

## Recap

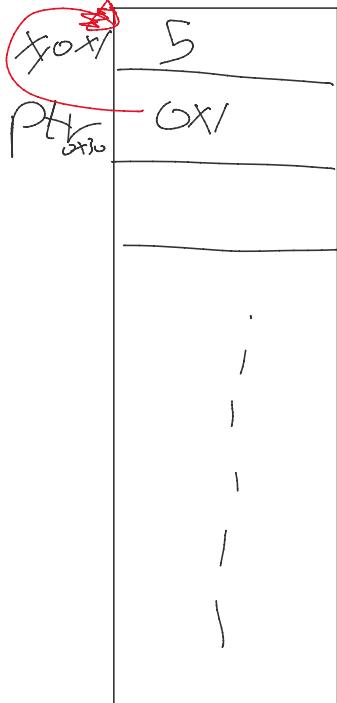
\*pointer, sPc---int \*ptr = address;

for  
point  
char

int x = 5; ←

int \* ptr = &x;

(\*)ptr = ↓;



\* int arr[3] = {1, 2, 3}  
arr[2]

\*

arr = &arr[0]

ptr = &arr[0]

void { func(int \* ptr) }

~~$\ast(\text{ptr} + 0) = \text{**}(\text{ptr} + 0)$~~

$\text{ptr}[0] = \ast(\text{ptr} + 0)$

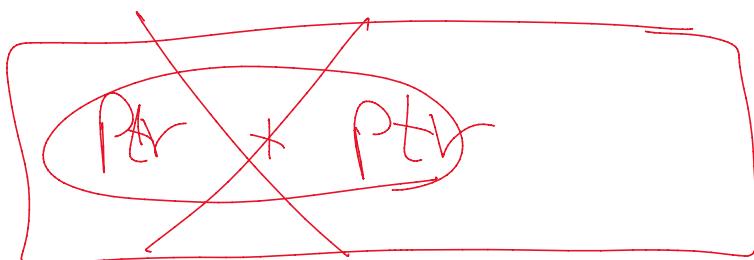
$\boxed{\text{ptr}[1]} = \ast(\text{ptr} + 1)$

⋮

⋮

\* int \*ptr = &arr[0];  
char  
ptr++; // (ptr+1)  
+1 step = 4B  
ptr--; | stop = 1B

$$\text{ORR} = \left( P_{\text{tr2}} - P_{\text{tr1}} \right)$$



\* void main(void) // void Ptr  
{ int\* ptr = NULL;

printf("%d", \*ptr);

}

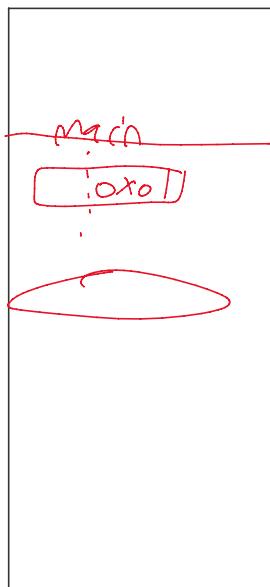
draft

int num;

④ int num = 5;  
int \* Func ()

int num = 5;  
ret &num;

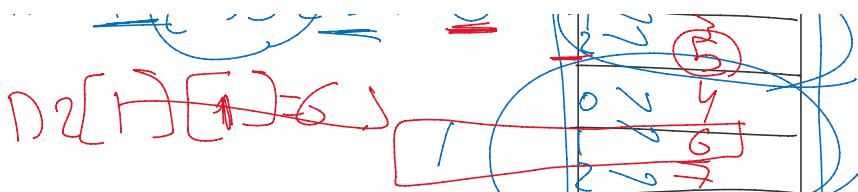
void main(void) // Dangling  
{  
int x = \* Func();  
}



int arr[3][3];

arr[1][1] = 1;





2	3	5	2
4	6	7	
16	12	1	

int arr[3][8];

