

# Einführung in C - Introduction to C

## 3. Arrays and strings

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An **Array** is an ordered list of variables of the same (arbitrary) type.

- The array size, i.e. the number of elements, is part of the definition and remains fixed.
- Variables are accessed via the index (an integer number, first element has index 0). No index checking is done by compiler or at runtime!
- The array size has to be a constant (C90), or can also be a variable (C99), in C11 it depends on the compiler (it's optional) (→ alternative: dynamic memory allocation → later)
- Array elements can be initialized in the declaration providing a list of values, the array size can be omitted and is calculated automatically. There is no default initialization.

```
int a[100];  
char text[1000];  
unsigned int lotto[] = { 2, 5, 17, 36, 40, 7 };  
for(int i=0; i<100; i++)  
    a[i]=0;
```

`eratosthenes.c`

Code snippet  
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**Strings are Arrays of characters.** In (standard) C there is no special datatype for strings.

- The end of the string is marked with the char value 0.
- Strings can be initialized with a given string in quotes. The string length can then be determined automatically.
- There are standard functions for frequently used string operations, such as String length (strlen), string comparison (strcmp), string concatenation (strcat).

```
char text_buffer[1000];  
char hello[200] = "Hello";  
char name[100] = "No name entered";
```

`string_shuffle.c`

Code snippet  
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