C - Programming

- Basic Data Types - Control Structures
  - integer ->
    - char -> 8 bit integer
    - short -> >16bits
    - long -> ≥ 32 bits
    - short ≤ int ≤ long

    } standard integers

  - float:
    - float -> ≥ 32 bits
    - double -> ≥ 64bits
- compound data types:
  - arrays

    if you want to know the size -> sizeof(thing)

    type name [size]

- it does not have I/O or memory mangement
  -> provided by libs

Declarations: modifier type name

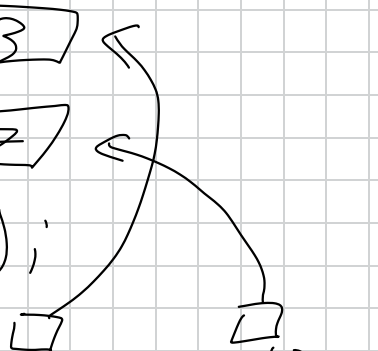
- ↳ static (only 1 instance - can not be changed)
- const -> will not change
- unsigned
- extern -> defined elsewhere
- register
- volatile -> might change on its own
- restrict ->

Pointers → address operations

& ∈ address of

* ∈ dereferences

```
int x = 3;
int y = 7;
swap(&x, &y);

void swap(int *a, int *b) {
    int t;
    t = *a;
   *a = *b;
   *b = t;
}
```

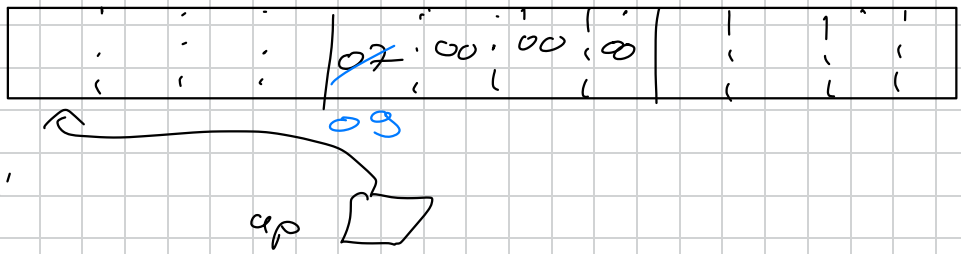


pointer integer

```
int *ap, x;

int* ap, x;
```

pointer integer

Arrays:



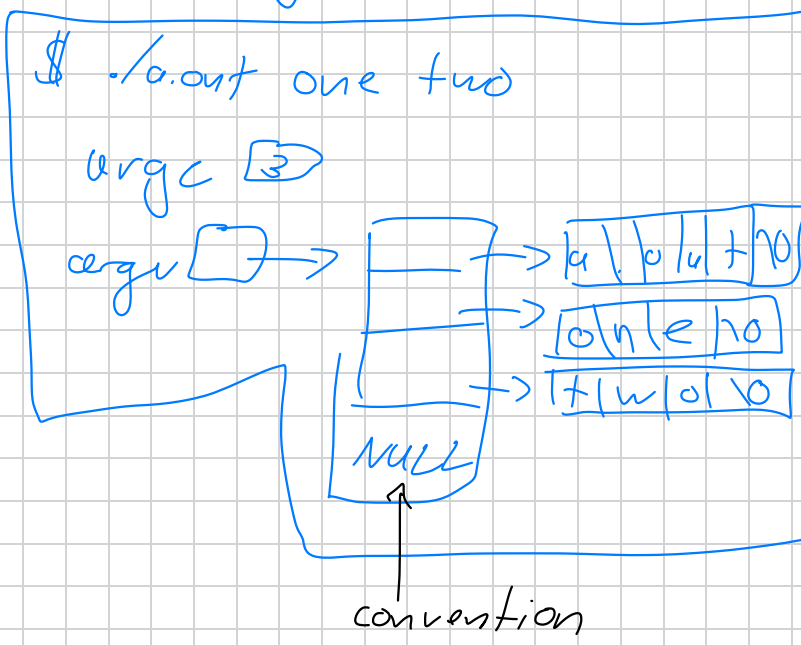

```
int   A[3];
int  *ap;

A[1] = 7;
ap   = A;      A[i] == *(A+i) == *(i+A)
                    == i[A]
*(ap+1) = 9;   = ap[1]
```

The program's environment

- it's called

argument vector

```
int main (int argc, char *argv[])
{
  return 0;
}
```




```
$./detab <file >out
```

-> WSL2