# Laboratory practice No. 5 Divide and conquer, dynamic programming

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**3) Practice for final project defense presentation**

3.1

The Held Karp algorithm:

There are 2 possible cases in each iteration:

A) A base case where we already know the answer. (Stopping condition)

B) Decreasing the number of considered vertices and calling our algorithm again. (Recursion)

Explanation of every case:

A) If the list of vertices is empty, return the distance between starting point and vertex.

B) If the list of vertices is not empty, lets decrease our problem space:

1) Consider each vertex in vertices as a starting point ("initial")

2) As "initial" is the starting point, we have to remove it from the list of vertices

3) Calculate the cost of visiting "initial" (costCurrentNode) + cost of visiting the rest from it ("costChildren")

4) Return the minimum result from step 3

the implementation of the algorithm, which do not show all the possible routes, just the optimal one.

https://github.com/Sinclert/Heuristics-TSP

3.2

This problem can also solved whit Lin-Kernighan heuristic, K-opt algorithm, DFS,

***4) Practice for midterms***
*1.1 )*

*2.1) O( len x * len y)*
*2.2) return table [lenx][leny];*

*3.1) a) O(n)*
*3.2) a) Porque T(n) = c1:n + c2*

*4) C) O(2´n) y se optimiza con programación dinámica*
*5.1) C*
*5.2) a[mitad];*
*5.3) (a , mitad , de , z );*

*6.1) sem[i] = 1;*
*6.2) sem [j] = sem[j];*
*6.3) max++;*
*6.4) c) O(n´2)*

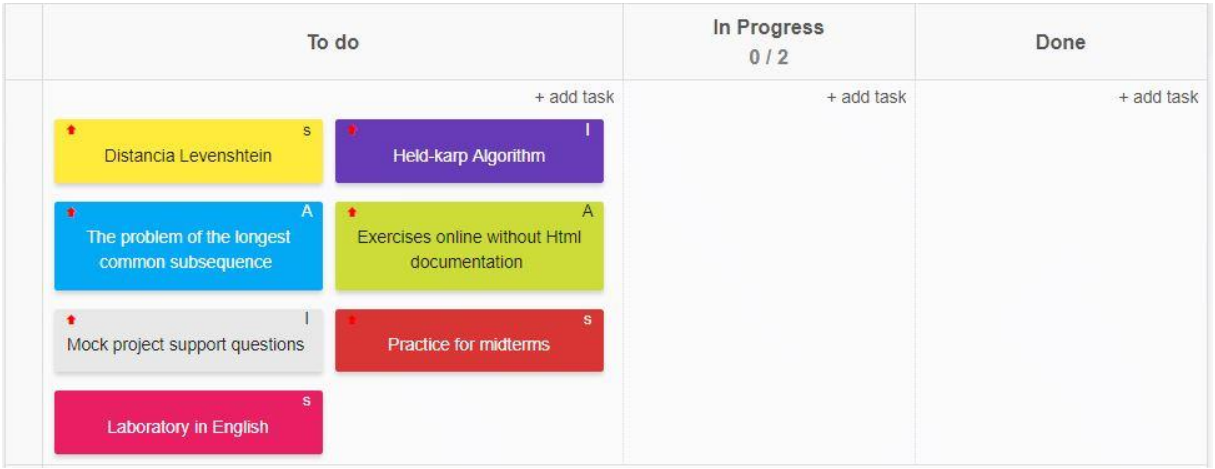
*7.1) g[i][j]*
*7.2) g[k] [i]*
*7.3)g[i][k]*
*7.4)O)n'3*

