# Object-Oriented and State-Based Testing - Project Report

Sukanta Sharma (A20472623)

CS 589 – Software Testing & Analysis | Fall 2021 | Illinois Institute of Technology 12/2/21

BLE (		

Goal	5
Descriptioin of account class	9
Operation supported by the account class:	10
Testing	10
Driver Class for Testing	10
1. Model-based testing of the account class	10
Inbound and Outbound Transition for Each State	
Transition-pair for IDLE State	11
Transition-pair for CHECK PIN State	11
Transition-pair for READY State	12
Transition-pair for <b>OVERDRAWN</b> State	13
Transition-pair for LOCKED State	14
Non-executable Transition Pair	14
2. Default (ghost) Transition Testing of the Account Class	14
Default Transition for IDLE State	15
Default Transition for CHECK PIN State	15
Default Transition for READY State	15
Default Transition for OVERDRAWN State	15
Default Transition for LOCKED State	16
Non-executable Default Transition	16
3. Multiple-condition Testing of the Account Class	16
Multiple-condition Testing for open(z, y, x)	16
Multiple-condition Testing for pin(x)	17
Multiple-condition Testing for logout()	17
Multiple-condition Testing for login(x)	18
Multiple-condition Testing for balance()	18
Multiple-condition Testing for lock(x)	18
Multiple-condition Testing for unlock(x)	19
Multiple-condition Testing for deposit(d)	19
Multiple-condition Testing for withdraw(w))	20
Non-executable Multi-condition	21
Test Suit	<b>2</b> 1
Test Case Execution, Test Results and Correctness	<b>2</b> 3
TestCase#1	23
T . 0	

Transition Traversed	23
Output of Account Class	23
Correctness	52
TestCase#2	55
Test Case	55
Transition Traversed	55
Output of Account Class	55
Correctness	78
TestCase#3	80
Test Case	80
Transition Traversed	81
Output of Account Class	81
Correctness	102
TestCase#4	104
Test Case	104
Transition Traversed	104
Output of Account Class	104
Correctness	108
TestCase#5	108
Test Case	108
Transition Traversed	109
Output of Account Class	109
Correctness	109
TestCase#6	110
Test Case	110
Transition Traversed	111
Output of Account Class	111
Correctness	118
TestCase#7	118
Test Case	118
Transition Traversed	118
Output of Account Class	119
Correctness	126
TestCase#8	126
Test Case	126
Transition Traversed	126
Output of Account Class	126
Correctness	133
TastCase#9	134

Test Case	134
Transition Traversed	134
Output of Account Class	134
Correctness	141
TestCase#10	142
Test Case	142
Transition Traversed	142
Output of Account Class	
Correctness	151
TestCase#11	152
Test Case	152
Transition Traversed	153
Output of Account Class	153
Correctness	166
List of Failed Test Cases	167
TestCase#1	168
Incorrect Produced Output and Expected correct output	168
TestCase#2	170
Incorrect Produced Output and Expected correct output	170
TestCase#3	172
Incorrect Produced Output and Expected correct output	172
Cause of Failure	174
Transition – <i>T6</i>	174
Transition – <i>T21</i>	175
Instruction to Execute Test Cases	176
Minimum System Requirement	177
Validate Test Suite	
Execution on Windows System	
Execution on Mac/Non-windows System	
Conclusion	181

Sukanta Sharma (A20472623)

# OBJECT-ORIENTED AND STATE-BASED TESTING

#### **GOAL**

The goal of this project is to test and *account* class that exhibits state behavior specified by the given source code of the class *account* and EFSM model given below:

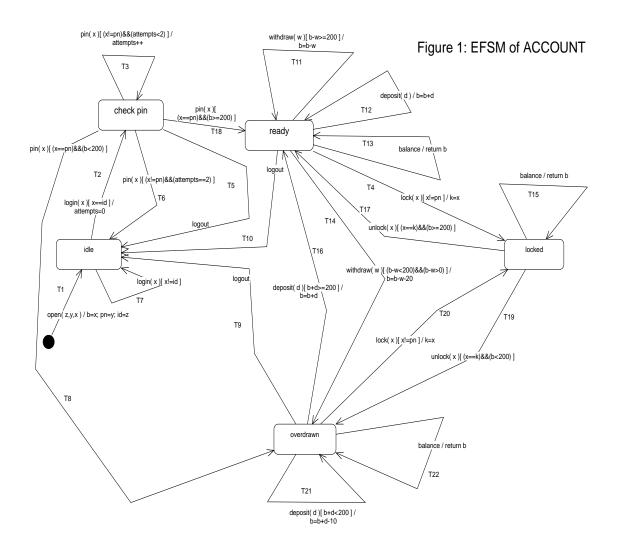


Figure 1: EFSM of Account class

Figure 2: Java Code of Account class

```
1 //************
2 //********* CLASS ACCOUNT ************
5
 6
7 public class account
8 {
9
     private int x0;
     private int x1;
10
     private int x2;
11
     private int x3;
12
13
     private int x4;
     private int x5;
14
15
     private int x6;
     private int x7;
16
17
     private int x8;
18
     private int x9;
19
20 public final int show_balance()
21 {
22
      return x1;
23 } //testing oriented method
24
25 public account()
26 {
27
      x2 = 0;
28
     x4 = -1;
     x6 = 20;
29
30
     x7 = 200;
31
     x9 = 0;
32
      x0 = 3;
33 }
34 public final int open(int z, int y, int x)
      if ((x > 0) \&\& (x4 == -1) \&\& (y > 0) \&\& (z > 0))
36
37
         x1 = x;
38
39
        x3 = y;
40
        x5 = z;
41
         x4 = 0;
42
         return 0;
43
     };
44
     return -1;
45 }
46 public final int pin(int x)
47 {
      if (x4 != 1)
48
49
50
         return -1;
51
52
     if (x == x3)
     {
53
54
         x4 = 2;
55
        return 0;
56
57
      else
```

```
58
      {
59
          x9++;
60
      if (x9 >= x0)
 61
62
       x4 = 0;
63
64
65
       return -1;
66 }
67 public final int logout()
68 {
       if ((x4 == 0) | | (x2 == 1))
69
70
71
          return -1;
 72
       x4 = 0;
73
74
       return 0;
75 }
76 public final int login(int x)
77 {
78
       if (x4 != 0)
79
80
         return -1;
81
      if (x5 == x)
82
83
      {
         x4 = 1;
84
          x9 = 0;
85
86
          return 0;
87
88
       return -1;
89 }
90 public final int balance()
91 {
92
       if (x4 != 2)
93
94
          return -1;
95
96
       return x1;
97 }
98 public final int lock(int x)
99 {
100
       if (x4 != 2)
101
102
          return -1;
103
104
       if (x == x3)
105
106
          return -1;
107
108
       if (x2 == 0)
109
          x2 = 1;
110
111
          x8 = x;
112
         return 0;
113
114
       else
```

```
115
      {
116
           return -1;
117
118 }
119 public final int unlock(int x)
120 {
       if (x4 != 2)
121
122
       {
123
           return -1;
124
       if ((x2 == 1) \&\& (x == x8))
125
126
       {
127
           x2 = 0;
128
       return 0;
129
130
       else
131
       {
132
           return -1;
133
134 }
135 public final int deposit(int d)
136 {
137
       if (x4 != 2)
138
       {
139
           return -1;
140
       if (x2 == 1)
141
142
      {
143
           return -1;
144
       };
145
       if ((x1 + d < x7) && (d>0))
146
147
           x1 = x1 + d - x6;
148
           return 0;
149
       }
150
       else
151
       {
152
           if (d > 0)
153
154
           x1 = x1 + d;
155
           return 0;
156
157
158 return -1;
159 }
160 public final int withdraw(int w)
161 {
162 if (x4 != 2)
163 {
164
       return -1;
165 }
166 if (x2 == 1)
167 {
168
       return -1;
169 };
170 if ((x1 > w) \&\& (w > 0))
171 {
```

Sukanta Sharma (A20472623)

```
172
       if (x1 < x7)
173
174
           return -1:
175
176
       else
177
       {
178
           x1 = x1 - w;
179
       };
180
       if (x1 < x7)
181
182
            x1 = x1 - x6;
183
184
     return 0;
185 }
186 return -1:
187 }
188 }
```

In this project, the goal is to test the provided implementation (source code) of the account class. To test the *account* class, we are supposed to implement a testing environment that should contain a class driver to execute test cases. The following testing methods should be used:

- 1. Model-based testing of the *Account* class: Use the provided EFSM model to test the *account* class. Design test cases for the *account* class so that all 2-transition sequences testing criterion (all transition-pairs) is satisfied based on the provided EFSM, i.e., all 2- transition sequences are exercised during testing.
- **2. Default (ghost) transition testing of the** *Account* **class:** Design a set of additional test cases so each default (ghost) transition in the EFSM is tested.
- **3. Multiple-condition Testing of the** *Account* **Class:** Use multiple-condition testing to design additional test cases to test predicates of conditional statements in operations/methods. Notice that if a predicate contains only a simple condition, the multiple-condition testing is equivalent to the branch testing for this predicate.

In the testing environment, we must introduce "testing-oriented" methods (in the *account* class) that will be used to watch the "internal states" of an *account* object to determine the correctness/incorrectness of the results for the test cases.

#### **DESCRIPTIOIN OF ACCOUNT CLASS**

An account requires a minimum balance of 200. If a balance is below a minimum balance in the account, a fee is imposed on each transaction (withdraw, deposit). Before any account transactions can be performed on the account, operation login() must be issued followed by pin() operation. The pin() operation must contain the valid pin # (parameter x) that must be the same as the pin # provided in the open() operation (parameter y). It is allowed a maximum of 3 attempts to "provide" an invalid pin. An account can be locked. When an account is locked, no transaction can be performed on the account (except unlock() and balance() operations). For the simplicity of implementation, all deposit and withdrawal transactions are performed in the whole dollar amounts only (no cents).

Sukanta Sharma (A20472623)

The EFSM model for the *account* class is provided above. Notice that the EFSM model specifies the expected behavior of the account class.

#### OPERATION SUPPORTED BY THE ACCOUNT CLASS:

The following operations are supported by the *account* class:

Class Account:		
Operation	Description	
account()	Constructor	
int open(int z, int y, int x)	Sets balance to the value of $x$ , pin number to the value of $y$ , and an account $\#$ to the value of $z$	
int login(int x)	Allows to login to the account, where x is an account #	
int logout()	Allows to logout from the account	
int pin(int x)	Provides pin # (parameter x)	
int deposit (int d)	Deposits amount d to the account	
int withdraw (int w)	Withdraws amount w from the account	
int balance ()	Returns the value of the account balance	
int lock (int x)	Locks an account where x is the lock #	
int unlock (int x)	Unlocks an account when x equals to the correct lock #	

Unless stated differently, each method (operation) returns 0 when the operation is successfully completed; otherwise, negative value -1 is returned.

#### **TESTING**

#### DRIVER CLASS FOR TESTING

To test the *account* class, a test driver class named "TestDriver" and a few testing-oriented methods in *account* class such as *show\_balance()*, *getCurrentState()*, *getLockedStatus()* and *getNumbeOfUnsuccessfulLoginAttemts()*. The file named "TestDriver.java" and updated "account.java" is provided and has been submitted in blackboard. The test cases are performed as below:

#### 1. MODEL-BASED TESTING OF THE ACCOUNT CLASS

#### INBOUND AND OUTBOUND TRANSITION FOR EACH STATE

To start with model-based testing, firstly we have found the Inbound and Outbound Transition for each state as given below:

#### Sukanta Sharma (A20472623)

State	Inbound Transition	Outbound Transition
IDLE	T1, T5, T6, T7, T9, T10	T2, T7
CHECK PIN	T2, T3	T3, T5, T6, T8, T18
READY	T11, T12, T13, T16, T17, T18	T4, T10, T11, T12, T13, T14
OVERDRAWN	T8, T14, T19, T21, T22	T9, T16, T20, T21, T22
LOCKED	T4, T15, T20	T15, T17, T19

# TRANSITION-PAIR FOR IDLE STATE

Using the above inbound and outbound transition we have found the below transition pair. For each transition-pair which test case in the test suite (TS.txt file) executes and covers that transition-pair is also provided. All the test case given are described later in this report.

Transition-pair		Covered by Test Cose Number
Inbound	Outbound	Covered by Test Case Number
T1	T2	TestCase#2
T1	Т7	TestCase#1
T5	T2	<u>TestCase#2</u>
T5	Т7	<u>TestCase#1</u>
T6	T2	TestCase#2
T6	T7	<u>TestCase#1</u>
T7	T2	TestCase#1
Т7	T7	<u>TestCase#1</u>
Т9	T2	TestCase#2
Т9	T7	<u>TestCase#2</u>
T10	T2	<u>TestCase#3</u>
T10	T7	<u>TestCase#1</u>

#### TRANSITION-PAIR FOR CHECK PIN STATE

Using the above inbound and outbound transition we have found the below transition pair. For each transition-pair which test case in the test suite (TS.txt file) executes and covers that transition-pair is also provided.

Transition-pair		Covered by Test Cose Number
Inbound	Outbound	Covered by Test Case Number
T2	T3	TestCase#1
T2	T5	TestCase#1
T2	T6	Impossible
T2	T8	TestCase#2
T2	T18	TestCase#1
Т3	T3	TestCase#1

#### Sukanta Sharma (A20472623)

Transition-pair		Coursed by Took Coop Number
Inbound	Outbound	Covered by Test Case Number
T3	T5	TestCase#2
T3	T6	TestCase#1
Т3	T8	TestCase#2
T3	T18	TestCase#3

# TRANSITION-PAIR FOR READY STATE

Using the above inbound and outbound transition we have found the below transition pair. For each transition-pair which test case in the test suite (TS.txt file) executes and covers that transition-pair is also provided.

Transition-pair		Coursed by Test Coast Number
Inbound	Outbound	Covered by Test Case Number
T11	T4	<u>TestCase#3</u>
T11	T10	<u>TestCase#5</u>
T11	T11	<u>TestCase#1</u>
T11	T12	<u>TestCase#3</u>
T11	T13	<u>TestCase#1</u>
T11	T14	<u>TestCase#5</u>
T12	T4	<u>TestCase#1</u>
T12	T10	<u>TestCase#5</u>
T12	T11	<u>TestCase#3</u>
T12	T12	<u>TestCase#1</u>
T12	T13	<u>TestCase#3</u>
T12	T14	<u>TestCase#3</u>
T13	T4	<u>TestCase#3</u>
T13	T10	<u>TestCase#1</u>
T13	T11	<u>TestCase#1</u>
T13	T12	<u>TestCase#1</u>
T13	T13	<u>TestCase#1</u>
T13	T14	<u>TestCase#1</u>
T16	T4	<u>TestCase#5</u>
T16	T10	<u>TestCase#3</u>
T16	T11	<u>TestCase#3</u>
T16	T12	<u>TestCase#3</u>
T16	T13	<u>TestCase#1</u>
T16	T14	<u>TestCase#2</u>
T17	T4	<u>TestCase#1</u>
T17	T10	<u>TestCase#5</u>
T17	T11	<u>TestCase#5</u>
T17	T12	<u>TestCase#3</u>

#### Sukanta Sharma (A20472623)

Transition-pair		Covered by Test Coss Number
Inbound	Outbound	Covered by Test Case Number
T17	T13	TestCase#1
T17	T14	<u>TestCase#3</u>
T18	T4	<u>TestCase#5</u>
T18	T10	<u>TestCase#5</u>
T18	T11	<u>TestCase#5</u>
T18	T12	<u>TestCase#5</u>
T18	T13	TestCase#1
T18	T14	TestCase#3

# TRANSITION-PAIR FOR **OVERDRAWN** STATE

Using the above inbound and outbound transition we have found the below transition pair. For each transition-pair which test case in the test suite (TS.txt file) executes and covers that transition-pair is also provided.

Transition-pair		Covered by Test Coss Number
Inbound	Outbound	Covered by Test Case Number
T8	Т9	TestCase#4
T8	T16	TestCase#3
T8	T20	TestCase#2
T8	T21	TestCase#2
T8	T22	TestCase#2
T14	Т9	TestCase#3
T14	T16	TestCase#3
T14	T20	TestCase#1
T14	T21	TestCase#3
T14	T22	TestCase#2
T19	Т9	TestCase#3
T19	T16	TestCase#3
T19	T20	TestCase#2
T19	T21	TestCase#1
T19	T22	TestCase#1
T21	Т9	TestCase#2
T21	T16	TestCase#2
T21	T20	TestCase#2
T21	T21	TestCase#2
T21	T22	TestCase#1
T22	Т9	TestCase#1
T22	T16	TestCase#1
T22	T20	TestCase#1
T22	T21	TestCase#1

#### Sukanta Sharma (A20472623)

Transition-pair		Covered by Test Case Number	
Inbound	Outbound	Covered by Test Case Number	
T22	T22	TestCase#1	

#### TRANSITION-PAIR FOR LOCKED STATE

Using the above inbound and outbound transition we have found the below transition pair. For each transition-pair which test case in the test suite (TS.txt file) executes and covers that transition-pair is also provided.

Transition-pair		Covered by Test Case Number
Inbound	Outbound	Covered by Test Case Number
T4	T15	TestCase#1
T4	T17	TestCase#1
T4	T19	Impossible
T15	T15	TestCase#1
T15	T17	TestCase#1
T15	T19	TestCase#1
T20	T15	TestCase#1
T20	T17	Impossible
T20	T19	TestCase#1

#### **NON-EXECUTABLE TRANSITION PAIR**

#### TRANSITION PAIR T2-T6 (CHECK PIN STATE)

After T2 transition the system is in CHECK PIN state then attempt = 0, so it is never possible to take T6 transition path just after T2 transition.

#### TRANSITION PAIR T4-T19 (LOCKED STATE)

After T4 transition the system is in LOCKED state then it is a precondition that balance  $b \ge 200$ , so it was in READY state before and it is never possible to take T19 transition just after T4, unlocking and moved to OVERDRAWN state.

#### TRANSITION PAIR T20-T17 (LOCKED STATE)

After T20 transition the system is in LOCKED state then it is a precondition that balance b < 200, so it was in OVERDRAWN state and it is never possible to take T17 transition just after T20, unlocking and moved to READY state.

