Laboratory work number 5

Subject: Dynamic programming

Overview:

Dynamic programming is defined as a computer programming technique where an algorithmic problem is first broken down into sub-problems, the results are saved, and then the sub-problems are optimized to find the overall solution — which usually has to do with finding the maximum and minimum range of the algorithmic query.

**BASIC TASK**:

1 To study the dynamic programming method of designing algorithms.

2 To implement in a programming language algorithms Dijkstra and Floyd–Warshall using dynamic programming.

3 Do empirical analysis of these algorithms for a sparse graph and for a dense graph.

4 Increase the number of nodes in graphs and analyze how this influences the algorithms. Make a graphical presentation of the data obtained

5 To make a report.

Links where you can find theory about the alghoritms and dynamic programing:

1. <https://www.geeksforgeeks.org/dynamic-programming/>
2. <https://www.tutorialspoint.com/data_structures_algorithms/dynamic_programming.htm>
3. <https://www.codingninjas.com/codestudio/library/dijkstras-algorithm-vs-floydwarshalls-algorithm>