Assignment 3

Task 1

1.

P1: bonuspoints >= 1 && bonuspoints <= 10000

A && B

2.

Predicate Coverage

P1 == True

P1 == False

Clause Coverage/Active Clause Coverage

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

3.

Test	input	Expected output
T1	Bonuspoints = 2	0
T2	Bonuspoints = 0	-1
T3	Bonuspoints = 10001	-1

5.

T3 failed as there is nothing checking if bonuspoints goes over 10000 in discount.py.

Task 2

1.

Partitioning	A1	A2	A3
Q1: Relation of bonuspoints with valid input space	Less than 1	1 <= bonsupoints <= 10000	Greater than 10000
	B1	B2	
Q2 = Relation of gold with boolean values	True	False	

3*2 = 6 tests

2.

Each choice:

Q1	Q2
A1	B1
A2	B1
A3	B2

Pair-wise: (makes Each choice redundant)

Q1	Q2
A1	B1
A2	B1
A3	B1
A1	B2
A2	B2
A3	B2

3.

Tests with Boundary value analysis:

Tests	Input	output
T1	Bonuspoints = 0 Gold = True	-1
T2	Bonuspoints = 1 Gold = True	0
T3	Bonuspoints = 10000 Gold = True	1
T4	Bonuspoints = 10001 Gold = True	-1
T5	Bonuspoints = 0 Gold = False	-1
T6	Bonuspoints = 1 Gold = False	0
T7	Bonuspoints = 10000 Gold = False	1
T8	Bonuspoints = 10001 Gold = False	-1

5.

T4 and T8 failed because there is nothing checking if the bonuspoint value goes over 10000 in discount.py.

Task 3

1.

Test Requirements

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

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

2.

Tests	Test path	Which tests are covered
T1	[1,1,2,2,1,3]	[1,1], [1,2], [2,2], [2,1], [1,3]
T2	[1,3,3,4,4,3]	[1,3], [3,3], [3,4], [4,4], [4,3]
T3	[1,2,4,2]	[2,4], [4,2], [1,2]
T4	[1,3,1]	[1,3], [3,1]

Tests passed without errors.

Extra test path that failed:

T5: [1,2,4,4,3]

Returns 0 instead of expected value of 27.