

Fall 2017

CS589 PROJECT REPORT

INDEX

1. Model Based Testing of Account Class

- i. Incoming and Outgoing States 02
- ii. Transition Pair and Test # 03
- iii. Test Cases 05

2. Testing Default (Ghost) Transition of Account Class

- i. Default Transition for each State 11
- ii. Default Transition and Test # 13
- iii. Test Cases 15

3. Multiple Condition Testing

- i. Branches and Possible Outcomes with Test # 17
- ii. Test Cases 21

4. A Test suite and Result of its Execution

- i. Test Suite 26
- ii. Test Suite Checker 30
- iii. Expected Results vs Actual Results 40

5. Conclusion

- i. Experience with the implementation of the testing environment and its usage in class testing and model-based 430
- ii. which activities related to class testing can be automated or partially automated. 431

6. Source Code of Account Class and Test Drivers

- i. Source Code with Test Driver 432

1. Model Based Testing

i. Incoming and Outgoing States

1. State **Idle**:

Incoming State – T1, T5, T6, T7, T9, T10

Outgoing State – T2, T7

2. State **Check pin**:

Incoming State – T2, T3

Outgoing State – T3, T5, T6, T8, T16

3. State **ready**:

Incoming State – T11, T12, T13, T16, T17, T18

Outgoing State – T4, T10, T11, T12, T13, T14

4. State **locked**:

Incoming State – T4, T15, T20

Outgoing State – T15, T17, T19

5. State **overdrawn**:

Incoming State – T8, T14, T19, T21, T22

Outgoing State – T9, T18, T20, T21, T22

ii. Transition Pair and Test

1. State Idle:

Transition Pair	Test #	Transition Pair	Test #
(T1, T2)	1	(T1, T7)	2
(T5, T2)	4	(T5, T7)	3
(T6, T2)	2	(T6, T7)	3
(T7, T2)	2	(T7, T7)	2
(T9, T2)	4	(T9, T7)	5
(T10, T2)	5	(T10, T7)	5

2. State Check pin:

Transition Pair	Test #	Transition Pair	Test #
(T2, T3)	2	(T3, T5)	4
(T2, T5)	3	(T3, T6)	2
(T2, T6)	-	(T3, T8)	3
(T2, T8)	5	(T3, T16)	4
(T2, T16)	1	(T3, T3)	2

Reason for (T2, T6): On execution of T2 value of attempt is set as 0, and T6 is executed only if value of attempt is equal to 2. So T6 after T2 is not possible.

3. State Locked:

Transition Pair	Test #
(T4, T15)	1
(T4, T17)	3
(T4, T19)	-
(T15, T15)	3
(T15, T17)	1
(T15, T19)	3
(T20, T15)	3
(T20, T17)	-

(T20, T19)	4
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Reason for (T4, T19): T4 transition is executed from ready state where balance is always greater than or equal to 500. Whereas T19 transition is executed only if balance is less than 500. So, if one is executing T4 transition it means balance is greater than or equal to 500 so T19 transition cannot be executed.

Reason for (T20, T17): T20 transition is executed from overdrawn state where balance is always less than 500. Whereas T17 transition is executed only if balance is greater than or equal to 500. So, if one is executing T20 transition it means balance is less than 500 so T17 transition cannot be executed.

4. State Ready:

Transition Pair	Test #	Transition Pair	Test #
(T11, T4)	4	(T16, T4)	5
(T11, T10)	6	(T16, T10)	6
(T11, T11)	2	(T16, T11)	6
(T11, T12)	2	(T16, T12)	1
(T11, T13)	2	(T16, T13)	5
(T11, T14)	6	(T16, T14)	6
(T12, T4)	4	(T17, T4)	3
(T12, T10)	2	(T17, T10)	1
(T12, T11)	2	(T17, T11)	4
(T12, T12)	2	(T17, T12)	4
(T12, T13)	1	(T17, T13)	4
(T12, T14)	4	(T17, T14)	3
(T13, T4)	1	(T18, T4)	3
(T13, T10)	5	(T18, T10)	5
(T13, T11)	2	(T18, T11)	6
(T13, T12)	4	(T18, T12)	7
(T13, T13)	2	(T18, T13)	6
(T13, T14)	6	(T18, T14)	6

5. State **Overdraw**:

Transition Pair	Test #	Transition Pair	Test #
(T8, T9)	5	(T19, T20)	4
(T8, T18)	5	(T19, T21)	4
(T8, T20)	7	(T19, T22)	4
(T8, T21)	3	(T21, T9)	4
(T8, T22)	7	(T21, T18)	6
(T14, T9)	3	(T21, T20)	3
(T14, T18)	6	(T21, T21)	3
(T14, T20)	4	(T21, T22)	3
(T14, T21)	6	(T22, T9)	6
(T14, T22)	6	(T22, T18)	6
(T19, T9)	7	(T22, T20)	4
(T19, T18)	3	(T22, T21)	3
		(T22, T22)	3

iii. **Test Cases**

- open(1000,200,100)
login(100)
pin(200)
deposit(500)
balance()
lock(100)
balance()
unlock(100)
logout()

T1, T2, T16, T12, T13, T4, T15, T17, T10

2. open(500,200,100)
login(300)
login(350)
login(100)
pin(300)
pin(350)
pin(400)
login(100)
pin(200)
deposit(500)
withdraw(200)
withdraw(100)
balance()
balance()
withdraw(100)
deposit(300)
deposit(100)
logout()

**T1, T7, T7, T2, T3, T3, T6, T2, T16, T12, T11, T11, T13, T13, T11,
T12, T12, T10**

3. open(400,200,100)
login(100)
pin(300)
pin(400)
pin(500)
login(200)
login(100)
logout()
login(300)
login(100)
pin(250)
pin(200)
deposit(20)
deposit(30)

balance()
balance()
deposit(40)
lock(100)
balance()
balance()
unlock(100)
deposit(100)
lock(100)
unlock(100)
lock(100)
unlock(100)
withdraw(100)
logout()

**T1, T2, T3, T3, T6, T7, T2, T5, T7, T2, T3, T8, T21, T21, T22, T22,
T21, T20, T15, T15, T19, T18, T4, T17, T4, T17, T14, T9**

4. open(600,200,100)
login(100)
pin(250)
logout()
login(100)
pin(300)
pin(200)
deposit(100)
lock(100)
unlock(100)
balance()
deposit(50)
lock(100)
unlock(100)
withdraw(100)
lock(100)
unlock(100)

deposit(100)
withdraw(500)
lock(100)
unlock(100)
lock(100)
balance()
unlock(100)
balance()
lock(100)
unlock(100)
deposit(100)
logout()
login(100)
logout()

**T1, T2, T3, T5, T2, T3, T16, T12, T4, T17, T13, T12, T4, T17, T11,
T4, T17, T12, T14, T20, T19, T20, T15, T19, T22, T20, T19, T21,
T9, T2, T5**

5. open(400,200,100)
login(100)
pin(200)
logout()
login(250)
login(100)
pin(200)
deposit(200)
logout()
login(300)
login(100)
pin(200)
lock(100)
unlock(100)
logout()
login(100)

pin(200)
balance()
logout()

**T1, T2, T8, T9, T7, T2, T8, T18, T10, T7, T2, T16, T4, T17, T10,
T2, T16, T13, T10**

6. open(600,200,100)
login(100)
pin(200)
logout()
login(100)
pin(200)
withdraw(50)
logout()
login(100)
pin(200)
withdraw(100)
deposit(100)
withdraw(10)
withdraw(100)
balance()
deposit(200)
withdraw(300)
deposit(100)
deposit(300)
balance()
withdraw(400)
balance()
logout()

**T1, T2, T16, T10, T2, T16, T11, T10, T2, T16, T14, T18, T11, T14,
T22, T18, T14, T21, T18, T13, T14, T22, T9**

7. open(300,200,100)
login(100)
pin(200)
lock(100)
unlock(100)
logout()
login(100)
pin(200)
balance()
deposit(400)
deposit(200)
logout()

T1, T2, T8, T20, T19, T9, T2, T8, T22, T18, T12, T10

2. Testing Default (Ghost) Transition of Account Class

i. Default Transition for each State

1. State Idle: - 8 Ghost Transition

Default (Ghost) Transition
Open(x, y, z)
Logout()
Pin(x)
Deposit(d)
Withdraw(w)
Balance()
Lock(x)
Unlock(x)

2. State Check pin: 7 Ghost Transition

Default (Ghost) Transition
Open(x, y, z)
Login(x)
Deposit(d)
Withdraw(w)
Balance()
Lock(x)
Unlock(x)

3. State Ready: 6 Ghost Transition

Default (Ghost) Transition
Open(x, y, z)
Login(x)
Pin(x)
Lock(x)
Unlock(x)

withdraw(w) [b-w<0]

4. State **Locked**: 8 Ghost Transition

Default (Ghost) Transition
Open(x, y, z)
Login(x)
Logout()
Pin(x)
Deposit(d)
Withdraw(w)
Lock(x)
Unlock(x) (x!=k)

5. State **Overdrawn**: 6 Ghost Transition

Default (Ghost) Transition
Open(x, y, z)
Login(x)
Pin(x)
Withdraw(w) [(b-w<500)&&(b-w>0)] /b=b-w-20
Lock(x)
Unlock(x) (x!=k)

6. State **Start**: 8 Ghost Transition

Default (Ghost) Transition
Login(x)
Logout()
Pin(x)
Deposit(d)
Withdraw(w)
Balance()

Lock(x)
Unlock(x)

ii. Default Transition and Test

1. State Idle: 8 Ghost Transition

Default (Ghost) Transition	Test #
Open(x, y, z)	8
Logout()	
Pin(x)	
Deposit(d)	
Withdraw(w)	
Balance()	
Lock(x)	
Unlock(x)	

2. State Check pin: 7 Ghost transitions

Default (Ghost) Transition	Test #
Open(x, y, z)	9
Login(x)	
Deposit(d)	
Withdraw(w)	
Balance()	
Lock(x)	
Unlock(x)	

3. State Ready: 6 Ghost Transitions

Default (Ghost) Transition	Test #
Open(x, y, z)	10
Login(x)	
Pin(x)	
Lock(x)	
Unlock(x)	

withdraw(w) [b-w<0]	
------------------------	--

4. State **Locked**: 8 Ghost Transitions

Default (Ghost) Transition	Test #
Open(x, y, z)	11
Login(x)	
Logout()	
Pin(x)	
Deposit(d)	
Withdraw(w)	
Lock(x)	
Unlock(x) (x!=k)	

5. State **Overdrawn**: 6 Ghost Transitions

Default (Ghost) Transition	Test #
Open(x, y, z)	12
Login(x)	
Pin(x)	
Withdraw(w) [(b-w<500)&&(b-w>0)] /b=b-w-20	
Lock(x)	
Unlock(x) (x!=k)	

6. State **Start**: - 8 Ghost Transitions

Default (Ghost) Transition	Test #
Login(x)	13
Logout()	
Pin(x)	

Deposit(d)	
Withdraw(w)	
Balance()	
Lock(x)	
Unlock(x)	

iii. Test Cases

8. open(500,200,100)

open(500,200,100)

logout()

pin(200)

deposit(50)

withdraw(100)

balance()

lock(100)

unlock(100)

9. open(500,200,100)

login(100)

open(500,200,100)

login(100)

deposit(50)

withdraw(100)

balance()

lock(100)

unlock(100)

10. open(500,200,100)

login(100)

pin(200)

open(500,200,100)

login(100)

pin(200)

withdraw(1000)

lock(200)
unlock(200)

11.open(500,200,100)
login(100)
pin(200)
lock(100)
open(500,200,100)
login(100)
logout()
pin(200)
deposit(50)
withdraw(100)
lock(100)
unlock(200)

12.open(200,300,100)
login(100)
pin(300)
open(200,300,100)
login(100)
pin(300)
withdraw(50)
lock(300)
unlock(300)

13.login(100)
logout()
pin(200)
deposit(150)
withdraw(50)
balance()

lock(100)

unlock(100)

3. Multiple Condition Testing

i. Branches and Possible Outcomes with Test

1. public final int open(int x, int y, int z)

	(x > 0)	(x4 == -1)	(y > 0)	(z > 0)	Test #
((x > 0) && (x4 == -1) && (y > 0) && (z > 0))	T	T	T	T	14
	T	T	T	F	15
	T	T	F	T	17
	T	T	F	F	16
	T	F	T	T	18
	T	F	T	F	19
	T	F	F	T	20
	T	F	F	F	21
	F	T	T	T	22
	F	T	T	F	23
	F	T	F	T	24
	F	T	F	F	25
	F	F	T	T	26
	F	F	T	F	27
	F	F	F	T	28
	F	F	F	F	29

2. public final int login(int x)

(x4 != 0)	(x4 != 0)	Test #
	T	32
	F	30
(x5 == x)	(x5 == x)	Test #
	T	30
	F	31

3. public final int logout()

	(x4 == 0)	(x2 == 1)	Test #
((x4 == 0) (x2 == 1))	T	T	-
	T	F	34
	F	T	59
	F	F	33

Reason for T T not possible – If x4 == 0 is T then x2 == 1 cannot be true because x2 will be T only if x4 is F and its value is 2.

