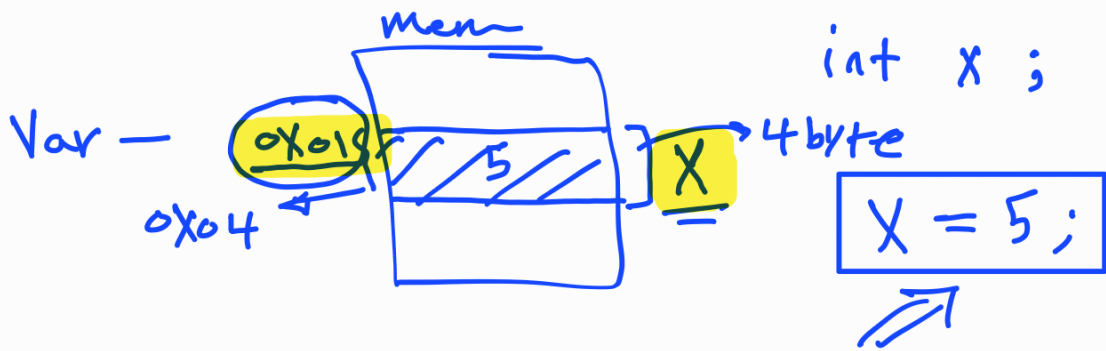


# Pointers



Pointer defin :-

⇒ ① Pointee\_Type \* Pointer\_Name ;

② Pointee\_Type \* Pointer\_Name ;

③ Pointee\_Type \* Pointer\_Name ;

Ex

int X = 3;

// 4 Bytes

int \* Ptr = &X;

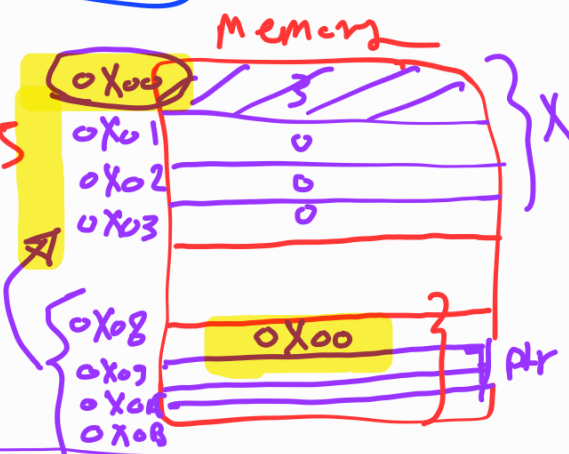
int \* Ptr;

Ptr = &X;

X = 4;

\*Ptr = 4;

char \* Ptr = &X;



