

Strings

What's a string

- In English
 - A String is just a stream of text.
- In C
 - A string is an array of characters.

What Makes a String Special?

The important difference between an array of chars and a string is that a string ENDS with a null character '\0'.

Characters

Remember, all characters are actually just numbers. Each number is some defined number in the ASCII chart. Therefore, you are allowed to do math on characters.

```
'A' - 'A' = 0
```

```
'A' - 'B' = -1
```

```
'z' - 'a' = 25
```

```
'4' - '0' = 4
```

```
x >= 'a' && x <= 'z' (this sees if the variable x is a lowercase character)
```

How to work with strings?

To work with strings, you can just treat them like arrays of characters. There are also many useful functions in `<string.h>`. To see an overview of these functions go to a terminal and type ``man string.h``.

Example: printing the ASCII value of each character in a string.

```
char* myString = "some cool string!";
int i;

for(i = 0; i < strlen(myString); i++)
{
    printf("%d\n", myString[i]);
}
```

Note how I go through the string just like an array.

Questions

1. What is a ``char*``?
2. What is `strlen`?
3. What is `strcat`?
4. What is `strstr`?
5. What does `mystery` do?

```
char mystery(char in)
{
    return (in - ('a' - 'A'));
}
```

Program

I want you to make me a program that will take a single word (string), and then turn it to all lowercase. Make sure to not alter any characters that are not uppercase.

Specs:

- Get a string from the user
- Print the string out with all uppercase letter replaced with lowercase ones
- Use an array of 256 chars to store the input
- Use at most one for loop
- You can use scanf, there will be no whitespace in the entered string

Sample Run (input in **bold**):

Please enter a string: **hELP_CAPSLOCKS_IS_ON!!!#@**

Lowercase: help_capslocks_is_on!!!#@