Java / Python / Ruby $\longrightarrow$ GC $\longrightarrow$ (mark & sweep)

{ remove objects from the heap memory auto.

one of the types
of (pointers)
(SMART POINTERS)

Types Of Pointers

1. Void Pointers → generic pointer
   → dereferencing is not possible

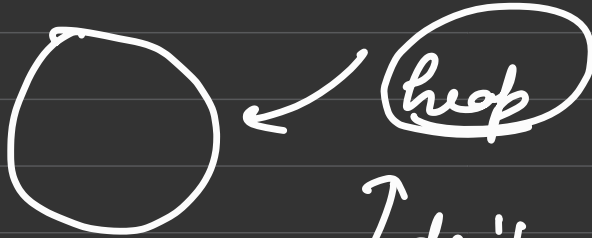2. Null Pointers

3. Dangling Pointers

4. wild pointer

5. function pointers

→ **Smart Pointers** → (No GC)   raw pointers

↳ an abstract interface to actual pointers.
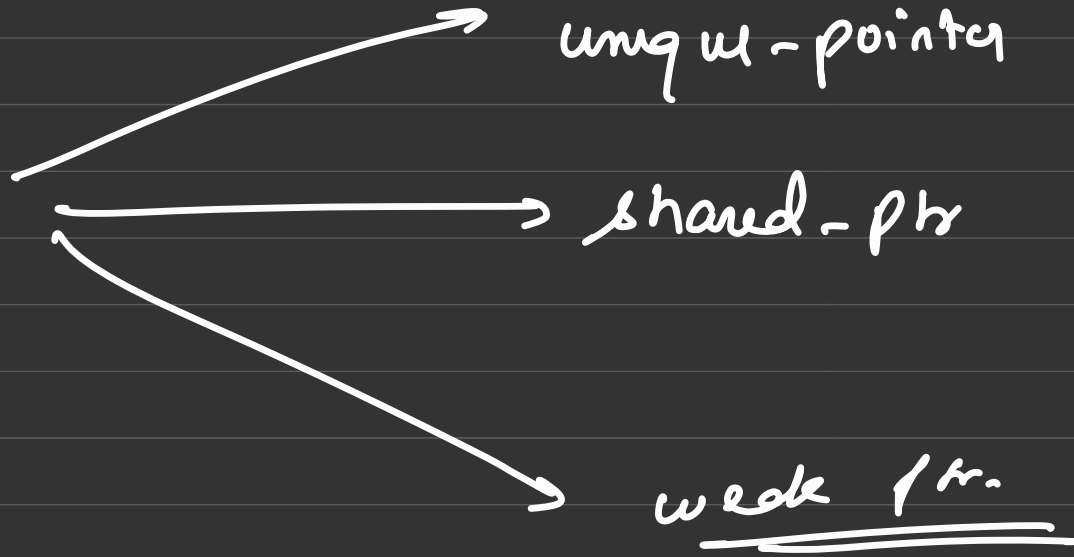but with additional benefit of auto.
resource management. and freeing memory.

use reference
pointing for

key Smart

heap

don't need to normally
delete the obj.

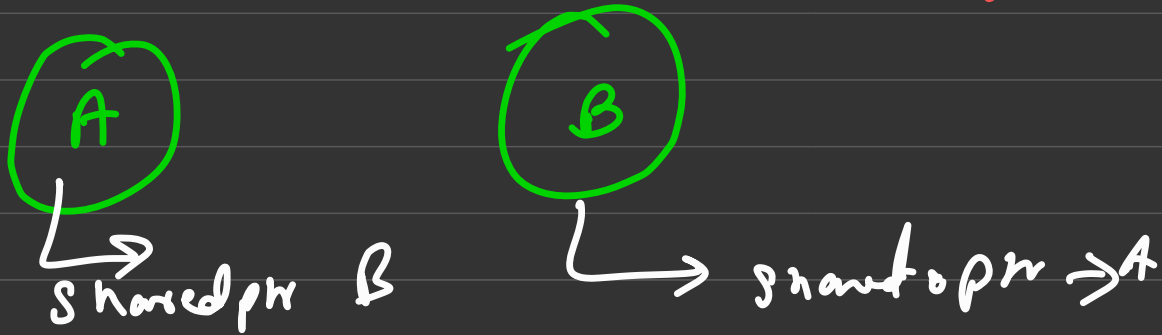Implemented internally uses class

unique-pointer

shared-ptr

weak ptr

unique-ptr → This will permit one owner of the pointer. This can contain max one raw-pointer that points to a memory.

shared_ptr → This helps us to have multiple
owners of same memory loc.

ref count

r1

r2

#

2

weak_ptr → (i) Similar to shared ptr but donot maintain a ref count.

A

B

→ sharedptr B

→ sharedptr → A

① No ref-cout is added when you point a loc by weak ptr.

② You can't directly point to a memory by weak-ptr. You can only point to a memory in weak ptr way shared ptr.