4. public final int pin(int x)

	(x4 != 1)	Test #
(x4 != 1)	T	36
	F	35
	(x == x3)	Test #
(x == x3)	T	35
	F	36
	(x9 >= x0)	Test #
(x9 >= x0)	T	36
	F	36

5. public final int balance()

	(x4 != 2)	Test #
(x4 != 2)	T	37
	F	38

6. public final int lock(int x)

	(x4 != 2)	Test #
(x4 != 2)	T	40

	F	39
(x == x3)	(x == x3)	Test #
	T	41
	F	39
(x2 == 0)	(x2 == 0)	Test #
	T	39
	F	41

7. public final int unlock(int x)

(x4 != 2)	(x4 != 2)		Test #
	T		43
	F		42
((x2 == 1) && (x == x8))	(x2 == 1)	(x == x8)	Test #
	T	T	42
	T	F	44
	F	T	58
	F	F	45

8. public final int deposit(int d)

(x4 != 2)	(x4 != 2)		Test #
	T		47
	F		46
(x2 == 1)	(x2 == 1)		Test #
	T		48
	F		46
((x1 + d < x7) && (d > 0))	((x1 + d < x7)	(d > 0)	Test #
	T	T	46
	T	F	49
	F	T	48
	F	F	50

(d > 0)	(d > 0)	Test #
	T	48
	F	49

9. public final int withdraw(int w)

(x4 != 2)	(x4 != 2)		Test #
	T		54
	F		51
(x2 == 1)	(x2 == 1)		Test #
	T		55
	F		51
((x1 > w) && (w > 0))	(x1 > w)	(w > 0)	Test #
	T	T	51
	T	F	57
	F	T	56
	F	F	-
(x1 < x7)	(x1 < x7)		Test #
	T		51
	F		52
(x1 < x7)	(x1 < x7)		Test #
	T		53
	F		52

Reason for F F not possible – Here for both the condition to be false the balance should be negative. If balance is negative, then only FF is possible and balance can never be negative so FF is not possible.

ii. Test Cases

14.open(500,200,100)

15.open(500,200,-100)

16.open(500,-200,-100)

17.open(500,-200,100)

18.open(500,200,100)
open(500,200,100)

19.open(500,200,100)
open(500,200,-100)

20.open(500,200,100)
open(500,-200,100)

21.open(500,200,100)
open(500,-200,-100)

22.open(-300,200,100)

23.open(-300,200,-100)

24.open(-300,-200,100)

25.open(-300,-200,-100)

26.open(300,200,100)
open(-300,200,100)

27.open(300,200,100)
open(-300,200,-100)

28.open(300,200,100)
open(-300,-200,100)

29.open(300,200,100)
open(-300,-200,-100)

30.open(500,200,100)
login(100)

31.open(500,200,100)
login(200)

32.login(100)

33.open(400,200,100)
login(100)
logout()

34.open(400,200,100)
logout()

35.open(500,200,100)
login(100)
pin(200)

36.open(500,200,100)
login(100)
pin(100)
pin(150)
pin(120)
pin(100)

37.balance()

38.open(500,200,100)
 login(100)
 pin(200)
 balance()

39.open(500,200,100)
 login(100)
 pin(200)
 lock(100)

40.lock(100)

41.open(500,200,100)
 login(100)
 pin(200)
 lock(200)
 lock(100)
 lock(100)

42.open(500,200,100)
 login(100)
 pin(200)
 lock(100)
 unlock(100)

43.unlock(100)

44.open(500,200,100)
 login(100)
 pin(200)
 lock(100)
 unlock(250)

45.open(500,200,100)
 login(100)
 pin(200)
 unlock(100)

46.open(300,200,100)
 login(100)
 pin(200)
 deposit(50)

47.deposit(50)

48.open(300,200,100)
 login(100)
 pin(200)
 lock(100)
 deposit(50)
 unlock(100)
 deposit(500)

49.open(300,200,100)
 login(100)
 pin(200)
 deposit(-50)

50.open(300,200,100)
 login(100)
 pin(200)
 deposit(-100)

51.open(300,200,100)
 login(100)
 pin(200)
 withdraw(50)

52.open(800,200,100)
 login(100)
 pin(200)
 withdraw(50)

53.open(600,200,100)
 login(100)
 pin(200)
 withdraw(120)

54.withdraw(100)

55.open(600,200,100)
 login(100)
 pin(200)
 lock(100)
 withdraw(50)

56.open(500,200,100)
 login(100)
 pin(200)
 withdraw(1000)

57.open(1000,200,100)
 login(100)
 pin(200)
 withdraw(-50)

58.open(500,200,100)
 login(100)
 pin(200)
 lock(100)
 unlock(100)
 logout()
 unlock(100)

59.open (500,200,100)
 login (100)
 pin (200)
 lock (100)
 logout ()

4. Test Suite and Results of its Execution

i. Test Suite

Test#1: open 1000 200 100 login 100 pin 200 deposit 500 balance lock 100
balance unlock 100 logout

Test#2: open 500 200 100 login 300 login 350 login 100 pin 300 pin 350 pin 400
login 100 pin 200 deposit 500 withdraw 200 withdraw 100 balance balance
withdraw 100 deposit 300 deposit 100 logout

Test#3: open 400 200 100 login 100 pin 300 pin 400 pin 500 login 200 login 100
logout login 300 login 100 pin 250 pin 200 deposit 20 deposit 30 balance balance
deposit 40 lock 100 balance balance unlock 100 deposit 100 lock 100 unlock 100
lock 100 unlock 100 withdraw 100 logout

Test#4: open 600 200 100 login 100 pin 250 logout login 100 pin 300 pin 200
deposit 100 lock 100 unlock 100 balance deposit 50 lock 100 unlock 100 withdraw
100 lock 100 unlock 100 deposit 100 withdraw 500 lock 100 unlock 100 lock 100
balance unlock 100 balance lock 100 unlock 100 deposit 100 logout login 100
logout

Test#5: open 400 200 100 login 100 pin 200 logout login 250 login 100 pin 200
deposit 200 logout login 300 login 100 pin 200 lock 100 unlock 100 logout login
100 pin 200 balance logout

Test#6: open 600 200 100 login 100 pin 200 logout login 100 pin 200 withdraw 50
logout login 100 pin 200 withdraw 100 deposit 100 withdraw 10 withdraw 100
balance deposit 200 withdraw 300 deposit 100 deposit 300 balance withdraw 400
balance logout

Test#7: open 300 200 100 login 100 pin 200 lock 100 unlock 100 logout login 100
pin 200 balance deposit 400 deposit 200 logout

Test#8: open 500 200 100 open 500 200 100 logout pin 200 deposit 50 withdraw
100 balance lock 100 unlock 100

Test#9: open 500 200 100 login 100 open 500 200 100 login 100 deposit 50
withdraw 100 balance lock 100 unlock 100

Test#10: open 500 200 100 login 100 pin 200 open 500 200 100 login 100 pin 200
withdraw 1000 lock 200 unlock 200

Test#11: open 500 200 100 login 100 pin 200 lock 100 open 500 200 100 login
100 logout pin 200 deposit 50 withdraw 100 lock 100 unlock 200

Test#12: open 200 300 100 login 100 pin 300 open 200 300 100 login 100 pin 300
withdraw 50 lock 300 unlock 300

Test#13: login 100 logout pin 200 deposit 150 withdraw 50 balance lock 100
unlock 100

Test#14: open 500 200 100

Test#15: open 500 200 -100

Test#16: open 500 -200 -100

Test#17: open 500 -200 100

Test#18: open 500 200 100 open 500 200 100

Test#19: open 500 200 100 open 500 200 -100

Test#20: open 500 200 100 open 500 -200 100

Test#21: open 500 200 100 open 500 -200 -100

Test#22: open -300 200 100

Test#23: open -300 200 -100

Test#24: open -300 -200 100

Test#25: open -300 -200 -100

Test#26: open 300 200 100 open -300 200 100

Test#27: open 300 200 100 open -300 200 -100

Test#28: open 300 200 100 open -300 -200 100

Test#29: open 300 200 100 open -300 -200 -100

Test#30: open 500 200 100 login 100

Test#31: open 500 200 100 login 200

Test#32: login 100

Test#33: open 400 200 100 login 100 logout

Test#34: open 400 200 100 logout
Test#35: open 500 200 100 login 100 pin 200
Test#36: open 500 200 100 login 100 pin 100 pin 150 pin 120 pin 100
Test#37: balance
Test#38: open 500 200 100 login 100 pin 200 balance
Test#39: open 500 200 100 login 100 pin 200 lock 100
Test#40: lock 100
Test#41: open 500 200 100 login 100 pin 200 lock 200 lock 100 lock 100
Test#42: open 500 200 100 login 100 pin 200 lock 100 unlock 100
Test#43: unlock 100
Test#44: open 500 200 100 login 100 pin 200 lock 100 unlock 250
Test#45: open 500 200 100 login 100 pin 200 unlock 100
Test#46: open 300 200 100 login 100 pin 200 deposit 50
Test#47: deposit 50
Test#48: open 300 200 100 login 100 pin 200 lock 100 deposit 50 unlock 100
deposit 500
Test#49: open 300 200 100 login 100 pin 200 deposit -50
Test#50: open 300 200 100 login 100 pin 200 deposit -100
Test#51: open 300 200 100 login 100 pin 200 withdraw 50
Test#52: open 800 200 100 login 100 pin 200 withdraw 50
Test#53: open 600 200 100 login 100 pin 200 withdraw 120
Test#54: withdraw 100
Test#55: open 600 200 100 login 100 pin 200 lock 100 withdraw 50
Test#56: open 500 200 100 login 100 pin 200 withdraw 1000
Test#57: open 1000 200 100 login 100 pin 200 withdraw -50

Test#58: open 500 200 100 login 100 pin 200 lock 100 unlock 100 logout unlock
100

Test#59: open 500 200 100 login 100 pin 200 lock 100 logout

\$\$

ii. Test Suite Checker

```
Test#1:
    open(1000,200,100) method
    login(100) method
    pin(200) method
    deposit(500) method
    balance() method
    lock(100) method
    balance() method
    unlock(100) method
    logout() method
Test#2:
    open(500,200,100) method
    login(300) method
    login(350) method
    login(100) method
    pin(300) method
    pin(350) method
    pin(400) method
    login(100) method
    pin(200) method
    deposit(500) method
    withdraw(200) method
    withdraw(100) method
    balance() method
    balance() method
    withdraw(100) method
    deposit(300) method
    deposit(100) method
    logout() method
```

```
Test#3:
    open(400,200,100) method
    login(100) method
    pin(300) method
    pin(400) method
    pin(500) method
    login(200) method
    login(100) method
    logout() method
    login(300) method
    login(100) method
    pin(250) method
    pin(200) method
    deposit(20) method
    deposit(30) method
    balance() method
    balance() method
    deposit(40) method
    lock(100) method
    balance() method
    balance() method
    unlock(100) method
    deposit(100) method
    lock(100) method
    unlock(100) method
    lock(100) method
    unlock(100) method
    withdraw(100) method
    logout() method
```



```
Test#4:
    open(600,200,100) method
    login(100) method
    pin(250) method
    logout() method
    login(100) method
    pin(300) method
    pin(200) method
    deposit(100) method
    lock(100) method
    unlock(100) method
    balance() method
    deposit(50) method
    lock(100) method
    unlock(100) method
    withdraw(100) method
    lock(100) method
    unlock(100) method
    deposit(100) method
    withdraw(500) method
    lock(100) method
    unlock(100) method
    lock(100) method
    balance() method
    unlock(100) method
    balance() method
    lock(100) method
    unlock(100) method
    deposit(100) method
    logout() method
    login(100) method
    logout() method
```

Test#5:

```
open(400,200,100) method
login(100) method
pin(200) method
logout() method
login(250) method
login(100) method
pin(200) method
deposit(200) method
logout() method
login(300) method
login(100) method
pin(200) method
lock(100) method
unlock(100) method
logout() method
login(100) method
pin(200) method
balance() method
logout() method
```

