Assignment 3 report

Task 1

1.

P1: (bonuspoints >= 1 && bonuspoints <= 10 000) && (goldcustomer == True V goldcustomer == False)

= (A && B) && (C V D)

2.

Predicate coverage:

P1 == True

P1 == False

Clause Coverage:

A	**B**	**P1**
True	True	True
False	True	False
True	False	False

Restricted Active Clause Coverage:

A	**B**	**P1**	**Clauses Locked**
True	True	True	A and B
False	True	False	A
True	False	False	B

3.

Test Table:

Test	Input	Output
T1	Bonuspoints = 100, Goldcustomer = True	1
T2	Bonuspoints = 10, Goldcustomer = False	0
T3	Bonuspoints = 0, Goldcustomer = True	-1
T4	Bonuspoints = 100 000, Goldcustomer = False	-1

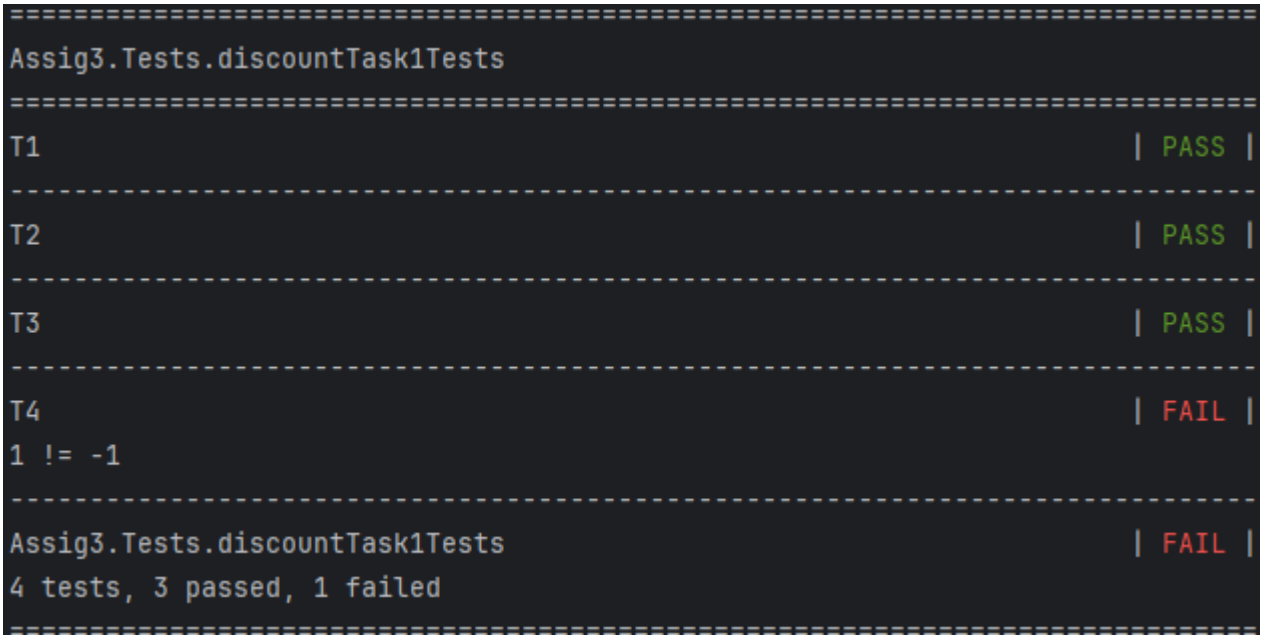
4.

Below are the defined discountTask1Tests:

```
*** Settings ***
Library  ../resources/DiscountLibrary.py

*** Test Cases ***
T1
    Get Discount    ${100}    ${True}
    Result Should Be    ${1}

T2
    Get Discount    ${10}    ${False}
    Result Should Be    ${0}

T3
    Get Discount    ${0}    ${True}
    Result Should Be    ${-1}

T4
    Get Discount    ${100000}    ${False}
    Result Should Be    ${-1}
```

5.

Below can be seen that T1, T2 and T3 passed while T4 failed. This happens because in discount.py, there is nothing checking if the bonus points exceed 10 000.



Task 2

1.

	B1	B2	B3
Q1: bonus_points in relation to valid input spaces	Value under 1 (error case)	Value 1 – 10 000 (valid)	Value above 10 000 (error case)
	G1	G2	
Q2: Gold_Customer or not	Gold customer (bool = true)	Regular Customer (bool = false)	

2.

Basic blocks: B2, G1

Q1	**Q2**
B2	**G1**
B1	**G1**
B3	**G1**
B2	G2

Pairwise:

Q1	**Q2**
B1	G1
B1	G2
B2	G1
B2	G2
B3	G1
B3	G2

3.

Tests using boundary value analysis:

Test	**Input**	**Output**
T1	Bonuspoints = 0 Goldcustomer = True	-1
T2	Bonuspoints = 1 Goldcustomer = True	0
T3	Bonuspoints = 0 Goldcustomer = False	-1
T4	Bonuspoints = 1 Goldcustomer = False	0
T5	Bonuspoints = 10 000 Goldcustomer = True	1
T6	Bonuspoints = 10 001 Goldcustomer = True	-1
T7	Bonuspoints = 10 000 Goldcustomer = False	1
T8	Bonuspoints = 10 001 Goldcustomer = False	-1

4.