**6) Team work and gradual progress (optional)**

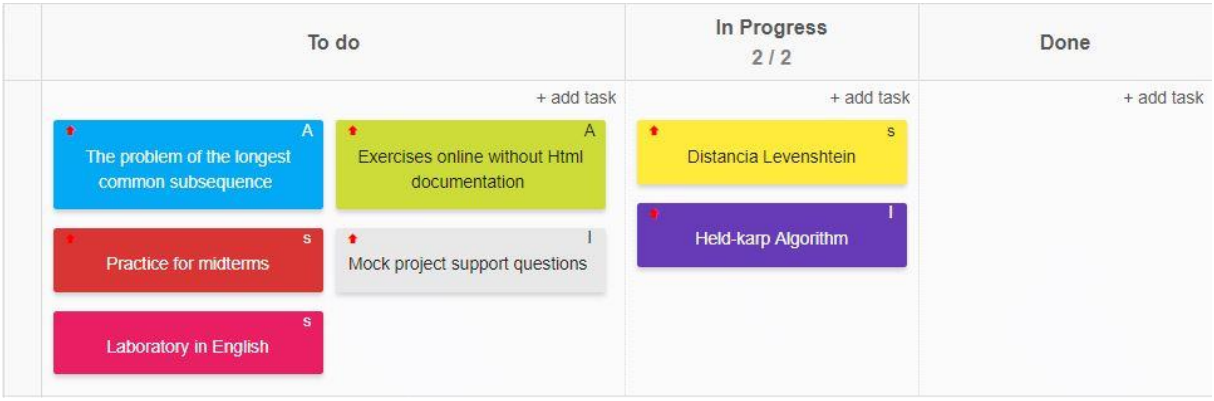
Use of website: Kanban Table
https://www.kanbantool.com/

Gradual progress

First day: 10/10/2018




Second day: 11/10/2018

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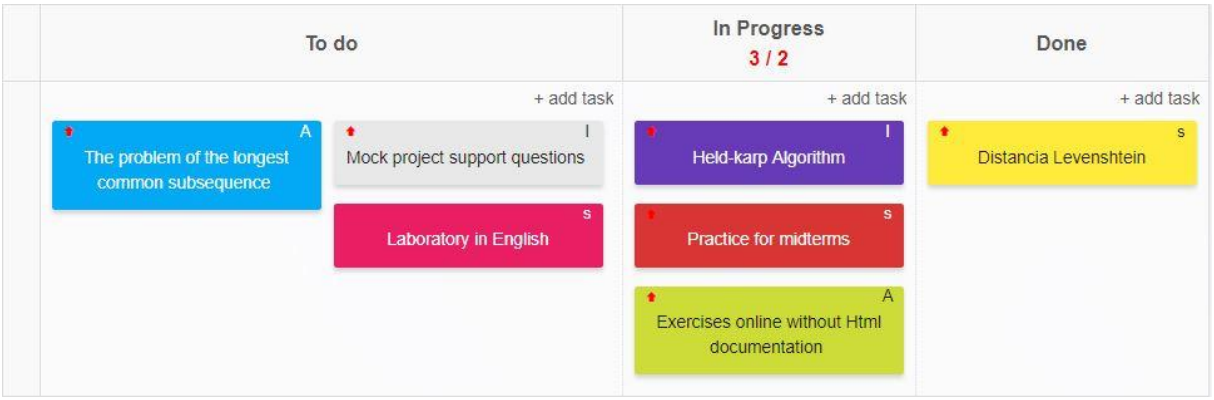
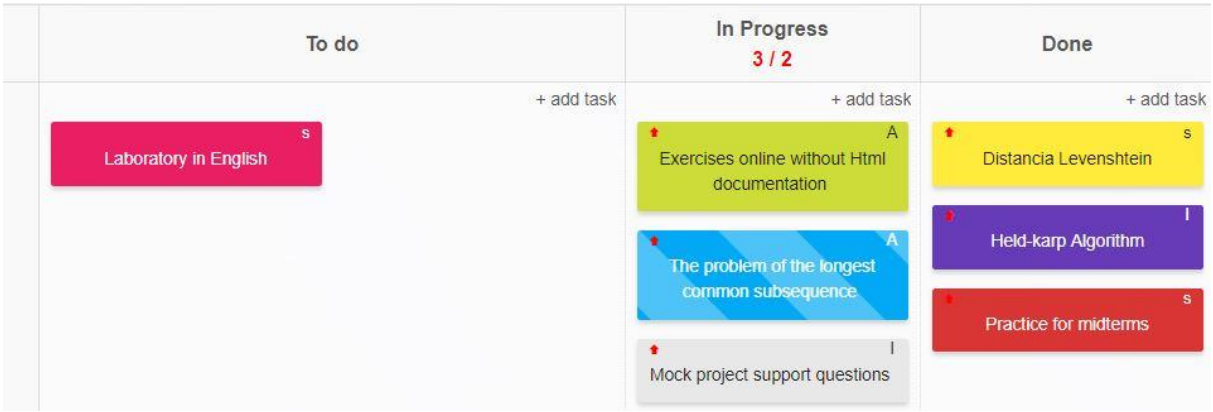
Third day: 12/10/2018