#### 2. DEFAULT (GHOST) TRANSITION TESTING OF THE ACCOUNT CLASS

The default transitions for each state are given below:

#### Sukanta Sharma (A20472623)

#### **DEFAULT TRANSITION FOR IDLE STATE**

Transition Operation	Covered by Test Case#
open(z, y, x)	<u>TestCase#6</u>
logout()	<u>TestCase#6</u>
pin(x)	<u>TestCase#6</u>
deposit(d)	<u>TestCase#6</u>
withdraw(w)	<u>TestCase#6</u>
balance()	<u>TestCase#6</u>
lock(x)	<u>TestCase#6</u>
unlock(x)	<u>TestCase#6</u>

# DEFAULT TRANSITION FOR CHECK PIN STATE

Transition Operation	Covered by Test Case#
open(z, y, x)	<u>TestCase#7</u>
login(x)	<u>TestCase#7</u>
deposit(d)	<u>TestCase#7</u>
withdraw(w)	<u>TestCase#7</u>
balance()	<u>TestCase#7</u>
lock(x)	<u>TestCase#7</u>
unlock(x)	TestCase#7

# DEFAULT TRANSITION FOR READY STATE

Transition Operation	Covered by Test Case#	
open(z, y, x)	<u>TestCase#8</u>	
login(x)	<u>TestCase#8</u>	
pin(x)	<u>TestCase#8</u>	
withdraw(w)[b-w<=0]	<u>TestCase#8</u>	
lock(x)[x==pn]	<u>TestCase#8</u>	
unlock(x)	<u>TestCase#8</u>	

DEFAULT TRANSITION FOR OVERDRAWN STATE

#### Sukanta Sharma (A20472623)

Transition Operation	Covered by Test Case#	
open(z, y, x)	<u>TestCase#9</u>	
login(x)	<u>TestCase#9</u>	
pin(x)	<u>TestCase#9</u>	
withdraw(w)	<u>TestCase#9</u>	
lock(x)[x==pn]	<u>TestCase#9</u>	
unlock(x)	<u>TestCase#9</u>	

#### **DEFAULT TRANSITION FOR LOCKED STATE**

Transition Operation	Covered by Test Case#
open(z, y, x)	<u>TestCase#10</u>
login(x)	<u>TestCase#10</u>
logout()	<u>TestCase#10</u>
pin(x)	<u>TestCase#10</u>
deposit(d)	<u>TestCase#10</u>
withdraw(w)	<u>TestCase#10</u>
lock(x)	<u>TestCase#10</u>
Unlock(x)[x!=k]	<u>TestCase#10</u>

#### NON-EXECUTABLE DEFAULT TRANSITION

There are no non-executable transition pair

#### 3. MULTIPLE-CONDITION TESTING OF THE ACCOUNT CLASS

For multi-condition testing truth tables for each method are listed below with test case numbers, which covers them.

# MULTIPLE-CONDITION TESTING FOR OPEN(Z, Y, X)

# TRUTH TABLE 1 FOR OPEN(Z, Y, X)

x>0	x4 == -1	y>0	z>0	Covered by Test Case#
Т	Т	Т	Т	TestCase#1
Т	Т	Т	F	TestCase#11
Т	Т	F	Т	TestCase#11

#### Sukanta Sharma (A20472623)

x>0	x4 == -1	y>0	z>0	Covered by Test Case#
Т	Т	F	F	TestCase#11
Т	F	Т	Т	TestCase#6
Т	F	Т	F	TestCase#7
Т	F	F	Т	TestCase#8
Т	F	F	F	TestCase#9
F	Т	Т	Т	TestCase#11
F	Т	Т	F	TestCase#11
F	Т	F	Т	TestCase#11
F	Т	F	F	TestCase#11
F	F	Т	Т	TestCase#10
F	F	Т	F	TestCase#11
F	F	F	Т	TestCase#11
F	F	F	F	TestCase#11

MULTIPLE-CONDITION TESTING FOR PIN(X)

TRUTH TABLE 1 FOR PIN(X)

x4!=1	Covered by Test Case#
T	TestCase#6
F	TestCase#1

# TRUTH TABLE 2 FOR PIN(X)

x == x3	Covered by Test Case#	
Т	TestCase#1	
F	TestCase#1	

# TRUTH TABLE 3 FOR PIN(X)

x9 >= x0	Covered by Test Case#	
Т	TestCase#1	
F	TestCase#1	

MULTIPLE-CONDITION TESTING FOR LOGOUT()

#### Sukanta Sharma (A20472623)

# TRUTH TABLE 1 FOR LOGOUT()

x4 == 0	x2 == 1	Covered by Test Case#
Т	Т	Impossible
Т	F	TestCase#6
F	Т	TestCase#10
F	F	TestCase#1

#### MULTIPLE-CONDITION TESTING FOR LOGIN(X)

#### TRUTH TABLE 1 FOR LOGIN(X)

x4 != 0	Test#
Т	TestCase#7
F	TestCase#1

# TRUTH TABLE 2 FOR LOGIN(X)

x5 == x	Covered by Test Case#
Т	TestCase#1
F	TestCase#1

# MULTIPLE-CONDITION TESTING FOR BALANCE()

# TRUTH TABLE 1 FOR BALANCE()

x4 != 2	Covered by Test Case#
Т	TestCase#6
F	TestCase#1

#### MULTIPLE-CONDITION TESTING FOR LOCK(X)

# TRUTH TABLE 1 FOR LOCK(X)

#### Sukanta Sharma (A20472623)

x4 != 2	Covered by Test Case#
Т	TestCase#6
F	TestCase#1

# TRUTH TABLE 2 FOR LOCK(X)

x == x3	Covered by Test Case#
T	TestCase#8
F	TestCase#1

# TRUTH TABLE 3 FOR LOCK(X)

x2 == 0	Covered by Test Case#
Т	TestCase#1
F	TestCase#10

# MULTIPLE-CONDITION TESTING FOR UNLOCK(X)

# TRUTH TABLE 1 FOR UNLOCK(X)

x4 != 2	Covered by Test Case#
Т	TestCase#6
F	TestCase#1

# TRUTH TABLE 2 FOR UNLOCK(X)

x2 == 1	x == x8	Covered by Test Case#
Т	Т	TestCase#1
Т	F	TestCase#10
F	Т	TestCase#7
F	F	TestCase#8

MULTIPLE-CONDITION TESTING FOR DEPOSIT(D)

#### Sukanta Sharma (A20472623)

# TRUTH TABLE 1 FOR DEPOSIT(D)

x4 != 2	Covered by Test Case#
Т	TestCase#6
F	TestCase#1

# TRUTH TABLE 2 FOR DEPOSIT(D)

x2 == 1	Covered by Test Case#
Т	TestCase#10
F	TestCase#1

# TRUTH TABLE 3 FOR DEPOSIT(D)

x1 + d < x7	d > 0	Covered by Test Case#
Т	Т	TestCase#1
Т	F	TestCase#11
F	Т	TestCase#1
F	F	TestCase#11

# TRUTH TABLE 4 FOR DEPOSIT(D)

d > 0	Covered by Test Case#
Т	TestCase#1
F	TestCase#11

# MULTIPLE-CONDITION TESTING FOR WITHDRAW(W))

# TRUTH TABLE 1 FOR WITHDRAW(W)

x4 != 2	Covered by Test Case#
Т	TestCase#6
F	TestCase#1

#### Sukanta Sharma (A20472623)

#### TRUTH TABLE 2 FOR WITHDRAW(W)

x2 == 1	Covered by Test Case#
Т	TestCase#10
F	TestCase#1

#### TRUTH TABLE 3 FOR WITHDRAW(W)

x1 > w	w > 0	Covered by Test Case#
Т	Т	TestCase#1
Т	F	TestCase#8
F	Т	TestCase#11
F	F	TestCase#11

#### TRUTH TABLE 4 FOR WITHDRAW(W)

x1 < x7	Covered by Test Case#
Т	TestCase#9
F	TestCase#1

# TRUTH TABLE 5 FOR WITHDRAW(W)

x1 < x7	Covered by Test Case#
Т	TestCase#1
F	TestCase#1

#### NON-EXECUTABLE MULTI-CONDITION

In logout() the combination of  $(x4 == 0) \rightarrow True$  and  $(x2 == 1) \rightarrow False$  is impossible for execution because x4 = 0 when the system is in IDLE state and x2 = 1 when the system is in LOCKED state. The system cannot be present in two states at the same time. The truth table for this can be found in section Truth Table 1 for logout().

#### **TEST SUIT**

#### Sukanta Sharma (A20472623)

The test suit is created and stored in TS.txt. The detailed instruction to execute the test cases are given later in this report in the section Instruction to Execute Test Cases.

Test#1: open 100 123 200 login 150 login 140 login 100 pin 1 pin 2 pin 3 login 150 login 100 logout login 140 login 100 pin 123 balance balance deposit 50 deposit 50 lock 321 balance balance unlock 321 lock 321 unlock 321 balance withdraw 10 withdraw 10 balance withdraw 100 lock 321 balance unlock 321 balance balance deposit 20 balance lock 321 unlock 321 balance deposit 100 balance logout login 140

Test#2: open 100 123 190 login 100 pin 123 balance logout login 135 login 100 pin 123 deposit 10 deposit 10 lock 321 unlock 321 deposit 10 deposit 100 withdraw 100 balance logout login 100 pin 1 logout login 100 pin 2 pin 2 pin 2 login 100 pin 2 pin 123 lock 321 unlock 321 lock 321 deposit 10 logout

Test#3: open 100 123 190 login 100 pin 123 deposit 100 logout login 100 pin 2 pin 123 withdraw 100 deposit 10 lock 321 unlock 321 deposit 100 deposit 10 balance lock 321 unlock 321 withdraw 100 deposit 100 withdraw 10 deposit 10 withdraw 10 lock 321 unlock 321 deposit 10 withdraw 100 logout login 100 pin 123 logout

Test#4: open 100 123 190 login 100 pin 123 logout

Test#5: open 100 123 300 login 100 pin 123 lock 321 unlock 321 withdraw 10 withdraw 100 deposit 100 lock 321 unlock 321 logout login 100 pin 123 deposit 10 logout login 100 pin 123 withdraw 10 logout login 100 pin 123 logout

Test#6: open 100 123 200 open 100 123 200 logout pin 123 deposit 100 withdraw 100 balance lock 321 unlock 321

Test#7: open 100 123 200 login 100 open -100 123 200 login 100 deposit 100 withdraw 100 balance lock 321 unlock 0

Test#8: open 100 123 200 login 100 pin 123 open 100 -123 200 login 100 pin 123 withdraw 0 lock 123 unlock 123

Test#9: open 100 123 190 login 100 pin 123 open -100 -123 200 login 100 pin 123 withdraw 100 lock 123 unlock 321

Test#10: open 100 123 190 login 100 pin 123 lock 321 open 100 123 -200 login 100 logout pin 123 deposit 100 withdraw 100 lock 321 unlock 12

Test#11: open -100 123 200 open 100 -123 200 open -100 -123 200 open 100 123 -200 open -100 123 -200 open 100 -123 -200 open -100 -123 -200 open 100 123 190 open -100 123 -200 open 100 -123 -200 open -100 -123 -200 login 100 pin 123 withdraw 200 withdraw -10 deposit 0 deposit 100 deposit -10

Sukanta Sharma (A20472623)

#### TEST CASE EXECUTION, TEST RESULTS AND CORRECTNESS

#### TESTCASE#1

#### **TEST CASE**

#### From TS.txt

Test#1: open 100 123 200 login 150 login 140 login 100 pin 1 pin 2 pin 3 login 150 login 100 logout login 140 login 100 pin 123 balance balance deposit 50 deposit 50 lock 321 balance balance unlock 321 lock 321 unlock 321 balance withdraw 10 withdraw 10 balance withdraw 100 lock 321 balance unlock 321 balance balance deposit 20 balance lock 321 unlock 321 balance deposit 100 balance logout login 140

#### As method call

Test#1: open(100,123,200), login(150), login(140), login(100), pin(1), pin(2), pin(3), login(150), login(100), logout(), login(140), login(100), pin(123), balance(), balance(), deposit(50), deposit(50), lock(321), balance(), balance(), unlock(321), lock(321), unlock(321), balance(), withdraw(10), withdraw(10), lock(321), balance(), unlock(321), balance(), balance(), deposit(20), balance(), lock(321), unlock(321), balance(), deposit(100), balance(), logout(), login(140)

#### TRANSITION TRAVERSED

T1, T7, T7, T2, T3, T3, T6, T7, T2, T5, T7, T2, T18, T13, T13, T12, T12, T4, T15, T15, T17, T4, T17, T13, T11, T11, T13, T14, T20, T15, T19, T22, T22, T21, T22, T20, T19, T22, T16, T13, T10, T7

#### **OUTPUT OF ACCOUNT CLASS**

CS 589; Fall 2021 PROJECT Sukanta Sharma A2042623

Press Enter key to continue...

#### Sukanta Sharma (A20472623)

# Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCEb. SHOW STATEc. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 0 Your choice is : 0 Class: Account Type: Class Method Method: OPEN Enter Account#: 100 Enter PIN: Enter initial balance: 200 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS

Page 24 of 181

# Sukanta Sharma (A20472623)

q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Class: Account Type: Class Method Method: LOGIN
Enter Account#:
150
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT
2. WITHDRAW 3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN
7. PIN 8. LOGOUT
Testing Oriented Methods
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Class: Account
Type: Class Method Method: LOGIN
Enter Assount#
Enter Account#:

The value returned by the method is: -1 (FAILED)

Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice: 6 Your choice is : 6
Class: Account Type: Class Method Method: LOGIN
Enter Account#:
100
The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods

- a. SHOW BALANCE b. SHOW STATE

# Sukanta Sharma (A20472623)

<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
q. Quit Account Driver
Enter your choice:
Your choice is : 7
Class: Account Type: Class Method Method: PIN
Enter PIN:
1
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
The state of the s
Driver for the Account
0. OPEN 1. DEPOSIT
2. WITHDRAW 3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
CHOW DALANCE
a. SHOW BALANCE b. SHOW STATE
<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
q. Quit Account Driver
Enter your choice:
7
Your choice is : 7
Class: Account
Type: Class Method Method: PIN
Enter PIN:

Page 27 of 181

#### Sukanta Sharma (A20472623)

The value returned by the method is: -1 (FAILED) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 7 Your choice is : 7 Class: Account Type: Class Method Method: PIN Enter PIN: 3 The value returned by the method is: -1 (FAILED) Press Enter key to continue... Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK

- 6. LOGIN 7. PIN
- 8. LOGOUT
- Testing-Oriented Methods

# Sukanta Sharma (A20472623)

a. SHOW BALANCE b. SHOW STATE
c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
G. SHOW NUMBER OF UNSERCESSFUL LUCIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Classi Assaurt
Class: Account Type: Class Method
Method: LOGIN
Enter Account#:
150
The value returned by the method is: -1 (FAILED)
,
Press Enter key to continue
Driver for the Account
A 005N
0. OPEN 1. DEPOSIT
2. WITHDRAW 3. BALANCE
4. LOCK
5. UNLOCK 6. LOGIN
7. PIN 8. LOGOUT
Testing-Oriented Methods
- CHON DALANCE
a. SHOW BALANCE b. SHOW STATE
<ul> <li>c. SHOW LOCKED STATUS</li> <li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li> </ul>
q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Class: Account
Type: Class Method Method: LOGIN
Enter Account#:

Page 29 of 181

# Sukanta Sharma (A20472623)

100
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT
2. WITHDRAW 3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN
7. PIN 8. LOGOUT
6. L00001
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
8
Your choice is : 8
Class: Account Type: Class Method
Method: LOGOUT
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
DI IVET TOT CHE ACCOUNT
0. OPEN
1. DEPOSIT
2. WITHDRAW 3. BALANCE
4. LOCK
5. UNLOCK 6. LOGIN
7. PIN 8. 1060UT

Testing-Oriented Methods

# Sukanta Sharma (A20472623)

a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Class: Account Type: Class Method Method: LOGIN
Enter Account#:
140
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT
2. WITHDRAW 3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
b. SHOW STATE c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Class: Account
Type: Class Method Method: LOGIN

Enter Account#:

100
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT
2. WITHDRAW 3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN
7. PIN 8. LOGOUT
Testing-Oriented Methods
CHOW DALANCE
a. SHOW BALANCE b. SHOW STATE
<ul> <li>c. SHOW LOCKED STATUS</li> <li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li> </ul>
q. Quit Account Driver
Enter your choice:
7
Your choice is : 7
Class: Account Type: Class Method
Method: PIN
Enter PIN:
123
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT
2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK 6. LOGIN
7. PIN
8. LOGOUT

Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	
q. Quit Account Driver	
Enter your choice:	
3	
Your choice is : 3	
Class: Account Type: Class Method Method: BALANCE	
The value returned by the method is: Balance = 200	(SUCCESS)
Press Enter key to continue	
Driver for the Account	
0. OPEN 1. DEPOSIT	
2. WITHDRAW 3. BALANCE	
4. LOCK 5. UNLOCK	
6. LOGIN 7. PIN	
8. LOGOUT	
Testing-Oriented Methods	
a. SHOW BALANCE	
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>	
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	
q. Quit Account Driver	
Enter your choice:	
3	
Your choice is : 3	
Class: Account	
Type: Class Method Method: BALANCE	

# Sukanta Sharma (A20472623)

(SUCCESS)

	The value returned by the method is: Balance = 200
Press Ent	er key to continue
Driver fo	r the Account
	0. OPEN
	1. DEPOSIT 2. WITHDRAW
	3. BALANCE 4. LOCK
	5. UNLOCK 6. LOGIN
	7. PIN 8. LOGOUT
	6. 200001
Testing-0	riented Methods
	a. SHOW BALANCE
	b. SHOW STATE c. SHOW LOCKED STATUS
	d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
	q. Quit Account Driver
Enter you	r choice:
1	
Your choi	ce is · 1
Tour Choi	CC 13 . 1
Class: Ac	count
Type: Cla Method: D	ss Method
Enter Dep	osit Amount:
50	
	The value returned by the method is: 0 (SUCCESS)
Press Ent	er key to continue
Driver fo	r the Account
	0. OPEN
	1. DEPOSIT 2. WITHDRAW
	3. BALANCE 4. LOCK
	5. UNLOCK
	6. LOGIN 7. PIN
	8. LOGOLIT

