

Arrays, structures, pointers

C++ in QF I - a course by Paweł Sakowski

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Labs 04

Last time we learned:

- The switch statement.
- How to use **functions**.
- The **scope of the variables** we create.
- Keywords break and continue.

Today we will learn:

- **Arrays.**
- **Structures.**
- **Pointers.**
- How to pass variables to a function by value, pointer and reference.

Examples:

- 1 Write a program, that will create arrays using `const` and `#define`. Write a function, that prints such arrays.
- 2 Write a structure, that describes dimensions of the box. Write a function, that will ask user for dimensions of a box and assign them in correct slots of a structure. Write another function that prints the dimensions. Test them.
- 3 Write investigative program which will help to understand pointers and references using operators: `&` and `*`.
- 4 Write functions that permanently swaps values two integers. Try passing variables by reference, pointer and value.
- 5 Rewrite second example to pass structure by reference and pointer.

Exercises (1):

- ① Write a program that uses following elements:
 - A structure that represents characteristics of a coupon bond:
 - face value,
 - number of coupons per year,
 - coupon rate,
 - yield to maturity,
 - time to maturity.
 - A function, that asks the user about characteristics of a coupon bond and assign them to appropriate elements of the structure.
 - A function, that will print out all elements of the structure.
- ② As in exercise 1 but all assignments and referencing should be done via pointers.

`(*PointerToAStructure).element_of_a_structure = some_value;`

(An example of using pointer to a structure.)

Exercises (2):

- 3 Extend a program from the exercise 1 with a function that will take as an argument the structure representing bond and will return price of a bond.
- 4 Do the same with exercise 2, pass the structure by pointer.

Thank you!