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1. Screenshot of my code the only thing is Professor you might have to input the value in the memory location

```
.ORIG x3000
    LD R1, Store_4000      ; Pull the value from Store_4000 and put it into R1
    LDR R1, R1, #0         ;
    ADD R0, R1, #0         ; So we can Display what is in R0
    ;OUT                   ; Display
    LD R3, Boundaryupper   ; Pull the value from Boundaryupper and put it into R3
    LD R4, Boundarylower   ; Same but this one is for the lower boundary
    ADD R2, R1, R3          ; Add the value to the upper boundary
    BRp Greater            ; If the value is greater than go to Greater
    ADD R2, R4, R1          ; Add the value to the lower boundary
    BRn Lower              ; If the value is less then go to Lower
    ADD R0, R1, #0
    OUT
    AND R1, R1, #0
    ADD R1, R1, #10
    ADD R1, R1, #10
    ADD R0, R1, #12
    OUT
    LEA R0, VALIDATION     ; Otherwise display validation message
    PUTS
Greater TRAP x25
Lower   TRAP x25

Store_4000 .FILL x4000
Boundaryupper .FILL x-007E
Boundarylower .FILL x-0020
VALIDATION .STRINGZ "Valid ASCII value"
;A .FILL x30
.END
```

2A. In x3005 the binary is 1111000000100001 which is TRAP x21 that OUTS the output.

2B. Then after the x3005 we are adding an offset of -1 so we are skipping every other character and output.

2C. So after the x3006 which is BRz GLUE and that takes us to the GLUE function.

The function cause the program HALT

2D. So the end product would be HookemHorns as the string output.

### 3. Screenshot of my code

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```
.ORIG x3000
        LEA R1, HELLO
AGAIN    LDR R2, R1, #0
        BRZ NEXT
        ADD R1, R1, #1
        BR AGAIN
NEXT     LEA R0, PROMPT
        TRAP x22          ; PUTS
        ADD R3, R3, #-10; (A)
AGAIN2   TRAP x20          ; GETC
        TRAP x21          ; OUT
        ADD R2, R0, R3
        BRZ CONT
        STR R0, R1, #0    ; (B)
        ADD R1, R1, #1    ; (C)
        BR AGAIN2
CONT     AND R2, R2, #0
        STR R2, R1, #0    ; (D)
        LEA R0, HELLO
        TRAP x22          ; PUTS
        TRAP x25          ; HALT
NEGENTER .FILL xFFF6      ; -x0A
PROMPT   .STRINGZ "Please enter your name: "
HELLO    .STRINGZ "Hello, "
        .BLKW             #25
        .END
```