Test#6:

```
open(600,200,100) method
login(100) method
pin(200) method
logout() method
login(100) method
pin(200) method
withdraw(50) method
logout() method
login(100) method
pin(200) method
withdraw(100) method
deposit(100) method
withdraw(10) method
withdraw(100) method
balance() method
deposit(200) method
withdraw(300) method
deposit(100) method
deposit(300) method
balance() method
withdraw(400) method
balance() method
logout() method
```

```
Test#7:
  open(300,200,100) method
  login(100) method
  pin(200) method
  lock(100) method
  unlock(100) method
  logout() method
  login(100) method
  pin(200) method
  balance() method
  deposit(400) method
  deposit(200) method
  logout() method
Test#8:
  open(500,200,100) method
  open(500,200,100) method
  logout() method
  pin(200) method
  deposit(50) method
  withdraw(100) method
  balance() method
  lock(100) method
  unlock(100) method
Test#9:
  open(500,200,100) method
  login(100) method
  open(500,200,100) method
  login(100) method
  deposit(50) method
  withdraw(100) method
  balance() method
  lock(100) method
  unlock(100) method
Test#10:
  open(500,200,100) method
  login(100) method
  pin(200) method
  open(500,200,100) method
  login(100) method
  pin(200) method
  withdraw(1000) method
  lock(200) method
  unlock(200) method
```

```
Test#11:
    open(500,200,100) method
    login(100) method
    pin(200) method
    lock(100) method
    open(500,200,100) method
    login(100) method
    logout() method
    pin(200) method
    deposit(50) method
    withdraw(100) method
    lock(100) method
    unlock(200) method
Test#12:
    open(500,300,100) method
    login(100) method
    pin(300) method
    open(200,300,100) method
    login(100) method
    pin(300) method
    withdraw(50) method
    lock(300) method
    unlock(300) method
Test#13:
    login(100) method
    logout() method
    pin(200) method
    deposit(150) method
    withdraw(50) method
    balance() method
    lock(100) method
    unlock(100) method
Test#14:
    open(500,200,100) method
Test#15:
    open(500,200,-100) method
Test#16:
    open(500,-200,-100) method
Test#17:
    open(500,200,100) method
Test#18:
    open(500,200,100) method
    open(500,200,100) method
```

```
Test#19:
    open(500,200,100) method
    open(500,200,-100) method
Test#20:
    open(500,200,100) method
    open(500,-200,100) method
Test#21:
    open(500,200,100) method
    open(500,-200,-100) method
Test#22:
    open(-300,200,100) method
Test#23:
    open(-300,200,-100) method
Test#24:
    open(-300,-200,100) method
Test#25:
    open(-300,-200,-100) method
Test#26:
    open(300,200,100) method
    open(-300,200,100) method
Test#27:
    open(300,200,100) method
    open(-300,200,-100) method
Test#28:
    open(300,200,100) method
    open(-300,-200,100) method
Test#29:
    open(300,200,100) method
    open(-300,-200,-100) method
Test#30:
    open(500,200,100) method
    login(100) method
Test#31:
    open(500,200,100) method
    login(200) method
Test#32:
    login(100) method
Test#33:
    open(400,200,100) method
    login(100) method
    logout() method
```

```
Test#34:
    open(400,200,100) method
    logout() method
Test#35:
    open(500,200,100) method
    login(100) method
    pin(200) method
Test#36:
    open(500,200,100) method
    login(100) method
    pin(100) method
    pin(150) method
    pin(120) method
    pin(100) method
Test#37:
    balance() method
Test#38:
    open(500,200,100) method
    login(100) method
    pin(200) method
    balance() method
Test#39:
    open(500,200,100) method
    login(100) method
    pin(200) method
    lock(100) method
Test#40:
    lock(100) method
Test#41:
    open(500,200,100) method
    login(100) method
    pin(200) method
    lock(200) method
    lock(100) method
    lock(100) method
Test#42:
    open(500,200,100) method
    login(100) method
    pin(200) method
    lock(100) method
    unlock(100) method
```

```
Test#43:
    unlock(100) method
Test#44:
    open(500,200,100) method
    login(100) method
    pin(200) method
    lock(100) method
    unlock(250) method
Test#45:
    open(500,200,100) method
    login(100) method
    pin(200) method
    unlock(100) method
Test#46:
    open(300,200,100) method
    login(100) method
    pin(200) method
    deposit(50) method
Test#47:
    deposit(50) method
Test#48:
    open(300,200,100) method
    login(100) method
    pin(200) method
    lock(100) method
    deposit(50) method
    unlock(100) method
    deposit(500) method
Test#49:
    open(300,200,100) method
    login(100) method
    pin(200) method
    deposit(-50) method
Test#50:
    open(300,200,100) method
    login(100) method
    pin(200) method
    deposit(-100) method
Test#51:
    open(300,200,100) method
    login(100) method
    pin(200) method
    withdraw(50) method
```

```
Test#53:
    open(600,200,100) method
    login(100) method
    pin(200) method
    withdraw(120) method
Test#54:
    withdraw(100) method
Test#55:
    open(600,200,100) method
    login(100) method
    pin(200) method
    lock(100) method
    withdraw(50) method
Test#56:
    open(500,200,100) method
    login(100) method
    pin(200) method
    withdraw(1000) method
Test#57:
    open(1000,200,100) method
    login(100) method
    pin(200) method
    withdraw(-50) method
Test#58:
    open(500,200,100) method
    login(100) method
    pin(200) method
    lock(100) method
    unlock(100) method
    logout() method
    unlock(100) method
Test#59:
    open(500,200,100) method
    login(100) method
    pin(200) method
    lock(100) method
    logout() method

The test suite has been checked.
No errors have been detected.

    Press any key to continue
```


iii. Expected Results vs Actual Results

Test#1: open 1000 200 100 login 100 pin 200 deposit 500 balance lock 100
balance unlock 100 logout

- open 1000 200 100

Expected Results

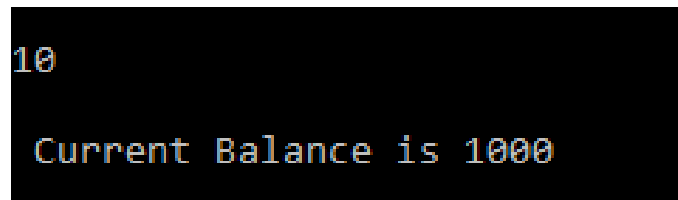
Balance – 1000

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 1000$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$,
 $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

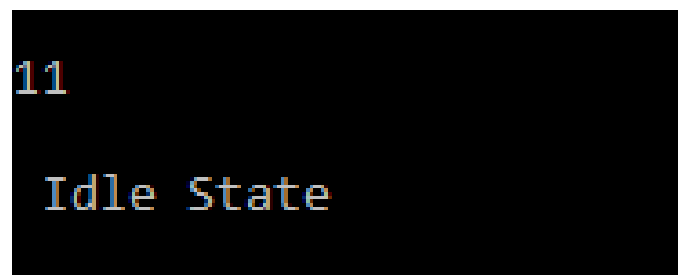
Actual Results

Balance –



```
10
Current Balance is 1000
```

State –



```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 1000
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 1000

State – Pin

Value of all Variables – X0 = 3, X1 = 1000, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 1000
```

State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 1000  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- pin 200

Expected Results

Balance – 1000

State – Ready

Value of all Variables – X0 = 3, X1 = 1000, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10  
Current Balance is 1000
```

State –

```
11  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 1000  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- deposit 500

Expected Results

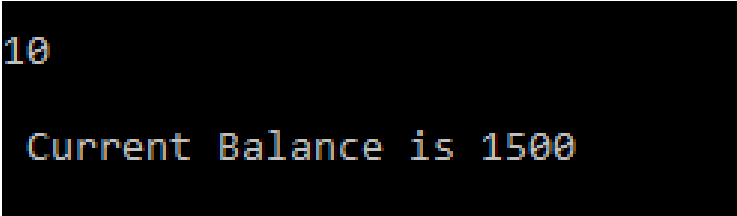
Balance – 1500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 1500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

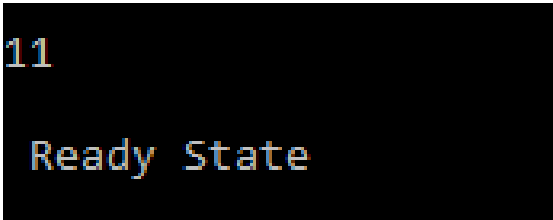
Actual Results

Balance –



```
10  
  
Current Balance is 1500
```

State –



```
11  
  
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 1500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- balance

Expected Results

Balance – 1500

State – Ready

Value of all Variables – X0 = 3, X1 = 1500, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 1500
```

State –

```
11  
  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
  
X1 = 1500  
  
X2 = 0  
  
X3 = 200  
  
X4 = 2  
  
X5 = 100  
  
X6 = 20  
  
X7 = 500  
  
X8 = 0  
  
X9 = 0
```

- lock 100

Expected Results

Balance – 1500

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 1500$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 1500
```

State –

```
11
Locked State
```

Value of all Variables –

```
X0 = 3
X1 = 1500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```


- balance

Expected Results

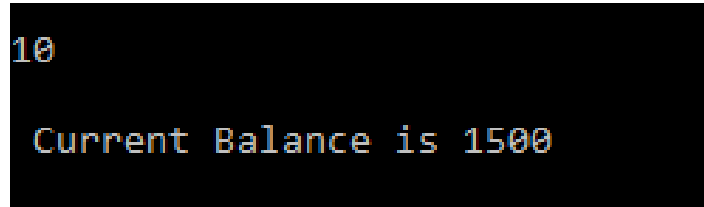
Balance – 1500

State – Locked

Value of all Variables – $X0 = 3$, $X1 = 1500$, $X2 = 1$, $X3 = 200$, $X4 = 2$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 100$, $X9 = 0$.

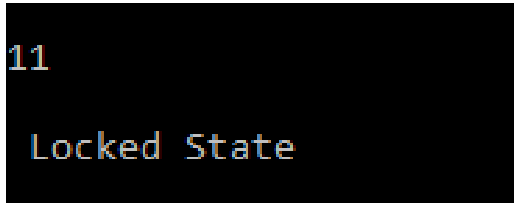
Actual Results

Balance –



```
10  
Current Balance is 1500
```

State –



```
11  
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 1500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- unlock 100

Expected Results

Balance – 1500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 1500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 1500
```

State –

```
11  
  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
  
X1 = 1500  
  
X2 = 0  
  
X3 = 200  
  
X4 = 2  
  
X5 = 100  
  
X6 = 20  
  
X7 = 500  
  
X8 = 100  
  
X9 = 0
```

- Logout

Expected Results

Balance – 1500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 1500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 1500
```

State –

```
11  
Idle State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 1500  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 0
```

Test#2: open 500 200 100 login 300 login 350 login 100 pin 300 pin 350 pin 400
login 100 pin 200 deposit 500 withdraw 200 withdraw 100 balance balance
withdraw 100 deposit 300 deposit 100 logout

- open 500 200 100

Expected Results

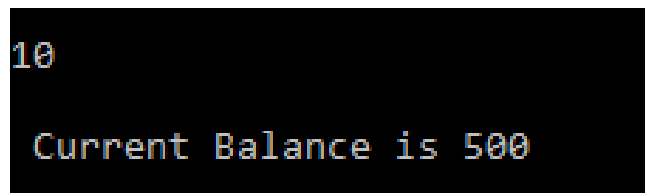
Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

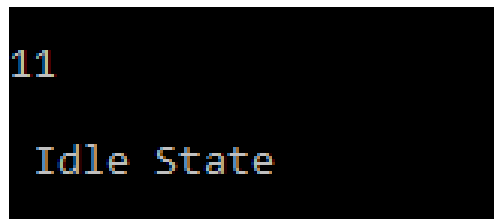
Actual Results

Balance –



10
Current Balance is 500

State –



11
Idle State

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 300

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11  
  
Idle State
```

Value of all Variables –

```
12  
  
X0 = 3  
  
X1 = 500  
  
X2 = 0  
  
X3 = 200  
  
X4 = 0  
  
X5 = 100  
  
X6 = 20  
  
X7 = 500  
  
X8 = 0  
  
X9 = 0
```

login 350

Expected Results

Balance – 500

State – Idle

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 0, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


- login 100

Expected Results

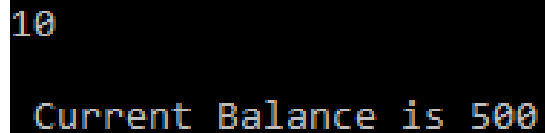
Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

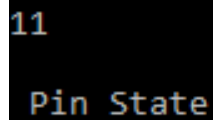
Actual Results

Balance –



```
10  
Current Balance is 500
```

State –



```
11  
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 300

Expected Results

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11  
  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 1
```

- pin 350

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 2.

