CMPT295: Assignment 1

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January 16, 2019

2. An emulator.

3. (a) See table below.

n	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
result	0	0	1	2	2	2	2	3	4	4	4	4	5	6	6	6

(b) It counts the occurences of the letter 'o' from position **0 + (n-1)** in the string and backwards to the beginning of the string.

(c) A counter used in the loop.

(d) Backwards, since it starts at position **n** and traverses backwards to the beginning of the string.

4.
```
a = %edi
b = %esi
sum = %eax
counter = %ecx
```

The algorithm starts with a **sum** and a **counter** equal to 0. It then starts a loop where **a** is added **b** times to the **sum**. For every iteration it compares b with counter and if the counter is smaller than b then it continues with adding a to the sum and then increment the counter.

```
        .globl _times
_times:
        movl $0, %eax           # result = 0
        movl $0, %ecx           # counter = 0
loop:
        cmpl %ecx, %esi         # compare b with counter
        jle end                 # if B     counter <= 0 jump to end
        addl %edi, %eax         # else add A to result
        incl %ecx               # increment counter
        jmp loop                # iterate loop again
end:
        ret
```