# Note

① Access def → Pointee type

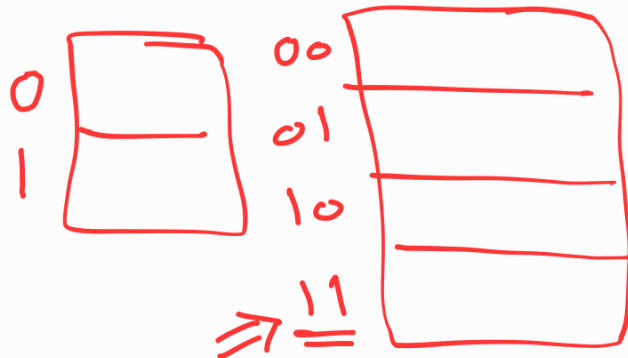
② Size of Pointer

└→ Not def Pointee type  
└→ def - on Arch

2 → 1

4 → 2

$2^2$  → 2



$2^n$  → n

0000 --- n  
1111 --- n

Pointer → Addr

Addr = 32 ⇒

Point = 32 bit  
= 4 bytes  
word

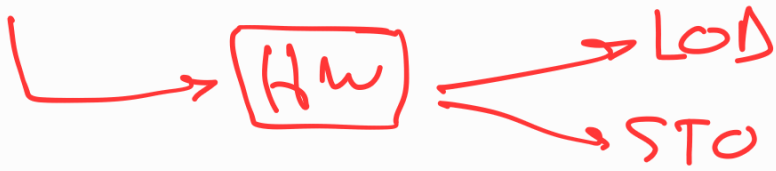
Addr =  $\log_2 (\text{Locations})$

$n = \log_2 (2^n)$

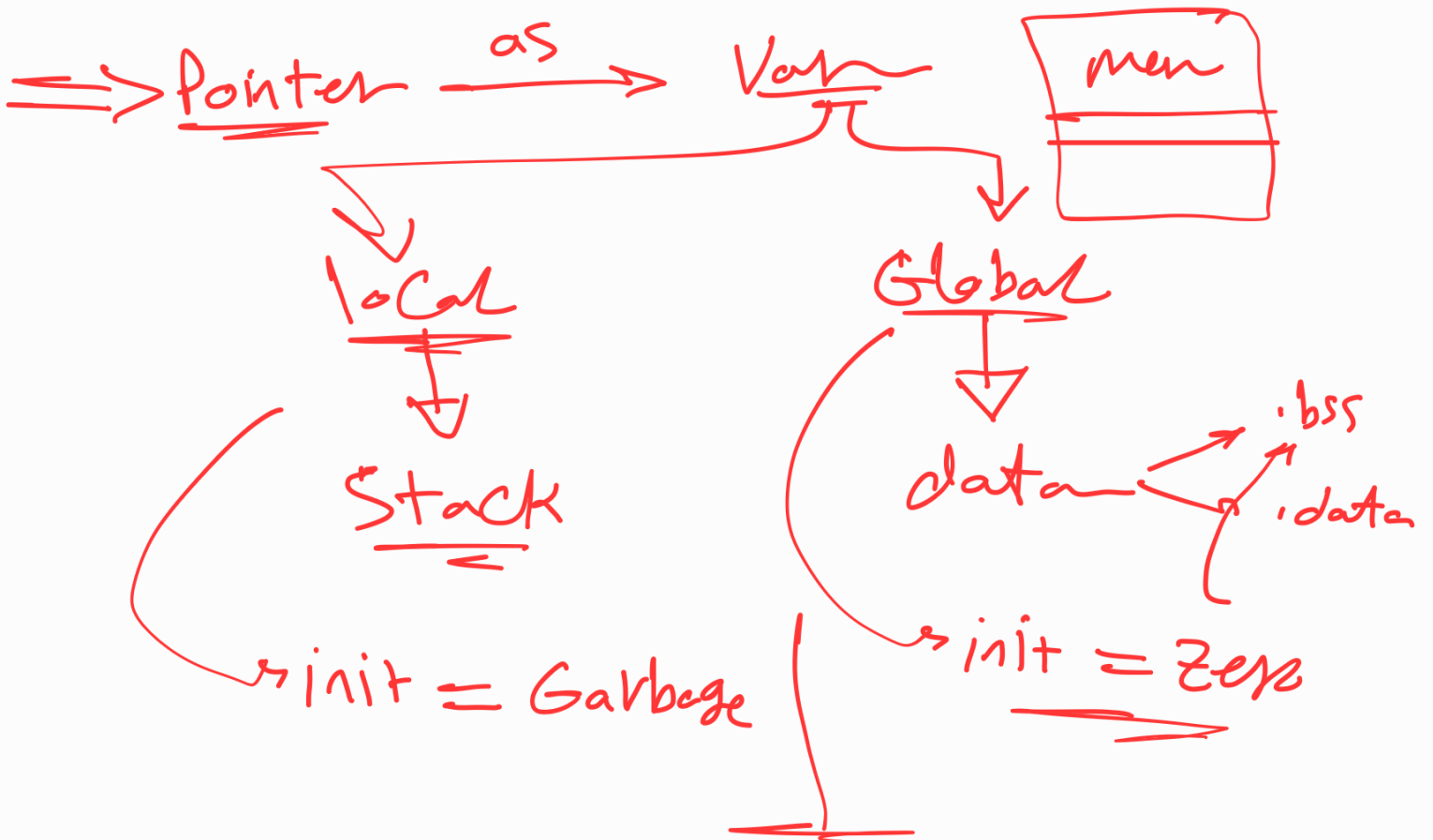
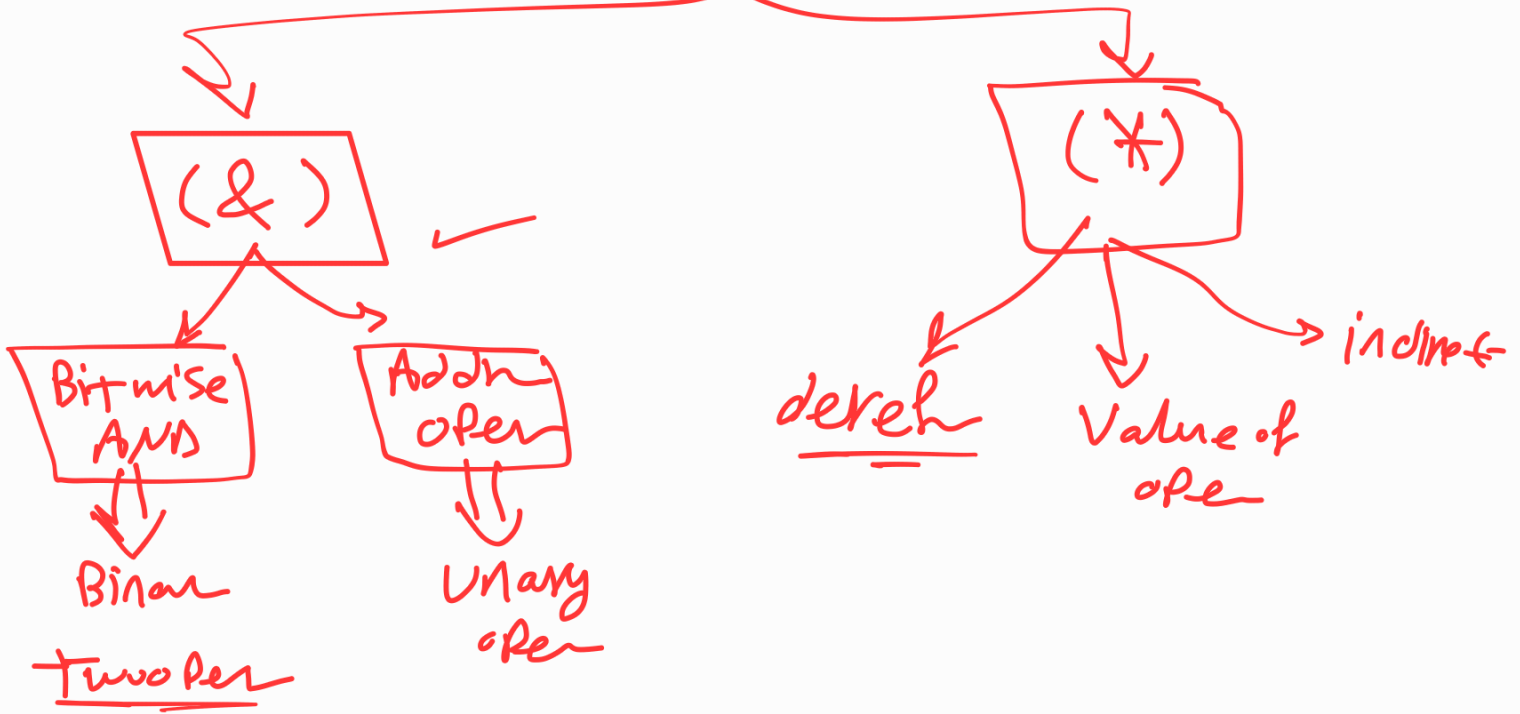
1024 → 10 lines



