




Strings in C

- A **string in C** is an **array of characters ending with `\0`** (null terminator)
`char str[] = "Hello" → stored as 'H' 'e' 'l' 'l' 'o' '\0'`
-  Always ensure enough space for `\0`!
- Use `<string.h>` for string functions:
 - `strlen(str)` – length (excludes `\0`)
 - `strcpy(dest, src)` – copy
 - `strcmp(str1, str2)` – compare
 - `strcat(dest, src)` – concatenate
- Use `<ctype.h>` for string functions:
 - `isdigit(int c)`
 - `isalpha(int c)`
 - `isspace(int c)`
 - `islower(int c) / isupper(int c)`
- **String vs String literal:**

| Type | Example | Writable? |
|----------------|---------------------------------|---|
| String literal | <code>char *s = "Hello"</code> |  read-only |
| String | <code>char s[] = "Hello"</code> |  writable |

Converting str to int

Sample outputs

```
45
The string " 45" corresponds to integer 45
rt45
The string "rt45" corresponds to integer 0
45yhu
The string "45yhu" corresponds to integer 45

The string "" corresponds to integer 0
4 5
The string " 4 5" corresponds to integer 4
```

Converting str to int using ASCII values

| | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7 |
|-----|--------|----|----|----|----|----|----|----|
| | +----- | | | | | | | |
| 32 | | ! | " | # | \$ | % | & | ' |
| 40 | (|) | * | + | , | - | . | / |
| 48 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 56 | 8 | 9 | : | ; | < | = | > | ? |
| 64 | @ | A | B | C | D | E | F | G |
| 72 | H | I | J | K | L | M | N | O |
| 80 | P | Q | R | S | T | U | V | W |
| 88 | X | Y | Z | [| \ |] | ^ | _ |
| 96 | ` | a | b | c | d | e | f | g |
| 104 | h | i | j | k | l | m | n | o |
| 112 | p | q | r | s | t | u | v | w |
| 120 | x | y | z | { | | } | ~ | |

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The ASCII code for the character '0' is 48.

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The ASCII code for the character '0' is 48.

The ASCII code for the character '3' is 51.

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Converting str to int using ASCII values

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| 32 | | ! | " | # | \$ | % | & | ' |
| 40 | (|) | * | + | , | - | . | / |
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| 88 | X | Y | Z | [| \ |] | ^ | _ |
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The ASCII code for the character '0' is 48.

The ASCII code for the character '3' is 51.

⇒ To get the corresponding integer, always subtract 48.

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| 120 | x | y | z | { | | } | ~ | |

The ASCII code for the character '0' is 48. $48-48 = 0$ ✓

The ASCII code for the character '3' is 51. $51-48 = 3$ ✓

⇒ To get the corresponding integer, always subtract 48.