Assignment 7 -- Functions (part 1)

The aim of the tasks is to exercise the definition and the use of functions with parameters.

1) Create a C++ program that prints a quadratic frame of asterisks, depending on the number n entered (see example for n=4). Use the well-known function "...nchar(...)", and additionally write a new function "print_square_hollow"; choose reasonable parameters and result types for your functions.

```
* * * *
*     *
*     *
* * * *
```

2) Extend your program from above with another function called "print_square_diag", which prints the frame of an n-sized square and also its diagonals.
The example printout is for n=8.

Tip: as a first try, only print <u>one</u> diagonal from top-left to bottom-right!

```
* * * * * * * *
* *         * *
*   *     *   *
*     * *     *
*     * *     *
*   *     *   *
* *         * *
* * * * * * * *
```

3) Write a C++ function "isStuttered" which gets a string as parameter and then determines whether it is a "stutter sentence".
A stuttered sentence is any string whose first half has exactly the same content as the last half (in the case of an odd number of characters, the middle character is irrelevant).
Examples of stutter sentences are "Bla Bla", "blubblub", "das Ding das Ding", "a b aa b a", "47114711". Not stutter sentences are "a b a b a", "NEGER-REGEN", "=:-)".
The result of the stutter analysis is returned as a truth value.
Write a test bed for your function which calls "isStuttered" with at least five different strings and which documents the test cases with useful print-outs.

4) Write a C++ function "parenthesise" which takes a sentence with several words (separated by blanks) and returns a string with each word enclosed in parentheses.
Also, write a test program to call your function with text entered from the keyboard.

```
input:  do you   know   how     to   write a C++ function?
output:  (do) (you)  (know)   (how)     (to)   (write) (a) (C++) (function?)
```