1,0,0,0,0 (test) (0.000 s)
- [6] 7,U,U,1,0,0,0,1,0,0,1 (test) (0.000 s)
- [7] 8,U,U,0,1,0,0,1,0,0,1 (test) (0.000 s)
- [8] 9,U,X5,0,0,0,1,1,0,0,2 (test) (0.000 s)
- [9] 10,X5,X5,0,1,0,0,1,0,0,2 (test) (0.000 s)
- [10] 11,X5,X5,0,0,1,0,1,0,0,2 (test) (0.001 s)
- [11] 12,X5,N,1,0,0,0,1,1,0,2 (test) (0.000 s)
- [12] 13,X5,X10,0,0,0,1,1,0,0,3 (test) (0.000 s)
- [13] 14,N,N,0,1,0,0,1,1,0,2 (test) (0.002 s)
- [14] 15,N,N,0,0,1,0,1,1,0,2 (test) (0.003 s)
- [15] 16,N,N,0,0,0,1,1,1,0,2 (test) (0.004 s)
- [16] 17,N,X5,1,0,0,0,1,0,0,2 (test) (0.002 s)
- [17] 18,X10,X10,1,0,0,0,1,0,0,3 (test) (0.002 s)
- [18] 19,X10,X10,0,1,0,0,1,0,0,3 (test) (0.002 s)
- [19] 20,X10,X10,0,0,1,0,1,0,0,3 (test) (0.003 s)
- [20] 21,X10,U,0,0,0,1,1,0,0,1 (test) (0.002 s)
- [21] 22,L,L,1,0,0,0,1,0,1,0 (test) (0.003 s)
- [22] 23,L,L,0,1,0,0,1,0,1,0 (test) (0.005 s)
- [23] 24,L,L,0,0,0,1,1,0,1,0 (test) (0.002 s)
- [24] 25,L,OFF,0,0,1,0,0,0,0,0 (test) (0.006 s)

Failure Trace

```
10 public void operateBinoculars(state currentState, int D, int G, int P, int Z) {
11     switch (currentState) {
12         case Start: {B=0;I=0;T=0;X=0;nextState=state.OFF;} break;
13         case OFF: {if (P==1)
14                     {B=1;I=0;T=0;X=1;nextState=state.U;}
15                 }
16         else
17             if (G==1)
18                 {B=1;I=0;T=1;X=0;nextState=state.L;}
19             else
20                 {B=0;I=0;T=0;X=0;nextState=state.OFF;}
21         }break;
22         case U: {if (Z==1)
23                 {B=1;I=0;T=0;X=2;nextState=state.X5;}
24             }
25         else
26             if (P==1)
27                 {B=0;I=0;T=0;X=0;nextState=state.OFF;}
28             else
29                 {B=1;I=0;T=0;X=1;nextState=state.U;}
30         }break;
31         case X5: {if (G==1 || P==1)
32                 {B=1;I=0;T=0;X=2;nextState=state.X5;}
33             }
34         else
35             if (Z==1)
36                 {B=1;I=0;T=0;X=3;nextState=state.X10;}
37             else
38                 {B=1;I=1;T=0;X=2;nextState=state.N;}
39         }break;
40         case X10: {if (Z==1)
41                  {B=1;I=0;T=0;X=1;nextState=state.U;}
42              }
43         else
44             {B=1;I=0;T=0;X=3;nextState=state.X10;}
45         }break;
46         case N: {if (D==1)
47                 {B=1;I=0;T=0;X=2;nextState=state.X5;}
48             }
49         else
50             {B=1;I=1;T=0;X=2;nextState=state.N;}
51         }break;
52         case L: {if (P==1)
53                 {B=0;I=0;T=0;X=0;nextState=state.OFF;}
54             }
55         else
56             {B=1;I=0;T=1;X=0;nextState=state.L;}
57         }break;
58     }
59 }
```

Task 4:

```
1,850.00,TRUE,FALSE,TRUE,920.13,9-10-20-26,TFFFF
2,999.99,TRUE,FALSE,TRUE,1028.36,9-12-12-26,FTFFF
3,1250.00,TRUE,FALSE,TRUE,1217.81,9-12-15-16-26,FFTF
4,1499.99,TRUE,FALSE,TRUE,1380.18,9-12-15-18-19-26,FFTF
5,2500.00,TRUE,FALSE,TRUE,2165.00,9-12-15-18-21-22-26,FFFT
6,2500.01,TRUE,FALSE,TRUE,2029.70,9-12-15-18-21-24-26,FFFF
7,850.01,TRUE,FALSE,TRUE,874.13,-,Boundary Value
8,1000.00,TRUE,FALSE,TRUE,974.25,-,Boundary Value
9,1250.01,TRUE,FALSE,TRUE,1150.17,-,Boundary Value
10,1500.00,TRUE,FALSE,TRUE,1299.00,-,Boundary Value
11,0.00,TRUE,FALSE,TRUE,0.00,-,Extreme Range
12,20000.00,TRUE,FALSE,TRUE,16237.50,-,Extreme Range
13,2500.01,TRUE,FALSE,TRUE,2029.69,-,line 26: TFT
14,2500.01,FALSE,FALSE,TRUE,2706.26,-,line 26: FFT
15,2500.01,FALSE,TRUE,TRUE,2706.26,-,line 26: FTT
16,2500.01,TRUE,TRUE,TRUE,2029.69,-,line 26: TTF
```