Testing-Oriented Methods

# Sukanta Sharma (A20472623)

	a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	
	q. Quit Account Driver	
Enter you	r choice:	
1		
Your choi	ce is : 1	
Class: Acc Type: Clas Method: D	ss Method	
Enter Dep	osit Amount:	
50		
	The value returned by the method is: 0 (SUCCESS)	
Press Ente	er key to continue	
Driver to	r the Account	
	0. OPEN	
	1. DEPOSIT 2. WITHDRAW	
	3. BALANCE 4. LOCK	
	5. UNLOCK 6. LOGIN	
	7. PIN 8. LOGOUT	
	0. 200001	
Testing-0	riented Methods	
	a. SHOW BALANCE	
	b. SHOW STATE c. SHOW LOCKED STATUS	
	d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	
	q. Quit Account Driver	
Enter you	r choice:	
4		
Your choi	ce is : 4	
Class: Account Type: Class Method Method: LOCK		

Enter Lock#:

Page 35 of 181

#### Sukanta Sharma (A20472623)

321 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 3 Your choice is : 3 Class: Account Type: Class Method Method: BALANCE The value returned by the method is: Balance = 300 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT

Testing-Oriented Methods

# Sukanta Sharma (A20472623)

<ul><li>a. SHOW BALANCE</li><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>	
q. Quit Account Driver	
Enter your choice:	
3	
Your choice is : 3	
Class: Account Type: Class Method Method: BALANCE	
The value returned by the method ic: Balance - 200	(SUCCESS)
The value returned by the method is: Balance = 300	(SUCCESS)
Press Enter key to continue	
Driver for the Account	
<ul> <li>0. OPEN</li> <li>1. DEPOSIT</li> <li>2. WITHDRAW</li> <li>3. BALANCE</li> <li>4. LOCK</li> <li>5. UNLOCK</li> <li>6. LOGIN</li> <li>7. PIN</li> <li>8. LOGOUT</li> </ul>	
Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	
q. Quit Account Driver	
Enter your choice:	
5	
Your choice is : 5	
Class: Account Type: Class Method Method: UNLOCK	
Enter Lock#:	

321

# Sukanta Sharma (A20472623)

The value returned by the method is: 0 (SUCCESS)

The value recurried by the method 131 V (3000233)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
4
Your choice is : 4
Tour choice is . 4
Class: Account Type: Class Method
Method: LOCK
Enter Lock#:
321
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods

a. SHOW BALANCE b. SHOW STATE
<ul> <li>SHOW LOCKED STATUS</li> <li>SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li> </ul>
q. Quit Account Driver
Enter your choice:
5
Your choice is : 5
Class: Account Type: Class Method Method: UNLOCK
Enter Lock#:
321
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT
2. WITHDRAW 3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
3
Your choice is : 3

# Sukanta Sharma (A20472623)

(SUCCESS)

The value returned by the method is: Balance = 300
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
2
Your choice is : 2
Class: Account Type: Class Method Method: WITHDRAW
Enter Withdraw Amount:
10
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT

Testing-Oriented Methods

	a. SHOW BALANCE b. SHOW STATE
	c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
	q. Quit Account Driver
Enter you	r choice:
2	
Your choi	ce is : 2
Class: Ac Type: Cla Method: W	ss Method
Enter Wit	hdraw Amount:
10	
	The value returned by the method is: 0 (SUCCESS)
D 5-+	and have the completeness
Press Ent	er key to continue
Driver fo	r the Account
	0. OPEN
	1. DEPOSIT 2. WITHDRAW
	3. BALANCE
	4. LOCK 5. UNLOCK
	6. LOGIN 7. PIN
	8. LOGOUT
Testing-0	riented Methods
	a. SHOW BALANCE
	b. SHOW STATE c. SHOW LOCKED STATUS
	d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
	q. Quit Account Driver
Enter you	r choice:
3	
Your choi	ce is : 3
Class: Ac Type: Cla	
Method: B	

# Sukanta Sharma (A20472623)

(SUCCESS)

The value returned by the method is: Balance = 280
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
2
Your choice is : 2
Class: Account Type: Class Method Method: WITHDRAW
Enter Withdraw Amount:
100
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT

Testing-Oriented Methods

a. SHOW BALANCE b. SHOW STATE	
<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESS</li></ul>	FUL LOGIN ATTEMPTS
q. Quit Account Driver	
Enter your choice:	
4	
Your choice is : 4	
Class: Account Type: Class Method Method: LOCK	
Enter Lock#:	
321	
The value returne	d by the method is: 0 (SUCCESS)
Press Enter key to continue	
Driver for the Account	
<ul><li>0. OPEN</li><li>1. DEPOSIT</li></ul>	
2. WITHDRAW 3. BALANCE	
4. LOCK 5. UNLOCK	
6. LOGIN 7. PIN	
8. LOGOUT	
Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE	
c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESS	FIII LOGIN ATTEMPTS
d. Show Northbert of divisecess	TOE EGGIN ATTEM 15
q. Quit Account Driver	
Enter your choice:	
3	
Your choice is : 3	
Class: Account	
Type: Class Method Method: BALANCE	

# Sukanta Sharma (A20472623)

The value returned by the method is: Balance = 160 (SUCCESS)

The value returned by the method is: Balance = 160
Press Enter key to continue
,
Driver for the Account
0. OPEN 1. DEPOSIT
<ul><li>2. WITHDRAW</li><li>3. BALANCE</li></ul>
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
b. SHOW STATE c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
5
Your choice is : 5
Class: Account Type: Class Method
Method: UNLOCK
Enter Lock#:
321
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
DITYCE TO THE ACCOUNT
0. OPEN 1. DEPOSIT
2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK 6. LOGIN
7. PIN 8. LOGOUT

Testing-Oriented Methods

Page 44 of 181

# Sukanta Sharma (A20472623)

b. c.	SHOW BALANCE SHOW STATE SHOW LOCKED STATUS SHOW LOCKED STATUS SHOW LOCKED STATUS
u.	SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q.	Quit Account Driver
Enter your c	hoice:
3	
Your choice	is: 3
Class: Accou	
Type: Class Method: BALA	
	The value returned by the method is: Balance = 160 (SUCCESS)
Press Enter	key to continue
Driver for t	he Account
0.	OPEN .
1.	DEPOSIT WITHDRAW
	BALANCE LOCK
	UNLOCK LOGIN
7.	PIN LOGOUT
T+: 0-:-	and Mahada
Testing-Orie	nted methods
	SHOW BALANCE SHOW STATE
С.	SHOW LOCKED STATUS SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q.	Quit Account Driver
Enter your c	hoice:
3	
Your choice	is: 3
Class: Accou	nt
Type: Class Method: BALA	Method

The value returned by the method is: Balance = 160 (SUCCESS)

Press Enter key to continue
Driver for the Account
0. OPEN
<ol> <li>DEPOSIT</li> <li>WITHDRAW</li> </ol>
3. BALANCE 4. LOCK
5. UNLOCK 6. LOGIN
7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE
<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
q. Quit Account Driver
Enter your choice:
1
Your choice is : 1
Class: Account Type: Class Method Method: DEPOSIT
Enter Deposit Amounts
Enter Deposit Amount:
The column actioned by the method in a (CUSCESS)
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE

- b. SHOW STATE

# Sukanta Sharma (A20472623)

<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>	
q. Quit Account Driver	
Enter your choice:	
3	
Your choice is : 3	
Class: Account	
Type: Class Method Method: BALANCE	
The value returned by the method is: Balance = 160	(SUCCESS)
Press Enter key to continue	
Driver for the Account	
0. OPEN	
<ol> <li>DEPOSIT</li> <li>WITHDRAW</li> </ol>	
3. BALANCE 4. LOCK	
5. UNLOCK 6. LOGIN	
7. PIN 8. LOGOUT	
6. E00001	
Testing-Oriented Methods	
a. SHOW BALANCE	
b. SHOW STATE c. SHOW LOCKED STATUS	
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	
q. Quit Account Driver	
Enter your choice:	
4	
Your choice is : 4	
Class: Account Type: Class Method	
Method: LOCK	
Enter Lock#:	
271	

The value returned by the method is: 0 (SUCCESS)

Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:  5  Your choice is : 5
Class: Account Type: Class Method Method: UNLOCK
Enter Lock#:
321 $ \label{eq:continuous}                                   $
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods

- a. SHOW BALANCE b. SHOW STATE

# Sukanta Sharma (A20472623)

<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>	
q. Quit Account Driver	
Enter your choice:	
3	
Your choice is : 3	
Class: Account	
Type: Class Method Method: BALANCE	
The value returned by the method is: Balance = 16	0 (SUCCESS)
Press Enter key to continue	
Driver for the Account	
0. OPEN 1. DEPOSIT	
2. WITHDRAW 3. BALANCE	
4. LOCK	
5. UNLOCK 6. LOGIN	
7. PIN 8. LOGOUT	
Testing-Oriented Methods	
a. SHOW BALANCE	
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>	
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	
q. Quit Account Driver	
Enter your choice:	
1	
Your choice is : 1	
Class: Account	
Type: Class Method Method: DEPOSIT	
Enter Deposit Amount:	
100	

The value returned by the method is: 0 (SUCCESS)

# Sukanta Sharma (A20472623)

Press Enter key to continue	
Driver for the Account	
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT	
Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	
q. Quit Account Driver	
Enter your choice:	
Your choice is : 3	
Class: Account Type: Class Method	
Method: BALANCE	
The value returned by the method is: Balance = 260	(SUCCESS)
Press Enter key to continue	
Driver for the Account	
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT	
Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	

Page 50 of 181

q. Quit Account Driver
Enter your choice:
8
Your choice is : 8
Class: Account Type: Class Method Method: LOGOUT
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN
7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
b. SHOW STATE
<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Class: Account
Type: Class Method Method: LOGIN
Enter Account#:
140
The value returned by the method is: -1 (FAILED)
Press Enter key to continue

## Sukanta Sharma (A20472623)

#### Driver for the Account

- 0. OPEN
- 0. OPEN
  1. DEPOSIT
  2. WITHDRAW
  3. BALANCE
  4. LOCK
  5. UNLOCK
  6. LOGIN
  7. PIN
  8. LOGOUT

#### Testing-Oriented Methods

- a. SHOW BALANCE
  b. SHOW STATE
  c. SHOW LOCKED STATUS
  d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
- q. Quit Account Driver

Enter your choice:

q

Your choice is : q Quitting Account Driver...

THANK YOU!!!

# CORRECTNESS

		Expected Result			Pi	oduced	Result
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt
OPEN 100 123 200	T1	IDLE	200	0	IDLE	200	0
LOGIN 150	Т7	IDLE	200	0	IDLE	200	0
LOGIN 140	T7	IDLE	200	0	IDLE	200	0
LOGIN 100	T2	CHECK PIN	200	0	CHECK PIN	200	0
PIN 1	Т3	CHECK PIN	200	1	CHECK PIN	200	1

		Б	pected	Result	Produced Result		
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt
PIN 2	Т3	CHECK PIN	200	2	CHECK PIN	200	2
PIN 3	T6	IDLE	200	2	IDLE	200	3
LOGIN 150	Т7	IDLE	200	2	IDLE	200	3
LOGIN 100	T2	CHECK PIN	200	0	CHECK PIN	200	0
LOGOUT	T5	IDLE	200	0	IDLE	200	0
LOGIN 140	T7	IDLE	200	0	IDLE	200	0
LOGIN 100	T2	CHECK PIN	200	0	CHECK PIN	200	0
PIN 123	T18	READY	200	0	READY	200	0
BALANCE	T13	READY	200	0	READY	200	0
BALANCE	T13	READY	200	0	READY	200	0
DEPOSIT 50	T12	READY	250	0	READY	250	0
DEPOSIT 50	T12	READY	300	0	READY	300	0
LOCK 321	T4	LOCKED	300	0	LOCKED	300	0
BALANCE	T15	LOCKED	300	0	LOCKED	300	0
BALANCE	T15	LOCKED	300	0	LOCKED	300	0
UNLOCK 321	T17	READY	300	0	READY	300	0
LOCK 321	T4	LOCKED	300	0	LOCKED	300	0
UNLOCK 321	T17	READY	300	0	READY	300	0
BALANCE	T13	READY	300	0	READY	300	0

		Б	Expected Result			Produced Result		
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt	
WITHDRA W 10	T11	READY	290	0	READY	290	0	
WITHDRA W 10	T11	READY	280	0	READY	280	0	
BALANCE	T13	READY	280	0	READY	280	0	
WITHDRA W 100	T14	OVERDRAWN	160	0	OVERDRAWN	160	0	
LOCK 321	T20	LOCKED	160	0	LOCKED	160	0	
BALANCE	T15	LOCKED	160	0	LOCKED	160	0	
UNLOCK 321	T19	OVERDRAWN	160	0	OVERDRAWN	160	0	
BALANCE	T22	OVERDRAWN	160	0	OVERDRAWN	160	0	
BALANCE	T22	OVERDRAWN	160	0	OVERDRAWN	160	0	
DEPOSIT 20	T21	OVERDRAWN	<mark>170</mark>	0	OVERDRAWN	<mark>160</mark>	ō	
BALANCE	T22	OVERDRAWN	170	0	OVERDRAWN	160	0	
LOCK 321	T20	LOCKED	170	0	LOCKED	160	0	
UNLOCK 321	T19	OVERDRAWN	170	0	OVERDRAWN	160	0	
BALANCE	T22	OVERDRAWN	170	0	OVERDRAWN	160	0	
DEPOSIT 100	T16	READY	270	0	READY	260	0	
BALANCE	T13	READY	270	0	READY	260	0	
LOGOUT	T10	IDLE	270	0	IDLE	260	0	
LOGIN 140	T7	IDLE	270	0	IDLE	260	0	

#### Sukanta Sharma (A20472623)

As from the above table we can see that expected results are not matched with produced result. Hence the test case is **FAILED**. The contradicting operations are highlighted in **RED** color in the above table. This test case is also mentioned later in this report in the section <u>List of Failed Test Cases</u>

#### TESTCASE#2

#### **TEST CASE**

## From TS.txt

Test#2: open 100 123 190 login 100 pin 123 balance logout login 135 login 100 pin 123 deposit 10 deposit 10 lock 321 unlock 321 deposit 10 deposit 100 withdraw 100 balance logout login 100 pin 1 logout login 100 pin 2 pin 2 pin 2 login 100 pin 2 pin 123 lock 321 unlock 321 lock 321 unlock 321 deposit 10 logout

#### As method call

Test#2: open(100,123,190), login(100), pin(123), balance(), logout(), login(135), login(100), pin(123), deposit(10), deposit(10), lock(321), unlock(321), deposit(10), deposit(100), withdraw(100), balance(), logout(), login(100), pin(1), logout(), login(100), pin(2), pin(2), pin(2), login(100), pin(2), pin(123), lock(321), unlock(321), lock(321), unlock(321), deposit(10), logout()

### TRANSITION TRAVERSED

T1, T2, T8, T22, T9, T7, T2, T8, T21, T21, T20, T19, T21, T16, T14, T22, T9, T2, T3, T5, T2, T3, T3, T6, T2, T3, T8, T20, T19, T20, T19, T21, T9

#### **OUTPUT OF ACCOUNT CLASS**

CS 589; Fall 2021 PROJECT Sukanta Sharma A2042623

Press Enter key to continue		
Driver for the Account		

# Sukanta Sharma (A20472623)

0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT	
Testing—Oriented Methods	
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	
q. Quit Account Driver	
Enter your choice: 0 Your choice is : 0	
Class: Account Type: Class Method Method: OPEN	
Enter Account#:	
100 Enter PIN:	
123 Enter initial balance:	
190	
The value returned by the method is: 0 (SUCCESS	5)
Press Enter key to continue  Driver for the Account	
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	

q. Quit Account Driver

Enter your choice:
6
Your choice is : 6
Class: Account
Type: Class Method
Method: LOGIN
Enter Account#:
100
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
A ODEN
0. OPEN 1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK 6. LOGIN
7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
b. SHOW STATE
<ul> <li>c. SHOW LOCKED STATUS</li> <li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li> </ul>
ar show horbert of shoresteed to be been mile in to
a Quit Account Driver
q. Quit Account Driver
Enter your choice:
7
Your choice is : 7
Class: Account
Type: Class Method
Method: PIN
Enter PIN:
123
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue

## Sukanta Sharma (A20472623)

# Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: Your choice is : 3 Class: Account Type: Class Method Method: BALANCE The value returned by the method is: Balance = 190 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE d. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS

q. Quit Account Driver

Enter your choice:
8
Your choice is : 8
Class: Account Type: Class Method Method: LOGOUT
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
b. SHOW STATE
<ul> <li>c. SHOW LOCKED STATUS</li> <li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li> </ul>
q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Class: Account
Type: Class Method Method: LOGIN
Enter Account#:
135
The value returned by the method is: -1 (FAILED)
THE VALUE TELUTHER BY THE METHOD 151 (FAILED)
Press Enter key to continue

# Sukanta Sharma (A20472623)

Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
6
Your choice is : 6  Class: Account Type: Class Method
Method: LOGIN
Enter Account#:
100
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS

q. Quit Account Driver

Page 60 of 181

Enter your choice:
7
Your choice is : 7
Class: Account Type: Class Method Method: PIN
Enter PIN:
123
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE
<ul> <li>c. SHOW LOCKED STATUS</li> <li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li> </ul>
q. Quit Account Driver
Enter your choice:
1
Your choice is : 1
Class: Account
Type: Class Method Method: DEPOSIT
Enter Deposit Amount:
10
The value returned by the method is: 0 (SUCCESS)
Tatas . ata. new by the method 151 o (Success)
Press Enter key to continue

