

COMP 10280

Programming I (Conversion)

Practical Sheet 12

Tuesday, 1 November 2016

For each of the following questions, write an algorithm in pseudocode first before writing a Python program. Submit your algorithms in pseudocode as well as your Python programs.

1. (a) Write a function that takes as its single argument a non-negative integer and returns the factorial of the number.
(b) Write a program that prompts the user for an integer and checks that the number entered is non-negative. If it is, it calls the function defined in part (a) and prints out the result; if not, it prints out an appropriate error message.

Save this program as p12p1.py.

2. (a) Write a function that takes as its argument a non-negative integer and prints out that number of terms of the Fibonacci Series (you may assume that the first term is the 0th term). This function should not return an explicit value.
(b) Write a program that prompts the user for an integer and checks that the number entered is non-negative. If it is, it calls the function defined in part (a); if not, it prints out an appropriate error message.

Save this program as p12p2.py.

3. (a) Write a function that takes as its two arguments a number and a tolerance and, using the technique exposed in lectures, returns an approximation of the square root of the number that is within the tolerance.
(b) Write a program that prompts the user for a floating-point number and checks that the number entered is non-negative. If it is, it calls the function defined in part (a) with the number and a tolerance defined in the program and prints out the square root of the number; if not, it prints out an appropriate error message.

Save this program as p12p3.py.

**Please upload your work to
the Moodle site before tomorrow evening.**

**You should keep a copy of your programs
for your portfolio.**