Below are the defined discountTask2Tests:

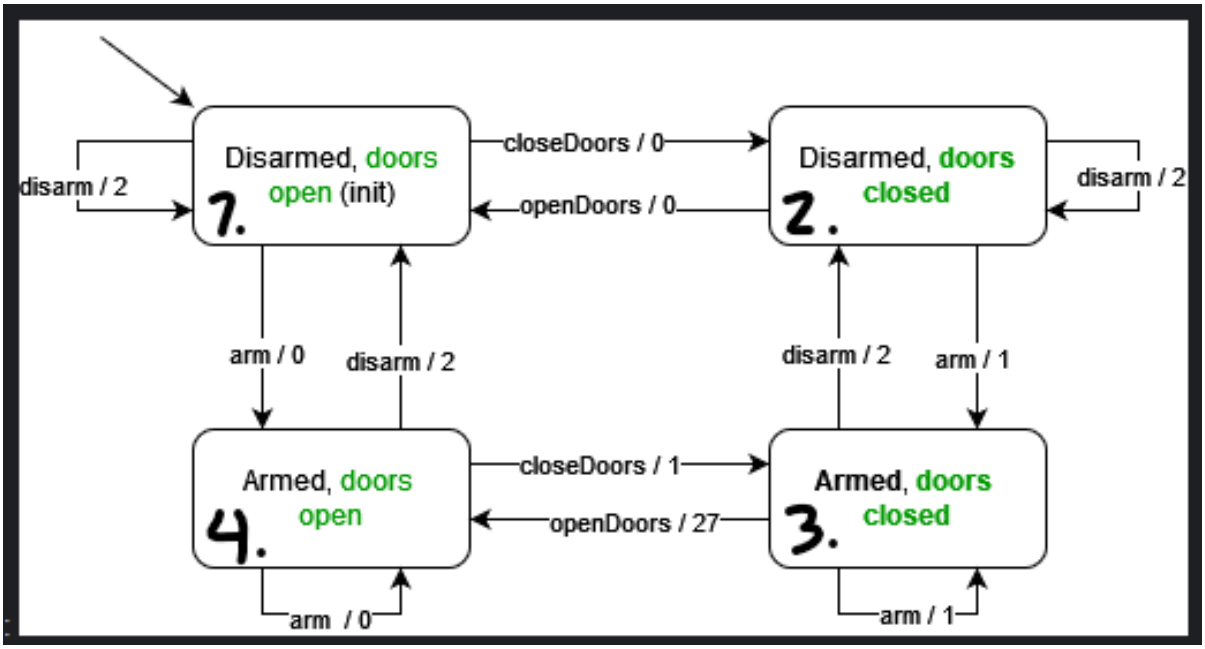
```
*** Settings ***
Library  ../resources/DiscountLibrary.py

*** Test Cases ***
T1
    Get Discount    ${0}    ${True}
    Result Should Be    ${-1}

T2
    Get Discount    ${1}    ${True}
    Result Should Be    ${0}

T3
    Get Discount    ${0}    ${False}
    Result Should Be    ${-1}

T4
    Get Discount    ${1}    ${False}
    Result Should Be    ${0}

T5
    Get Discount    ${10000}    ${True}
    Result Should Be    ${1}

T6
    Get Discount    ${10001}    ${True}
    Result Should Be    ${-1}

T7
    Get Discount    ${10000}    ${False}
    Result Should Be    ${1}

T8
    Get Discount    ${10001}    ${False}
    Result Should Be    ${-1}
```

5.

Below can be seen that all tests except T6 and T8 passed. This happens because in discount.py, there is nothing checking if the bonus points exceed 10 000.

```
================================================================================
Assig3.Tests.discountTask2Tests
================================================================================
T1                                                                      | PASS |
--------------------------------------------------------------------------------
T2                                                                      | PASS |
--------------------------------------------------------------------------------
T3                                                                      | PASS |
--------------------------------------------------------------------------------
T4                                                                      | PASS |
--------------------------------------------------------------------------------
T5                                                                      | PASS |
--------------------------------------------------------------------------------
T6                                                                      | FAIL |
1 != -1
--------------------------------------------------------------------------------
T7                                                                      | PASS |
--------------------------------------------------------------------------------
T8                                                                      | FAIL |
1 != -1
--------------------------------------------------------------------------------
Assig3.Tests.discountTask2Tests                                         | FAIL |
8 tests, 6 passed, 2 failed
================================================================================
```

Task 3



1.

State coverage: [1,2,3,4]

Transition coverage: [1,1], [2,2], [3,3], [4,4], [1,2], [2,1], [2,3], [3,2], [3,4], [4,3], [4,1], [1,4]

2.

Test	**Path**	**Covered transitions**
T1	[1,1,2,2,1]	[1,1], [2,2], [1,2], [2,1]
T2	[1,4,3,2,3]	[1,4], [4,3], [3,2], [2,3]
T3	[1,4,3,3,4]	[3,3], [3,4]
T4	[1,4,4,1]	[4,4], [4,1]

4.

All tests passed: