Laboratory practice No. 2: Brute Force

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3) Practice for final project defense presentation

3.1 The problem was solved using brute force and DFS (Depth first search) by a recursive function that takes the index of a node and starts exploring one of its adjacent nodes. After reaching a new vertex, it explores a new adjacent vertex until there is nothing connected to that vertex. Then, it comes back and repeat the process recursively. To avoid visiting a node more than once, it is used a boolean visited array. The minimum cost, it is defined by calculating all the permutations and choosing which has the low cost.

3.2 The complexity of the Hamiltonian path is **O(V*E).**

3.3 The letter “V” represents the number of vertex and the letter “E” of edges.

3.4 For this algorithm were implemented two different data structures. In the first place, to represent the board was used a matrix with n rows and n columns. On the other hand, an array was made to put a queen in a specific position, where the array indexes symbolize the columns, and the values symbolizes the rows of the board. This algorithm works by iterating recursively the columns after verifying with a conditional if a queen can be placed in a row. Besides, another conditional is needed to check if there is not an asterisk in the board position.

3.5 The complexity of the n-queens algorithm is defined by **$O(n^2)$**.

3.6 The letter “n” represents the number of row and columns of the matrix.

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4) Practice for midterms

4.1

4.1.1 if(actual > maximo)
4.1.2 $O(n^2)$

4.2

4.2.1. ordenar(arr, k+1)
4.2.2 $O(n^2)$

4.3

4.2.1 return i – j
4.2.2 n
4.2.3 O(n)

4.4

4.5

4.5.1 int j = i + 1
4.5.2 left = right

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