$C \longrightarrow ES$  why?

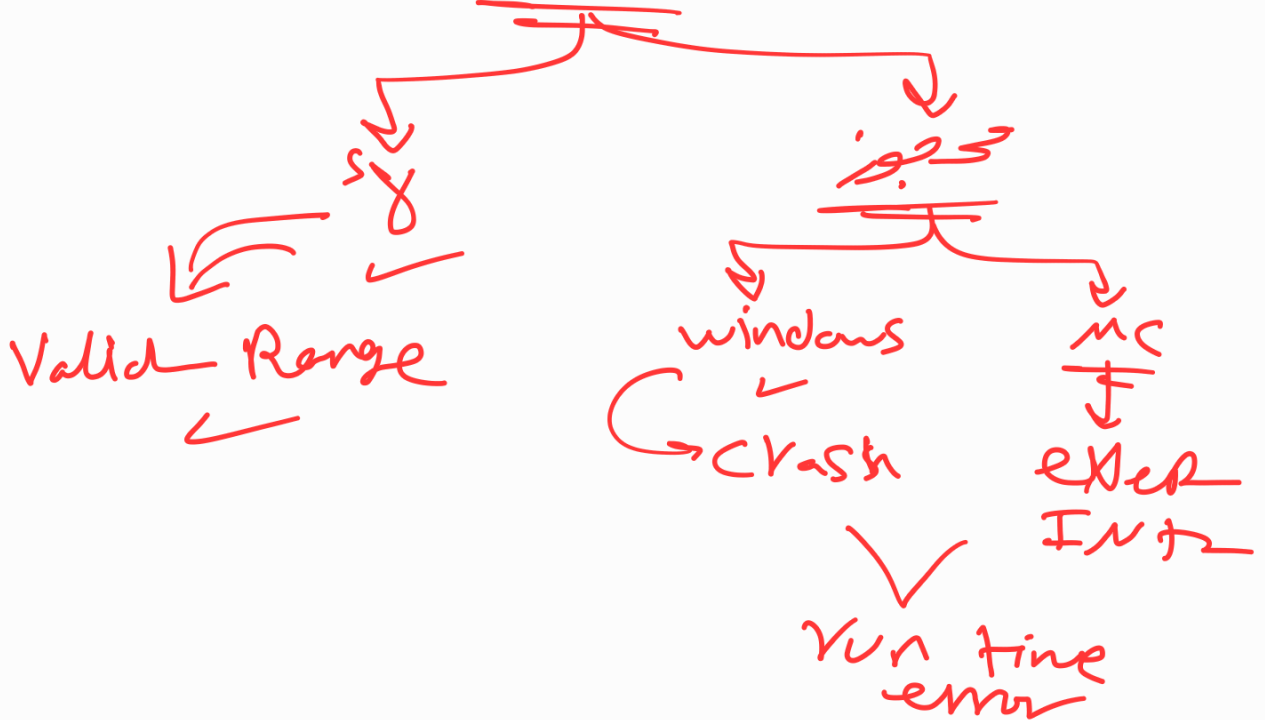


two open



## hints

① `int *ptr = 0x00;`



② `*`  $\longrightarrow$  not use with `void`

`int x = 0x0028ff08;`

`printf("%i", *x);`

$\longrightarrow$  Syntax error

`printf("%i", *0x0028ff08);`

Sol:-

Casting

`*(int*)`

3

int x = ✓ ;

char \* ptr = &x ;



⇒ Arithm oper with pointer

Unary Arith or

++

add ( sizeof (Pointee type) )

--  
Sub

int \* ptr ;

ptr++ ;

Step ⇒ Pointee type

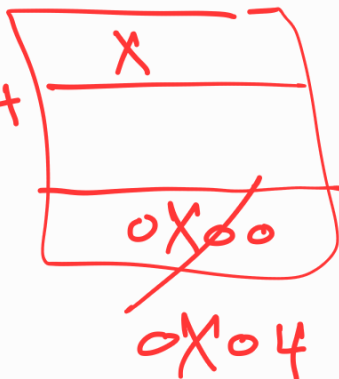
ex

int x ;

int \* ptr = &x ;

ptr++ ;

→ 0x00  
→ 0x04

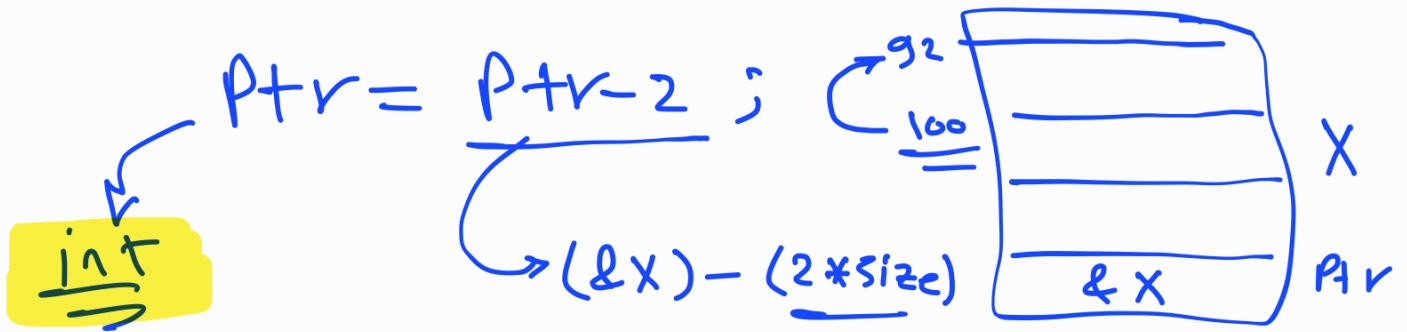


[ ]

