Algorithm and Data Structures

Tutorial 1, 2024

Question (Java programming)

In class you learned two different algorithms for computing the nth Fibonacci number. In this exercise you are required to implement these algorithms and compare their performance. You need to complete the following:

1. Write a Fibonacci class that implement two algorithms as different methods. Each method should take a parameter n of type *int* and returns the value of the nth Fibonacci number.

2. Compare complexity of all the algorithms by timing how long the algorithms take for different values of n(try $n = 10, 11, ..., 100$) *Hint:* You may find the method *System.currentTimeMillis()* useful. You may need to repeat the procedures multiple times to make the time significant.

3. Use `GraphingData.java` to plot the running times against the input size n for each algorithm. To do that you need to first read the code of *GraphingData.java* and understand how it works.