Actual Results

Balance –

```
10  
  
Current Balance is 500
```

State –

```
11  
  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 2
```

- pin 400

Expected Results

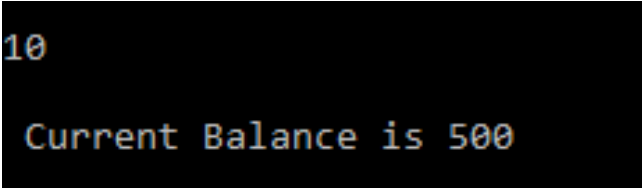
Balance – 500

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 500$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 3$.

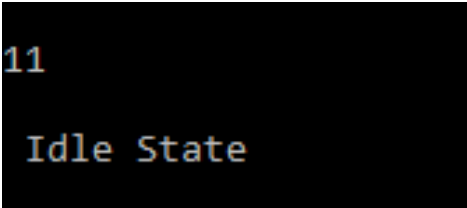
Actual Results

Balance –



```
10
Current Balance is 500
```

State –



```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 3
```

- login 100

Expected Results

Balance – 500

State – Pin

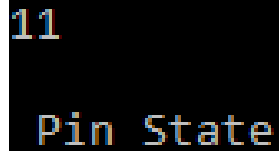
Value of all Variables – $X0 = 3$, $X1 = 500$, $X2 = 0$, $X3 = 200$, $X4 = 1$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

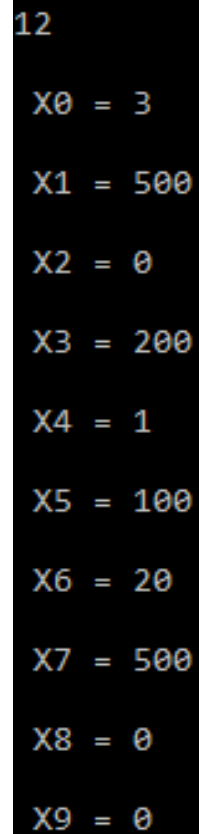
```
10
Current Balance is 500
```

State –



```
11  
  
Pin State
```

Value of all Variables –



```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- pin 200

Expected Results

Balance – 500

State – Ready

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


- deposit 500

Expected Results

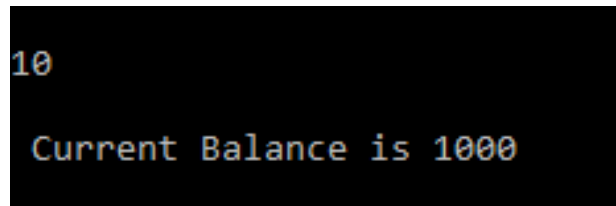
Balance – 1000

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 1000$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –



```
10
Current Balance is 1000
```

State –



```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 1000
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- withdraw 200

Expected Results

Balance – 800

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 800$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 800
```

State –

```
11  
  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 800  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- withdraw 100

Expected Results

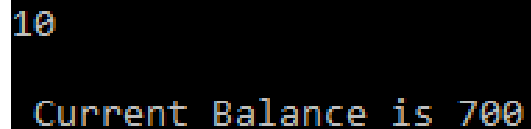
Balance – 700

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 700$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –



```
10
Current Balance is 700
```

State –



```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 700
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- Balance

Expected Results

Balance – 700

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 700$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 700
```

State –

```
11  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
  
X1 = 700  
  
X2 = 0  
  
X3 = 200  
  
X4 = 2  
  
X5 = 100  
  
X6 = 20  
  
X7 = 500  
  
X8 = 0  
  
X9 = 0
```

- Balance

Expected Results

Balance – 700

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 700$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
  
Current Balance is 700
```

State –

```
11  
  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
  
X1 = 700  
  
X2 = 0  
  
X3 = 200  
  
X4 = 2  
  
X5 = 100  
  
X6 = 20  
  
X7 = 500  
  
X8 = 0  
  
X9 = 0
```

- withdraw 100

Expected Results

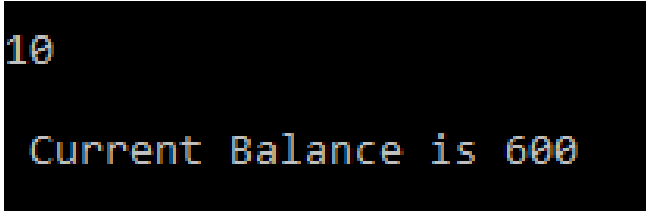
Balance – 600

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

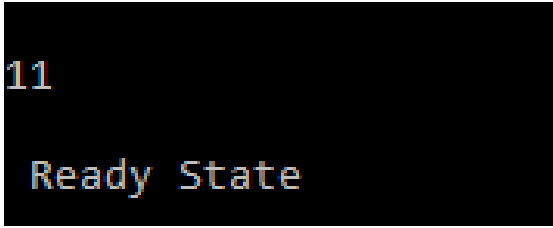
Actual Results

Balance –



```
10  
Current Balance is 600
```

State –



```
11  
Ready State
```

Value of all Variables –


```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- deposit 300

Expected Results

Balance – 900

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 900$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 900
```

State –

```
11  
  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
  
X1 = 900  
  
X2 = 0  
  
X3 = 200  
  
X4 = 2  
  
X5 = 100  
  
X6 = 20  
  
X7 = 500  
  
X8 = 0  
  
X9 = 0
```

- deposit 100

Expected Results

Balance – 1000

State – Ready

Value of all Variables – X0 = 3, X1 = 1000, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 1000
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 1000
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- Logout

Expected Results

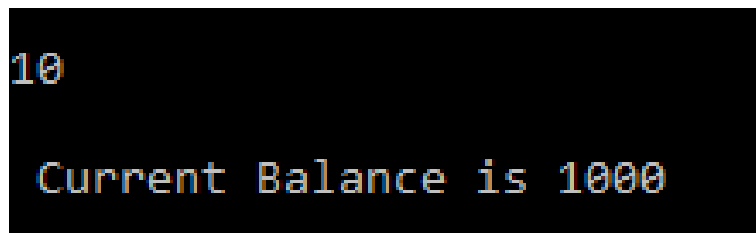
Balance – 1000

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 1000$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

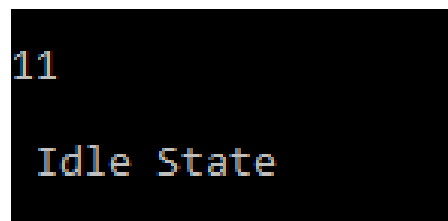
Actual Results

Balance –



```
10  
  
Current Balance is 1000
```

State –



```
11  
  
Idle State
```

Value of all Variables –

12

X0 = 3

X1 = 1000

X2 = 0

X3 = 200

X4 = 0

X5 = 100

X6 = 20

X7 = 500

X8 = 0

X9 = 0

Test#3: open 400 200 100 login 100 pin 300 pin 400 pin 500 login 200 login 100
logout login 300 login 100 pin 250 pin 200 deposit 20 deposit 30 balance
balance deposit 40 lock 100 balance balance unlock 100 deposit 100 lock 100
unlock 100 lock 100 unlock 100 withdraw 100 logout

- open 400 200 100

Expected Results

Balance – 400

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$,
 $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 400

State – Pin

Value of all Variables – $X0 = 3$, $X1 = 400$, $X2 = 0$, $X3 = 200$, $X4 = 1$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 300

Expected Results

Balance – 400

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –


```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 400  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 1
```

- pin 400

Expected Results

Balance – 400

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 2$.

Actual Results

Balance –

```
10  
  
Current Balance is 400
```

State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 400  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 2
```

- pin 500

Expected Results

Balance – 700

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 3$.

Actual Results

Balance –

```
10  
Current Balance is 400
```

State –

```
11  
Idle State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 400  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 3
```

- login 200

Expected Results

Balance – 400

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 400$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 3$.

Actual Results

Balance –

```
10  
Current Balance is 400
```

State –

```
11  
Idle State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 400  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 3
```

- login 100

Expected Results

Balance – 400

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- Logout

Expected Results

Balance – 400

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 300

Expected Results

Balance – 400

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 400
```

State –

```
11  
Idle State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 400  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- login 100

Expected Results

Balance – 400

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


- pin 250

Expected Results

Balance – 400

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 1
```

- pin 200

Expected Results

Balance – 400

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 1
```

- deposit 20

Expected Results

Balance – 400

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 1
```

- deposit 30

Expected Results

Balance – 410

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 410$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 410
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 410
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 1
```

- Balance

Expected Results

Balance – 410

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 410$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 410
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 410
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 1
```

- Balance

Expected Results

Balance – 410

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 410$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 1$.

Actual Results

Balance –

```
10  
Current Balance is 410
```

State –

```
11  
Overdrawn State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 410  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 1
```

- deposit 40

Expected Results

Balance – 430

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 430$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 1$.

Actual Results

Balance –

```
10  
Current Balance is 430
```

State –

```
11  
Overdrawn State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 430  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 1
```

- lock 100

Expected Results

Balance – 430

State – Locked

Value of all Variables – X0 = 3, X1 = 430, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 1.

Actual Results

Balance –

```
10  
Current Balance is 430
```

State –

```
11  
Locked State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 430  
X2 = 1  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 1
```

- Balance

Expected Results

Balance – 430

State – Locked

Value of all Variables – X0 = 3, X1 = 430, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 1.

Actual Results

Balance –

```
10  
Current Balance is 430
```

State –

```
11  
Locked State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 430  
X2 = 1  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 1
```

- Balance

Expected Results

Balance – 430

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 430$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 430
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 430
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- unlock 100

Expected Results

Balance – 430

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 430$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 430
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 430
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- deposit 100

Expected Results

Balance – 530

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 530$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10  
Current Balance is 530
```

State –

```
11  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 530  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 1
```

- lock 100

Expected Results

Balance – 530

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 530$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 530
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 530
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- unlock 100

Expected Results

Balance – 530

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 530$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 530
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 530
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- lock 100

Expected Results

Balance – 530

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 530$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 530
```

State –

```
11
Locked State
```

Value of all Variables –


```
12
X0 = 3
X1 = 530
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- unlock 100

Expected Results

Balance – 530

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 530$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 530
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 530
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- withdraw 100

Expected Results

Balance – 410

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 410$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 410
```

State –

```
11  
Overdrawn State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 410  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 1
```

- Logout

Expected Results

Balance – 410

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 410$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 100$, $X9 = 1$.

Actual Results

Balance –

```
10  
Current Balance is 410
```

State –

```
11  
Idle State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 410  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 1
```

Test#4: open 600 200 100 login 100 pin 250 logout login 100 pin 300 pin 200
deposit 100 lock 100 unlock 100 balance deposit 50 lock 100 unlock 100
withdraw 100 lock 100 unlock 100 deposit 100 withdraw 500 lock 100 unlock
100 lock 100 balance unlock 100 balance lock 100 unlock 100 deposit 100
logout login 100 logout

- open 600 200 100

Expected Results

Balance – 600

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$,
 $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 600

State – Pin

Value of all Variables – $X0 = 3$, $X1 = 600$, $X2 = 0$, $X3 = 200$, $X4 = 1$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- pin 250

Expected Results

Balance – 600

State – Pin

Value of all Variables – X0 = 3, X1 = 600, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 1.

Actual Results

Balance –

```
10  
  
Current Balance is 600
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 1
```

- Logout

Expected Results

Balance – 600

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 600$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 1$.

Actual Results

Balance –


```
10  
Current Balance is 600
```

State –

```
11  
Idle State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 1
```

- login 100

Expected Results

Balance – 600

State – Pin

Value of all Variables – $X0 = 3$, $X1 = 600$, $X2 = 0$, $X3 = 200$, $X4 = 1$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 600
```

State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- pin 300

Expected Results

Balance – 600

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 1
```

- pin 200

Expected Results

Balance – 600

State – Ready

Value of all Variables – $X0 = 3$, $X1 = 600$, $X2 = 0$, $X3 = 200$, $X4 = 2$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 1
```

- deposit 100

Expected Results

Balance – 700

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 700$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 700
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 700
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 1
```

- lock 100

Expected Results

Balance – 700

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 700$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 700
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 700
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- unlock 100

Expected Results

Balance – 700

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 700$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 700
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 700
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- Balance

Expected Results

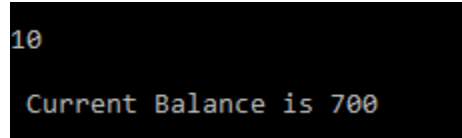
Balance – 700

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 700$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

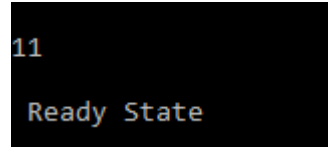
Actual Results

Balance –



```
10
Current Balance is 700
```

State –



```
11
Ready State
```

Value of all Variables –


```
12
X0 = 3
X1 = 700
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- deposit 50

Expected Results

Balance – 750

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 750$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 750
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 750
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- lock 100

Expected Results

Balance – 750

State – Locked

Value of all Variables – $X0 = 3$, $X1 = 750$, $X2 = 1$, $X3 = 200$, $X4 = 2$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 100$, $X9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 750
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 750
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- unlock 100

Expected Results

Balance – 750

State – Ready

Value of all Variables – $X0 = 3$, $X1 = 750$, $X2 = 0$, $X3 = 200$, $X4 = 2$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 100$, $X9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 750
```

State –

```
11  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 750  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 1
```

- withdraw 100

Expected Results

Balance – 650

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 650$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10  
Current Balance is 650
```

State –

```
11  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 650  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 1
```

- lock 100

Expected Results

Balance – 650

State – Locked

Value of all Variables – X0 = 3, X1 = 650, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 1.

Actual Results

Balance –

```
10
Current Balance is 650
```

State –

```
11
Locked State
```

Value of all Variables –

- unlock 100

Expected Results

Balance – 650

State – Ready

Value of all Variables – $X0 = 3$, $X1 = 650$, $X2 = 0$, $X3 = 200$, $X4 = 2$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 100$, $X9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 650
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 650
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- deposit 100

Expected Results

Balance – 750

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 750$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 750
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 750
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- withdraw 500

Expected Results

Balance – 230

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 230$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 230
```

State –


```
11  
Overdrawn State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 230  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 1
```

- lock 100

Expected Results

Balance – 230

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 230$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10  
Current Balance is 230
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 230
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- unlock 100

Expected Results

Balance – 230

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 230$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 230
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 230
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- lock 100

Expected Results

Balance – 230

State – Locked

Value of all Variables – X0 = 3, X1 = 230, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 1.

Actual Results

Balance –

```
10
Current Balance is 230
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 230
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- Balance

Expected Results

Balance – 230

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 230$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 230
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 230
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- unlock 100

Expected Results

Balance – 230

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 230$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 230
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 230
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- Balance

Expected Results

Balance – 230

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 230$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10  
Current Balance is 230
```

State –

```
11  
Overdrawn State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 230  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 1
```

- lock 100

Expected Results

Balance – 230

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 230$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 230
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 230
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```


- unlock 100

Expected Results

Balance – 230

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 230$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 230
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
X0 = 3
X1 = 230
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- deposit 100

Expected Results

Balance – 310

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 310$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 310
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 310
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- Logout

Expected Results

Balance – 310

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 310$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 1$.

Actual Results

Balance –

```
10
Current Balance is 310
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 310
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 1
```

- login 100

Expected Results

Balance – 310

State – Pin

Value of all Variables – $X0 = 3$, $X1 = 310$, $X2 = 0$, $X3 = 200$, $X4 = 1$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 100$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 310
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 310
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- Logout

Expected Results

Balance – 310

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 310$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 100$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 310
```

State –

```
11  
Idle State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 310  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 0
```

Test#5: open 400 200 100 login 100 pin 200 logout login 250 login 100 pin 200 deposit 200 logout login 300 login 100 pin 200 lock 100 unlock 100 logout login 100 pin 200 balance logout

- open 400 200 100

Expected Results

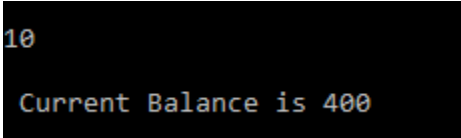
Balance – 400

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

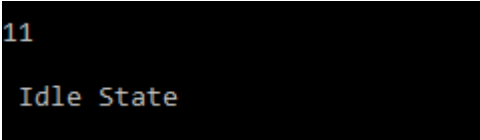
Actual Results

Balance –



```
10
Current Balance is 400
```

State –



```
11
Idle State
```

Value of all Variable –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 400

State – Pin

Value of all Variables – X0 = 3, X1 = 400, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Pin State
```


Value of all Variable –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Expected Results

Balance – 400

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11  
Overdrawn State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 400  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- logout

Expected Results

Balance – 400

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 400
```

State –

```
11  
Idle State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 400  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- login 250

Expected Results

Balance – 400

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 400$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 400
```

State –

```
11  
Idle State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 400  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- login 100

Expected Results

Balance – 400

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Pin State
```

Value of all Variable –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Expected Results

Balance – 400

State – Overdrawn

Value of all Variables – X0 = 3, X1 = 400, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Overdrawn State
```

Value of all Variable –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- deposit 200

Expected Results

Balance – 600

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 600
```

State –

```
11  
Ready State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- logout

Expected Results

Balance – 600

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Idle State
```

Value of all Variable –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 300

Expected Results

Balance – 600

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 600
```

State –

```
11  
Idle State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- login 100

Expected Results

Balance – 600

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 600
```

State –

```
11  
Pin State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- pin 200

Expected Results

Balance – 600

State – Ready

Value of all Variables – X0 = 3, X1 = 600, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Ready State
```

Value of all Variable –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- lock 100

Expected Results

Balance – 600

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Locked State
```

Value of all Variable –

```
12
X0 = 3
X1 = 600
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- unlock 100

Expected Results

Balance – 600

State – Ready

Value of all Variables – $X0 = 3$, $X1 = 600$, $X2 = 0$, $X3 = 200$, $X4 = 2$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 100$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Ready State
```

Value of all Variable –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- logout

Expected Results

Balance – 600

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11  
Idle State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 0
```

- login 100

Expected Results

Balance – 600

State – Pin

Value of all Variables – X0 = 3, X1 = 600, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 0.

Actual Results

Balance –

```
10  
  
Current Balance is 600
```

State –

```
11
Pin State
```

Value of all Variable –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- pin 200

Expected Results

Balance – 200

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –


```
10  
Current Balance is 600
```

State –

```
11  
Ready State
```

Value of all Variable –

```
12  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 0
```

- balance

Expected Results

Balance – 600

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 600
```

State –

```
11  
Ready State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 0
```

- Logout

Expected Results

Balance – 600

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 600
```

State –

```
11  
Idle State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 0
```

Test#6: open 600 200 100 login 100 pin 200 logout login 100 pin 200 withdraw 50 logout login 100 pin 200 withdraw 100 deposit 100 withdraw 10 withdraw 100 balance deposit 200 withdraw 300 deposit 100 deposit 300 balance withdraw 400 balance logout

- open 600 200 100

Expected Results

Balance – 600

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Idle State
```

Value of all Variable –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 600

State – Pin

Value of all Variables – X0 = 3, X1 = 600, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Pin State
```

Value of all Variable –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Expected Results

Balance – 600

State – Ready

Value of all Variables – $X0 = 3$, $X1 = 600$, $X2 = 0$, $X3 = 200$, $X4 = 2$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11  
Ready State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- logout

Expected Results

Balance – 600

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 600
```

State –

```
11  
Idle State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- login 100

Expected Results

Balance – 600

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –


```
10
Current Balance is 600
```

State –

```
11
Pin State
```

Value of all Variable –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Expected Results

Balance – 600

State – Ready

Value of all Variables – X0 = 3, X1 = 600, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10  
Current Balance is 600
```

State –

```
11  
Ready State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- withdraw 50

Expected Results

Balance – 550

State – Ready

Value of all Variables – X0 = 3, X1 = 550, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 550
```

State –

```
11
Ready State
```

Value of all Variable –

```
12
X0 = 3
X1 = 550
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- logout

Expected Results

Balance – 550

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 550$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 550
```

State –

```
11
Idle State
```

Value of all Variable –

```
12
X0 = 3
X1 = 550
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 550

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 550$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 550
```

State –

```
11
Pin State
```

Value of all Variable –

```
12
X0 = 3
X1 = 550
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Expected Results

Balance – 550

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 550$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 550
```

State –

```
11
Ready State
```

Value of all Variable –

```
12
X0 = 3
X1 = 550
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- withdraw 100

Expected Results

Balance – 430

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 430$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 430
```

State –

```
11  
Overdrawn State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 430  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- deposit 100

Expected Results

Balance – 530

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 530$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 530
```

State –

```
11
Ready State
```

Value of all Variable –

```
12
X0 = 3
X1 = 530
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


- withdraw 10

Expected Results

Balance – 520

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 520$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 520
```

State –

```
11
Ready State
```

Value of all Variable –

```
12
X0 = 3
X1 = 520
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- withdraw 100

Expected Results

Balance – 400

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Overdrawn State
```

Value of all Variable –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- balance

Expected Results

Balance – 400

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Overdrawn State
```

Value of all Variable –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- deposit 200

Expected Results

Balance – 600

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11  
Ready State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 600  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- withdraw 300

Expected Results

Balance – 280

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 280$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 280
```

State –

```
11  
Overdrawn State
```

Value of all Variable –

```
12  
X0 = 3  
X1 = 280  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- deposit 100

Expected Results

Balance – 360

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 360$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 360
```

State –

```
11
Overdrawn State
```

Value of all Variable –

```
12
X0 = 3
X1 = 360
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- deposit 300

Expected Results

Balance – 660

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 660$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 660
```

State –

```
11
Ready State
```

Value of all Variable –

```
12
X0 = 3
X1 = 660
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- balance

Expected Results

Balance – 660

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 660$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 660
```

State –

```
11  
Ready State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 660  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- withdraw 400

Expected Results

Balance – 240

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 240$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 240
```

State –

```
11  
Overdrawn State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 240  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- Balance

Expected Results

Balance – 240

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 240$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 240
```

State –

```
11  
Overdrawn State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 240  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- Logout

Expected Results

Balance – 240

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 240$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 240
```

State –

```
11
Idle State
```

Value of all Variable –

```
12
X0 = 3
X1 = 240
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#7: open 300 200 100 login 100 pin 200 lock 100 unlock 100 logout login
100 pin 200 balance deposit 400 deposit 200 logout

- open 300 200 100

Expected Results

Balance – 300

State – Idle

Value of all Variables – X0 = 3, X1 = 300, X2 = 0, X3 = 200, X4 = 0, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variable –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 300

State – Pin

Value of all Variables – X0 = 3, X1 = 300, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Pin State
```

Value of all Variable –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Expected Results

Balance – 300

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11  
Overdrawn State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 300  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- lock 100

Expected Results

Balance – 300

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 300
```


State –

```
11
Locked State
```

Value of all Variable –

```
12
X0 = 3
X1 = 300
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- unlock 100

Expected Results

Balance – 300

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 300
```

State –

```
11  
Overdrawn State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 300  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 0
```

- Logout

Expected Results

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 300
```

State –

```
11  
Idle State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 300  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 0
```

- login 100

Expected Results

Balance – 300

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 300
```

State –

```
11  
Pin State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 300  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 0
```

- pin 200

Expected Results

Balance – 300

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Overdrawn State
```

Value of all Variable –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- Balance

Expected Results

Balance – 300

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Overdrawn State
```

Value of all Variable –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- deposit 400

Expected Results

Balance – 700

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 700$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 700
```

State –

```
11  
Ready State
```

Value of all Variable –

```
12  
  
X0 = 3  
X1 = 700  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 0
```

- deposit 200

Expected Results

Balance – 900

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 900$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 900
```

State –

```
11
Ready State
```

Value of all Variable –

```
12
X0 = 3
X1 = 900
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```


- Logout

Expected Results

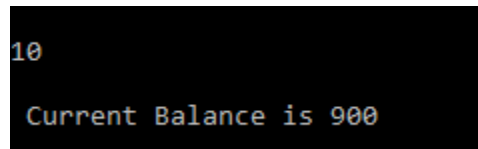
Balance – 900

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 900$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

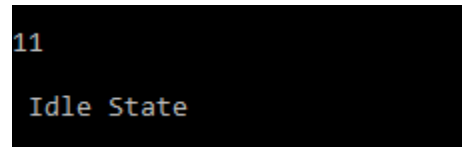
Actual Results

Balance –



```
10  
Current Balance is 900
```

State –



```
11  
Idle State
```

Value of all Variable –

12

$$X_0 = 3$$

$$X_1 = 900$$

$$X_2 = 0$$

$$X_3 = 200$$

$$X_4 = 0$$

$$X_5 = 100$$

$$X_6 = 20$$

$$X_7 = 500$$

$$X_8 = 100$$

$$X_9 = 0$$

**Test#8: open 500 200 100 open 500 200 100 logout pin 200 deposit 50
withdraw 100 balance lock 100 unlock 100**

- open 500 200 100

Expected Results

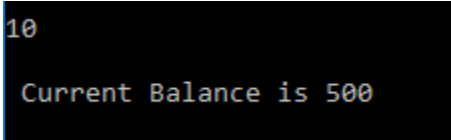
Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