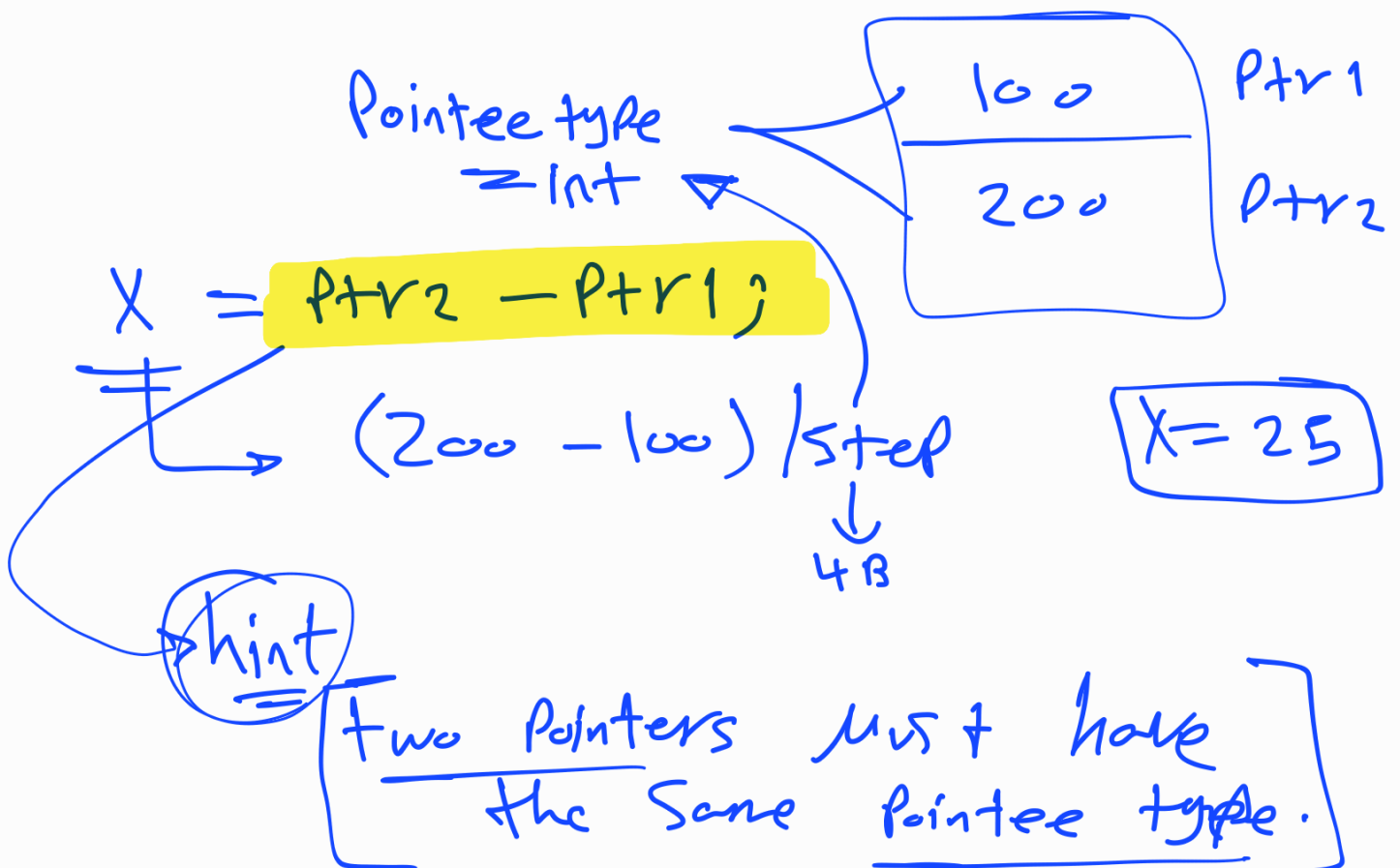
## ② Binary of

+ -

① Sub — a value from a pointer.



② Sub — a pointer from a pointer



③ Adding a value to a pointer  
an integer

$Ptr = Ptr + 2;$

$(\&X + 2 * 4B)$

int

④ Adding a pointer to an

$X = \text{ptr1} + \text{ptr2};$

↳ Syntax error

(Not valid in C)

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