
Module [203]

Strings and Dynamical Memory Allocation

Module Overview

This module reviews the library functions available in the C language to handle characters and strings. It also focuses on reinforcing the understanding of how strings are handled internally in C by providing you with opportunities to re-implement some of the string-handling library functions by hand.

As usual, our learning activities will be divided in two groups. The “discovery week” will focus on the reading assignments and understanding the main Concepts. The “apply week” will help you put this newly acquired knowledge into practice and evaluate your understanding of the entire module through graded assessments. Refer to the Syllabus for more details.

Learning Outcomes

By the end of this module, you will gain the following knowledge:

Programming Concepts

- Using library functions
- Application Programming Interface (API)
- Explicit memory allocation

Designing Programs

- Rudimentary strings manipulations algorithm (comparison, copy, allocation)

Implementing Programs (in C)

- Explicit memory allocation with of malloc / calloc / realloc / free
- Using standard C libraries (ctype, stdlib, stdio, string)
- *Pointers operators (&, *)*
- *Pointers arithmetic*
- *By-reference parameters handling using pointers*
- *Implementing arrays and strings with pointers*
- *Declaring, initializing, using arrays of strings*

Troubleshooting

- *Common pointer-related errors*
- *Understanding string-related errors from the pointers perspective*
- *Understanding the “forgetting & in scanf” error*