Driver for the Account	
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT	1
Testing-Oriented Meth	ods
a. SHOW BAL b. SHOW STA c. SHOW LOC d. SHOW NUM	TE
q. Quit Acc	count Driver
Enter your choice:	
1	
Your choice is : 1	
Class: Account Type: Class Method Method: DEPOSIT	
Enter Deposit Amount:	
10	
Т	The value returned by the method is: 0 (SUCCESS)
Press Enter key to co	ontinue
Driver for the Accoun	t
0. OPEN	
1. DEPOSIT 2. WITHDRAW	ı
3. BALANCE 4. LOCK	
5. UNLOCK 6. LOGIN	
7. PIN 8. LOGOUT	
0. L00001	
Testing-Oriented Meth	ods
a. SHOW BAL	
b. SHOW STA c. SHOW LOC	KED STATUS
d. SHOW NUM	BER OF UNSECCESSFUL LOGIN ATTEMPTS

# Sukanta Sharma (A20472623)

q. Quit Account Driver
Enter your choice:
4
Your choice is : 4
Class: Account Type: Class Method Method: LOCK
Enter Lock#:
321
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
5
Your choice is : 5
Class: Account Type: Class Method Method: UNLOCK
Enter Lock#:
321

The value returned by the method is: 0 (SUCCESS)

Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
1
Your choice is : 1
four choice is : I
Class: Account
Type: Class Method Method: DEPOSIT
Enter Denesit Amounts
Enter Deposit Amount:
10
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Daiwa for the Assessed
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN
7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
b. SHOW STATE

# Sukanta Sharma (A20472623)

q. Quit Account Driver  Enter your choice:  1  Your choice is: 1  Class: Account Type: Class Method Method: DEPOSIT  Enter Deposit Amount:  100  The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue  Driver for the Account  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver  Enter your choice:  2  Your choice is: 2  Class: Account Type: Class Method Method: WITHDRAW  Enter Withdraw Amount:	<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
Tour choice is: 1  Class: Account Type: Class Method Method: DEPOSIT  Enter Deposit Amount:  100  The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue  Driver for the Account  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver  Enter your choice: 2  Your choice is: 2  Class: Account Type: Class Method Method: WITHDRAW	q. Quit Account Driver
Class: Account Type: Class Method Method: DEPOSIT  Enter Deposit Amount:  100  The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue  Driver for the Account  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver  Enter your choice: 2  Your choice is: 2  Class: Account Type: Class Method Method: WITHDRAW	Enter your choice:
Class: Account Type: Class Method Method: DEPOSIT  Enter Deposit Amount:  100  The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue  Driver for the Account  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver  Enter your choice: 2  Your choice is: 2  Class: Account Type: Class Method Method: WITHDRAW	1
Type: Class Method Method: DEPOSIT  Enter Deposit Amount:  100  The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue   0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice:  2  Your choice is: 2	Your choice is : 1
Type: Class Method Method: DEPOSIT  Enter Deposit Amount:  100  The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue   0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice:  2  Your choice is: 2	
Type: Class Method Method: DEPOSIT  Enter Deposit Amount:  100  The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue   0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice:  2  Your choice is: 2	
Type: Class Method Method: DEPOSIT  Enter Deposit Amount:  100  The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue   0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice:  2  Your choice is: 2	
Enter Deposit Amount:  100  The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LUGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver  Enter your choice: 2  Your choice is: 2  Class: Account Type: Class Method Method: WITHDRAW	Class: Account
The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2 Your choice is: 2	Type: Class Method Method: DEPOSIT
The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2 Your choice is: 2	
The value returned by the method is: 0 (SUCCESS)  Press Enter key to continue  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2 Your choice is: 2	Enter Deposit Amount:
Press Enter key to continue  Driver for the Account  0. OPEN 1. DePOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is: 2	
Driver for the Account  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATUS d. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2 Your choice is: 2	The value returned by the method is: 0 (SUCCESS)
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is: 2	Press Enter key to continue
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is: 2	
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is: 2	
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is: 2	
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is: 2	
1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is: 2  Class: Account Type: Class Method Method: WITHDRAW	Driver for the Account
1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is: 2  Class: Account Type: Class Method Method: WITHDRAW	0. OPEN
3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is: 2  Class: Account Type: Class Method Method: WITHDRAW	
5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is : 2  Class: Account Type: Class Method Method: WITHDRAW	3. BALANCE
7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is: 2  Class: Account Type: Class Method Method: WITHDRAW	5. UNLOCK
Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is : 2  Class: Account Type: Class Method Method: WITHDRAW	7. PIN
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is : 2  Class: Account Type: Class Method Method: WITHDRAW	8. LOGOUT
b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is: 2  Class: Account Type: Class Method Method: WITHDRAW	Testing-Oriented Methods
b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 2  Your choice is: 2  Class: Account Type: Class Method Method: WITHDRAW	- CHOIM DALANCE
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice:  2  Your choice is : 2  Class: Account Type: Class Method Method: WITHDRAW	b. SHOW STATE
Enter your choice:  2  Your choice is : 2  Class: Account Type: Class Method Method: WITHDRAW	
Enter your choice:  2  Your choice is : 2  Class: Account Type: Class Method Method: WITHDRAW	Ouit Assessed Daisses
Your choice is : 2  Class: Account Type: Class Method Method: WITHDRAW	q. Quit Account Driver
Your choice is : 2  Class: Account Type: Class Method Method: WITHDRAW	Enter your choice:
Class: Account Type: Class Method Method: WITHDRAW	2
Type: Class Method Method: WITHDRAW	Your choice is : 2
Type: Class Method Method: WITHDRAW	
Type: Class Method Method: WITHDRAW	
Type: Class Method Method: WITHDRAW	
Method: WITHDRAW	
Enter Withdraw Amount	
	Enter Withdraw Amount:

100

# Sukanta Sharma (A20472623)

The value returned by the method is: 0 (SUCCESS)

Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
3
Your choice is : 3
Class: Account Type: Class Method Method: BALANCE
The value returned by the method is: Balance = 220 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods

a. SHOW BALANCE b. SHOW STATE

# Sukanta Sharma (A20472623)

<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
q. Quit Account Driver
Enter your choice:
8
Your choice is : 8
<del></del>
Class: Account Type: Class Method
Method: LOGOUT
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT
2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK 6. LOGIN
7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
a Quit Assaunt Driver
q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Class: Account
Type: Class Method
Method: LOGIN
Enter Account#:
100

The value returned by the method is: 0 (SUCCESS)

Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice: 7 Your choice is : 7
Class: Account Type: Class Method Method: PIN
Enter PIN:
1 $ \label{thm:continuous}                                   $
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods

- a. SHOW BALANCE b. SHOW STATE

# Sukanta Sharma (A20472623)

<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
q. Quit Account Driver
Enter your choice:
8
Your choice is : 8
<u></u>
Class: Account Type: Class Method
Method: LOGOUT
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT
2. WITHDRAW 3. BALANCE
4. LOCK
5. UNLOCK 6. LOGIN
7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
q. Quit Account Di Ivei
Enter your choice:
6
Your choice is : 6
Class: Account
Type: Class Method Method: LOGIN
Enter Account#:
100

The value returned by the method is: 0 (SUCCESS)

# Sukanta Sharma (A20472623)

Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK 6. LOGIN
7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
7
Your choice is : 7
Classi Assount
Class: Account Type: Class Method Method: PIN
Enter PIN:
2
The value returned by the method is: -1 (FAILED)
,
Press Enter key to continue
Define for the Assesse
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK 6. LOGIN
7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
b. SHOW STATE

Page 70 of 181

# Sukanta Sharma (A20472623)

<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
q. Quit Account Driver
Enter your choice:
7
Your choice is : 7
Class: Account
Type: Class Method Method: PIN
Enter PIN:
2
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
riess Litter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
7
Your choice is : 7
Classi Assount
Class: Account Type: Class Method
Method: PIN
Enter PIN:

Page 71 of 181

## Sukanta Sharma (A20472623)

The value returned by the method is: -1 (FAILED) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 6 Your choice is : 6 Class: Account Type: Class Method Method: LOGIN Enter Account#: 100 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK

Testing-Oriented Methods

6. LOGIN 7. PIN 8. LOGOUT

# Sukanta Sharma (A20472623)

a. SHOW BALANCE b. SHOW STATE	
c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	
q. Quit Account Driver	
Enter your choice:	
7	
Your choice is : 7	
Class: Account	
Type: Class Method Method: PIN	
Enter PIN:	
2	
The value returned by the method is: $-1$ (FAILE	))
Press Enter key to continue	
Driver for the Account	
0. OPEN 1. DEPOSIT	
2. WITHDRAW 3. BALANCE	
4. LOCK 5. UNLOCK	
6. LOGIN 7. PIN	
8. LOGOUT	
Testing-Oriented Methods	
CHOW DALANCE	
a. SHOW BALANCE b. SHOW STATE	
<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>	
q. Quit Account Driver	
Enter your choice:	
7	
Your choice is : 7	
Class: Account	
Type: Class Method Method: PIN	
Enter PIN:	

Page 73 of 181

#### Sukanta Sharma (A20472623)

123 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 4 Your choice is : 4 Class: Account Type: Class Method Method: LOCK Enter Lock#: 321 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOCK

6. LOGIN 7. PIN 8. LOGOUT

Page 74 of 181

#### Sukanta Sharma (A20472623)

# Testing-Oriented Methods a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: Your choice is : 5 Class: Account Type: Class Method Method: UNLOCK Enter Lock#: 321 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: Your choice is : 4

Class: Account Type: Class Method Method: LOCK

Enter Lock#:	
321	
	The value returned by the method is: 0 (SUCCESS)
Press Enter H	key to continue
n :	
Driver for th	e account
	OPEN
	DEPOSIT WITHDRAW
3.	BALANCE
	LOCK UNLOCK
6.	LOGIN
	PIN LOGOUT
Testing-Orier	nted Methods
a.	SHOW BALANCE
b.	SHOW STATE
	SHOW LOCKED STATUS SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q.	Quit Account Driver
Enter your ch	noice:
5	
Your choice i	15 : 5
Class: Accour	
Type: Class N Method: UNLOG	
Enter Lock#:	
321	
	The value returned by the method is: 0 (SUCCESS)
_	
Press Enter H	key to continue
Driver for th	ne Account
	ODEN
	OPEN DEPOSIT
2.	WITHDRAW
	BALANCE LOCK
5.	UNLOCK
	LOGIN

7. PIN 8. LOGOUT	
Testing-Oriented Meth	ods
a. SHOW BAL b. SHOW STA c. SHOW LOC d. SHOW NUM	TE
q. Quit Acc	ount Driver
Enter your choice:	
1	
Your choice is : 1	
Class: Account	
Type: Class Method Method: DEPOSIT	
Enter Deposit Amount:	
10	
Т	The value returned by the method is: 0 (SUCCESS)
Press Enter key to co	ntinue
Tress Enter key to co	
Driver for the Accoun	t 
0. OPEN 1. DEPOSIT	
<ol><li>WITHDRAW</li></ol>	
3. BALANCE 4. LOCK	
5. UNLOCK 6. LOGIN	
7. PIN 8. LOGOUT	
Testing-Oriented Meth	ods
a. SHOW BAL	
b. SHOW STA c. SHOW LOC	KED STATUS
d. SHOW NUM	BER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Acc	ount Driver
Enter your choice:	
8	
Your choice is : 8	

## Sukanta Sharma (A20472623)

Type: Class Method	
Method: LOGOUT	

The value returned by the method is: 0 (SUCCESS)

Press Enter key to continue...

#### Driver for the Account

- 0. OPEN
  1. DEPOSIT
  2. WITHDRAW
  3. BALANCE
  4. LOCK
  5. UNLOCK
  6. LOGIN
  7. PIN
  8. LOGOUT

#### Testing-Oriented Methods

- a. SHOW BALANCE
  b. SHOW STATE
  c. SHOW LOCKED STATUS
  d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
- q. Quit Account Driver

Enter your choice:

q

Your choice is : q Quitting Account Driver...

THANK YOU!!!

# CORRECTNESS

		Ex	cpected	Result	Pi	oduced	Result
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt
OPEN 100 123 190	T1	IDLE	190	0	IDLE	190	0
LOGIN 100	T2	CHECK PIN	190	0	CHECK PIN	190	0

		Ех	Expected Result			Produced Result		
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt	
PIN 123	Т8	OVERDRAWN	190	0	OVERDRAWN	190	0	
BALANCE	T22	OVERDRAWN	190	0	OVERDRAWN	190	0	
LOGOUT	Т9	IDLE	190	0	IDLE	190	0	
LOGIN 135	Т7	IDLE	190	0	IDLE	190	0	
LOGIN 100	T2	CHECK PIN	190	0	CHECK PIN	190	0	
PIN 123	Т8	OVERDRAWN	190	0	OVERDRAWN	190	0	
DEPOSIT 10	T21	OVERDRAWN	<mark>190</mark>	0	READY	200	0	
DEPOSIT 10	T21	OVERDRAWN	<mark>190</mark>	Ō	READY	210	Ö	
LOCK 321	T20	LOCKED	190	0	LOCKED	210	0	
UNLOCK 321	T19	OVERDRAWN	190	0	READY	210	0	
DEPOSIT 10	T21	OVERDRAWN	190	0	READY	220	0	
DEPOSIT 100	T16	READY	290	0	READY	320	0	
WITHDRA W 100	T14	OVERDRAWN	170	0	READY	220	0	
BALANCE	T22	OVERDRAWN	170	0	READY	220	0	
LOGOUT	Т9	IDLE	170	0	IDLE	220	0	
LOGIN 100	T2	CHECK PIN	170	0	CHECK PIN	220	0	
PIN 1	Т3	CHECK PIN	170	0	CHECK PIN	220	1	
LOGOUT	T5	IDLE	170	0	IDLE	220	1	
LOGIN 100	T2	CHECK PIN	170	0	CHECK PIN	220	0	

#### Sukanta Sharma (A20472623)

		Е	pected	Result	P	roduced	Result
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt
PIN 2	Т3	CHECK PIN	170	1	CHECK PIN	220	1
PIN 2	Т3	CHECK PIN	170	2	CHECK PIN	220	2
PIN 2	T6	IDLE	<mark>170</mark>	2	IDLE	220	
LOGIN 100	T2	CHECK PIN	170	0	CHECK PIN	220	0
PIN 2	Т3	CHECK PIN	170	1	CHECK PIN	220	1
PIN 123	Т8	OVERDRAWN	170	1	READY	220	1
LOCK 321	T20	LOCKED	170	1	LOCKED	220	1
UNLOCK 321	T19	OVERDRAWN	170	1	READY	220	1
LOCK 321	T20	LOCKED	170	1	LOCKED	220	1
UNLOCK 321	T19	OVERDRAWN	170	1	READY	220	1
DEPOSIT 10	T21	OVERDRAWN	<mark>170</mark>	1	READY	230	1
LOGOUT	Т9	IDLE	170	1	IDLE	230	1

As from the above table we can see that expected results are not matched with produced result. Hence the test case is **FAILED**. The contradicting operations are highlighted in **RED** color in the above table. This test case is also mentioned later in this report in the section <u>List of Failed Test Cases</u>

## TESTCASE#3

## **TEST CASE**

#### From TS.txt

Test#3: open 100 123 190 login 100 pin 123 deposit 100 logout login 100 pin 2 pin 123 withdraw 100 deposit 10 lock 321 unlock 321 deposit 100 deposit 10 balance lock 321 unlock 321 withdraw 100 deposit 100 withdraw 10 lock 321 unlock 321 deposit 10 withdraw 100 logout login 100 pin 123 logout

#### Sukanta Sharma (A20472623)

#### As method call

Test#3: open(100,123,190), login(100), pin(123), deposit(100), logout(), login(100), pin(2). pin(123),withdraw(100), deposit(10), lock(321), unlock(321), deposit(100), deposit(10), balance(), lock(321), unlock(321), withdraw(100), deposit(100), withdraw(10), deposit(10), withdraw(10), lock(321), unlock(321), deposit(10), withdraw(100), logout(), login(100), pin(123), logout()

#### TRANSITION TRAVERSED

T1, T2, T8, T16, T10, T2, T3, T18, T14, T21, T20, T19, T16, T12, T13, T4, T17, T14, T16, T11, T12, T11, T4, T17, T12, T14, T9, T2, T8, T9

#### **OUTPUT OF ACCOUNT CLASS**

CS 589; Fall 2021 PROJECT Sukanta Sharma A2042623

Press Enter key to continue...

