

CS315-01 RISC-V Assembly 3

Arrays and Functions

Lab03 Q3A

Local VM setup

Arrays

Arrays
pointers

Hints

arr

↑
address
of

*
↑
dereference

int arr[5];

arr[0] = 99; →

arr[0] = 100; →

*arr = 99;

*(arr+1) = 100;

x = arr[0]; →

y = arr[1];

x = *arr;

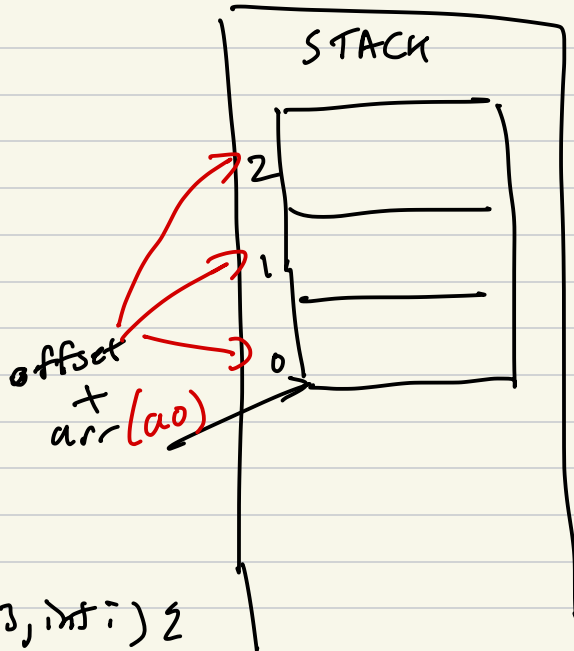
y = *(arr+1);

main()

int arr[3]

Question:

x = arr[i];



int arr_get_c(int arr[3], int i) {

return *(arr + i); // return arr[i]

}

a0 - int arr[]

a1 - int i

arr_get_s:

li t0, 4

mul t1, a1, t0

add t2, a0, t1

lw a0, [t2]

ret

byte
offset

t1 = $t0(4) * a1(i)$

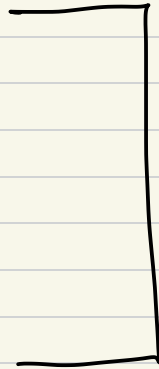
t2 = $a0(arr) + t1(offset)$

Functions

Simple Functions

arguments: $a_0, a_1, a_2, \dots$
8 args or less

func-s:



Use only "a" or "t"

no calls to other
functions

ret

"leaf function"