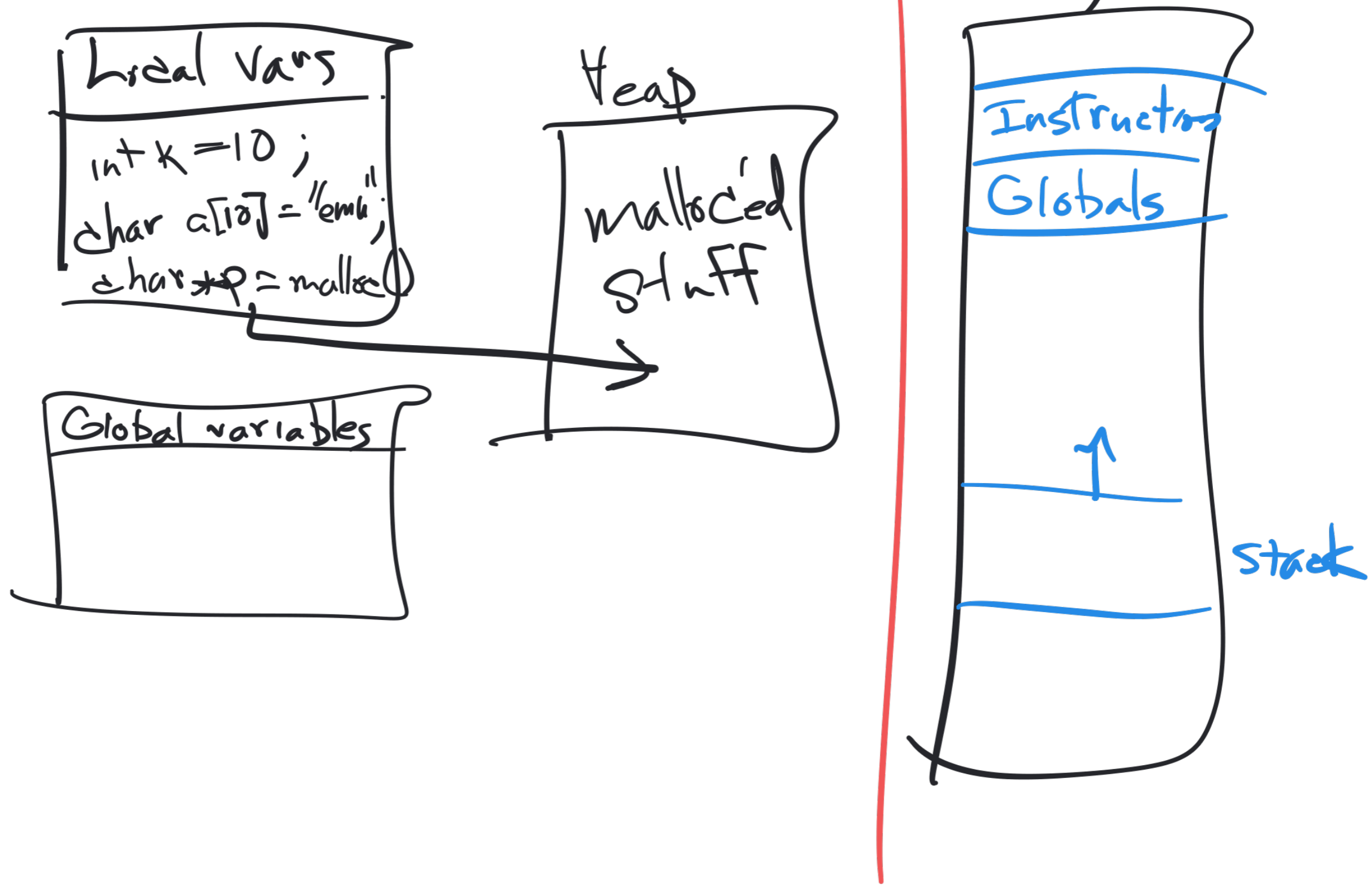


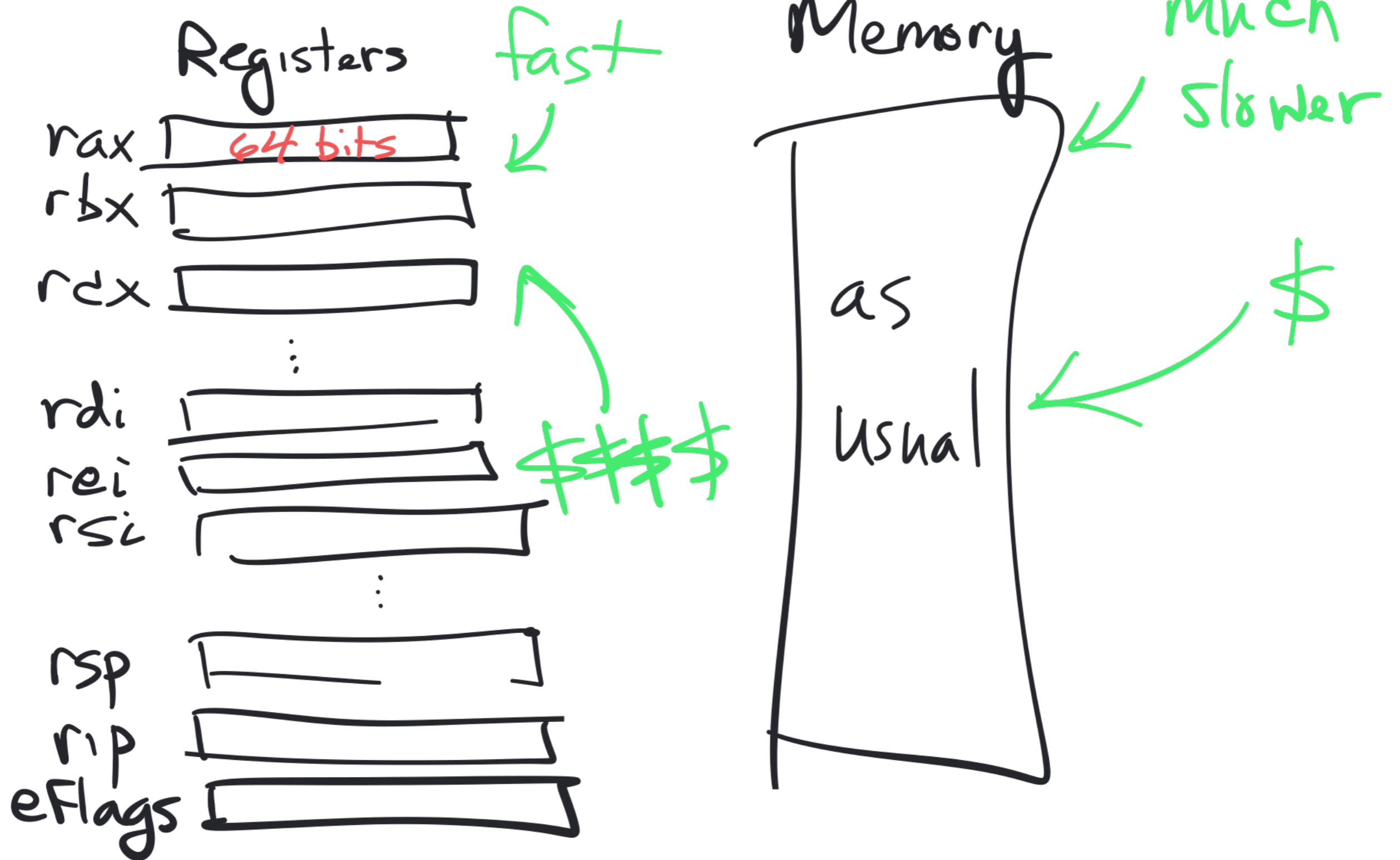
CS 208

Fri, 21 April 2023

C "architecture" (programmer's mental model)



x86-64 architecture



extra letter sometimes indicates size of register

mov l %rax, %rbx

Copies value in rax to rbx

Sometimes this is here,

add %rax, %rbx

Sometimes not

$$rbx = rbx + rax$$

Sometimes, order is reversed

Try to be flexible