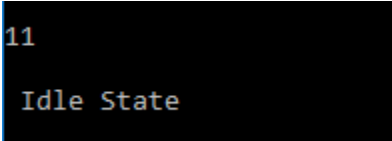
Actual Results

Balance –



```
10
Current Balance is 500
```

State –



```
11
Idle State
```

Value of all variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- logout

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11  
Idle State
```

Value of all variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- pin 200

Expected Results

Balance – 500

State – Idle

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 0, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- deposit 50

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Idle State
```

Value of all variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- withdraw 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Idle State
```

Value of all variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- balance

Expected Results

Balance – 500

State – Idle

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 0, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- lock 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- unlock 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Idle State
```

Value of all variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

Test#9: open 500 200 100 login 100 open 500 200 100 login 100 deposit 50
withdraw 100 balance lock 100 unlock 100

- open 500 200 100

Expected Results

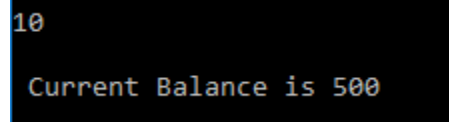
Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

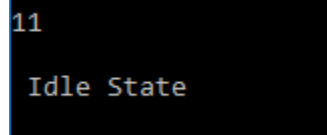
Actual Results

Balance –



```
10
Current Balance is 500
```

State –



```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- open 500 200 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- login 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 500
```


State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- deposit 50

Expected Results

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- withdraw 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- balance

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- lock 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- unlock 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

Test#10: open 500 200 100 login 100 pin 200 open 500 200 100 login 100 pin
200 withdraw 1000 lock 200 unlock 200

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```


Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Expected Results

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- open 500 200 100

Expected Results

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11  
Ready State
```

Value of al Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- login 100

Expected Results

Balance – 500

State – Ready

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- pin 200

Expected Results

Balance – 500

State – Ready

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- withdraw 1000
- **Expected Results**

Balance – 500

State – Ready

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- lock 200

Expected Results

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- unlock 200

Expected Results

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


Test#11: open 500 200 100 login 100 pin 200 lock 100 open 500 200 100 login 100 logout pin 200 deposit 50 withdraw 100 lock 100 unlock 200

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Expected Results

Balance – 500

State – Ready

Value of all Variables – $X0 = 3$, $X1 = 500$, $X2 = 0$, $X3 = 200$, $X4 = 2$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- lock 100

Expected Results

Balance – 500

State – Locked

Value of all Variables – X0 = 3, X1 = 500, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 0.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- open 500 200 100

Expected Results

Balance – 500

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Locked State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 1  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 0
```

- login 100

Expected Results

Balance – 500

State – Locked

Value of all Variables – X0 = 3, X1 = 500, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- logout

Expected Results

Balance – 500

State – Locked

Value of all Variables – X0 = 3, X1 = 500, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- pin 200

Expected Results

Balance – 500

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- deposit 50

Expected Results

Balance – 500

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- withdraw 100

Expected Results

Balance – 500

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- lock 100

Expected Results

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- unlock 200

Expected Results

Balance – 500

State – Locked

Value of all Variables – X0 = 3, X1 = 500, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

Test#12: open 200 300 100 login 100 pin 300 open 200 300 100 login 100 pin 300 withdraw 50 lock 300 unlock 300

- open 200 300 100

Expected Results

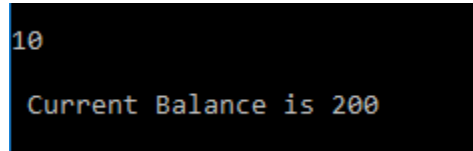
Balance – 200

State – Idle

Value of all Variables – X0 = 3, X1 = 200, X2 = 0, X3 = 300, X4 = 0, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

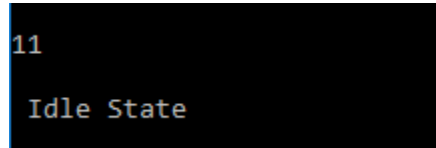
Actual Results

Balance –



```
10
Current Balance is 200
```

State –



```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 200
X2 = 0
X3 = 300
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 200

State – Pin

Value of all Variables – X0 = 3, X1 = 200, X2 = 0, X3 = 300, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 200
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 200
X2 = 0
X3 = 300
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 300

Expected Results

Balance – 200

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 200$, $X_2 = 0$, $X_3 = 300$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 200
```

State –


```
11  
Overdrawn State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 200  
X2 = 0  
X3 = 300  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- open 200 300 100

Expected Results

Balance – 200

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 200$, $X_2 = 0$, $X_3 = 300$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 200
```

State –

```
11  
Overdrawn State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 200  
X2 = 0  
X3 = 300  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- login 100

Expected Results

Balance – 200

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 200$, $X_2 = 0$, $X_3 = 300$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 200
```

State –

```
11  
Overdrawn State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 200  
X2 = 0  
X3 = 300  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- pin 300

Expected Results

Balance – 200

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 200$, $X_2 = 0$, $X_3 = 300$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 200
```

State –

```
11  
Overdrawn State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 200  
X2 = 0  
X3 = 300  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- withdraw 50

Expected Results

Balance – 200

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 300$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 200
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 200
X2 = 0
X3 = 300
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- lock 300

Expected Results

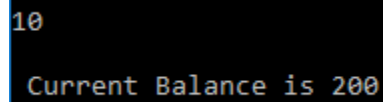
Balance – 200

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 200$, $X_2 = 0$, $X_3 = 300$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

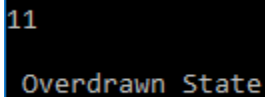
Actual Results

Balance –



```
10  
Current Balance is 200
```

State –



```
11  
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 200
X2 = 0
X3 = 300
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- unlock 300

Expected Results

Balance – 200

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 200$, $X_2 = 0$, $X_3 = 300$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 200
```

State –

```
11  
Overdrawn State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 200  
X2 = 0  
X3 = 300  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```


**Test#13: login 100 logout pin 200 deposit 150 withdraw 50 balance lock 100
unlock 100**

- login 100

Expected Results

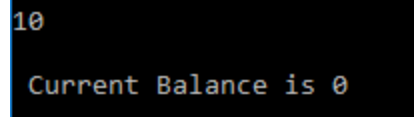
Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$,
 $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

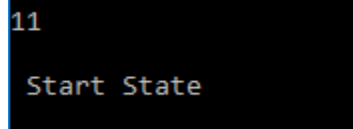
Actual Results

Balance –



```
10
Current Balance is 0
```

State –



```
11
Start State
```

Value of all Variables –

```
12
X0 = 3
X1 = 0
X2 = 0
X3 = 0
X4 = -1
X5 = 0
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- logout

Expected Results

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

```
12
X0 = 3
X1 = 0
X2 = 0
X3 = 0
X4 = -1
X5 = 0
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Expected Results

Balance – 0

State – Start

Value of all Variables – X0 = 3, X1 = 0, X2 = 0, X3 = 0, X4 = -1, X5 = 0, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11  
Start State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 0  
X2 = 0  
X3 = 0  
X4 = -1  
X5 = 0  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- deposit 150

Expected Results

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
11  
Start State
```

State –

```
11
Start State
```

Value of all Variables –

```
12
X0 = 3
X1 = 0
X2 = 0
X3 = 0
X4 = -1
X5 = 0
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- withdraw 50

Expected Results

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 0
```

State –

```
11  
Start State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 0  
X2 = 0  
X3 = 0  
X4 = -1  
X5 = 0  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- balance

Expected Results

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 0
```

State –

```
11  
Start State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 0  
X2 = 0  
X3 = 0  
X4 = -1  
X5 = 0  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- lock 100

Expected Results

Balance – 0

State – Start

Value of all Variables – X0 = 3, X1 = 0, X2 = 0, X3 = 0, X4 = -1, X5 = 0, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

```
12
X0 = 3
X1 = 0
X2 = 0
X3 = 0
X4 = -1
X5 = 0
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- unlock 100

Expected Results

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

```
12
X0 = 3
X1 = 0
X2 = 0
X3 = 0
X4 = -1
X5 = 0
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#14: open 500 200 100

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

12

$$X_0 = 3$$

$$X_1 = 500$$

$$X_2 = 0$$

$$X_3 = 200$$

$$X_4 = 0$$

$$X_5 = 100$$

$$X_6 = 20$$

$$X_7 = 500$$

$$X_8 = 0$$

$$X_9 = 0$$

Test#15: open 500 200 -100

- open 500 200 -100

Expected Results

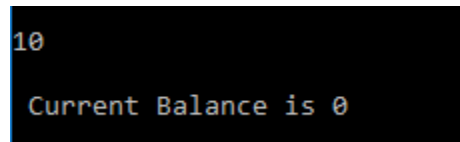
Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

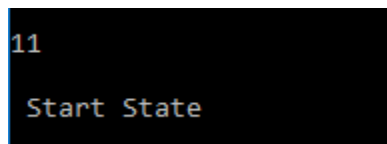
Actual Results

Balance –



```
10  
Current Balance is 0
```

State –



```
11  
Start State
```

Value of all Variables –

12

$$x_0 = 3$$

$$x_1 = 0$$

$$x_2 = 0$$

$$x_3 = 0$$

$$x_4 = -1$$

$$x_5 = 0$$

$$x_6 = 20$$

$$x_7 = 500$$

$$x_8 = 0$$

$$x_9 = 0$$

Test#16: open 500 -200 -100

- open 500 -200 -100

Expected Results

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

12

$$x_0 = 3$$

$$x_1 = 0$$

$$x_2 = 0$$

$$x_3 = 0$$

$$x_4 = -1$$

$$x_5 = 0$$

$$x_6 = 20$$

$$x_7 = 500$$

$$x_8 = 0$$

$$x_9 = 0$$

Test#17: open 500 200 100

- open 500 200 100

Expected Results

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

12

$$x_0 = 3$$

$$x_1 = 0$$

$$x_2 = 0$$

$$x_3 = 0$$

$$x_4 = -1$$

$$x_5 = 0$$

$$x_6 = 20$$

$$x_7 = 500$$

$$x_8 = 0$$

$$x_9 = 0$$

Test#18: open 500 200 100 open 500 200 100

- open 500 200 100

Expected Results

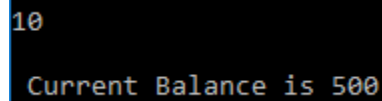
Balance – 500

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 500$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

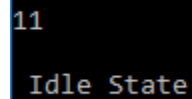
Actual Results

Balance –



```
10
Current Balance is 500
```

State –



```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 500$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

12

X0 = 3

X1 = 500

X2 = 0

X3 = 200

X4 = 0

X5 = 100

X6 = 20

X7 = 500

X8 = 0

X9 = 0

Test#19: open 500 200 100 open 500 200 -100

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- open 500 200 -100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#20: open 500 200 100 open 500 -200 100

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –


```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- open 500 -200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#21: open 500 200 100 open 500 -200 -100

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- open 500 -200 -100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

12

$$X_0 = 3$$

$$X_1 = 500$$

$$X_2 = 0$$

$$X_3 = 200$$

$$X_4 = 0$$

$$X_5 = 100$$

$$X_6 = 20$$

$$X_7 = 500$$

$$X_8 = 0$$

$$X_9 = 0$$

Test#22: open -300 200 100

- open -300 200 100

Expected Results

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

12

$$X_0 = 3$$

$$X_1 = 0$$

$$X_2 = 0$$

$$X_3 = 0$$

$$X_4 = -1$$

$$X_5 = 0$$

$$X_6 = 20$$

$$X_7 = 500$$

$$X_8 = 0$$

$$X_9 = 0$$

Test#23: open -300 200 -100

- open -300 200 -100

Expected Results

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

12

$$X_0 = 3$$

$$X_1 = 0$$

$$X_2 = 0$$

$$X_3 = 0$$

$$X_4 = -1$$

$$X_5 = 0$$

$$X_6 = 20$$

$$X_7 = 500$$

$$X_8 = 0$$

$$X_9 = 0$$

Test#24: open -300 -200 100

- open -300 -200 100

Expected Results

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

12

$X_0 = 3$

$X_1 = 0$

$X_2 = 0$

$X_3 = 0$

$X_4 = -1$

$X_5 = 0$

$X_6 = 20$

$X_7 = 500$

$X_8 = 0$

$X_9 = 0$

Test#25: open -300 -200 -100

- open -300 -200 -100

Expected Results

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

12

$$x_0 = 3$$

$$x_1 = 0$$

$$x_2 = 0$$

$$x_3 = 0$$

$$x_4 = -1$$

$$x_5 = 0$$

$$x_6 = 20$$

$$x_7 = 500$$

$$x_8 = 0$$

$$x_9 = 0$$

Test#26: open 300 200 100 open -300 200 100

- open 300 200 100

Expected Results

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- open -300 200 100

Expected Results

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variables –

12

$$X_0 = 3$$

$$X_1 = 300$$

$$X_2 = 0$$

$$X_3 = 200$$

$$X_4 = 0$$

$$X_5 = 100$$

$$X_6 = 20$$

$$X_7 = 500$$

$$X_8 = 0$$

$$X_9 = 0$$

Test#27: open 300 200 100 open -300 200 -100

- open 300 200 100

Expected Results

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- open -300 200 -100

Expected Results

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variables –

12

$$X_0 = 3$$

$$X_1 = 300$$

$$X_2 = 0$$

$$X_3 = 200$$

$$X_4 = 0$$

$$X_5 = 100$$

$$X_6 = 20$$

$$X_7 = 500$$

$$X_8 = 0$$

$$X_9 = 0$$

Test#28: open 300 200 100 open -300 -200 100

- open 300 200 100

Expected Results

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- open -300 -200 100

Expected Results

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
x0 = 3
x1 = 300
x2 = 0
x3 = 200
x4 = 0
x5 = 100
x6 = 20
x7 = 500
x8 = 0
x9 = 0
```

Test#29: open 300 200 100 open -300 -200 -100

- open 300 200 100

Expected Results

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- open -300 -200 -100

Expected Results

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```


Value of all Variables –

