

# Strings

## C Reference

### Char arrays & the null terminator

A C string 字符串 is an array of `char`. Every string ends with a hidden null terminator 空终止符 `'\0'`, which marks where it stops. `strlen` (from `<string.h>`) counts characters up to that `'\0'`. Print a whole string with `%s` and one character 字符 with `%c`.

```
#include <stdio.h>
#include <string.h>

int main(void) {
    char name[] = "Mei";           // 'M', 'e', 'i', '\0'
    printf("%s\n", name);         // Mei
    printf("%zu\n", strlen(name)); // 3 (stops at '\0')
    printf("%c\n", name[0]);      // M
    return 0;
}
```

You can traverse a string by looping until you reach `'\0'`.

```
#include <stdio.h>

int main(void) {
    char word[] = "banana";
    int count = 0;
    for (int i = 0; word[i] != '\0'; i++) {
        if (word[i] == 'a') count++;
    }
    printf("%d\n", count); // 3
    return 0;
}
```