#Finding the maximum value in an integer array of size 10.

.data
arr: .word 0:10 #Space for the array.
outstr: .asciiz "The maximum value is 
newline: .asciiz "\n"

#Notes:
# $5 -- Contains the max. value at the end.
# $6 -- Loop index.
# $7 -- Used to compute the addresses of successive array elements.
# $9 -- Used to obtain the values of successive array elements.
# $8 -- Contains the size of the array (10).

.text
--- Code to initialize the array goes here. ---

#Initialize $7 to the base address of the array.
#Initialize $5 to the value of the array element with index 0.
#Initialize $8 to the size of the array.

getmax: la $7, arr
lw $5, 0($7)
li $8, 10
move $6, $0 #Initialize loop index to zero.

loop: addi $7, $7, 4 #The addr. of the next element.
addi $6, $6, 1
beq $6, $8, print #When $6 = $8, we have the correct max.

#Compare max with the value of the next array element.
lw $9, 0($7)
bge $5, $9, loop
move $5, $9 #Update the max value.
b loop

(over)
#Print out the max value.
print:    la $a0, outstr  #Output string.
       li $v0, 4
       syscall

       move $a0, $5  #Value to be printed must be in $a0
       li $v0, 1  #Command: print_int
       syscall

       la $a0, newline  #Output "\n".
       li $v0, 4
       syscall

       li $v0, 10  #exit command.
       syscall