```
12
x0 = 3
x1 = 300
x2 = 0
x3 = 200
x4 = 0
x5 = 100
x6 = 20
x7 = 500
x8 = 0
x9 = 0
```

Test#30: open 500 200 100 login 100

- open 500 200 100

Expected Results

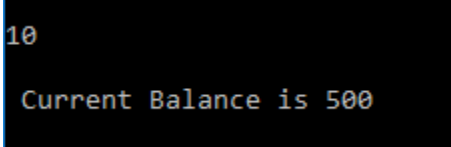
Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

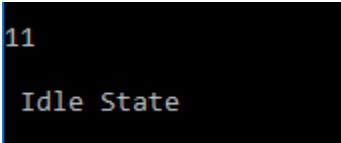
Actual Results

Balance –



```
10
Current Balance is 500
```

State –



```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#31: open 500 200 100 login 200

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 500$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 200

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

12

$$X_0 = 3$$

$$X_1 = 500$$

$$X_2 = 0$$

$$X_3 = 200$$

$$X_4 = 0$$

$$X_5 = 100$$

$$X_6 = 20$$

$$X_7 = 500$$

$$X_8 = 0$$

$$X_9 = 0$$

Test#32: login 100

- login 100

Expected Results

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Idle State
```

Value of all Variables –

12

$$x_0 = 3$$

$$x_1 = 0$$

$$x_2 = 0$$

$$x_3 = 0$$

$$x_4 = -1$$

$$x_5 = 0$$

$$x_6 = 20$$

$$x_7 = 500$$

$$x_8 = 0$$

$$x_9 = 0$$

Test#33: open 400 200 100 login 100 logout

- open 400 200 100

Expected Results

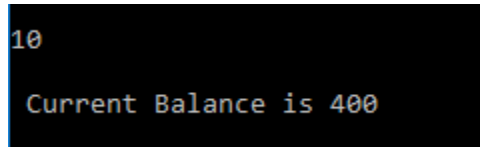
Balance – 400

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

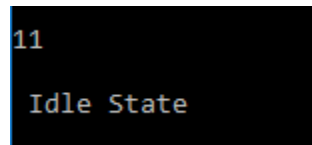
Actual Results

Balance –



```
10
Current Balance is 400
```

State –



```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 400

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- Logout

Expected Results

Balance – 400

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11  
Idle State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 400  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

Test#34: open 400 200 100 logout

- open 400 200 100

Expected Results

Balance – 400

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 400$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- Logout

Expected Results

Balance – 400

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 400$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 400
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 400
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


Test#35: open 500 200 100 login 100 pin 200

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 500$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Expected Results

Balance – 500

State – Ready

Value of all Variables – $X0 = 3$, $X1 = 500$, $X2 = 0$, $X3 = 200$, $X4 = 2$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

Test#36: open 500 200 100 login 100 pin 100 pin 150 pin 120 pin 100

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 1.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 1
```

- pin 150

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 2.

Actual Results

Balance –

```
10  
  
Current Balance is 500
```


State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 1  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 2
```

- pin 120

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 3.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 3
```

- pin 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 3.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Pin State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 0  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 3
```

Test#37: balance

- Balance

Expected Results

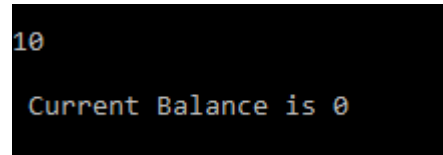
Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

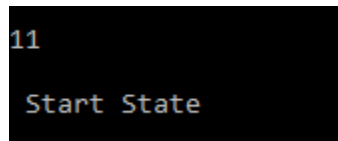
Actual Results

Balance –



```
10
Current Balance is 0
```

State –



```
11
Start State
```

Value of all Variables –

12

$X_0 = 3$

$X_1 = 0$

$X_2 = 0$

$X_3 = 0$

$X_4 = -1$

$X_5 = 0$

$X_6 = 20$

$X_7 = 500$

$X_8 = 0$

$X_9 = 0$

Test#38: open 500 200 100 login 100 pin 200 balance

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 500$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Expected Results

Balance – 500

State – Ready

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –


```
11  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- Balance

Expected Results

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

Test#39: open 500 200 100 login 100 pin 200 lock 100

- open 500 200 100

Expected Results

Balance – 500

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 500$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Expected Results

Balance – 500

State – Pin

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 1, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Expected Results

Balance – 500

State – Ready

Value of all Variables – X0 = 3, X1 = 500, X2 = 0, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 0, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11  
Ready State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 0  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 0  
X9 = 0
```

- lock 100

Expected Results

Balance – 500

State – Locked

Value of all Variables – X0 = 3, X1 = 500, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 0.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Locked State
```

Value of all Variables –

```
12  
  
X0 = 3  
X1 = 500  
X2 = 1  
X3 = 200  
X4 = 2  
X5 = 100  
X6 = 20  
X7 = 500  
X8 = 100  
X9 = 0
```

Test#40: lock 100

- lock 100

Expected Results

Balance – 0

State – Start

Value of all Variables – $X0 = 3$, $X1 = 0$, $X2 = 0$, $X3 = 0$, $X4 = -1$, $X5 = 0$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

12

$$X_0 = 3$$

$$X_1 = 0$$

$$X_2 = 0$$

$$X_3 = 0$$

$$X_4 = -1$$

$$X_5 = 0$$

$$X_6 = 20$$

$$X_7 = 500$$

$$X_8 = 0$$

$$X_9 = 0$$

Test#41: open 500 200 100 login 100 pin 200 lock 200 lock 100 lock 100

- open 500 200 100

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- lock 200

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- lock 100

Balance – 500

State – Locked

Value of all Variables – X0 = 3, X1 = 500, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- lock 100

Balance – 500

State – Locked

Value of all Variables – X0 = 3, X1 = 500, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

Test#42: open 500 200 100 login 100 pin 200 lock 100 unlock 100

- open 500 200 100

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


- login 100

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- lock 100

Balance – 500

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- unlock 100

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

Test#43: unlock 100

- unlock 100

Balance – 0

State – Start

Value of all Variables – $X0 = 3$, $X1 = 0$, $X2 = 0$, $X3 = 0$, $X4 = 0$, $X5 = 0$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

```
12
X0 = 3
X1 = 0
X2 = 0
X3 = 0
X4 = -1
X5 = 0
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#44: open 500 200 100 login 100 pin 200 lock 100 unlock 250

- open 500 200 100

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


- lock 100

Balance – 500

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10  
Current Balance is 500
```

State –

```
11  
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- unlock 250

Balance – 500

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

12

$$X_0 = 3$$

$$X_1 = 500$$

$$X_2 = 1$$

$$X_3 = 200$$

$$X_4 = 2$$

$$X_5 = 100$$

$$X_6 = 20$$

$$X_7 = 500$$

$$X_8 = 100$$

$$X_9 = 0$$

Test#45: open 500 200 100 login 100 pin 200 unlock 100

- open 500 200 100

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- unlock 100

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#46: open 300 200 100 login 100 pin 200 deposit 50

- open 300 200 100

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


- login 100

Balance – 300

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 300

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- deposit 50

Balance – 330

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 330
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 330
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#47: deposit 50

- deposit 50

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = 0$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

```
12
X0 = 3
X1 = 0
X2 = 0
X3 = 0
X4 = -1
X5 = 0
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#48: open 300 200 100 login 100 pin 200 lock 100 deposit 50 unlock 100 deposit 500

- open 300 200 100

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Balance – 300

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 300

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- lock 100

Balance – 300

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Locked State
```

Value of all Variables –


```
12
X0 = 3
X1 = 300
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- deposit 50

Balance – 300

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- unlock 100

Balance – 300

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- deposit 500

Balance – 300

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 800$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Ready State
```

Value of all Variables –

12

$$x_0 = 3$$

$$x_1 = 800$$

$$x_2 = 0$$

$$x_3 = 200$$

$$x_4 = 2$$

$$x_5 = 100$$

$$x_6 = 20$$

$$x_7 = 500$$

$$x_8 = 100$$

$$x_9 = 0$$

Test#49: open 300 200 100 login 100 pin 200 deposit -50

- open 300 200 100

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Balance – 300

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 300

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- deposit -50

Balance – 300

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


Test#50: open 300 200 100 login 100 pin 200 deposit -100

- open 300 200 100

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Balance – 300

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 300

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- deposit -100

Balance – 300

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#51: open 300 200 100 login 100 pin 200 withdraw 50

- open 300 200 100

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Balance – 300

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 300

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- withdraw 50

Balance – 300

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 300$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 300
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 300
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


Test#52: open 800 200 100 login 100 pin 200 withdraw 50

- open 800 200 100

Balance – 800

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 800$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 800
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 800
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Balance – 800

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 800$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 800
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 800
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 800

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 800$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 800
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 800
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- withdraw 50

Balance – 750

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 750$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 750
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 750
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#53: open 600 200 100 login 100 pin 200 withdraw 120

- open 600 200 100

Balance – 600

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Balance – 600

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 600

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- withdraw 120

Balance – 460

State – Overdrawn

Value of all Variables – $X_0 = 3$, $X_1 = 460$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 460
```

State –

```
11
Overdrawn State
```

Value of all Variables –

```
12
X0 = 3
X1 = 460
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


Test#54: withdraw 100

- withdraw 100

Balance – 0

State – Start

Value of all Variables – $X_0 = 3$, $X_1 = 0$, $X_2 = 0$, $X_3 = 0$, $X_4 = -1$, $X_5 = 0$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 0
```

State –

```
11
Start State
```

Value of all Variables –

12

$$X_0 = 3$$

$$X_1 = 0$$

$$X_2 = 0$$

$$X_3 = 0$$

$$X_4 = -1$$

$$X_5 = 0$$

$$X_6 = 20$$

$$X_7 = 500$$

$$X_8 = 0$$

$$X_9 = 0$$

Test#55: open 600 200 100 login 100 pin 200 lock 100 withdraw 50

- open 600 200 100

Balance – 600

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Balance – 600

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 600

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 600
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- lock 100

Balance – 600

State – Locked

Value of all Variables – X0 = 3, X1 = 600, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 600
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- withdraw 50

Balance – 600

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 600$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 600
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 600
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

Test#56: open 500 200 100 login 100 pin 200 withdraw 1000

- open 500 200 100

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


- login 100

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- withdraw 1000

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#57: open 1000 200 100 login 100 pin 200 withdraw -50

- open 1000 200 100

Balance – 1000

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 1000$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 1000
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 1000
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Balance – 1000

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 1000$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 1000
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 1000
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 1000

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 1000$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 1000
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 1000
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- withdraw -50

Balance – 1000

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 1000$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 1000
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 1000
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

Test#58: open 500 200 100 login 100 pin 200 lock 100 unlock 100 logout
unlock 100

- open 500 200 100

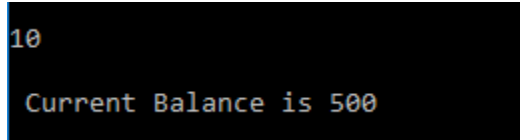
Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

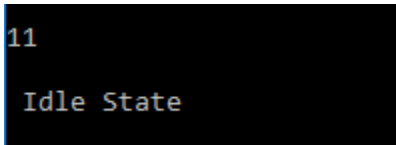
Actual Results

Balance –



```
10
Current Balance is 500
```

State –



```
11
Idle State
```

Value of all Variables –


```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- login 100

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- lock 100

Balance – 500

State – Locked

Value of all Variables – X0 = 3, X1 = 500, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- unlock 100