Driver for the Account

- 0. OPEN
- 1. DEPOSIT
- 2. WITHDRAW 3. BALANCE
- 4. LOCK 5. UNLOCK
- 6. LOGIN 7. PIN
- 8. LOGOUT

Testing-Oriented Methods

- a. SHOW BALANCE b. SHOW STATE
- c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
- q. Quit Account Driver

Enter your choice:

Your choice is: 0

Class: Account Type: Class Method Method: OPEN
Enter Account#:
100 Enter PIN:
123 Enter initial balance:
190
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Class: Account Type: Class Method Method: LOGIN
Enter Account#:
100
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue

Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
7
Your choice is : 7
Class: Account Type: Class Method Method: PIN
Enter PIN:
123
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS

# Sukanta Sharma (A20472623)

q. Quit Account Driver
Enter your choice:
1
Your choice is : 1
Class: Account Type: Class Method Method: DEPOSIT
Enter Deposit Amount:
100
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
8
Your choice is : 8
Class: Account Type: Class Method Method: LOGOUT
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue

Page 84 of 181

Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Class: Account Type: Class Method Method: LOGIN
Enter Account#:
100
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS

# Sukanta Sharma (A20472623)

q. Quit Account Driver
Enter your choice:
7
Your choice is : 7
Class: Account
Type: Class Method Method: PIN
Enter PIN:
2
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT
2. WITHDRAW 3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
7
Your choice is : 7
Class: Account Type: Class Method
Method: PIN
Enter PIN:
123

The value returned by the method is: 0 (SUCCESS)

# Sukanta Sharma (A20472623)

Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:  2  Your choice is : 2
Class: Account Type: Class Method Method: WITHDRAW
Enter Withdraw Amount:
100 $ \label{eq:The value returned by the method is: 0 (SUCCESS) } $
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods

a. SHOW BALANCE b. SHOW STATE

# Sukanta Sharma (A20472623)

c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
1
Your choice is : 1
Class: Account
Type: Class Method Method: DEPOSIT
Enter Deposit Amount:
10
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE
<ul> <li>c. SHOW LOCKED STATUS</li> <li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li> </ul>
ar show horizen or shocked about him and to
q. Quit Account Driver
Enter your choice:
4
Your choice is : 4
Class: Account Type: Class Method
Method: LOCK
Enter Lock#:

321

Page 88 of 181

# Sukanta Sharma (A20472623)

The value returned by the method is: 0 (SUCCESS)

The value recurried by the method 131 0 (30cc133)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
b. SHOW STATE
<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
q. Quit Account Driver
Enter your choice:
5
Your choice is : 5
Classi Assemb
Class: Account Type: Class Method Method: UNLOCK
Enter Lock#:
321
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods

# Sukanta Sharma (A20472623)

a. SHOW BALANCE b. SHOW STATE
c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
at short to be to the court in
q. Quit Account Driver
Enter your choice:
1
Your choice is : 1
Class: Account Type: Class Method Method: DEPOSIT
Enter Deposit Amount:
100
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE
c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
d. SHOW NOPIDER OF UNSECCESSIVE EVOLD ATTEMPTS
q. Quit Account Driver
Enter your choice:
1
Your choice is : 1
Class: Account Type: Class Method
Method: DEPOSIT
Enter Deposit Amount:

Page 90 of 181

#### Sukanta Sharma (A20472623)

10 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 3 Your choice is : 3 Class: Account Type: Class Method Method: BALANCE The value returned by the method is: Balance = 270 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT

Testing-Oriented Methods

Page 91 of 181

# Sukanta Sharma (A20472623)

a. SHOW BALANCE b. SHOW STATE
c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
at short to be to the court in
q. Quit Account Driver
Enter your choice:
4
Your choice is : 4
Class: Account Type: Class Method Method: LOCK
Enter Lock#:
321
The value returned by the method is: $\emptyset$ (SUCCESS)
The value retained by the method 13. 6 (Soccess)
Press Enter key to continue
Driver for the Account
0. OPEN
<ol> <li>DEPOSIT</li> <li>WITHDRAW</li> </ol>
3. BALANCE 4. LOCK
5. UNLOCK 6. LOGIN
7. PIN
8. LOGOUT
Testing-Oriented Methods
CURL DI MCF
a. SHOW BALANCE b. SHOW STATE
<ul> <li>c. SHOW LOCKED STATUS</li> <li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li> </ul>
q. Quit Account Driver
Enter your choice:
5
Your choice is : 5
Tour choice is . 5
Class: Account Type: Class Method
Method: UNLOCK
Enter Lock#:

Page 92 of 181

#### Sukanta Sharma (A20472623)

321 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 2 Your choice is : 2 Class: Account Type: Class Method Method: WITHDRAW Enter Withdraw Amount: 100 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK

- 6. LOGIN 7. PIN 8. LOGOUT

#### Sukanta Sharma (A20472623)

# Testing-Oriented Methods a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: Your choice is : 1 Class: Account Type: Class Method Method: DEPOSIT Enter Deposit Amount: 100 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: Your choice is : 2

Class: Account Type: Class Method Method: WITHDRAW

Enter Withdraw Amount:	
10	
The value returned by	the method is: 0 (SUCCESS)
Press Enter key to continue	
Driver for the Account	
Ø. OPEN	
<ol> <li>DEPOSIT</li> </ol>	
<ul><li>2. WITHDRAW</li><li>3. BALANCE</li></ul>	
4. LOCK 5. UNLOCK	
6. LOGIN	
7. PIN 8. LOGOUT	
Testing-Oriented Methods	
a. SHOW BALANCE	
b. SHOW STATE c. SHOW LOCKED STATUS	
d. SHOW NUMBER OF UNSECCESSFUL	LOGIN ATTEMPTS
q. Quit Account Driver	
Enter your choice:	
1	
Your choice is : 1	
Class: Account	
Type: Class Method Method: DEPOSIT	
Enter Deposit Amount:	
10	
The value returned by	the method is: 0 (SUCCESS)
Press Enter key to continue	
Driver for the Account	
0. OPEN 1. DEPOSIT	
2. WITHDRAW	
3. BALANCE 4. LOCK	
5. UNLOCK	
6. LOGIN	

7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
Your choice is : 2
Class: Account Type: Class Method Method: WITHDRAW
Enter Withdraw Amount:
10
The value returned by the method is: 0 (SUCCESS)
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
Your choice is : 4

Class: Account Type: Class Method Method: LOCK
Enter Lock#:
321
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver
Enter your choice: 5
Your choice is : 5
Class: Account Type: Class Method Method: UNLOCK
Enter Lock#:
321
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE

#### Sukanta Sharma (A20472623)

5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: Your choice is : 1 Class: Account Type: Class Method Method: DEPOSIT Enter Deposit Amount: 10 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice:

4. LOCK

Your choice is : 2

	ass Method WITHDRAW
nethou:	WIITDRAW
Enter Wi	thdraw Amount:
100	
	The value returned by the method is: 0 (SUCCESS)
_	
Press Er	ter key to continue
Driver f	for the Account
	0. OPEN 1. DEPOSIT
	2. WITHDRAW 3. BALANCE
	4. LOCK 5. UNLOCK
	6. LOGIN 7. PIN
	8. LOGOUT
Tostina	Oriented Methods
	Of Tented Methods
	a. SHOW BALANCE
	b. SHOW STATE c. SHOW LOCKED STATUS
	d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
	q. Quit Account Driver
	our choice:
8	
Your cho	ice is : 8
Class: A	ccount ass Method
Method:	
	The value returned by the method is: 0 (SUCCESS)
Droce Er	tor key to centinue
riess Li	iter key to continue
Driver f	or the Account
	0. OPEN 1. DEPOSIT
	2. WITHDRAW 3. BALANCE

# Sukanta Sharma (A20472623)

5. UNLOCK 6. LOGIN 7. PIN	
8. LOGOUT	
Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATU d. SHOW NUMBER OF UN	S SECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driv	er
Enter your choice:	
6	
Your choice is : 6	
Class: Account Type: Class Method Method: LOGIN	
Enter Account#:	
100	
The value	returned by the method is: 0 (SUCCESS)
Press Enter key to continue  Driver for the Account	
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT	
Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATU d. SHOW NUMBER OF UN	S SECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driv	er
Enter your choice:	
7	
Your choice is : 7	

4. LOCK

Class: Account Type: Class Method Method: PIN
Enter PIN:
123
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing—Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
8
Your choice is : 8
Class: Account Type: Class Method Method: LOGOUT
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN
<ol> <li>DEPOSIT</li> <li>WITHDRAW</li> </ol>
3. BALANCE

#### Sukanta Sharma (A20472623)

- 4. LOCK
  5. UNLOCK
  6. LOGIN
  7. PIN
  8. LOGOUT

#### Testing-Oriented Methods

- a. SHOW BALANCE
  b. SHOW STATE
  c. SHOW LOCKED STATUS
  d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
- q. Quit Account Driver

Enter your choice:

Your choice is : q Quitting Account Driver...

THANK YOU!!!

# CORRECTNESS

		Expected Result			Produced Result		
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt
OPEN 100 123 190	T1	IDLE	190	0	IDLE	190	0
LOGIN 100	T2	CHECK PIN	190	0	CHECK PIN	190	0
PIN 123	Т8	OVERDRAWN	190	0	OVERDRAWN	190	0
DEPOSIT 100	T16	READY	290	0	READY	290	0
LOGOUT	T10	IDLE	290	0	IDLE	290	0
LOGIN 100	T2	CHECK PIN	290	0	CHECK PIN	290	0
PIN 2	Т3	CHECK PIN	290	1	CHECK PIN	290	1
PIN 123	T18	READY	290	1	READY	290	1

		Expected Result			Produced Result		
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt
WITHDRA W 100	T14	OVERDRAWN	170	1	OVERDRAWN	170	1
DEPOSIT 10	T21	OVERDRAWN	170	1	OVERDRAWN	160	1
LOCK 321	T20	LOCKED	170	1	LOCKED	160	1
UNLOCK 321	T19	OVERDRAWN	170	1	OVERDRAWN	160	1
DEPOSIT 100	T16	READY	270	1	READY	260	1
DEPOSIT 10	T12	READY	280	1	READY	270	1
BALANCE	T13	READY	280	1	READY	270	1
LOCK 321	T4	LOCKED	280	1	LOCKED	270	1
UNLOCK 321	T17	READY	280	1	READY	270	1
WITHDRA W 100	T14	OVERDRAWN	160	1	OVERDRAWN	150	1
DEPOSIT 100	T16	READY	260	1	READY	250	1
WITHDRA W 10	T11	READY	250	1	READY	240	1
DEPOSIT 10	T12	READY	260	1	READY	250	1
WITHDRA W 10	T11	READY	250	1	READY	240	1
LOCK 321	T4	LOCKED	250	1	LOCKED	240	1
UNLOCK 321	T17	READY	250	1	READY	240	1

#### Sukanta Sharma (A20472623)

		Expected Result			Produced Result		
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt
DEPOSIT 10	T12	READY	260	1	READY	250	1
WITHDRA W 100	T14	OVERDRAWN	140	1	OVERDRAWN	130	1
LOGOUT	Т9	IDLE	140	1	IDLE	130	1
LOGIN 100	T2	CHECK PIN	140	0	CHECK PIN	130	0
PIN 123	T8	OVERDRAWN	140	0	OVERDRAWN	130	0
LOGOUT	Т9	IDLE	140	0	IDLE	130	0

As from the above table we can see that expected results are not matched with produced result. Hence the test case is **FAILED**. The contradicting operations are highlighted in **RED** color in the above table. This test case is also mentioned later in this report in the section <u>List of Failed Test Cases</u>

#### TESTCASE#4

#### **TEST CASE**

#### From TS.txt

Test#4: open 100 123 190 login 100 pin 123 logout

#### As method call

Test#4: open(100,123,190), login(100), pin(123), logout()

#### TRANSITION TRAVERSED

T1, T2, T8, T9

#### OUTPUT OF ACCOUNT CLASS

CS 589; Fall 2021 PROJECT Sukanta Sharma A2042623

Press Enter key to continue	
Oriver for the Account	
0. OPEN 1. DEPOSIT	
2. WITHDRAW 3. BALANCE	
4. LOCK	
5. UNLOCK 6. LOGIN	
7. PIN 8. LOGOUT	
Testing—Oriented Methods	
a. SHOW BALANCE b. SHOW STATE	
c. SHOW LOCKED STATUS	CECCEUL LOCIN ATTEMPTS
d. SHOW NUMBER OF UNSEC	CESSFUL LUGIN ATTEMPTS
q. Quit Account Driver	
inter your choice:	
Your choice is : 0	
Class: Account	
Type: Class Method Method: OPEN	
Enter Account#:	
100 Enter PIN:	
123	
enter initial balance:	
190 The value ret	urned by the method is: 0 (SUCCESS)
Press Enter key to continue	
,	
Oriver for the Account	
0. OPEN 1. DEPOSIT 2. WITHDRAW	
3. BALANCE	
4. LOCK	

5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing—Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
6 Your choice is : 6
Tour choice is . 0
Class: Account Type: Class Method Method: LOGIN
Enter Account#:
100
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods
Testing-Uriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
7
Your choice is : 7

Class: Account	
Type: Class Method Method: PIN	
Enter PIN:	
123	
The value retur	ned by the method is: 0 (SUCCESS)
Press Enter key to continue	
Driver for the Account	
0. 00511	
0. OPEN 1. DEPOSIT	
<ol> <li>WITHDRAW</li> <li>BALANCE</li> </ol>	
4. LOCK 5. UNLOCK	
6. LOGIN 7. PIN	
8. LOGOUT	
Testing-Oriented Methods	
a. SHOW BALANCE	
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>	
d. SHOW NUMBER OF UNSECCE	SSFUL LOGIN ATTEMPTS
q. Quit Account Driver	
Enton vous choice.	
Enter your choice: 8	
Your choice is : 8	
C1 A	
Class: Account Type: Class Method	
Method: LOGOUT	
The value retur	ned by the method is: 0 (SUCCESS)
The value letur	2, the method 13. 0 (3000L33)
Press Enter key to continue	
Driver for the Assesset	
Driver for the Account	
0. OPEN	
1. DEPOSIT 2. WITHDRAW	
3. BALANCE 4. LOCK	

#### Sukanta Sharma (A20472623)

- 5. UNLOCK
- 6. LOGIN
- 7. PIN 8. LOGOUT

Testing-Oriented Methods

- a. SHOW BALANCE
- b. SHOW STATE c. SHOW LOCKED STATUS
- d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
- q. Quit Account Driver

Enter your choice:

α

Your choice is : q Quitting Account Driver...

THANK YOU!!!

**CORRECTNESS** 

Function Called	E	Result	Produced Result			
	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt
OPEN 100 123 190	IDLE	190	0	IDLE	190	0
LOGIN 100	CHECK PIN	190	0	CHECK PIN	190	0
PIN 123	OVERDRAWN	190	0	OVERDRAWN	190	0
LOGOUT	IDLE	190	0	IDLE	190	0

As from the above table we can see that expected results are matched with produced result. Hence the test case is **PASSED**.

## TESTCASE#5

#### **TEST CASE**

#### From TS.txt

Test#5: open 100 123 300 login 100 pin 123 lock 321 unlock 321 withdraw 10 withdraw 100 deposit 100 lock 321 unlock 321 logout login 100 pin 123 deposit 10 logout login 100 pin 123 withdraw 10 logout login 100 pin 123 logout

#### Sukanta Sharma (A20472623)

#### As method call

Test#5: open(100,123,300), login(100), pin(123), lock(321), unlock(321), withdraw(10), withdraw(100), deposit(100), lock(321), unlock(321), logout(), login(100), pin(123), deposit(10), logout(), login(100), pin(123), withdraw(10), logout(), login(100), pin(123), logout()

#### TRANSITION TRAVERSED

T1, T2, T18, T4, T17, T11, T14, T16, T4, T17, T10, T2, T18, T12, T10, T2, T18, T11, T10, T2, T18, T10

#### **OUTPUT OF ACCOUNT CLASS**

CS 589; Fall 2021 PROJECT Sukanta Sharma A2042623

#### **CORRECTNESS**

Function	Expected Result			Produced Result			
Called	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt	
OPEN 100 123 300	IDLE	300	0	IDLE	300	0	
LOGIN 100	CHECK PIN	300	0	CHECK PIN	300	0	
PIN 123	READY	300	0	READY	300	0	
LOCK 321	LOCKED	300	0	LOCKED	300	0	
UNLOCK 321	READY	300	0	READY	300	0	
WITHDRAW 10	READY	290	0	READY	290	0	
WITHDRAW 100	OVERDRAWN	170	0	OVERDRAWN	170	0	

#### Sukanta Sharma (A20472623)

Function	Expected Result			Produced Result			
Called	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt	
DEPOSIT 100	READY	270	0	READY	270	0	
LOCK 321	LOCKED	270	0	LOCKED	270	0	
UNLOCK 321	READY	270	0	READY	270	0	
LOGOUT	IDLE	270	0	IDLE	270	0	
LOGIN 100	CHECK PIN	270	0	CHECK PIN	270	0	
PIN 123	READY	270	0	READY	270	0	
DEPOSIT 10	READY	280	0	READY	280	0	
LOGOUT	IDLE	280	0	IDLE	280	0	
LOGIN 100	CHECK PIN	280	0	CHECK PIN	280	0	
PIN 123	READY	280	0	READY	280	0	
WITHDRAW 10	READY	270	0	READY	270	0	
LOGOUT	IDLE	270	0	IDLE	270	0	
LOGIN 100	CHECK PIN	270	0	CHECK PIN	270	0	
PIN 123	READY	270	0	READY	270	0	
LOGOUT	IDLE	270	0	IDLE	270	0	

As from the above table we can see that expected results are matched with produced result. Hence the test case is **PASSED**.

### TESTCASE#6

## **TEST CASE**

#### From TS.txt

Test#6: open 100 123 200 open 100 123 200 logout pin 123 deposit 100 withdraw 100 balance lock 321 unlock 321

#### Sukanta Sharma (A20472623)

#### As method call

open(100,123,200), Test#6: open(100,123,200), logout(), pin(123), deposit(100), withdraw(100), balance(), lock(321), unlock(321)

#### TRANSITION TRAVERSED

T1

#### **OUTPUT OF ACCOUNT CLASS**

CS 589; Fall 2021 PROJECT Sukanta Sharma A2042623

Press Enter key to continue...