Fourth Day: 13/10/2018




Fifth day: 14/10/2018

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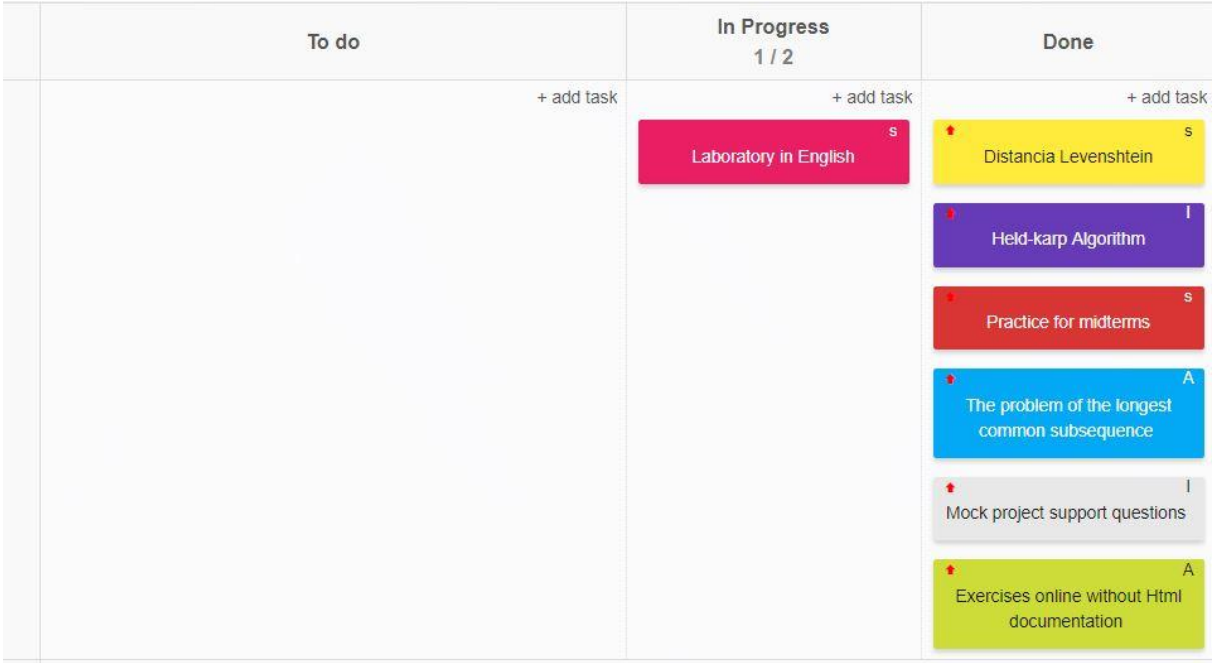
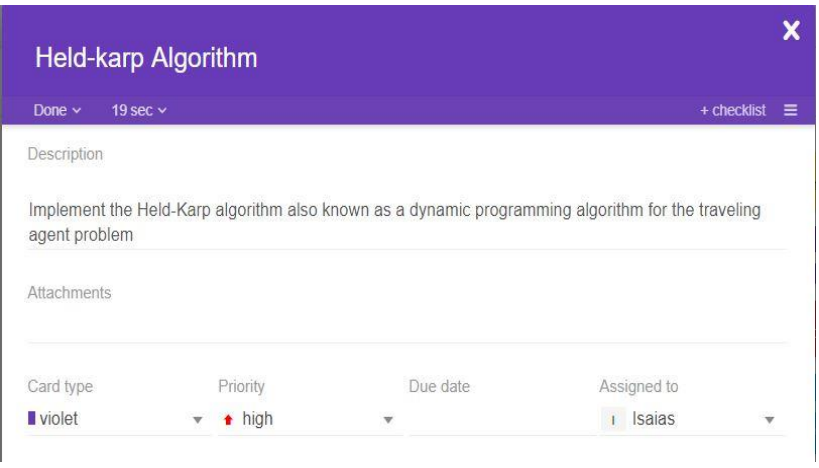
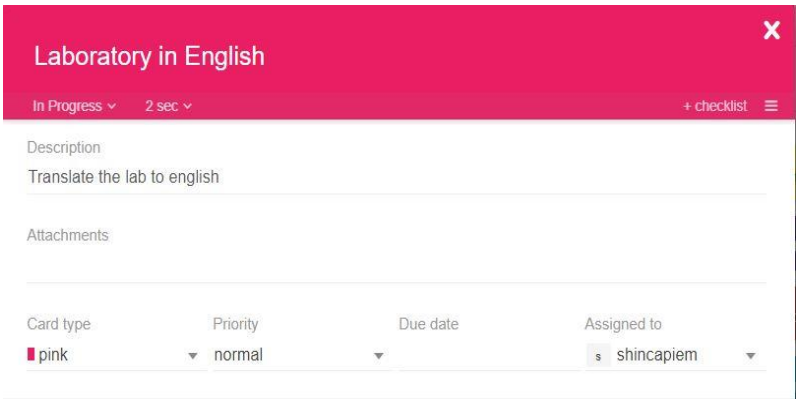