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- Logout

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- unlock 100

Balance – 500

State – Idle

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 0$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

12

$$X_0 = 3$$

$$X_1 = 500$$

$$X_2 = 0$$

$$X_3 = 200$$

$$X_4 = 0$$

$$X_5 = 100$$

$$X_6 = 20$$

$$X_7 = 500$$

$$X_8 = 100$$

$$X_9 = 0$$

Test#59: open 500 200 100 login 100 pin 200 lock 100 logout

- open 500 200 100

Balance – 500

State – Idle

Value of all Variables – $X0 = 3$, $X1 = 500$, $X2 = 0$, $X3 = 200$, $X4 = 0$, $X5 = 100$, $X6 = 20$, $X7 = 500$, $X8 = 0$, $X9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Idle State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 0
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```


- login 100

Balance – 500

State – Pin

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 1$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Pin State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 1
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- pin 200

Balance – 500

State – Ready

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 0$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 0$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Ready State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 0
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 0
X9 = 0
```

- lock 100

Balance – 500

State – Locked

Value of all Variables – X0 = 3, X1 = 500, X2 = 1, X3 = 200, X4 = 2, X5 = 100, X6 = 20, X7 = 500, X8 = 100, X9 = 0.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

- Logout

Balance – 500

State – Locked

Value of all Variables – $X_0 = 3$, $X_1 = 500$, $X_2 = 1$, $X_3 = 200$, $X_4 = 2$, $X_5 = 100$, $X_6 = 20$, $X_7 = 500$, $X_8 = 100$, $X_9 = 0$.

Actual Results

Balance –

```
10
Current Balance is 500
```

State –

```
11
Locked State
```

Value of all Variables –

```
12
X0 = 3
X1 = 500
X2 = 1
X3 = 200
X4 = 2
X5 = 100
X6 = 20
X7 = 500
X8 = 100
X9 = 0
```

As for each test case, account class produced correct results (i.e. all the Expected Result Matched with Actual results) all the test cases have successfully Passed.

5. Conclusion

i. **Experience with the implementation of the testing environment and its usage in class testing and model-based testing**

- By completing this project, I came to know many important things working behind a correct and efficient code.
- For a code to be said that its perfect depends upon testing. As testing is carried out we come to know every minute detail of code that what things are doing what at which time.
- Certain things which we forget while writing the code are explored during the testing or many defects are also identified.
- Same thing happened with me while testing account class and creating a test driver for it.
- While we go deep in testing we came to know exactly that were this code can generate error for certain values.
- While doing code testing we came to know many things about the if-else conditions like which conditions are possible in this program and which ones are not at all possible.
- While doing model based testing we came to know that the transition which we are seeing in diagram are not only one which are important.
- There are also invisible or hidden transitions which are equally important for us as the one which are shown.
- So model based testing helped us to identify those invisible transitions (Ghost Transitions) which are equally important to us but are not mentioned in diagram just because it would make diagram complicated.
- Moreover, while creating test driver we get a complete picture of code that how it is working.

ii. Which activities related to class testing can be automated or partially automated.

- Automated Testing is the best way to increase the effectiveness, efficiency and coverage of your software testing.
- Manual software testing is performed by a human sitting in front of a computer carefully going through application screens, trying various usage and input combinations, comparing the results to the expected behavior and recording their observations.
- Manual tests are repeated often during development cycles for source code changes and other situations like multiple operating environments and hardware configurations.
- An automated testing tool is able to playback pre-recorded and predefined actions, compare the results to the expected behavior and report the success or failure of these manual tests to a test engineer.
- Once automated tests are created they can easily be repeated and they can be extended to perform tasks impossible with manual testing.
- Because of this, savvy managers have found that automated software testing is an essential component of successful development projects.
- So according to me each and every part of class testing should be made automated as it would save a lot of time, there is no chance of error and results will be efficient.

Source Code of Account Class and Test Drivers

i. Source Code with Test Driver

```
/**
 *
 */
/** CLASS ACCOUNT */
/**
 *
 */

import java.io.*;
import java.util.*;

public class account
{
    private int x0;
    private int x1;
    private int x2;
    private int x3;
    private int x4;
    private int x5;
    private int x6;
    private int x7;
    private int x8;
    private int x9;

    public int flag = 0; // Variable for Testing - Oriented Method
    public int Lflag = -1; // Variable for Testing - Oriented Method
}
```



```
public final int show_balance()
{
    return x1;
} //testing oriented method

public final int show_state()
{
    return flag;
} //testing oriented method

public final void show_variable()
{
    System.out.println("\n X0 = "+ x0);
    System.out.println("\n X1 = "+ x1);
    System.out.println("\n X2 = "+ x2);
    System.out.println("\n X3 = "+ x3);
    System.out.println("\n X4 = "+ x4);
    System.out.println("\n X5 = "+ x5);
    System.out.println("\n X6 = "+ x6);
    System.out.println("\n X7 = "+ x7);
    System.out.println("\n X8 = "+ x8);
    System.out.println("\n X9 = "+ x9);

} //testing oriented method
```

```
public account()
{
    x2 = 0;
    x4 = -1;
    x6 = 20;
    x7 = 500;
    x9 = 0;
    x0 = 3;
}

public final int open(int x, int y, int z)
{
    if ((x > 0) && (x4 == -1) && (y > 0) && (z > 0))
    {
        x1 = x;
        x3 = y;
        x5 = z;
        x4 = 0;
        flag = 1; // Variable for Testing - Oriented Method
        return 0;
    };
    return -1;
}

public final int pin(int x)
{
```

```
if (x4 != 1)
{
    flag = 0; // Variable for Testing - Oriented Method
    return -1;
}
if (x == x3)
{
    if (x1>=500) // To know after Pin action we are in which state
    {
        flag = 3; // Variable for Testing - Oriented Method
    }
    else // To know after Pin action we are in which state
    {
        flag = 5; // Variable for Testing - Oriented Method
    }
    x4 = 2;
    return 0;
}
else
{
    x9++;
}
if (x9 >= x0)
{
    flag = 1; // Variable for Testing - Oriented Method
```

```
        x4 = 0;
    }

    return -1;
}

public final int logout()
{
    if ((x4 == 0) || (x2 == 1))
    {
        return -1;
    }
    x4 = 0;
    flag = 1; // Variable for Testing - Oriented Method
    return 0;
}

public final int login(int x)
{
    if (x4 != 0)
    {
        flag = 1; // Variable for Testing - Oriented Method
        return -1;
    }
    if (x5 == x)
    {
        x4 = 1;
```

```
        x9 = 0;
        flag = 2; // Variable for Testing - Oriented Method
        return 0;
    }
    flag = 1; // Variable for Testing - Oriented Method
    return -1;
}
public final int balance()
{
    if (x4 != 2)
    {
        return -1;
    }
    if (x1 >= 500) // To know after balance action we are in which state
    {
        flag = 3; // Variable for Testing - Oriented Method
    }
    else // To know after balance action we are in which state
    {
        flag = 5; // Variable for Testing - Oriented Method
    }
    if (Lflag == 1) // To know after balance action we are in which state
    {
        flag = 4; // Variable for Testing - Oriented Method
    }
}
```

```
        return x1;
    }
    public final int lock(int x)
    {
        if (x4 != 2)
        {
            return -1;
        }
        if (x == x3)
        {
            return -1;
        }
        if (x2 == 0)
        {
            Lflag = 1; // Variable for Testing - Oriented Method
            flag = 4; // Variable for Testing - Oriented Method
            x2 = 1;
            x8 = x;
            return 0;
        }
        else
        {
            return -1;
        }
    }
}
```

```
}  
public final int unlock(int x)  
{  
    if (x4 != 2)  
    {  
        return -1;  
    }  
    if ((x2 == 1) && (x == x8))  
    {  
        Lflag = 0; // Variable for Testing - Oriented Method  
        if (x1 >= 500) // To know after unlock action we are in which state  
        {  
            flag = 3; // Variable for Testing - Oriented Method  
        }  
        else // To know after unlock action we are in which state  
        {  
            flag = 5; // Variable for Testing - Oriented Method  
        }  
        x2 = 0;  
        return 0;  
    }  
    else  
    {  
        return -1;  
    }  
}
```

```
}  
public final int deposit(int d)  
{  
    if (x4 != 2)  
    {  
        return -1;  
    }  
    if (x2 == 1)  
    {  
        return -1;  
    };  
    if ((x1 + d < x7) && (d>0))  
    {  
        flag = 5; // Variable for Testing - Oriented Method  
        x1 = x1 + d - x6;  
        return 0;  
    }  
    else  
    {  
        if (d > 0)  
        {  
            flag = 3; // Variable for Testing - Oriented Method  
            x1 = x1 + d;  
            return 0;  
        }  
    }  
}
```



```
    }  
    return -1;  
}  
public final int withdraw(int w)  
{  
    if (x4 != 2)  
    {  
        return -1;  
    }  
    if (x2 == 1)  
    {  
        return -1;  
    };  
    if ((x1 > w) && (w > 0))  
    {  
        if (x1 < x7)  
        {  
            return -1;  
        }  
        else  
        {  
            flag = 3; // Variable for Testing - Oriented Method  
            x1 = x1 - w;  
        };  
        if (x1 < x7)
```

```
{
    flag = 5; // Variable for Testing - Oriented Method
    x1 = x1 - x6;
}
return 0;
}
return -1;
}

public static void main( String[] args )
{
    account a;
    a = new account();
    int b = -1,X,Y,Z,D,W,R,B,S;
    Scanner s;
    s = new Scanner(System.in);
    while(b != 0)
    {
        System.out.println("\n Select Option from Following: ");
        System.out.println("\n 0. Exit \n 1. Open (X,Y,Z) \n 2. Login (X) \n 3.
Logout()\n 4. Pin(X) \n 5. Deposit (D) \n 6. Withdraw (W) \n 7. Balance () \n 8.
Lock (X) \n 9. unlock (X) \n");
        System.out.println(" Testing - Related Methods ");
        System.out.println("\n 10. Show Balance \n 11. Show State \n 12.
Show All Variable's Value \n");
        b = s.nextInt();
    }
}
```

```
switch (b)
{
    case 0: System.out.println("\n Test Driver Closed.");
            break;
    case 1: System.out.println("\n Enter Balance Value ");
            X = s.nextInt();
            System.out.println("\n Enter Pin Value ");
            Y = s.nextInt();
            System.out.println("\n Enter Account # ");
            Z = s.nextInt();
            R = a.open(X,Y,Z);
            System.out.println("\n The Value returned by
Method is " +R +"\n");
            break;

    case 2: System.out.println("\n Enter Account # ");
            Z = s.nextInt();
            R = a.login(Z);
            System.out.println("\n The Value returned by
Method is " +R +"\n");
            break;

    case 3: R = a.logout();
            System.out.println("\n The Value returned by
Method is " +R +"\n");
            break;
```

```
case 4: System.out.println("\n Enter Pin Value ");
        Y = s.nextInt();
        R = a.pin(Y);
        System.out.println("\n The Value returned by
Method is " +R +"\n");
        break;

case 5: System.out.println("\n Enter Amount to be Deposited ");
        D = s.nextInt();
        R = a.deposit(D);
        System.out.println("\n The Value returned by
Method is " +R +"\n");
        break;

case 6: System.out.println("\n Enter Amount to be Withdrawn
");
        W = s.nextInt();
        R = a.withdraw(W);
        System.out.println("\n The Value returned by
Method is " +R +"\n");
        break;

case 7: R = a.balance();
        System.out.println("\n Current Balance is " +R
+"\n");
        break;
```

case 8: System.out.println("\n Enter a lock # different from Pin
");

X = s.nextInt();
R = a.lock(X);
System.out.println("\n The Value returned by
Method is " + R + "\n");
break;

case 9: System.out.println("\n Enter a Unlock # different from
Pin # ");

X = s.nextInt();
R = a.unlock(X);
System.out.println("\n The Value returned by
Method is " + R + "\n");
break;

case 10: B = a.show_balance();
System.out.println("\n Current Balance is " + B);
break;

case 11: R = a.show_state();
if (R == 0)
{
System.out.println("\n Start State ");
}
else if (R == 1)

```
{  
    System.out.println("\n Idle State ");  
}  
else if (R == 2)  
{  
    System.out.println("\n Pin State ");  
}  
else if (R == 3)  
{  
    System.out.println("\n Ready State ");  
}  
else if (R == 4)  
{  
    System.out.println("\n Locked State ");  
}  
else if (R == 5)  
{  
    System.out.println("\n Overdrawn State ");  
}  
break;  
  
case 12: a.show_variable();  
    break;  
  
default: System.out.println("\n Default Case");
```

```
        break;  
    }  
}  
  
}  
  
}
```