#### Driver for the Account

- 0. OPEN 1. DEPOSIT 2. WITHDRAW
- 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT

#### Testing-Oriented Methods

- a. SHOW BALANCEb. SHOW STATE
- d. SHOW LOCKED STATUS
  d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS

q. Quit Account Driver

Enter your choice:

Your choice is : 0

Class: Account Type: Class Method Method: OPEN

Enter Account#:

100

Enter PIN:
Enter initial balance:
200
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK 6. LOGIN
7. PIN 8. LOGOUT
3. 25665.
Testing-Oriented Methods
a. SHOW BALANCE
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
0
Your choice is : 0
Class: Account
Type: Class Method Method: OPEN
Enter Account#:
100 Enter PIN:
123
Enter initial balance: 200
The value returned by the method is: -1 (FAILED)
The factor retained by the method 157 1 (M2115)
Press Enter key to continue
Driver for the Account

## Sukanta Sharma (A20472623)

1. 2. 3. 4. 5. 6.	OPEN DEPOSIT WITHDRAW BALANCE LOCK UNLOCK LOGIN PIN LOGOUT
Testing-Orie	nted Methods
b. c.	SHOW BALANCE SHOW STATE SHOW LOCKED STATUS SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q.	Quit Account Driver
Enter your c	hoice:
8	
Your choice	is: 8
Class: Accou Type: Class Method: LOGO	Method
	The value returned by the method is: $-1$ (FAILED)
Press Enter	key to continue
Driver for t	he Account
	OPEN .
1.	DEPOSIT WITHDRAW
3.	BALANCE LOCK
5.	UNLOCK
	LOGIN PIN
8.	LOGOUT
Testing-Orie	nted Methods
a.	SHOW BALANCE
	SHOW STATE SHOW LOCKED STATUS
	SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q.	Quit Account Driver
Enter your c	hoice:
7	

Your choice is : 7

Class: Account Type: Class Method
Method: PIN
Enter PIN:
123
The value returned by the method is: -1 (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT
2. WITHDRAW 3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
b. SHOW STATE c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
1
Your choice is : 1
Class: Account
Type: Class Method Method: DEPOSIT
Enter Deposit Amounts
Enter Deposit Amount:
The value netword by the method in 1 (FATIED)
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account

# Sukanta Sharma (A20472623)

1. DEPOSIT 2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK 6. LOGIN
7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
2
Your choice is : 2
Class: Account
Type: Class Method Method: WITHDRAW
Enter Withdraw Amount:
100
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Tress Enter key to continue iii
Driver for the Account
<ul><li>0. OPEN</li><li>1. DEPOSIT</li></ul>
2. WITHDRAW 3. BALANCE
4. LOCK
5. UNLOCK 6. LOGIN
7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
di date veccone pi tici
Enter your choice:
3
Your choice is : 3

0. OPEN

Class: Account Type: Class Method Method: BALANCE  The value returned by the method is: Balance = -1 (FAILED)  Press Enter key to continue  Driver for the Account  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
Press Enter key to continue  Driver for the Account  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BAL-MICE 4. LUGIN 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	Type: Class Method	
Press Enter key to continue  Driver for the Account  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BAL-MICE 4. LUGIN 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
Driver for the Account  0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	The value returned by the method is: Balance = $-1$	(FAILED)
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	Press Enter key to continue	
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	Driver for the Account	
1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	a open	
3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	1. DEPOSIT	
5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
8. LOGOUT  Testing-Oriented Methods  a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#:  321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	6. LOGIN	
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	Testing-Oriented Methods	
c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice: 4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#: 321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	a. SHOW BALANCE	
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver  Enter your choice:  4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#:  321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
Enter your choice:  4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#:  321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
Enter your choice:  4  Your choice is: 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#:  321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	a Quit Account Driver	
Your choice is : 4  Class: Account Type: Class Method Method: LOCK  Enter Lock#:  321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	q. Quit Account Dilver	
Class: Account Type: Class Method Method: LOCK  Enter Lock#:  321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	Enter your choice:	
Class: Account Type: Class Method Method: LOCK  Enter Lock#:  321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	4	
Type: Class Method Method: LOCK  Enter Lock#:  321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue	Your choice is : 4	
Type: Class Method Method: LOCK  Enter Lock#:  321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
Type: Class Method Method: LOCK  Enter Lock#:  321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
Type: Class Method Method: LOCK  Enter Lock#:  321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
Type: Class Method Method: LOCK  Enter Lock#:  321  The value returned by the method is: -1 (FAILED)  Press Enter key to continue		
The value returned by the method is: -1 (FAILED)  Press Enter key to continue	Type: Class Method	
The value returned by the method is: -1 (FAILED)  Press Enter key to continue	Enter Lock#:	
The value returned by the method is: -1 (FAILED)  Press Enter key to continue	371	
Press Enter key to continue		
	The value returned by the method is: -1 (FAILED)	
Driver for the Account	Press Enter key to continue	
Driver for the Account		
	Driver for the Account	

0. OPEN 1. DEPOSIT	
2. WITHDRAW 3. BALANCE	
4. LOCK 5. UNLOCK 6. LOGIN	
7. PIN 8. LOGOUT	
8. LUGUUT	
Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE	
c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTE	MPTS
q. Quit Account Driver	
Enter your choice: 5	
Your choice is : 5	
Tour choice is . 5	
Class: Account	
Type: Class Method Method: UNLOCK	
Enter Lock#:	
321	
The value returned by the metho	d is: -1 (FAILED)
Drocs Enter key to continue	
Press Enter key to continue	
Driver for the Account	
0. OPEN	
<ol> <li>DEPOSIT</li> <li>WITHDRAW</li> </ol>	
3. BALANCE 4. LOCK	
5. UNLOCK 6. LOGIN	
7. PIN 8. LOGOUT	
01 20001	
Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE	
c. SHOW LOCKED STATUS	MDTC
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTE	PIF 13
q. Quit Account Driver	
Enter your choice:	
q	
Your choice is : q	

#### Sukanta Sharma (A20472623)

THANK YOU!!!	Quitting Account	Driver		
		THANK YOU	!!!	

#### **CORRECTNESS**

Expected Result					Produced Result			
Function Called	State After Transition	Bala nce	No. of Unsuccessful Attempt	Return Value	State After Transition	Bala nce	No. of Unsuccessful Attempt	Return Value
OPEN 100 123 200	IDLE	200	0	0	IDLE	200	0	0
OPEN 100 123 200	IDLE	200	0	-1	IDLE	200	0	-1
LOGOUT	IDLE	200	0	-1	IDLE	200	0	-1
PIN 123	IDLE	200	0	-1	IDLE	200	0	-1
DEPOSIT 100	IDLE	200	0	-1	IDLE	200	0	-1
WITHDRA W 100	IDLE	200	0	-1	IDLE	200	0	-1
BALANCE	IDLE	200	0	-1	IDLE	200	0	-1
LOCK 321	IDLE	200	0	-1	IDLE	200	0	-1
UNLOCK 321	IDLE	200	0	-1	IDLE	200	0	-1

As from the above table we can see that expected results are matched with produced result. Hence the test case is **PASSED**.

#### TESTCASE#7

## TEST CASE

## From TS.txt

Test#7: open 100 123 200 login 100 open -100 123 200 login 100 deposit 100 withdraw 100 balance lock 321 unlock 0

#### As method call

Test#7: open(100,123,200), login(100), open(-100,123,200), login(100), deposit(100), withdraw(100), balance(), lock(321), unlock(0)

## TRANSITION TRAVERSED

#### Sukanta Sharma (A20472623)

## T1, T2

## **OUTPUT OF ACCOUNT CLASS**

CS 589; Fall 2021 PROJECT Sukanta Sharma A2042623

Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: Your choice is : 0 Class: Account Type: Class Method Method: OPEN Enter Account#: 100 Enter PIN: 123 Enter initial balance: 200 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue...

Driver for the Account	
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT	
Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED S d. SHOW NUMBER 0	STATUS IF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account	Driver
Enter your choice:	
6	
Your choice is : 6	
Class: Account Type: Class Method Method: LOGIN	
Enter Account#:	
100	
The va	lue returned by the method is: 0 (SUCCESS)
Press Enter key to continu	e
Driver for the Account	
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGUT	
Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE	
c. SHOW LOCKED S	TATUS

d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
0
Your choice is : 0
Class: Account
Type: Class Method Method: OPEN
Enter Account#:
-100 Enter PIN:
123 Enter initial balance:
200
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
<ul> <li>0. OPEN</li> <li>1. DEPOSIT</li> <li>2. WITHDRAW</li> <li>3. BALANCE</li> <li>4. LOCK</li> <li>5. UNLOCK</li> <li>6. LOGIN</li> <li>7. PIN</li> <li>8. LOGOUT</li> </ul>
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS  q. Quit Account Driver
4. (3-2. 11. 12. 12. 12. 12. 12. 12. 12. 12. 1
Enter your choice: 6
Your choice is : 6
Class: Account Type: Class Method Method: LOGIN

Enter Acc	ount#:
100	
	The value returned by the method is: -1 (FAILED)
	The value returned by the method is1 (TAILLD)
Press Ente	er key to continue
	,
Driver fo	r the Account
	0. OPEN 1. DEPOSIT
	2. WITHDRAW
	3. BALANCE 4. LOCK
	5. UNLOCK
	6. LOGIN 7. PIN
	8. LOGOUT
Testing-0	riented Methods
	<del></del>
	a. SHOW BALANCE b. SHOW STATE
	c. SHOW LOCKED STATUS
	d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
	q. Quit Account Driver
Enter you	r cnoice:
1	
Your choic	ce is : 1
Class: Acc	count
Type: Clas	
Method: Di	EPOSIT
Enter Debo	osit Amount:
100	
	The value returned by the method is: -1 (FAILED)
Press Ente	er key to continue
Driver fo	r the Account
	0. OPEN
	1. DEPOSIT 2. WITHDRAW
	3. BALANCE
	4. LOCK 5. UNLOCK
	6. LOGIN
	7. PIN

## Sukanta Sharma (A20472623)

8. LOGOUT

Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
2
Your choice is : 2
Class. Account
Class: Account Type: Class Method Method: WITHDRAW
Enter Withdraw Amount:
100
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT
2. WITHDRAW 3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
b. SHOW STATE c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
3
Your choice is : 3
Class: Account

Type: Class Method Method: BALANCE	
The value returned by the method is: Balance = $-1$ (	(FAILED)
Press Enter key to continue	
Driver for the Account	
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK	
5. UNLOCK 6. LOGIN	
7. PIN 8. LOGOUT	
Testing-Oriented Methods	
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS	
q. Quit Account Driver	
Enter your choice:	
4	
Your choice is : 4	
Class: Account Type: Class Method Method: LOCK	
Enter Lock#:	
321	
The value returned by the method is: $-1$ (FAILED)	
Press Enter key to continue	
Driver for the Account	
0. OPEN	
1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN	

## Sukanta Sharma (A20472623)

8. LOGOUT

Testing-Orien	ted Methods
b. c.	SHOW BALANCE SHOW STATE SHOW LOCKED STATUS SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q.	Quit Account Driver
Enter your ch	oice:
5	
Your choice i	s:5
Class: Accoun Type: Class M Method: UNLOC	ethod
Enter Lock#:	
0	
	The value returned by the method is: -1 (FAILED)
Driver for th	e Account
1. 2. 3. 4. 5. 6. 7.	OPEN DEPOSIT WITHDRAW BALANCE LOCK UNLOCK LOGIN PIN LOGOUT
Testing-Orien	ted Methods
b. c.	SHOW BALANCE SHOW STATE SHOW LOCKED STATUS SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q.	Quit Account Driver
Enter your ch	oice:
q	
Your choice i Quitting Acco	
	THANK YOU!!!

#### Sukanta Sharma (A20472623)

#### **CORRECTNESS**

		Expe	cted Result			Prod	uced Result	
Function Called	State After Transition	Bala nce	No. of Unsuccessful Attempt	Return Value	State After Transition	Bala nce	No. of Unsuccessful Attempt	Return Value
OPEN 100 123 200	IDLE	200	0	0	IDLE	200	0	0
LOGIN 100	CHECK PIN	200	0	0	CHECK PIN	200	0	0
OPEN - 100 123 200	CHECK PIN	200	0	-1	CHECK PIN	200	0	-1
LOGIN 100	CHECK PIN	200	0	-1	CHECK PIN	200	0	-1
DEPOSIT 100	CHECK PIN	200	0	-1	CHECK PIN	200	0	-1
WITHDRA W 100	CHECK PIN	200	0	-1	CHECK PIN	200	0	-1
BALANCE	CHECK PIN	200	0	-1	CHECK PIN	200	0	-1
LOCK 321	CHECK PIN	200	0	-1	CHECK PIN	200	0	-1
UNLOCK 0	CHECK PIN	200	0	-1	CHECK PIN	200	0	-1

As from the above table we can see that expected results are matched with produced result. Hence the test case is **PASSED**.

#### TESTCASE#8

#### **TEST CASE**

#### From TS.txt

Test#8: open 100 123 200 login 100 pin 123 open 100 -123 200 login 100 pin 123 withdraw 0 lock 123 unlock 123

#### As method call

Test#8: open(100,123,200), login(100), pin(123), open(100,-123,200), login(100), pin(123), withdraw(0), lock(123), unlock(123)

#### TRANSITION TRAVERSED

T1, T2, T18

#### OUTPUT OF ACCOUNT CLASS

## Sukanta Sharma (A20472623)

CS 589; Fall 2021 PROJECT Sukanta Sharma A2042623

Press Enter ke	y to continue
Driver for the	Account
Di ivei ioi the	Account
0. 0 1 D	PEN EPOSIT
	ITHDRAW
3. B	ALANCE
4. L	
6. L	NLOCK OGTN
7. P.	
8. L	OGOUT
Testing-Orient	ed Methods
a. Si	HOW BALANCE
b. S	HOW STATE
c. S	HOW LOCKED STATUS
d. S	HOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
•	
q. v	uit Account Driver
Enter your che	ion
Enter your cho	ice:
0	
Vaur shaisa is	
Your choice is	: 0
Class. Assemb	
Class: Account Type: Class Me	
Method: OPEN	
Enter Account#	:
100	
100 Enter PIN:	
LIICEI FIN.	
123	
Enter initial	balance:
200	
- <del>-</del>	
	The value returned by the method is: 0 (SUCCESS)
Press Enter ke	y to continue

#### Sukanta Sharma (A20472623)

# Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCEb. SHOW STATEc. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 6 Your choice is : 6 Class: Account Type: Class Method Method: LOGIN Enter Account#: 100 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE d. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS

Enter your choice:

q. Quit Account Driver

#### Sukanta Sharma (A20472623)

Your choice is : 7 Class: Account Type: Class Method Method: PIN Enter PIN: 123 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: Your choice is : 0 Class: Account Type: Class Method Method: OPEN Enter Account#: 100 Enter PIN: Enter initial balance: 200

The value returned by the method is: -1 (FAILED)

## Sukanta Sharma (A20472623)

Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice: 6 Your choice is : 6
Class: Account Type: Class Method Method: LOGIN
Enter Account#:
100 $ \label{eq:The value returned by the method is: -1 (FAILED) } $
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT  Testing-Oriented Methods

a. SHOW BALANCE b. SHOW STATE

## Sukanta Sharma (A20472623)

c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
7
Your choice is : 7
Class: Account Type: Class Method Method: PIN
Enter PIN:
123
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
<ul><li>a. SHOW BALANCE</li><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
q. Quit Account Driver
Enter your choice:
2
Your choice is : 2
Class: Account
Type: Class Method Method: WITHDRAW
Enter Withdraw Amount:

Page 131 of 181

#### Sukanta Sharma (A20472623)

The value returned by the method is: -1 (FAILED) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 4 Your choice is : 4 Class: Account Type: Class Method Method: LOCK Enter Lock#: 123 The value returned by the method is: -1 (FAILED) Press Enter key to continue... Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK

- 6. LOGIN 7. PIN
- 8. LOGOUT

Testing-Oriented Methods

## Sukanta Sharma (A20472623)

1	a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
(	q. Quit Account Driver
Enter your	choice:
5	
Your choice	e is : 5
Class: According Class: Method: UNI	s Method
Enter Lock	#:
123	
	The value returned by the method is: $-1$ (FAILED)
	r key to continue
Driver for	the Account
	0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Or:	iented Methods
I	a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
(	q. Quit Account Driver
Enter your	choice:
q	
Your choice Quitting A	e is : q ccount Driver
	THANK YOU!!!

CORRECTNESS

#### Sukanta Sharma (A20472623)

		Expe	cted Result			Prod	uced Result	
Function Called	State After Transition	Bala nce	No. of Unsuccessful Attempt	Return Value	State After Transition	Bala nce	No. of Unsuccessful Attempt	Return Value
OPEN 100 123 200	IDLE	200	0	0	IDLE	200	0	0
LOGIN 100	CHECK PIN	200	0	0	CHECK PIN	200	0	0
PIN 123	READY	200	0	0	READY	200	0	0
OPEN 100 -123 200	READY	200	0	-1	READY	200	0	-1
LOGIN 100	READY	200	0	-1	READY	200	0	-1
PIN 123	READY	200	0	-1	READY	200	0	-1
WITHDRA W 0	READY	200	0	-1	READY	200	0	-1
LOCK 123	READY	200	0	-1	READY	200	0	-1
UNLOCK 123	READY	200	0	-1	READY	200	0	-1

As from the above table we can see that expected results are matched with produced result. Hence the test case is **PASSED**.

#### TESTCASE#9

#### **TEST CASE**

#### From TS.txt

Test#9: open 100 123 190 login 100 pin 123 open -100 -123 200 login 100 pin 123 withdraw 100 lock 123 unlock 321

#### As method call

Test#9: open(100,123,190), login(100), pin(123), open(-100,-123,200), login(100), pin(123), withdraw(100), lock(123), unlock(321)

## TRANSITION TRAVERSED

T1, T2, T8

#### OUTPUT OF ACCOUNT CLASS

CS 589; Fall 2021

## Sukanta Sharma (A20472623)

PROJECT Sukanta Sharma A2042623

Dress Enter	key to continue
riess Liitei	key to continue
Driver for t	he Account
	OPEN DEPOSIT
	WITHDRAW
	BALANCE LOCK
	UNLOCK
6.	LOGIN
	PIN LOGOUT
-	
Testing-Orie	nted Methods
	SHOW BALANCE
	SHOW STATE SHOW LOCKED STATUS
	SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q.	Quit Account Driver
Enter your c	hoice:
0	
V	· 0
Your choice	15 : 0
Class: Accou Type: Class I	
Method: OPEN	ne triou
Enter Accoun	t#:
100	
Enter PIN:	
123	
Enter initia	l balance:
190	
250	T
	The value returned by the method is: 0 (SUCCESS)
Droce Entar	key to continue
riess Enter	key to continue
Driver for +	ho Account
Driver for t	

0. OPEN

#### Sukanta Sharma (A20472623)

1. DEPOSIT 1. DEPOSTI
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT  ${\sf Testing-Oriented\ Methods}$ a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: Your choice is : 6 Class: Account Type: Class Method Method: LOGIN Enter Account#: 100 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice:

Your choice is : 7

Class: Account Type: Class Method
Method: PIN
Enter PIN:
123
The value returned by the method is: 0 (SUCCESS)
···· · · · · · · · · · · · · · · · · ·
Press Enter key to continue
Driver for the Account
0.0054
0. OPEN 1. DEPOSIT
2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK 6. LOGIN
7. PIN
8. LOGOUT
Testing-Oriented Methods
CHOIL DALANCE
a. SHOW BALANCE b. SHOW STATE
<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
di Shor Norbert di Giseccessi de Eddit Affeli 15
q. Quit Account Driver
Enter your choice:
0
Your choice is : 0
Class: Account
Type: Class Method
Method: OPEN
Enter Account#:
-100 Enter PIN:
-123 Enter initial balance:
200
The value returned by the method is: −1 (FAILED)
Press Enter key to continue

#### Sukanta Sharma (A20472623)

# Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE d. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: Your choice is : 6 Class: Account Type: Class Method Method: LOGIN Enter Account#: 100 The value returned by the method is: -1 (FAILED) Press Enter key to continue... Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS

Page 138 of 181

#### Sukanta Sharma (A20472623)

q. Quit Account Driver Enter your choice: Your choice is : 7 Class: Account Type: Class Method Method: PIN Enter PIN: 123 The value returned by the method is: -1 (FAILED) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 2 Your choice is : 2 Class: Account Type: Class Method Method: WITHDRAW Enter Withdraw Amount: 100 The value returned by the method is: -1 (FAILED)

Press Enter key to continue...

