
Mathematical Foundations of Bioinformatics

R Programming 1

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Problem 1: Multiplication table

Write a program in R to generate a PDF file for the standard 10 by 10 multiplication table. The first row and the first column take values 1 to 10.

Problem 2: Prime number

"A prime number (or a prime) is a natural number greater than 1 that is not a product of two smaller natural numbers." [Wikipedia]. In this R exercise, your tasks are:

- (a) to determine whether an input natural number is a prime number.
- (b) to output the first 100000 prime numbers in a csv file.

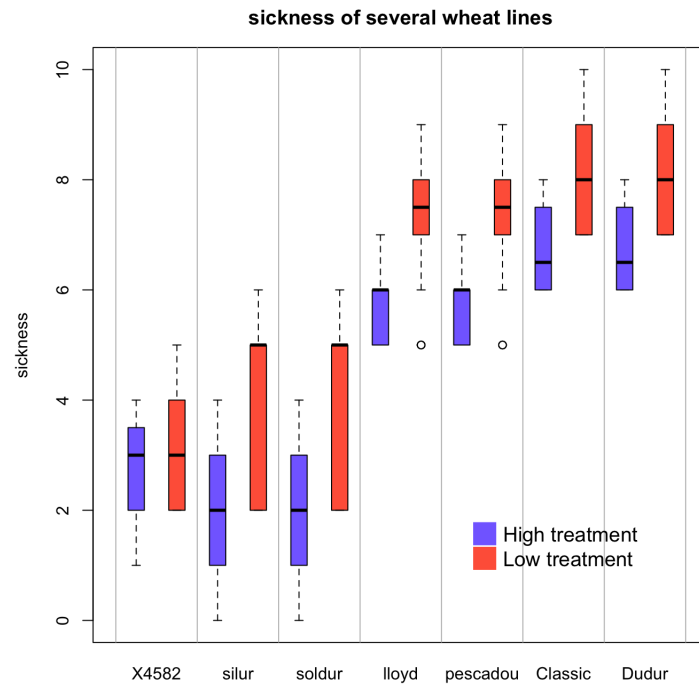
Discuss the time complexity of your algorithms for both tasks.

Problem 3: Birthday problem

Implement a function in R (from scratch) for the birthday problem and generate the Figure 1.5 of the textbook. Solve question 26-b of chapter 1 using your function.

Problem 4: Grouped and ordered boxplot

Implement a function in R to plot box plots without using any high-level built-in function in R. Compare your plots with the code available in this link.



Studying any online solution, no matter to what extent, or discussing with others are strictly forbidden and are considered as a violation of the **academic honor code**.