

Laboratory practice No. 5: Divide to conquer & Dynamic Programming

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3) Practice for final project defense presentation

3.1 The data structure used was the matrix, we used two of them, one for the costs of the traveled cities, another one for the number of things carried. The algorithm basically traverses through the matrix of costs in order to find the cheapest ways of the graph.

3.2 It would have a complexity of $O(2^n)$.

3.3 It uses arrays as data structures, and the algorithm seeks to pass through the points where we have to deliver the address, since it would be inefficient to go through the entire graph. The distance between two delivery points is calculated by the distance in the space where these points are located, however this is facilitated if you have the graph.

3.5 $O(n^2)$

3.6 n is the length of the matrix.

4) Practice for midterms

4.2

4.2.1 $O(\text{lenx} * \text{leny})$; **4.2.2** `table[lenx][leny]`;

4.2.2 `table[lenx][leny]`;

4.5

4.5.1 $T(n) = T(n/2) + C$ que es $O(\log n)$

4.5.2 `a[mitad]` **4.5.3** `a, mitad + 1, de, z`

4.6

4.6.1 `scm[i] = 1`;

4.6.2 `scm[i] = 1 + scm[j]`;

4.6.3 `max = scm[i]`;

4.6.4 $O(n^2)$;

4.7

4.7.1 `d[i][j]` ;

4.7.2 `d[k][j]`;

4.7.3 `d[i][k]`;

4.7.4 $O(n^3)$;