Lab 5 - Functions in C

1. Write a function which returns the highest perfect square which is less or equal to its parameter (a positive integer). ★
2. Write a function to check if its parameter (positive integer) is a perfect square. Then apply this function to a vector of positive integers, and extract all perfect squares and place them in another vector. ★★
3. Write a function that has the following parameters:
   - 2 integers
   - a pointer to an integer

   The function should add the first 2 numbers and place the result in the integer pointed to by the 3rd parameter. Print the result outside of the function. ★
4. Write a function that takes as parameters a float `x` and an integer `y` and returns x^y. ★
5. Read an integer representing an amount of money expressed in RON from the standard input. Write a function to determine the minimum number of banknotes needed to pay that amount. ★
6. Write a function which has a string of characters representing a number written using Roman numerals as a parameter, and returns the corresponding radix (base) 10 Arabian number. ★★
7. Write the complementary function, which converts a base 10 Arabian number to a number written with Roman numerals. ★★
8. Write a function to check whether a character string is a substring of another character string. The function should return the position at which the substring starts if true, or –1 otherwise. Do not use any functions from `string.h`. ★★
9. Write the functions for addition, subtraction and multiplication of two matrices, and then compute $A = B * C - 2 * (B + C)$, where B and C are two $n \times n$ matrices. ★★★
10. Write a function that has the following parameters:
    - 2 integers
    - a function that takes 2 integers and returns an integer

    The function should apply the function given as the third parameter on the first 2 parameters and return the result. ★★★

References

- Pb. 1-2, 5-9 [1]

[1] Iosif Ignat & Marius Joldoș. *CP Laboratory Guide 5: Functions in C.*