**Question 1.** Comparing Algorithms In this lab, you will be solving the same problem using four different algorithms. Your job is to Implement all four algorithms in Java 8. If you have another algorithm, that must be numbered 5 and so on. Collect the data on “time required” to solve the problem for different problem sizes: 1000, 2000, 3000, 4000, …, 10000. Your “input data” must be generated using a random number generator. Prepare one graph to compare the performance of all four algorithms.

Chart, line chart

Description automatically generated

Write a summary report with your observations and conclusions.