History

8-bit 8086

16-bit 80186

32-bit 80386

64-bit ??
..

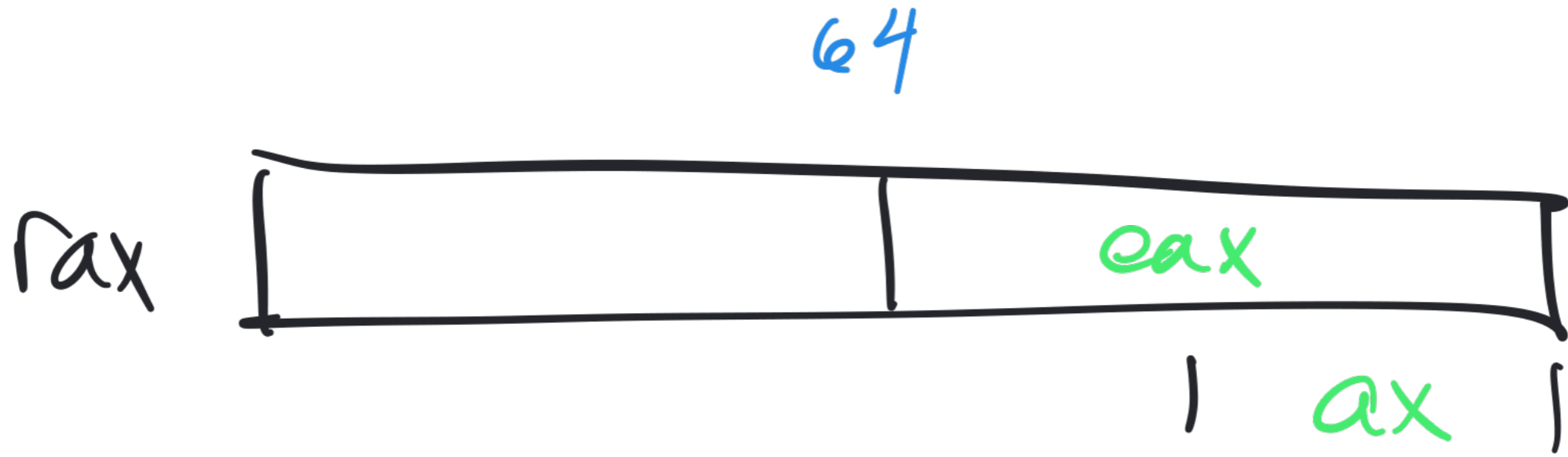
Registers

a, b, c, etc.

ax, bx, cx, ...
extended

eax, ebx, ecx, ...

rax, rbx, ...



EFLAGS register

add rax, rbx

SF = 1 if sum is negative
(sign)

ZF = 1 if sum = 0
(Zero)

CMP

(performs a
Subtraction)
+ sets EFLAGS bits

JG

jump if greater

JE

jump if equal

decisions based on
ZF, SF