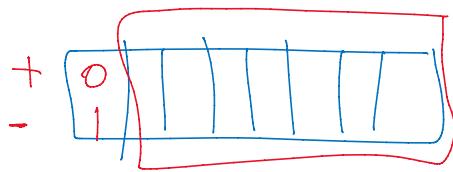
## Modifiers

**Keyword** Type var;  
 ① location(storage)  
 ② size  
 ③ format

④ ~~signed~~ int num = 10;  
 char  
 unsigned

## sign numbers

- (X) G/
- (1) \$/
- (1) sign Mag



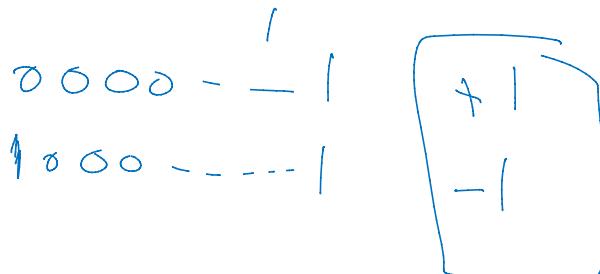
$$-128 \rightarrow 127 \quad \underline{2^8 = 256}$$

$$0 \rightarrow 255$$

0; 0 000 - - -

-0; 1 000 - - -

$\oplus$



$$\underline{000010 = \cancel{-1}}$$

2] I'sComp

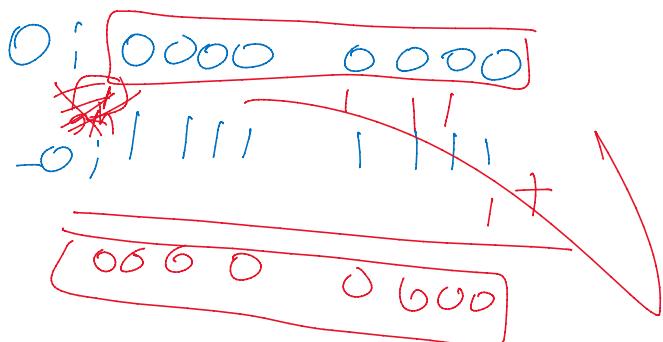
0; 0000 0000  $\cancel{\times}$   
-0; 1111 1111  $\cancel{\times}$

$$\begin{array}{r} 00000001 (+) \\ 11111110 (-) \\ \hline 11111111 \end{array}$$

~~1 1 1 1 1 1~~ 0

~~B2's comp~~

$$\textcircled{*} ts = (1's \text{ comp } + 1)$$



0000 0001 + 1

111111 - 1

00000000 0

### Size modifier

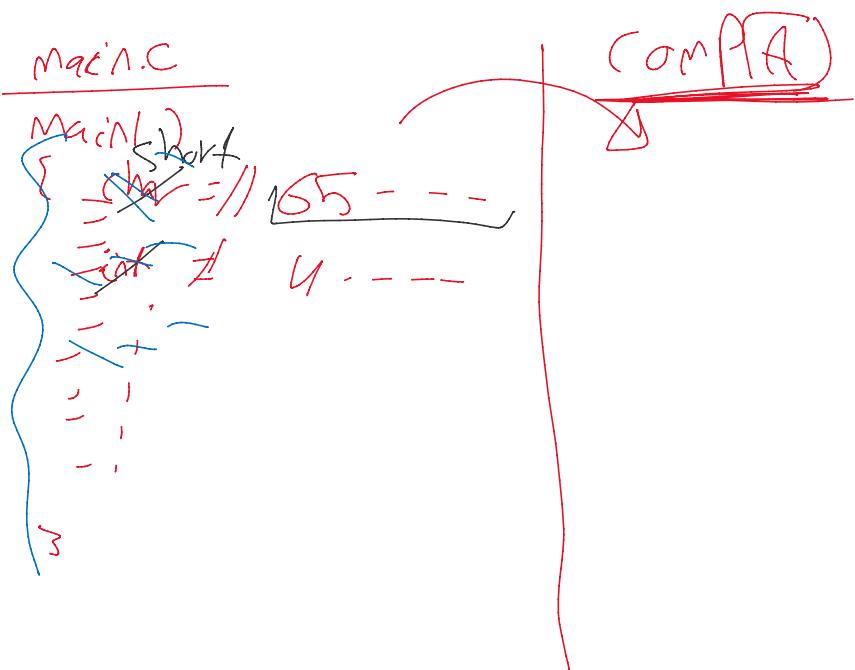
short int<sup>4B</sup> (2B) short x=5;