Finished after 0.104 seconds

Runs: 16/16 Errors: 0 Failures: 0

Homework5.Problem4ClassTest [Runner: JUnit 4] (0.001 s)

```
test (0.001 s)
  [0] 1,850.00,TRUE,FALSE,TRUE,920.13,9-10-20-26,TFFFF (test) (0.000 s)
  [1] 2,999.99,TRUE,FALSE,TRUE,1028.36,9-12-12-26,FTFFF (test) (0.000 s)
  [2] 3,1250.00,TRUE,FALSE,TRUE,1217.81,9-12-15-16-26,FFTF (test) (0.000 s)
  [3] 4,1499.99,TRUE,FALSE,TRUE,1380.18,9-12-15-18-19-26,FFTF (test) (0.000 s)
  [4] 5,2500.00,TRUE,FALSE,TRUE,2165.00,9-12-15-18-21-22-26,FFFT (test) (0.000 s)
  [5] 6,2500.01,TRUE,FALSE,TRUE,2029.70,9-12-15-18-21-24-26,FFFF (test) (0.000 s)
  [6] 7,850.01,TRUE,FALSE,TRUE,874.13,-,Boundary Value (test) (0.000 s)
  [7] 8,1000.00,TRUE,FALSE,TRUE,974.25,-,Boundary Value (test) (0.000 s)
  [8] 9,1250.01,TRUE,FALSE,TRUE,1150.17,-,Boundary Value (test) (0.000 s)
  [9] 10,1500.00,TRUE,FALSE,TRUE,1299.00,-,Boundary Value (test) (0.000 s)
  [10] 11,0.00,TRUE,FALSE,TRUE,0.00,-,Extreme Range (test) (0.000 s)
  [11] 12,20000.00,TRUE,FALSE,TRUE,16237.50,-,Extreme Range (test) (0.000 s)
  [12] 13,2500.01,TRUE,FALSE,TRUE,2029.69,-,line 26: TFT (test) (0.000 s)
  [13] 14,2500.01,FALSE,FALSE,TRUE,2706.26,-,line 26: FFT (test) (0.000 s)
  [14] 15,2500.01,FALSE,TRUE,TRUE,2706.26,-,line 26: FTT (test) (0.000 s)
  [15] 16,2500.01,TRUE,TRUE,TRUE,2029.69,-,line 26: TTF (test) (0.000 s)
```

```
1 package Homework5;
2
3 public class Problem4Class {
4
5     public double calcCart (double cart, boolean loyaltyCard, boolean validCode, boolean validDigitalCoupon) {
6
7         double discount;
8
9         if (cart <= 850.0)
10             discount = 0.0;
11         else
12             if (cart < 1_000.0)
13                 discount = 0.05;
14             else
15                 if (cart <= 1_250.0)
16                     discount = 0.10;
17                 else
18                     if (cart < 1_500.0)
19                         discount = 0.15;
20                     else
21                         if (cart <= 2_500.0)
22                             discount = 0.2;
23                         else
24                             discount = 0.25;
25
26         return ((!validCode && !validDigitalCoupon) || !loyaltyCard) ? (cart * 1.0825) : (cart * (1-discount) * 1.0825);
27     }
28 }
```

Problem4Class.java

```
1 package Homework5;
2
3 public class Problem4Class {
4
5     public double calcCart (double cart, boolean loyaltyCard, boolean validCode, boolean validDigitalCoupon) {
6
7         double discount;
8
9         if (cart <= 850.0)
10             discount = 0.0;
11         else
12             if (cart < 1_000.0)
13                 discount = 0.05;
14             else
15                 if (cart <= 1_250.0)
16                     discount = 0.10;
17                 else
18                     if (cart < 1_500.0)
19                         discount = 0.15;
20                     else
21                         if (cart <= 2_500.0)
22                             discount = 0.2;
23                         else
24                             discount = 0.25;
25
26         return ((!validCode && !validDigitalCoupon) || !loyaltyCard) ? (cart * 1.0825) : (cart * (1-discount) * 1.0825);
27     }
28 }
```

Task 5:

