SCC461 – Programming for Data Scientists

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Week 6

Assignment

Deadline: Monday, 20/11, 9am
Upload on Moodle your code, your test cases (with the output), your reply to Question 3, and your short reflection.

1. Fibonacci Sequence (2%)

   In a Fibonacci sequence, every number is the sum of the two previous ones. In this assignment, we will consider the Fibonacci sequence that starts with the numbers 0 and 1, as follows:

   0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144...

   Write a program that, given a number (positive integer) x, prints the xth number in the Fibonacci sequence above. For example:

x	You print
0	Error
1	0
2	1
3	1
4	2
5	3
6	5

2. Number factorisation (2%)

   Every integer y can be represented as a product of prime numbers. Write a program that, given an integer y, prints y's prime factors (with or without repetition). For example:

y	You Print	Or You can Print
8	2	2, 2, 2
12	2, 3	2, 2, 3
28	2, 7	2, 2, 7

3. Go To Statements Considered Harmful (1%)

   According to Dijkstra, 1968, why Go To statements are not advisable in a high level programming language?

As mentioned in class, you must write a short text reflecting how you approached these problems. You must also report who you discussed with, what you searched online, who you helped, etc. Discussions are allowed, and looking for online materials, books, etc, is allowed. However, directly copying full Python code is not allowed.