long int & double  
(8B) (16B)

size

\* int num = ;  
Compiler short ?  
— →  
long &

Comp A      B  
char 1B ← 2B  
int 2IB ← 4B



TypeDef old name new name;  
TypeDef, size of short int u16;  
2IB ← 4B

u16

$x = 5;$

    |  
    |  
    |  
    |

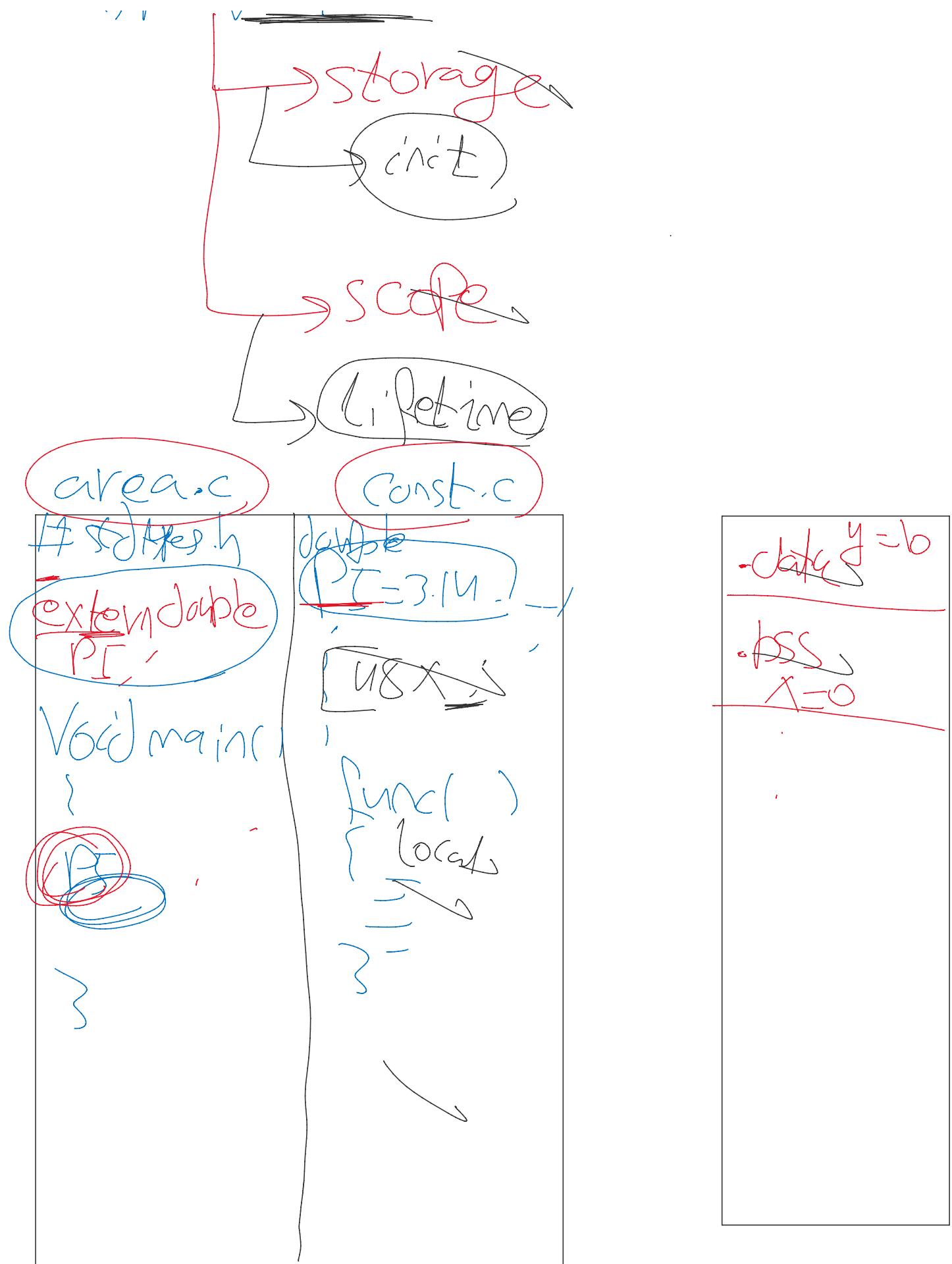
\* Const u8, num = 10;

