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TITLE Reverse String, Version 1 (ReverseString.asm)
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; For Professor Victor Sheng's CS 2350-001 course at TTU

; This program uses a loop with indirect addressing to
; the reverse of a source string to a target string. At
; the end of the program both the source and the target
; are both display using WRITESTRING.

INCLUDE Irvine32.inc
.data
source BYTE "Hello World!", 0
target BYTE SIZEOF source-1 DUP('#'),0

.code
main PROC
    MOV ECX, SIZEOF source - 1 ;counter for the loop
    MOV ESI, OFFSET source ;address of the front of the source string
    MOV EDI, OFFSET target + SIZEOF TARGET - 2 ;address of the rear

ReverseLoop:
    MOV AL, [ESI] ;gets character from string
    MOV [EDI], AL ;stores character in target string
    INC ESI ;move to next charcter in source
    DEC EDI ;move to next character in target
LOOP ReverseLoop

    mov EDX,OFFSET source ;set source to be outputted
    call WRITESTRING ;output source
    call CRLF ;line feed and carriage return

    mov EDX,OFFSET target ;set target to be outputted
    call WRITESTRING ;output target
    call CRLF ;line feed and carriage return

exit
main ENDP
END main

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