Assignment 1

Forfall 21. aug. 2020 av 23.59 **Poeng** 100 **Tilgjengelig** til 4. okt. 2020 i 23.59

Denne oppgaven ble låst 4. okt. 2020 i 23.59.

Introduction

Before you start make sure you have completed **Course preparations**.

This is the first assignment so here are some tips: Computers are dumb. If you make a tiny mistake the tests will not pass. Here are some examples that will fail your assignment:

- Calling the assignment directory *Assignment_1_1* (Uppercase A, not correct)
- Calling the assignment directory *assignment_01_01* (extra zeroes, not correct)
- Calling the assignment directory *assignment_1* (missing _1, not correct)
- Using two spaces as a separator (not the same as one space)

Each assignment below is a separate CLion project. When you create each project the directory path will be *dat220g20h/assignments/solutions/assignment_?_?*.

These tasks can be solved with pure C, but that wouldn't teach you any C++ now would it? Refrain from using printf, scanf etc and use the C++ techniques instead.

1.1

Directory name: assignment_1_1

Write an application that prints out:

- Numbers 1 to 10
- Numbers 1 to 20, only even numbers
- Numbers 1 to 20, only odd numbers

- Numbers 1 to 50, every 3rd number
- Numbers 1 to 40, reverse order, every 4th number
- Numbers 1 to 100, prime numbers only

with space as a separator for each number.

Areas of interest: For loops, std::cout

Expected output: 1 2 3

1.2

Directory name: assignment_1_2

Write an application that asks the user for their name and what age they are turning this year and:

- Greets them with Hello, <user>!
- Tells the user in which year they were born
- Tells the user how many years is left until they turn 100

Areas of interest: std::cin, std::cout, std::string

1.3

Directory name: assignment_1_3

Write an application that asks the user for a word and:

- Tells how many letters are in the word
- Tells if the word is a palindrome
- Prints the word reversed

Areas of interest: std::cin, std::cout, std::string, arrays, for loops

Expected output: is a palindrome / is not a palindrome

1.4

Directory name: assignment_1_4

Write an application that asks for a string as input and:

- Prints the string in uppercase and lowercase
- Splits the string on the middle and prints the two parts with " - " between
- Tries to convert it into an integer and prints out the square of it if it is a number
- Tries to convert it into a double and prints out half it's value if it is a number

Areas of interest: std::cin, std::cout, std::string, std::stringstream

1.5

Directory name: assignment_1_5

Write an application that asks for two strings and:

- Tells if the strings are equal or not
- Tells if one string is a substring of the other

Areas of interest: std::cin, std::cout, std::string

Expected output: are equal / are not equal, is a substring / is not a substring

1.6

Directory name: assignment_1_6

Write an application that asks for a string and:

- Tells how many times each character of the alphabet appears in the string

Areas of interest: std::cin, std::cout, std::string, arrays, for loops, optionally std::map (topic later in the course)

Expected output: 'a' : 5

Note: Characters between *a* and *z* not in the string must still be printed as 0.

Delivery

1. Test locally

see *Local testing* in Canvas

Test the solution on your own computer. You can fix your code and retest as many times as you want.

2. Deliver and test in Bamboo

See *Delivery and Bamboo testing* in Canvas

Finally deliver and test the solution in Bamboo. This is what updates your score in Canvas which is the score I can see. You can test as many times as you want here as well.