Page 139 of 181

Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice: 4
Your choice is : 4
Class: Account Type: Class Method Method: LOCK
Enter Lock#:
123
The value returned by the method is: -1 (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS

## Sukanta Sharma (A20472623)

d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
5
Your choice is : 5
Class: Account Type: Class Method Method: UNLOCK
Enter Lock#:
321
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW
3. BALANCE 4. LOCK
5. UNLOCK 6. LOGIN
7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE
<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
q. Quit Account Driver
q. Quit Account Driver
Enter your choice:
q
Your choice is : q Quitting Account Driver
THANK YOU!!!

# CORRECTNESS

#### Sukanta Sharma (A20472623)

	Expected Result				Produced Result			
Function Called	State After Transition	Bala nce	No. of Unsuccessful Attempt	Return Value	State After Transition	Bala nce	No. of Unsuccessful Attempt	Return Value
OPEN 100 123 190	IDLE	190	0	0	IDLE	190	0	0
LOGIN 100	CHECK PIN	190	0	0	CHECK PIN	190	0	0
PIN 123	OVERDRAW N	190	0	0	OVERDRAW N	190	0	0
OPEN -100 -123 200	OVERDRA WN	190	0	-1	OVERDRA WN	190	0	-1
LOGIN 100	OVERDRA WN	190	0	-1	OVERDRA WN	190	0	-1
PIN 123	OVERDRA WN	190	0	-1	OVERDRA WN	190	0	-1
WITHDRA W 100	OVERDRA WN	190	0	-1	OVERDRA WN	190	0	-1
LOCK 123	OVERDRA WN	190	0	-1	OVERDRA WN	190	0	-1
UNLOCK 321	OVERDRA WN	190	0	-1	OVERDRA WN	190	0	-1

As from the above table we can see that expected results are matched with produced result. Hence the test case is **PASSED**.

#### TESTCASE#10

#### **TEST CASE**

#### From TS.txt

Test#10: open 100 123 190 login 100 pin 123 lock 321 open 100 123 -200 login 100 logout pin 123 deposit 100 withdraw 100 lock 321 unlock 12

#### As method call

Test#10: open(100,123,190), login(100), pin(123), lock(321), open(100,123,-200), login(100), logout(), pin(123), deposit(100), withdraw(100), lock(321), unlock(12)

## TRANSITION TRAVERSED

T1, T2, T8, T20

### OUTPUT OF ACCOUNT CLASS

## Sukanta Sharma (A20472623)

CS 589; Fall 2021 PROJECT Sukanta Sharma A2042623

Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT 2. WITHDRAW 3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE
c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
0
Your choice is : 0
Class: Account Type: Class Method Method: OPEN
Enter Account#:
100 Enter PIN:
123 Enter initial balance:
190
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account

# Sukanta Sharma (A20472623)

0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Class: Account Type: Class Method Method: LOGIN
Enter Account#:
100
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:

Your choice is : 7

Page 144 of 181

Class: Account Type: Class Method Method: PIN
Enter PIN:
123
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
4
Your choice is : 4
Class: Account Type: Class Method Method: LOCK
Enter Lock#:
321
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue

### Sukanta Sharma (A20472623)

# Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCEb. SHOW STATEc. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 0 Your choice is : 0 Class: Account Type: Class Method Method: OPEN Enter Account#: 100 Enter PIN: Enter initial balance: -200 The value returned by the method is: -1 (FAILED) Press Enter key to continue... Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS

Page 146 of 181

# Sukanta Sharma (A20472623)

q. Quit Account Driver
Enter your choice:
6
Your choice is : 6
Class: Account Type: Class Method Method: LOGIN
Enter Account#:
100
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
8
Your choice is : 8
Class: Account
Type: Class Method Method: LOGOUT
The value returned by the method is: -1 (FAILED)
Press Enter key to continue
11035 Enter Rey to continuers

Page 147 of 181

Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
7
Your choice is : 7
Class: Account Type: Class Method Method: PIN
Enter PIN:
123
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS

# Sukanta Sharma (A20472623)

q. Quit Account Driver
Enter your choice:
1
Your choice is : 1
Class: Account Type: Class Method Method: DEPOSIT
Enter Deposit Amount:
100
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Define for the Assura
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
2
Your choice is : 2
Class: Account Type: Class Method Method: WITHDRAW
Enter Withdraw Amount:
100

Page 149 of 181

The value returned by the method is: -1 (FAILED)

# Sukanta Sharma (A20472623)

Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice: 4 Your choice is : 4
Class: Account Type: Class Method Method: LOCK
Enter Lock#:
321 The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods

a. SHOW BALANCE b. SHOW STATE

# Sukanta Sharma (A20472623)

<ul><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
q. Quit Account Driver
Enter your choice:
5
Your choice is : 5
Class: Account Type: Class Method Method: UNLOCK
Enter Lock#:
12
The value returned by the method is: $-1$ (FAILED)
Danie Fator las de castiana
Press Enter key to continue
Driver for the Account
0. OPEN
1. DEPOSIT
<ul><li>2. WITHDRAW</li><li>3. BALANCE</li></ul>
4. LOCK 5. UNLOCK
6. LOGIN
7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li></ul>
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
q
Your choice is : q
Quitting Account Driver
THANK YOU!!!

# CORRECTNESS

#### Sukanta Sharma (A20472623)

		Ехре	cted Result			Prod	uced Result	
Function Called	State After Transition	Bala nce	No. of Unsuccessful Attempt	Return Value	State After Transition	Bala nce	No. of Unsuccessful Attempt	Return Value
OPEN 100 123 190	IDLE	190	0	0	IDLE	190	0	0
LOGIN 100	CHECK PIN	190	0	0	CHECK PIN	190	0	0
PIN 123	OVERDRAW N	190	0	0	OVERDRAW N	190	0	0
LOCK 321	LOCKED	190	0	0	LOCKED	190	0	0
OPEN 100 123 -200	LOCKED	190	0	-1	LOCKED	190	0	-1
LOGIN 100	LOCKED	190	0	-1	LOCKED	190	0	-1
LOGOUT	LOCKED	190	0	-1	LOCKED	190	0	-1
PIN 123	LOCKED	190	0	-1	LOCKED	190	0	-1
DEPOSIT 100	LOCKED	190	0	-1	LOCKED	190	0	-1
WITHDRA W 100	LOCKED	190	0	-1	LOCKED	190	0	-1
LOCK 321	LOCKED	190	0	-1	LOCKED	190	0	-1
UNLOCK 12	LOCKED	190	0	-1	LOCKED	190	0	-1

As from the above table we can see that expected results are matched with produced result. Hence the test case is **PASSED**.

### TESTCASE#11

#### **TEST CASE**

#### From TS.txt

Test#11: open -100 123 200 open 100 -123 200 open -100 -123 200 open 100 123 -200 open -100 123 -200 open 100 -123 -200 open -100 123 -200 open 100 -123 -200 open 100 -123 -200 open 100 -123 -200 open 100 -123 -200 login 100 pin 123 withdraw 200 withdraw -10 deposit 0 deposit 100 deposit -10

#### As method call

Test#11: open(-100,123,200), open(100,-123,200), open(-100,-123,200), open(100,123,-200), open(100,123,-200), open(100,123,-200), open(100,123,-200), open(100,123,190), open(100,123,-200), open(100,-123,-200), open(100,-123,-200)

### Sukanta Sharma (A20472623)

### TRANSITION TRAVERSED

T1, T2, T8, T16

# OUTPUT OF ACCOUNT CLASS

CS 589; Fall 2021 PROJECT Sukanta Sharma A2042623

Press Enter key to continue...

### Driver for the Account

- 0. OPEN
- 1. DEPOSIT
  2. WITHDRAW
  3. BALANCE
- 4. LOCK
  5. UNLOCK
  6. LOGIN
  7. PIN
  8. LOGOUT

### Testing-Oriented Methods

- a. SHOW BALANCE
  b. SHOW STATE
  c. SHOW LOCKED STATUS
  d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
- q. Quit Account Driver

Enter your choice:

Your choice is : 0

Class: Account Type: Class Method Method: OPEN

Enter Account#:

-100

Enter PIN:

Enter initial balance:

200

### Sukanta Sharma (A20472623)

The value returned by the method is: -1 (FAILED) Press Enter key to continue... Driver for the Account 0. OPEN
1. DEPOSIT
2. WITHDRAW
3. BALANCE
4. LOCK
5. UNLOCK
6. LOGIN
7. PIN
8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE
b. SHOW STATE
c. SHOW LOCKED STATUS
d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice:

0

Your choice is : 0

Class: Account Type: Class Method Method: OPEN

Enter Account#:

100

Enter PIN:

-123

Enter initial balance:

200

The value returned by the method is: -1 (FAILED)

Press Enter key to continue...

Driver for the Account

- 0. OPEN 1. DEPOSIT 2. WITHDRAW

- 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN

# Sukanta Sharma (A20472623)

7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver
Enter your choice:
0
Your choice is : 0
Class: Account Type: Class Method Method: OPEN
Enter Account#:
-100 Enter PIN:
-123 Enter initial balance:
200
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
0

Your choice is : 0

Class: Account Type: Class Method Method: OPEN
Enter Account#:
100 Enter PIN:
123 Enter initial balance:
-200
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
0
Your choice is : 0
Class: Account Type: Class Method Method: OPEN
Enter Account#:
-100 Enter PIN:
123 Enter initial balance:
-200
The value returned by the method is: -1 (FAILED)

Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
Your choice is : 0
Class: Account Type: Class Method Method: OPEN
Enter Account#:
100 Enter PIN:
-123 Enter initial balance:
-200
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN

# Sukanta Sharma (A20472623)

8. LOGOUT

Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
0
Your choice is : 0
Class: Account
Type: Class Method Method: OPEN
Enter Account#:
-100 Enter PIN:
-123 Enter initial balance:
-200
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
a open
0. OPEN 1. DEPOSIT 2. WITHDRAW
3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE
<ul><li>b. SHOW STATE</li><li>c. SHOW LOCKED STATUS</li><li>d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS</li></ul>
q. Quit Account Driver
Enter your choice:
0
Your choice is : 0

Class: Account Type: Class Method Method: OPEN
Enter Account#:
100 Enter PIN:
123 Enter initial balance:
190
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
0
Your choice is : 0
Class: Account Type: Class Method Method: OPEN
Enter Account#:
-100 Enter PIN:
123 Enter initial balance:
-200
The value returned by the method is: -1 (FAILED)

Press Enter	key to continue
Driver for	the Account
	OPEN
2	. DEPOSIT . WITHDRAW . BALANCE
4	LOCK UNLOCK
6	. LOGIN . PIN
8	. LOGOUT
Testing-Ori	ented Methods
	. SHOW BALANCE . SHOW STATE
С	. SHOW LOCKED STATUS . SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q	. Quit Account Driver
Enter your	choice:
0	
Your choice	is : 0
Class: Accor	unt.
Type: Class Method: OPE	Method
Enter Accou	nt#:
100 Enter PIN:	
-123	
Enter initia	al balance:
-200	
	The value returned by the method is: $-1$ (FAILED)
Press Enter	key to continue
Driver for	the Account
	. OPEN
2	. DEPOSIT . WITHDRAW
4	BALANCE LOCK
6	. UNLOCK . LOGIN
	. PIN . LOGOUT

### Sukanta Sharma (A20472623)

# Testing-Oriented Methods a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 0 Your choice is : 0 Class: Account Type: Class Method Method: OPEN Enter Account#: -100 Enter PIN: Enter initial balance: -200 The value returned by the method is: -1 (FAILED) Press Enter key to continue... Driver for the Account 0. OPEN DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE d. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: Your choice is : 6

Class: Account Type: Class Method Method: LOGIN
Enter Account#:
100
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE
4. LOCK 5. UNLOCK
6. LOGIN 7. PIN
8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
7
Your choice is : 7
Class: Account Type: Class Method Method: PIN
Enter PIN:
123
The value returned by the method is: 0 (SUCCESS)
Press Enter key to continue
Driver for the Account
DITAGE TOE THE ACCOUNT

# Sukanta Sharma (A20472623)

1. 2. 3. 4. 5. 6.	OPEN DEPOSIT WITHDRAW BALANCE LOCK UNLOCK LOGIN PIN LOGOUT
Testing-Orie	nted Methods
b. c.	SHOW BALANCE SHOW STATE SHOW LOCKED STATUS SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q.	Quit Account Driver
Enter your c	hoice:
2	
Your choice	is : 2
Class: Accou Type: Class   Method: WITH	Method
Enter Withdr	aw Amount:
200	
	The value returned by the method is: $-1$ (FAILED)
Press Enter	key to continue
	to concension.
Driver for t	he Account
1. 2. 3. 4. 5. 6.	OPEN DEPOSIT WITHDRAW BALANCE LOCK UNLOCK LOGIN PIN LOGOUT
Testing-Orie	nted Methods
b. c.	SHOW BALANCE SHOW STATE SHOW LOCKED STATUS SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q.	Quit Account Driver
Enter your c	hoice:
_	

Your choice is : 2

Class: Account Type: Class Method Method: WITHDRAW
Enter Withdraw Amount:
-10
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue
Driver for the Account
0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT
Testing-Oriented Methods
a. SHOW BALANCE b. SHOW STATE c. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
q. Quit Account Driver
Enter your choice:
1
Your choice is : 1
Class: Account Type: Class Method Method: DEPOSIT
Enter Deposit Amount:
0
The value returned by the method is: $-1$ (FAILED)
Press Enter key to continue

### Sukanta Sharma (A20472623)

# Driver for the Account 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCEb. SHOW STATEc. SHOW LOCKED STATUS d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS q. Quit Account Driver Enter your choice: 1 Your choice is : 1 Class: Account Type: Class Method Method: DEPOSIT Enter Deposit Amount: 100 The value returned by the method is: 0 (SUCCESS) Press Enter key to continue... Driver for the Account 0. OPEN 0. OPEN 1. DEPOSIT 2. WITHDRAW 3. BALANCE 4. LOCK 5. UNLOCK 6. LOGIN 7. PIN 8. LOGOUT Testing-Oriented Methods a. SHOW BALANCE

- d. SHOW STATE
  c. SHOW LOCKED STATUS
  d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
- q. Quit Account Driver

Enter your choice:

### Sukanta Sharma (A20472623)

Your choice is : 1

Class: Account Type: Class Method Method: DEPOSIT

Enter Deposit Amount:

The value returned by the method is: -1 (FAILED)

Press Enter key to continue...

#### Driver for the Account

- 0. OPEN
  1. DEPOSIT
  2. WITHDRAW
  3. BALANCE
  4. LOCK
  5. UNLOCK
  6. LOGIN
  7. PIN
  8. LOGOUT

### Testing-Oriented Methods

- a. SHOW BALANCE
  b. SHOW STATE
  c. SHOW LOCKED STATUS
  d. SHOW NUMBER OF UNSECCESSFUL LOGIN ATTEMPTS
- q. Quit Account Driver

Enter your choice:

Your choice is : q Quitting Account Driver...

THANK YOU!!!

# CORRECTNESS

	Tran		Expe	cted Result			Prod	uced Result	
Function Called	sitio n	State After Transition	Bal anc e	No. of Unsuccessful Attempt	Retur n Value	State After Transition	Bal anc e	No. of Unsuccessful Attempt	Retur n Value
OPEN - 100 123 200		START	0	0	-1	START	0	0	-1

### Sukanta Sharma (A20472623)

	Tuore		Expe	cted Result			Prod	uced Result	
Function	Tran sitio	State	Bal	No. of	Retur	State	Bal	No. of	Retur
Called	n	After	anc	Unsuccessful	n	After	anc	Unsuccessful	n
		Transition	е	Attempt	Value	Transition	е	Attempt	Value
<b>OPEN 100</b>		START	0	0	-1	START	0	0	-1
-123 200									
OPEN -		START	0	0	-1	START	0	0	-1
100 -123									
200		CTART	0	0	1	CTART	0	0	1
OPEN 100 123 -200		START	0	0	-1	START	0	0	-1
OPEN -		START	0	0	-1	START	0	0	-1
100 123 -		JIANI	U	Ū	_	JIANI		· ·	_
200									
<b>OPEN 100</b>		START	0	0	-1	START	0	0	-1
-123 -200									
OPEN -		START	0	0	-1	START	0	0	-1
100 -123 -									
200									
OPEN 100	T1	IDLE	190	0	0	IDLE	190	0	0
123 190		IDLE	100	0	1	IDLE	100	0	1
OPEN - 100 123 -		IDLE	190	0	-1	IDLE	190	0	-1
200									
OPEN 100		IDLE	190	0	-1	IDLE	190	0	-1
-123 -200									
OPEN -		IDLE	190	0	-1	IDLE	190	0	-1
100 -123 -									
200									
LOGIN 100	T2	CHECK PIN	190	0	0	CHECK PIN	190	0	0
PIN 123	T8	OVERDRA	190	0	0	OVERDRA	190	0	0
		WN				WN			
WITHDRA		OVERDRA	190	0	-1	OVERDRA	190	0	-1
W 200		WN				WN			
WITHDRA			190	0	-1		190	0	-1
W -10 DEPOSIT		WN OVERDRA	190	0	-1	WN OVERDRA	190	0	-1
0		WN	130	U	-1	WN	130		-T
DEPOSIT	T16	READY	290	0	0	READY	290	0	0
100									
DEPOSIT -		READY	290	0	-1	READY	290	0	-1
10									

As from the above table we can see that expected results are matched with produced result. Hence the test case is **PASSED**.

