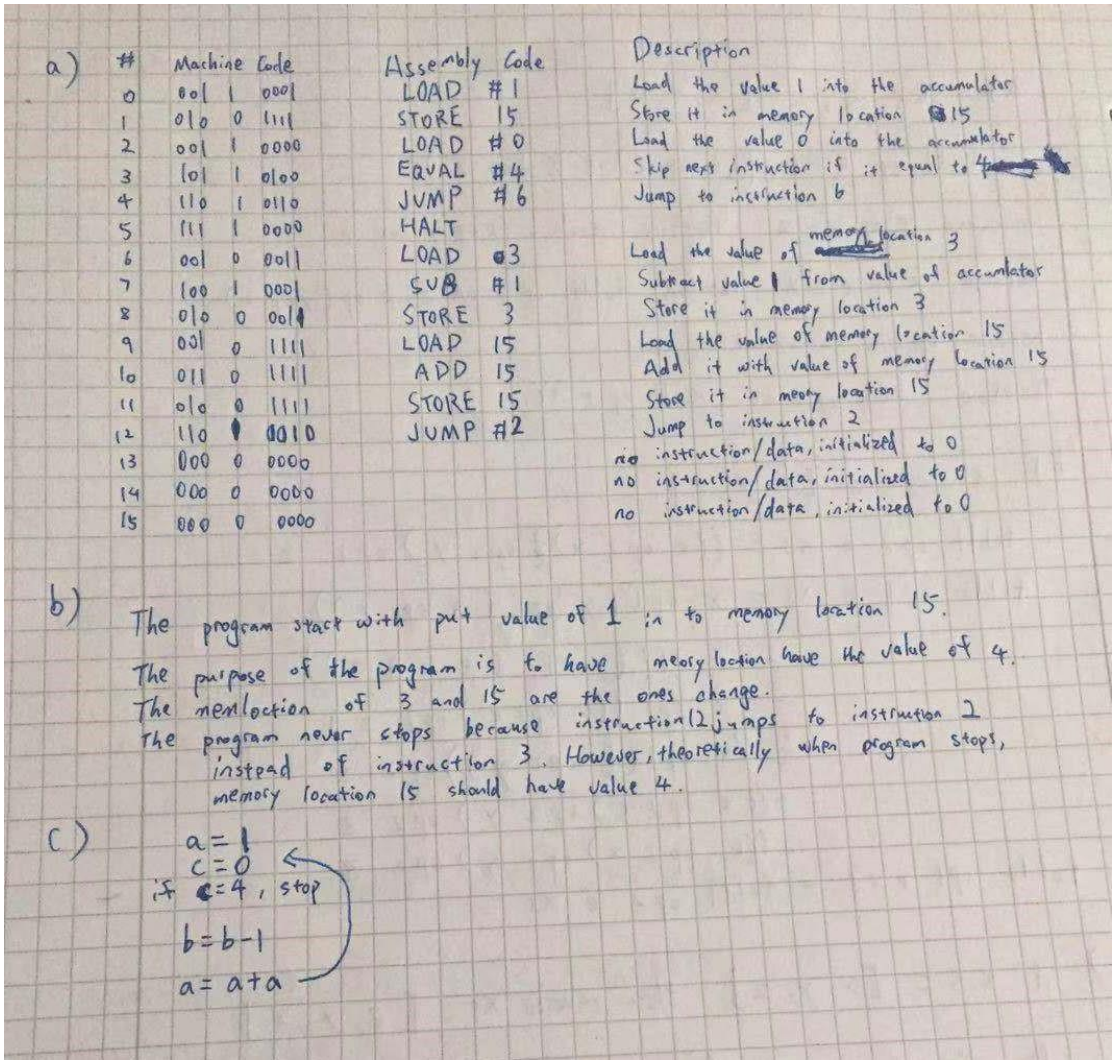
Problem1:



a)

#	Machine Code	Assembly Code	Description
0	001 1 0001	LOAD #1	Load the value 1 into the accumulator
1	010 0 1111	STORE 15	Store it in memory location 15
2	001 1 0000	LOAD #0	Load the value 0 into the accumulator
3	101 1 0100	EQUAL #4	Skip next instruction if it equal to 4
4	110 1 0110	JUMP #6	Jump to instruction 6
5	111 1 0000	HALT	
6	001 0 0011	LOAD 3	Load the value of memory location 3
7	100 1 0001	SUB #1	Subtract value 1 from value of accumulator
8	010 0 0011	STORE 3	Store it in memory location 3
9	001 0 1111	LOAD 15	Load the value of memory location 15
10	011 0 1111	ADD 15	Add it with value of memory location 15
11	010 0 1111	STORE 15	Store it in memory location 15
12	110 1 0010	JUMP #2	Jump to instruction 2
13	000 0 0000		no instruction/data, initialized to 0
14	000 0 0000		no instruction/data, initialized to 0
15	000 0 0000		no instruction/data, initialized to 0

b)

The program start with put value of 1 in to memory location 15.
The purpose of the program is to have meory location have the value of 4.
The memlocation of 3 and 15 are the ones change.
The program never stops because instruction 12 jumps to instruction 2 instead of instruction 3. However, theoretically when program stops, memory location 15 should have value 4.

c)

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a = 1
c = 0
if c = 4, stop
b = b - 1
a = a + a
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