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;Description: Counts the number of occurrences of a character in a string

.ORIG x3000

LEA R0, msg1 ;load address of msg1 to R0

PUTS ;display R0

GETC ;ask for a character

OUT ;display character chosen

AND R1, R1, #0 ;clear R1

ADD R1, R1, R0 ;save character in R1

AND R5, R5, #0 ;clear R5

ADD R5, R5, R1 ;save character in R5

NOT R1, R1 ;R0 = -R1

ADD R1, R1, #1 ;R0 = -R1 + 1

LD R0, NL ;load new line character to R0

OUT

LEA R2, mesg ;R2 = address of mesg

AND R4, R4, #0 ;clear R4, counter

loop LDR R3, R2, #0 ;R3 = Content of R2

BRz done ;if null stop program

ADD R2, R2, #1 ;increment R2 address by one to point at next address

ADD R3, R3, R1 ;add R3 = R3 + R1, if character is same result will be zero

BRz count ;branch to again if zero

BR loop ;if not same branch to loop

count ADD R4, R4, #1

BR loop ;branch to decrement R2, length of string

done AND R0, R0, #0 ;clear R0 for output

LEA R0, msg2 ;display msg2

PUTS

AND R0, R0, #0 ;clear R0

ADD R0, R0, R5 ;put character in R0

OUT ;display character

LEA R0, msg3 ;load msg3 to R0

PUTS ;display msg3

LEA R0, mesg ;load sequence string to R0

PUTS ;display string

LEA R0, msg4 ;load msg4 to R0

PUTS ;dipslay msg4

LD R0, posAsc ;load 48 to R0

ADD R0, R0, R4 ;add counter and asci to R0

OUT

HALT

mesg .STRINGZ "'mississippi'"

length .FILL x0009

posAsc .FILL x30

msg1 .STRINGZ "Enter one character: "

msg2 .STRINGZ "Number of occurrences of character '"

msg3 .STRINGZ "' from the string "

msg4 .STRINGZ " is: "

NL .FILL X000A

.END