

Laboratory practice No. 2: Brute Force

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3) Practice for final project defense presentation

3.1 First, we find all possible permutations with a given array. We then calculate the cost of each of the circuits found for the least expensive one, and choose it.

3.2 $O((V - 1)!)$ V is the number of vertices there is in the graph.

3.3 For 50 clients, it would produce 49! that would be 50 vertices, and we wouldn't need to calculate the time of the algorithm to know that it is not applicable for this large problem.

3.4 The data structure we used in this algorithm is an array of n elements, where each entry represents a row in a chess table (and every column (c) represents by the position in the array). Then we have that every queen is located in a different row and column from the rest, so then we have to start a permutation of the n elements we had, and we do that in a recursive way, where the first queen is located in the first k row, and then in $k+1$, we put in every column one queen and we see which one doesn't attack with the one in row k and continue that process until we put the n queens.

3.5 $O(n!)$

3.6 N represents the size of the array. K is a row, and C is a column.

4) Practice for midterms

4.1.1 actual < maximo

4.1.2 $O(n^2)$

4.2.1 arr, $k+1$

4.2.2 $O(n!)$

4.3.1 $i - \text{path.length}();$

4.3.2 $\text{txt.length}();$

4.3.3 $O(n)$

4.4.1 $\text{temp} \% 10$

4.4.2 b

4.5.1 $i=1$

4.5.2 $\text{LEFT} == \text{RIGHT}$

4.5.3 $O(n^2)$

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