1	850.00	FALSE	FALSE	TRUE	920.13	11-12-28	TFFFF	
2	999.99	FALSE	FALSE	TRUE	1082.49	11-14-15-28	FTFFF	
3	1250.00	FALSE	FALSE	TRUE	1353.13	11-14-17-18-28	FFTF	
4	1499.99	FALSE	FALSE	TRUE	1623.74	11-14-17-20-21-28	FFTF	
5	2500.00	FALSE	FALSE	TRUE	2706.25	11-14-17-20-23-24-28	FFFT	
6	2500.01	FALSE	FALSE	TRUE	2706.26	11-14-17-20-23-26-28	FFFF	
7	850.01	FALSE	FALSE	TRUE	920.14	-	-	Boundary Values
8	1000.00	FALSE	FALSE	TRUE	1082.50	-	-	Boundary Values
9	1250.01	FALSE	FALSE	TRUE	1353.14	-	-	Boundary Values
10	1500.01	FALSE	FALSE	TRUE	1623.76	-	-	Boundary Values
11	0.00	FALSE	FALSE	TRUE	0.00	-	-	Extreme Range
12	20000.00	FALSE	FALSE	TRUE	21650.00	-	-	Extreme Range
13	2500.00	TRUE	FALSE	TRUE	2165.00	-	-	line 10: TFT
14	2500.00	FALSE	TRUE	TRUE	2706.25	-	-	line 10: FTT
15	2500.00	TRUE	FALSE	FALSE	2706.25	-	-	line 10: TFF
16	2500.00	FALSE	TRUE	FALSE	2706.25	-	-	line 10: FTF

Finished after 0.199 seconds | Close

Runs: 16/16 | Errors: 0 | Failures: 0

Homework5.Problem5ClassTest [Runner: JUnit 4] (0.053 s)

- test (0.053 s)
 - [0] 1,850.00, FALSE, FALSE, TRUE, 920.13, 11-12-28, TFFFF (test) (0.000 s)
 - [1] 2,999.99, FALSE, FALSE, TRUE, 1082.49, 11-14-15-28, FTFFF (test) (0.000 s)
 - [2] 3,1250.00, FALSE, FALSE, TRUE, 1353.13, 11-14-17-18-28, FFTF (test) (0.000 s)
 - [3] 4,1499.99, FALSE, FALSE, TRUE, 1623.74, 11-14-17-20-21-28, FFTF (test) (0.000 s)
 - [4] 5,2500.00, FALSE, FALSE, TRUE, 2706.25, 11-14-17-20-23-24-28, FFFT (test) (0.004 s)
 - [5] 6,2500.01, FALSE, FALSE, TRUE, 2706.26, 11-14-17-20-23-26-28, FFFF (test) (0.013 s)
 - [6] 7,850.01, FALSE, FALSE, TRUE, 920.14, -, Boundary Values (test) (0.003 s)
 - [7] 8,1000.00, FALSE, FALSE, TRUE, 1082.50, -, Boundary Values (test) (0.004 s)
 - [8] 9,1250.01, FALSE, FALSE, TRUE, 1353.14, -, Boundary Values (test) (0.003 s)
 - [9] 10,1500.01, FALSE, FALSE, TRUE, 1623.76, -, Boundary Values (test) (0.003 s)
 - [10] 11,0.00, FALSE, FALSE, TRUE, 0.00, -, Extreme Range (test) (0.004 s)
 - [11] 12,20000.00, FALSE, FALSE, TRUE, 21650.00, -, Extreme Range (test) (0.003 s)
 - [12] 13,2500.00, TRUE, FALSE, TRUE, 2165.00, -, line 10: TFT (test) (0.003 s)
 - [13] 14,2500.00, FALSE, TRUE, 2706.25, -, line 10: FTT (test) (0.003 s)
 - [14] 15,2500.00, TRUE, FALSE, FALSE, 2706.25, -, line 10: TFF (test) (0.005 s)
 - [15] 16,2500.00, FALSE, TRUE, FALSE, 2706.25, -, line 10: FTF (test) (0.005 s)

```
1 package Homework5;
2
3 public class Problem5Class {
4
5     public double calcCart (Problem5ServerData data, boolean loyaltyCard, boolean validCode, boolean validDigitalCoupon) {
6
7         double discount=0, cart;
8         cart=data.getCart();
9
10        if ((validCode || validDigitalCoupon) && loyaltyCard) {
11            if (cart <= 850.0)
12                discount = 0.0;
13            else
14                if (cart < 1_000.0)
15                    discount = 0.05;
16                else
17                    if (cart <= 1_250.0)
18                        discount = 0.10;
19                    else
20                        if (cart < 1_500.0)
21                            discount = 0.15;
22                        else
23                            if (cart <= 2_500.0)
24                                discount = 0.2;
25                            else
26                                discount = 0.25;
27        }
28        return (cart * (1-discount) * 1.0825);
29    }
30 }
```

Problem5Class.java

```
1 package Homework5;
2
3 public class Problem5Class {
4
5     public double calcCart (Problem5ServerData data, boolean loyaltyCard, boolean validCode, boolean validDigitalCoupon) {
6
7         double discount=0, cart;
8         cart=data.getCart();
9
10        if ((validCode || validDigitalCoupon) && loyaltyCard) {
11            if (cart <= 850.0)
12                discount = 0.0;
13            else
14                if (cart < 1_000.0)
15                    discount = 0.05;
16                else
17                    if (cart <= 1_250.0)
18                        discount = 0.10;
19                    else
20                        if (cart < 1_500.0)
21                            discount = 0.15;
22                        else
23                            if (cart <= 2_500.0)
24                                discount = 0.2;
25                            else
26                                discount = 0.25;
27        }
28        return (cart * (1-discount) * 1.0825);
29    }
30 }
```