LIST OF FAILED TEST CASES

# Sukanta Sharma (A20472623)

# TESTCASE#1

# INCORRECT PRODUCED OUTPUT AND EXPECTED CORRECT OUTPUT

		Ex	pected	Result	Produced Result			
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt	
OPEN 100 123 200	T1	IDLE	200	0	IDLE	200	0	
LOGIN 150	T7	IDLE	200	0	IDLE	200	0	
LOGIN 140	T7	IDLE	200	0	IDLE	200	0	
LOGIN 100	T2	CHECK PIN	200	0	CHECK PIN	200	0	
PIN 1	T3	CHECK PIN	200	1	CHECK PIN	200	1	
PIN 2	Т3	CHECK PIN	200	2	CHECK PIN	200	2	
PIN 3	<b>T6</b>	IDLE	200	2	IDLE	200	3	
LOGIN 150	Т7	IDLE	200	2	IDLE	200	3	
LOGIN 100	T2	CHECK PIN	200	0	CHECK PIN	200	0	
LOGOUT	T5	IDLE	200	0	IDLE	200	0	
LOGIN 140	Т7	IDLE	200	0	IDLE	200	0	
LOGIN 100	T2	CHECK PIN	200	0	CHECK PIN	200	0	
PIN 123	T18	READY	200	0	READY	200	0	
BALANCE	T13	READY	200	0	READY	200	0	
BALANCE	T13	READY	200	0	READY	200	0	
DEPOSIT 50	T12	READY	250	0	READY	250	0	
DEPOSIT 50	T12	READY	300	0	READY	300	0	

		Б	pected	Result	Pr	oduced	Result
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt
LOCK 321	T4	LOCKED	300	0	LOCKED	300	0
BALANCE	T15	LOCKED	300	0	LOCKED	300	0
BALANCE	T15	LOCKED	300	0	LOCKED	300	0
UNLOCK 321	T17	READY	300	0	READY	300	0
LOCK 321	T4	LOCKED	300	0	LOCKED	300	0
UNLOCK 321	T17	READY	300	0	READY	300	0
BALANCE	T13	READY	300	0	READY	300	0
WITHDRA W 10	T11	READY	290	0	READY	290	0
WITHDRA W 10	T11	READY	280	0	READY	280	0
BALANCE	T13	READY	280	0	READY	280	0
WITHDRA W 100	T14	OVERDRAWN	160	0	OVERDRAWN	160	0
LOCK 321	T20	LOCKED	160	0	LOCKED	160	0
BALANCE	T15	LOCKED	160	0	LOCKED	160	0
UNLOCK 321	T19	OVERDRAWN	160	0	OVERDRAWN	160	0
BALANCE	T22	OVERDRAWN	160	0	OVERDRAWN	160	0
BALANCE	T22	OVERDRAWN	160	0	OVERDRAWN	160	0
DEPOSIT 20	T21	OVERDRAWN	<b>170</b>	0	OVERDRAWN	<mark>160</mark>	<u> </u>
BALANCE	T22	OVERDRAWN	170	0	OVERDRAWN	160	0

### Sukanta Sharma (A20472623)

		Ех	pected	Result	Produced Result			
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt	
LOCK 321	T20	LOCKED	170	0	LOCKED	160	0	
UNLOCK 321	T19	OVERDRAWN	170	0	OVERDRAWN	160	0	
BALANCE	T22	OVERDRAWN	170	0	OVERDRAWN	160	0	
DEPOSIT 100	T16	READY	270	0	READY	260	0	
BALANCE	T13	READY	270	0	READY	260	0	
LOGOUT	T10	IDLE	270	0	IDLE	260	0	
LOGIN 140	T7	IDLE	270	0	IDLE	260	0	

As from the above table we can see that expected results are not matched with produced result. Hence the test case is **FAILED**. The contradicting operations are highlighted in **RED** color in the above table. The transition **76** and **721** have bug in the source code. The cause of failure is given later in this report in the section of Cause of Failure.

### TESTCASE#2

# INCORRECT PRODUCED OUTPUT AND EXPECTED CORRECT OUTPUT

		Ex	pected	Result	Produced Result			
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt	
OPEN 100 123 190	T1	IDLE	190	0	IDLE	190	0	
LOGIN 100	T2	CHECK PIN	190	0	CHECK PIN	190	0	
PIN 123	Т8	OVERDRAWN	190	0	OVERDRAWN	190	0	

		Ex	pected	Result	Produced Result			
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt	
BALANCE	T22	OVERDRAWN	190	0	OVERDRAWN	190	0	
LOGOUT	Т9	IDLE	190	0	IDLE	190	0	
LOGIN 135	Т7	IDLE	190	0	IDLE	190	0	
LOGIN 100	T2	CHECK PIN	190	0	CHECK PIN	190	0	
PIN 123	T8	OVERDRAWN	190	0	OVERDRAWN	190	0	
DEPOSIT 10	T21	OVERDRAWN	<mark>190</mark>	0	READY	200	Ö	
DEPOSIT 10	T21	OVERDRAWN	<mark>190</mark>	Ō	READY	210	ō	
LOCK 321	T20	LOCKED	190	0	LOCKED	210	0	
UNLOCK 321	T19	OVERDRAWN	190	0	READY	210	0	
DEPOSIT 10	T21	OVERDRAWN	190	0	READY	220	0	
DEPOSIT 100	T16	READY	290	0	READY	320	0	
WITHDRA W 100	T14	OVERDRAWN	170	0	READY	220	0	
BALANCE	T22	OVERDRAWN	170	0	READY	220	0	
LOGOUT	Т9	IDLE	170	0	IDLE	220	0	
LOGIN 100	T2	CHECK PIN	170	0	CHECK PIN	220	0	
PIN 1	Т3	CHECK PIN	170	0	CHECK PIN	220	1	
LOGOUT	T5	IDLE	170	0	IDLE	220	1	
LOGIN 100	T2	CHECK PIN	170	0	CHECK PIN	220	0	
PIN 2	Т3	CHECK PIN	170	1	CHECK PIN	220	1	

### Sukanta Sharma (A20472623)

		Б	pected	Result	Produced Result			
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt	
PIN 2	T3	CHECK PIN	170	2	CHECK PIN	220	2	
PIN 2	<b>T6</b>	IDLE	<mark>170</mark>	2	IDLE	220		
LOGIN 100	T2	CHECK PIN	170	0	CHECK PIN	220	0	
PIN 2	Т3	CHECK PIN	170	1	CHECK PIN	220	1	
PIN 123	Т8	OVERDRAWN	170	1	READY	220	1	
LOCK 321	T20	LOCKED	170	1	LOCKED	220	1	
UNLOCK 321	T19	OVERDRAWN	170	1	READY	220	1	
LOCK 321	T20	LOCKED	170	1	LOCKED	220	1	
UNLOCK 321	T19	OVERDRAWN	170	1	READY	220	1	
DEPOSIT 10	T21	OVERDRAWN	<mark>170</mark>	1	READY	230	1	
LOGOUT	Т9	IDLE	170	1	IDLE	230	1	

As from the above table we can see that expected results are not matched with produced result. Hence the test case is **FAILED**. The contradicting operations are highlighted in **RED** color in the above table. The transition **76** and **721** have bug in the source code. The cause of failure is given later in this report in the section of Cause of Failure.

### TESTCASE#3

# INCORRECT PRODUCED OUTPUT AND EXPECTED CORRECT OUTPUT

Function Called	Transi tion	Expected Result			Produced Result		
		State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt
OPEN 100 123 190	T1	IDLE	190	0	IDLE	190	C

	Transi tion	Expected Result			Produced Result		
Function Called		State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt
LOGIN 100	T2	CHECK PIN	190	0	CHECK PIN	190	0
PIN 123	T8	OVERDRAWN	190	0	OVERDRAWN	190	0
DEPOSIT 100	T16	READY	290	0	READY	290	0
LOGOUT	T10	IDLE	290	0	IDLE	290	0
LOGIN 100	T2	CHECK PIN	290	0	CHECK PIN	290	0
PIN 2	T3	CHECK PIN	290	1	CHECK PIN	290	1
PIN 123	T18	READY	290	1	READY	290	1
WITHDRA W 100	T14	OVERDRAWN	170	1	OVERDRAWN	170	1
DEPOSIT 10	T21	OVERDRAWN	170	1	OVERDRAWN	160	1
LOCK 321	T20	LOCKED	170	1	LOCKED	160	1
UNLOCK 321	T19	OVERDRAWN	170	1	OVERDRAWN	160	1
DEPOSIT 100	T16	READY	270	1	READY	260	1
DEPOSIT 10	T12	READY	280	1	READY	270	1
BALANCE	T13	READY	280	1	READY	270	1
LOCK 321	T4	LOCKED	280	1	LOCKED	270	1
UNLOCK 321	T17	READY	280	1	READY	270	1
WITHDRA W 100	T14	OVERDRAWN	160	1	OVERDRAWN	150	1

### Sukanta Sharma (A20472623)

		Expected Result			Produced Result			
Function Called	Transi tion	State After Transition	Bala nce	No. of Unsuccessful Attempt	State After Transition	Bala nce	No. of Unsuccessful Attempt	
DEPOSIT 100	T16	READY	260	1	READY	250	1	
WITHDRA W 10	T11	READY	250	1	READY	240	1	
DEPOSIT 10	T12	READY	260	1	READY	250	1	
WITHDRA W 10	T11	READY	250	1	READY	240	1	
LOCK 321	T4	LOCKED	250	1	LOCKED	240	1	
UNLOCK 321	T17	READY	250	1	READY	240	1	
DEPOSIT 10	T12	READY	260	1	READY	250	1	
WITHDRA W 100	T14	OVERDRAWN	140	1	OVERDRAWN	130	1	
LOGOUT	Т9	IDLE	140	1	IDLE	130	1	
LOGIN 100	T2	CHECK PIN	140	0	CHECK PIN	130	0	
PIN 123	Т8	OVERDRAWN	140	0	OVERDRAWN	130	0	
LOGOUT	Т9	IDLE	140	0	IDLE	130	0	

As from the above table we can see that expected results are not matched with produced result. Hence the test case is **FAILED**. The contradicting operations are highlighted in **RED** color in the above table. The transition **76** and **721** have bug in the source code. The cause of failure is given later in this report in the section of Cause of Failure.

### **CAUSE OF FAILURE**

### TRANSITION - **T6**

According to given Figure 1: EFSM of *Account* class T6 will be executed if number of unsuccessful login attempts is 2. It will be moved to IDLE state, so the number of unsuccessful attempts will be 2 after this transition but in the

#### Sukanta Sharma (A20472623)

given code it is being incremented always if given pin is incorrect. EFSM figure does not mention about incrementing number of attempts in transition T6. The below code is for *pin()* method from *account* class.

```
/**
* provides pin # (parameter x)
* @param x PIN
* @return the value returned by the method 0 --> Successful, -1 --> ERROR
public final int pin(int x) {
    if (x4 != 1) { // Check if the current state is CHECK PIN
        return -1;
    if (x == x3) {
        x4 = 2;
        return 0;
    } else {
        x9++;
    if (x9 >= x0) {
       x4 = 0;
    return -1;
}
```

Figure 3: pin() method from account class

### TRANSITION - T21

According to given Figure 1: EFSM of *Account* class T21 will be executed if it is already in OVERDRAWN state while depositing an amount such that after deposit the final balance will be less than \$200. In such situation a \$10 fee will be imposed but in the given code a \$20 fee (stored in constant variable named x6) has been imposed here. The below code is for *variable declaration of* x6, account() constructor for variable initialization with \$20 fee and deposit() method of account class and the portion of the and the line is highlighted that has the bug.

```
/**
 * Transaction Fee
 */
private int x6;
```

Figure 4:Variable declaration of x6

#### Sukanta Sharma (A20472623)

```
/**
 * Constructor for parameters initialization
 */
public account() {
    x2 = 0;
    x4 = -1;
    x6 = 20;
    x7 = 200;
    x9 = 0;
    x0 = 3;
}
```

Figure 5: account() constructor for variable initialization with \$20 fee

```
/**
* deposits amount d to the account
* @param d Amount to deposit
* @return the value returned by the method 0 --> Successful, -1 --> ERROR
*/
public final int deposit(int d) {
    if (x4 != 2) {
        return -1;
    }
    if (x2 == 1) {
        return -1;
    }
    if ((x1 + d < x7) \&\& (d > 0)) {
        x1 = x1 + d - x6; // TODO BUG
        return 0;
    } else {
        if (d > 0) {
            x1 = x1 + d;
            return 0;
        }
    return -1;
}
```

Figure 6: deposit() method of account class

# **INSTRUCTION TO EXECUTE TEST CASES**

The submission is given as zip file named "CS589ProjectSubmission\_Sukanta.zip". After extracting the zip, there are 6 items in the folder:

### Sukanta Sharma (A20472623)

•	Account class	$\rightarrow$	account.java
•	Driver class	$\rightarrow$	TestDriver.java
•	Test suit	$\rightarrow$	TS.txt
•	Test suite checker	$\rightarrow$	test_suite_checker.exe
•	Test Executable jar file	$\rightarrow$	TestDriver_Sukanta.jar
•	Test Executable exe file	$\rightarrow$	TestDriver_Sukanta.exe
•	Project Report	$\rightarrow$	Project Report Sukanta.pdf

### MINIMUM SYSTEM REQUIREMENT

To run the test, suit a system is required with JRE installed of minimum version of JRE SE 1.7.0.

### **VALIDATE TEST SUITE**

To validate the test case run "test\_suite\_checker.exe" and press enter key to continue. It will verify the test suit and if there are no error exits, we can proceed with testing.



Figure 7:Test suite checker

Sukanta Sharma (A20472623)

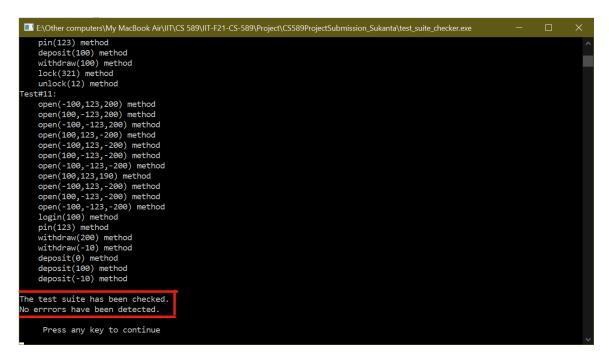


Figure 8: Test suite checker with no errors detected

There are no error in the test suit, so we can start with testing. Extract

#### **EXECUTION ON WINDOWS SYSTEM**

The test driver can be run on Windows machine using the following method:

Open command prompt in the folder location and execute the command "java -jar TestDriver\_Sukanta.jar".

Sukanta Sharma (A20472623)

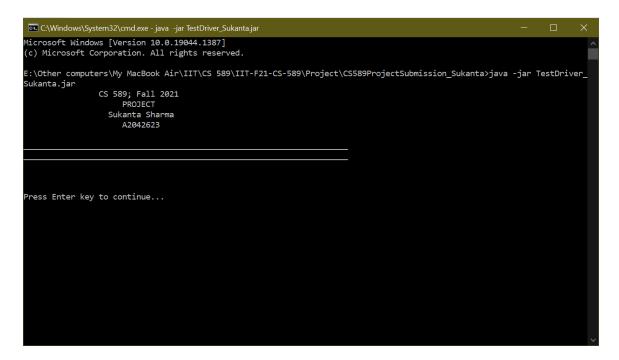


Figure 9:Run Executable JAR file in Windows

2. Run "TestDriver\_Sukanta.exe"

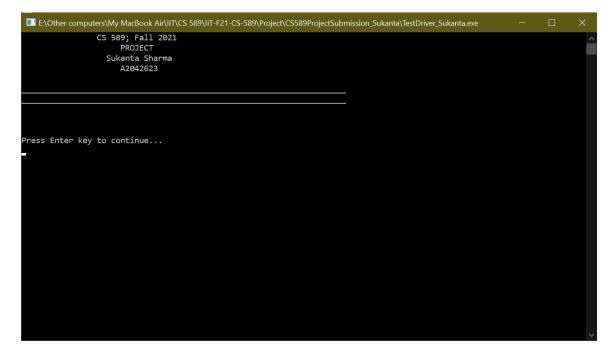


Figure 10: Run executable exe file in Windows

Press enter key to continue.

Sukanta Sharma (A20472623)



Figure 11: Test Environment Menu in Windows

## **EXECUTION ON MAC/NON-WINDOWS SYSTEM**

Open terminal in the same folder and run the command "java -jar TestDriver\_Sukanta.jar"

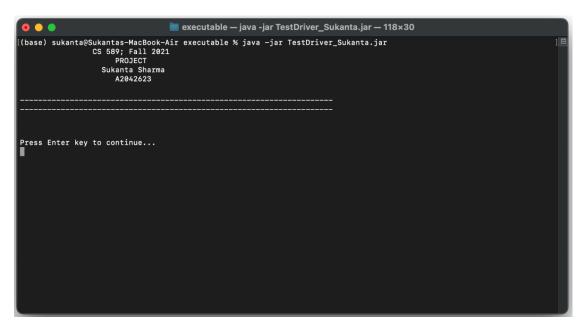


Figure 12:Run executable JAR in MAC

Press enter key to continue

Sukanta Sharma (A20472623)

Figure 13:Test environment menu in MAC

## CONCLUSION

The implementation of testing environment was second most time-consuming part after the test case writing. Testing-oriented methods helped me to get the values of variables at any given point in time. The environment gives the performed test case and results at each step. This part we have semi-automated to speed up with the testing and verification part. To automate more, we can create a data set with operation and expected results and we can design a testing environment such that it accepts the given dataset as input, and it can compare the produced results with the given expected results and prompt for failed/passed test cases. Although, we need to still investigate the code to detect and fix the bug if any.