const u8 \* ptr = & num;

long long, x = 10;

\*ptr = & x;

Type VarName;



# Storage Modifiers

MJ us X = V;

draft

auto

Global

RAM  
Data

extern

local

Stack

~~#if X=5;~~

~~X=G;~~

Heap

Static

~~static Global~~ ~~private~~

~~static local~~

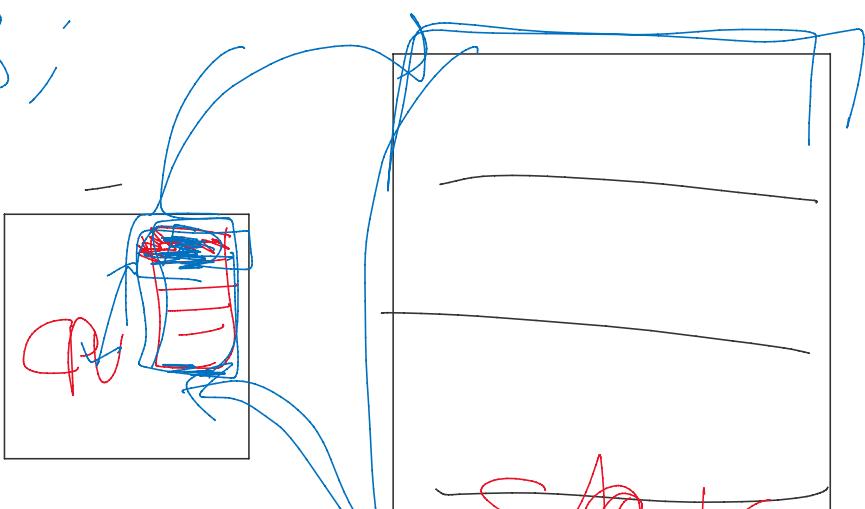
~~stack~~ → -data

~~Scope; fn~~ → fn

~~lifetime; fn~~ → out app

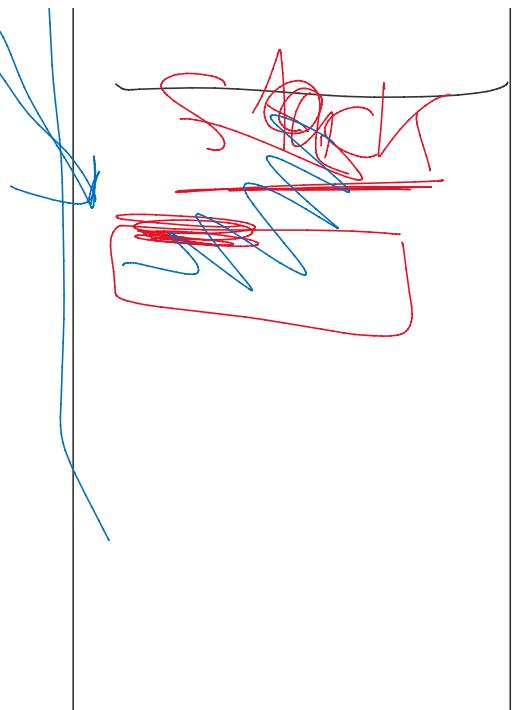
~~registor~~

8 x = 3;



Global

Globe



register - - - - ,