Introduction to Computing Systems Homework 5

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Question 1.

`ARRAY` stores an array of 20 same numbers.

Question 2.

The recursive subroutine won't stop since it doesn't have a base case.

Question 3.

Count the number of odd number from `x5000` to `x5FFF` and store it to `R3`.

Question 4.

Table 1: Data structure after executing the subroutine

Address	Value	Address	Value	Address	Value
x6100	x8000	x6300	x8000	x6500	x8000
x6101	x0042	x6301	x0047	x6501	x0047
x6102	x6200	x6302	x6200	x6502	x6100
x6103	x6400	x6303	x6400	x6503	x6200
x6104	x6500	x6304	x0000	x6504	x6400
x6105	x0000	x6305		x6505	x0000
x6106		x6306		x6506	
x6200	x8000	x6400	x8000		
x6201	x0052	x6401	x0052		
x6202	x6100	x6402	x6100		
x6203	x6300	x6403	x6300		
x6204	x6500	x6404	x6500		
x6205	x0000	x6405	x0000		
x6206		x6406			

Question 5.

The missing instruction in line 14 is `ADD R0, R3, #0`.

The missing instruction in line 16 is `BRp AGAIN`.

Question 6.

The missing instruction in line 9 is `LEA R0, PROMPT`.

The missing instruction in line 12 is `ADD R2, R0, R1`.

The missing instruction in line 15 is `NOT R0, R0`.

The missing instruction in line 16 is `ADD R0, R0, #1`.

The missing instruction in line 22 is `ADD R1, R0, #0`.

The missing instruction in line 16 is `ADD R3, R3, #-1`.

The missing instruction in line 16 is `BRz TRUE`.