

Arrays : → Pointers : → The variable which stores the address of another variable is a pointer.

Var : A container / memory location where we store some data.  
 Address Operator ~~&a~~      int a = 10;      memory block 1000 x  
1000      (&a)

Address : → Hexa Add → %p  
 Base Add → %x

int \* ptr = &a; (1000)

x = 10      int \* ptr = &a;      \*ptr  
1000      ↓      1000      2000  
 Pointer to another pointer (Double Pointer)  
 int \*\* dptr = &ptr;      \*dptr  
2000

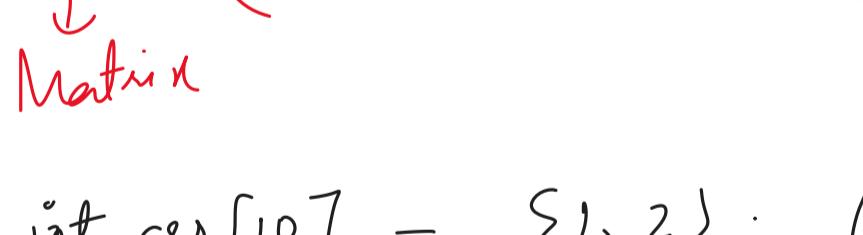
function {

    | x = 20 |      2000

    }  
 main      {      ptr = 2000      \*ptr = 20

}

Storage Classes : (Dangling Pointer)

\* Static → global — file  
 \* extern → global — folder  
 auto → local — {  
 register → RAM memory — no pointers  
 Reva-DS

\* When we try to access data from different scopes, it is called a dangling situation.

ADA }

\* Arrays : It is a homogeneous collection of data.

int arr[] = { 1, 2, 3, 4, 5, 6 }; (values)

                  { 1, 9, 8, 6, 5, 4 } → position  
                   { 0, 1, 2, 3, 4, 5 } → index

data = [ 1.2, 1, True, "Hi" ]; Python (Heterogeneous)

1D, 2D (index = pos - 1) (pos = index + 1)

Matrix

int arr[10] = { 1, 2 }; (8 zeroes) \*\*  $8 \times 4 = 32$  bytes

(memory = money)

(Runtime / Execution) (DMA) → Runtime

\* malloc (size)      32 bytes      garbage pointers  
 \* calloc (n, size)      00000000 int  
 \* realloc (ptr, new size)      default  
 \* free (ptr)      C++ (new delete) (DMA)

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