

EEE2021: Computer Programming & Organisation

Lab 3: Arrays and Strings (=arrays of characters)

Exercise 1:

Write a program to find the length of a string without using a library function. **Optional:** you can define your own function, `int mystringlength(const char str[]);`, which returns the length of the passed string `char str[]`.

Example:

Input the `string` : domenico.balsamo

Expected Output :

Length of the `string` is : 16

Exercise 2:

Write a program to sort a string in ascending order. **Optional:** You can define your own function, `void mystringsort(char str[], int length);`.

Example:

Input the `string` : domenico

After sorting the `string` appears like : cdeimnoo

Extra 1:

Write a program to find the sum of all elements of the array. **Optional:** You can define your own function, `int mysumarray(int a[], int length);` for the sum operation.

Example:

Input the number of elements to be stored in the `array` : 3

Input 3 elements in the `array` :

element - 0 : 22

element - 1 : 2

element - 2 : 8

Expected Output :

Sum of all elements stored in the `array` is : 32

Lab 3: Pointers

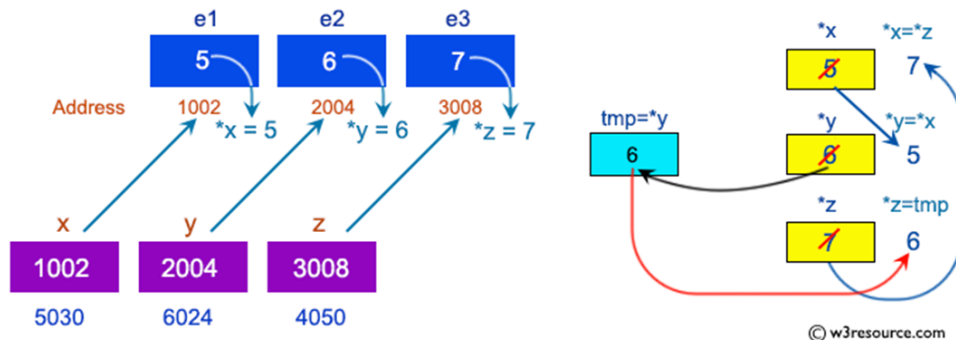
Exercise 1:

Print the address of array elements.

Extra 1:

Write a program in C to swap elements using call by reference.

Pictorial Presentation:



Lab 3: Files

Exercise 1: Write a program for searching a module catalogue that performs these tasks:

1. It prompts the user to enter a string to search for, for example **"microprocessor"**.
2. It proceeds by reading the module catalogue stored in the file **modules.txt**, where each line contains a description of one module. Here is a short fragment from the file:

```
ENG1002 C Programming
EEE1009 Communication Skills and Innovation
EEE2007 Computer Systems and Microprocessors
```

3. For every line in the file, the program checks whether it contains the string. If yes, it prints out this line.
4. When all lines have been processed, the program prints the number of found matches.

Example:

```
Enter a search string: microprocessor
EEE2007 Computer Systems and Microprocessors
EEE2206 Computer Systems and Microprocessors
EEE3010 Microprocessor Control
EEE8022 Microprocessor Systems
Number of matches: 4
Enter a search string: circuits
Number of matches: 0
```

Advanced:

Implement your own string matching function, e.g., `int match(char source[MAX], char input[MAX])`, rather than using the one from `<string.h>` library.