Wyatt Tack

CPE333

Quiz 1

1. .

lw x12,40(x11) #must be 40, since words are 4 bytes

addi x12,x12,10

sw x12,40(x10)

1. .

.data

a: .word 1,6,6,7,7,8,8,9,10, ...

.text

Main: la x8,a #adress a in x8

add x10,x0,x0 #x = 0

add x11,x0,x0 #sum=0

addi x12,x0,10 #x12 = 10 for comp

loop: bge x10, x12, return

slli x13, x10,2 #mult x by 4 for address words

add x14, x13,x8 #x14 is address a[x]

lw x15,0(x14) #x15 is data a[x]

add x11,x11,x15 #sum+=a[x]

addi x10,x10,1 #loop x++

j loop

return:

1. .

.data

arr: .word 1,6,6,7,7,8,8,9,10, ...

.text

li sp, 0x10000 #load stack pointer addr

addi a1, x0, 10 #load arguments a1=n, a2=&a

la a2, arr

call func: #call function

return: j return #program terminator

func: addi sp,sp,-16 #input a1 as n, a2 as address for a, get a0 as sum

sw t1, 12(sp) #push used temporaries to stack

sw t2, 8(sp)

sw t3, 4(sp)

sw t4, 0(sp)

add t1,x0,x0 #x = 0

add a0,x0,x0 #sum=0

loop: bge t1, a1, end #loop until x >= n

slli t2, t1, 2 #t2 is 4xindex (byte offset)

add t3, t2, a2 #t3 is address a[x]

lw t4,0(t3) #t4 is data a[x]

add a0,a0,t4 #sum+=a[x]

addi t1,t1,1 #loop x++

j loop

end:

lw t4, 0(sp) #pop used from stack

lw t3, 4(sp)

lw t2, 8(sp)

lw t1, 12(sp)

addi sp,sp,16 #move stack pointer

ret #return function call