CP2406 Prac-3

By solving the following exercises, you can practice the material discussed in the relevant chapter. Solutions to all exercises are available in the "solutions"-subfolder. However, if you are stuck on an exercise, first reread parts of the chapter to try to find an answer yourself before looking at the solutions.

prac03_task01 for Chapter-2-"Working with Strings"

1)   Download and unzip the prac's code.

2)   Open the folder "prac03_tasks" in VSCode.

3)   Let's complete Exercise 2-1 from the textbook:

4)   Exercise 2-1: Write a program that asks the user for two strings and then prints them out in alphabetical order, using the ~~three-way~~ comparison operator (< or >). To ask the user for a string, you can use the std::cin stream, briefly introduced in Chapter 1. Chapter 13,"Demystifying C++ I/O," explains input and output in detail, but for now, here is how to read in a string from the console. To terminate the line, just press Enter.

5)   Hint: Use
std::string userInput;
getline(cin, userInput);

6)   Hint: see solutions/prac03_task01_A.cpp

7)   Hint: see solutions/prac03_task01_B.cpp . Did you print an instruction for a user, e.g. "please input ..." ?

8)   Self-check: see the final solutions/prac03_task01_C.cpp.
Question? You do **not** need to #include <string>. Why?

9)   [Advanced students] examine and run the textbook solution, see the solutions sub-folder

prac03_task02 for Chapter-2-"Working with Strings"

10)   Let's complete Exercise 2-2 from the textbook:

11)   Exercise 2-2: Write a program that asks the user for a source string (= haystack), a string to find (= needle) in the source string, and a replacement string. Write a function with three parameters—the haystack, needle, and replacement string—that returns a copy of the haystack with all needles replaced with the replacement string. Use only std::string, no string_view. What kind of parameter types will you use and why? Call this function from main() and print out all the strings for verification.

12)   Hint: see solutions/prac03_task02_A.cpp is a starter code. Note, you can start from your solution from prac03-task01

13)   Hint: let's print all strings and replace one instance using string::find and string::replace . Remember to check if find returns NOT string::npos. See solutions/prac03_task01_B.cpp

14)   Can you replace ALL substrings, not just one?

15)   Self-check: see the final solutions/prac03_task02_C.cpp.

16)   [Advanced students] examine and run the textbook solution, see the solutions sub-folder.

prac03_task03 for Chapter-2-"Working with Strings"

17)   Let's complete Exercise 2-3 from the textbook: Exercise 2-3: Modify the program from Exercise 2-2 and use std::string_view on as many places as you can.

18)   Self-check: see the final solutions/prac03_task03_A.cpp

19)   Explore: try replacing string with string_view in other places. What errors did you get? Run-time and/or compile-time?

prac03_task04 for Chapter-2-"Working with Strings"

20)   Let's **EXPLORE** Exercise 2-4 from the textbook: Exercise 2-4: Write a program that asks the user to enter an unknown number of floating-point numbers and stores all numbers in a vector. Each number should be typed followed by Enter. Stop asking for more numbers when the user inputs the number 0. To read a floating-point number from the console, use cin in the same way it was used in Chapter 1 to input integer values. ~~Format all numbers in a table with a couple of columns where each column formats a number in a different way.~~ Each row in the table corresponds to one of the inputted numbers.

21)   Load "prac03_task4_bugs.cpp" solution which has multiple bugs in it. Convert it to the default c++ (11 or 17) if needed. Hint: see the solutions/prac03_task4_A.cpp

22)   Fix all bugs. Self-check: see the final solutions/prac03_task4_B.cpp

23)   Question: some bugs have no effect. Why?

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