
Python For Fine Programmers

In the problem sheet, there are 5 main problems (with sub-problems). It would suffice to do any three of the list. It would always be nice to do all of them.

Problem 1 (8 Points)

Write three different python functions, each of which gives the fibonacci number corresponding to the input number.

Bonus: Write a 4th and better function.

Problem 2 (8 Points)

Write a program to find out the square root of a given number. (Without the help of python math library)

Bonus: Extend this to n^{th} root.

Problem 3 (8 Points)

Write two functions (iterative and recursive) to compute 2^n . Compare the complexities. (only in your mind)

Problem 4 (8 Points)

Write a program, without using the `int` functionality of python, to convert a string (representing an integer) to the integer. Also, do the reverse: Integer to String Try to do both of them recursively and iteratively. Bonus: Extend this to floating points

Problem 5 (8 Points)

Write a program to generate all the combinations of all the characters in a given string, or a list of characters.

Bonus: Beauty of the program.