



Experimental Methods in Computer Science

1) The file data.in available at inforestudante contains information about a software engineering experiment. The goal of the experiment was to measure the efficacy of two software development processes (SCRUM and Extreme Programming) in terms of the number of bugs produced. Two programmer teams (Team A and Team B) implemented several projects and a quality control team recorded, for each team, the average number of bugs produced per 1000 lines of code in each software project.

Formalize the appropriate hypotheses, test the required assumptions and analyse the experimental results. Discuss the results obtained.

2) The file data2.in available at inforestudante contains information about the comparison of two heuristics (Genetic Algorithm and Local Search) for solving the Travelling Salesman Problem. The data contains information about the type of instance (cities are clustered or not clustered), as well as the time, solution quality and amount of memory taken in each run of the two approaches.

Analyse the performance of the two heuristics as well as the effect of instance type, on each of the three measures (time, solution quality and memory).