CS 315-01   RISC-V Memory and Functions

Lab 02 - solutions today
Lab 02 - Exam problems

Project 02 - posted   due   Mon Sep 18th 11:59pm
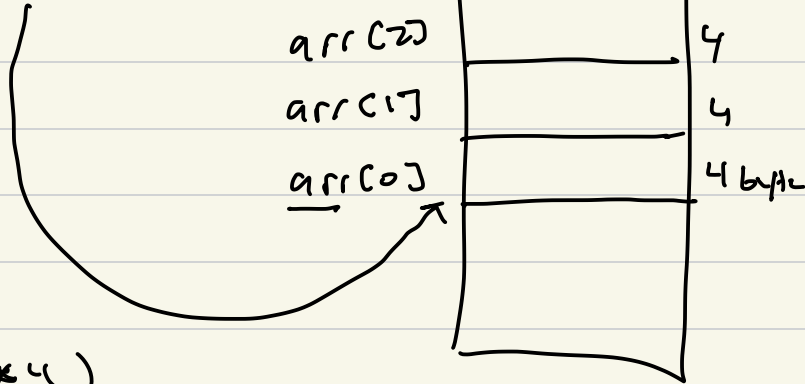Project 03 - Exams probs due Wed Sep 20th 11:59pm

Lab 02 Solutions

sum_array

a0   -   int arr[]
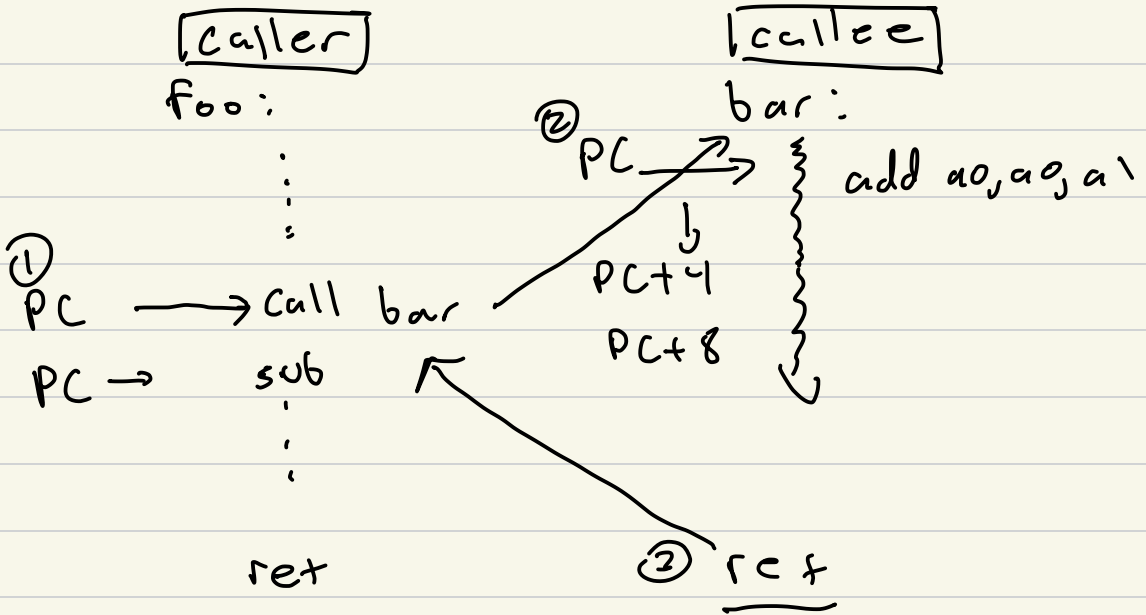   ↑

        arr   address

                        arr[2]   4

                        arr[1]   4

                        arr[0]   4 byte

arr(i)
        arr + (i *4)
        a0 + (+1 *4)

Functions in RISC-V

$a_0, a_1, a_2, \ldots$ arguments

$\downarrow$

64 bits

a_0 is   the   return   value

| caller |

foo:

$\vdots$

① PC ——→ Call bar

PC ——→   sub

$\vdots$

ret

② PC ——→

PC+4

PC+8

| callee |

bar:

add a_0, a_0, a_1

② ret

return address (ra)

Call func

$$ra = PC + 4$$
$$PC = addr\ of\ func$$

Stack

SP — stack pointer

→

STACK

SP ⇒

addi sp, sp, -8

HEAP

DATA

CODE