Role of each member

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| UNIVERSIDAD EAFIT | UNIVERSIDAD EAFIT<br>SCHOOL OF ENGINEERING<br>DEPARTMENT OF INFORMATICS AND SYSTEMS | Code: ST245<br>Data Strucures 1 |
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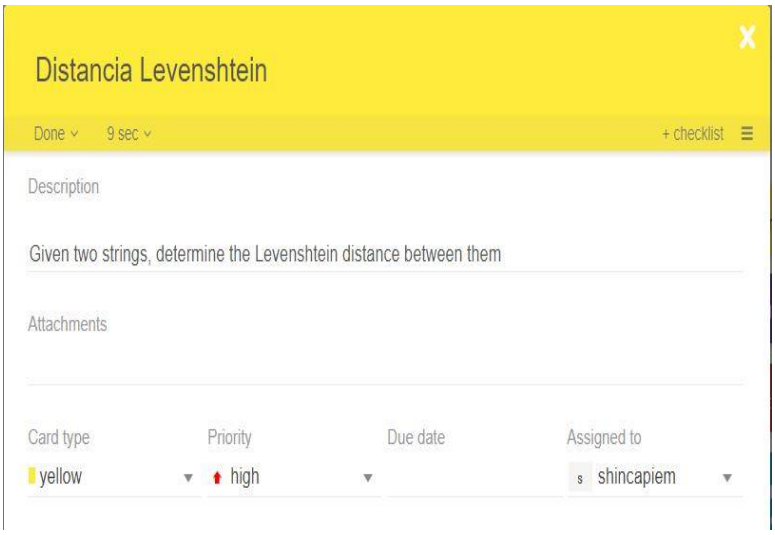


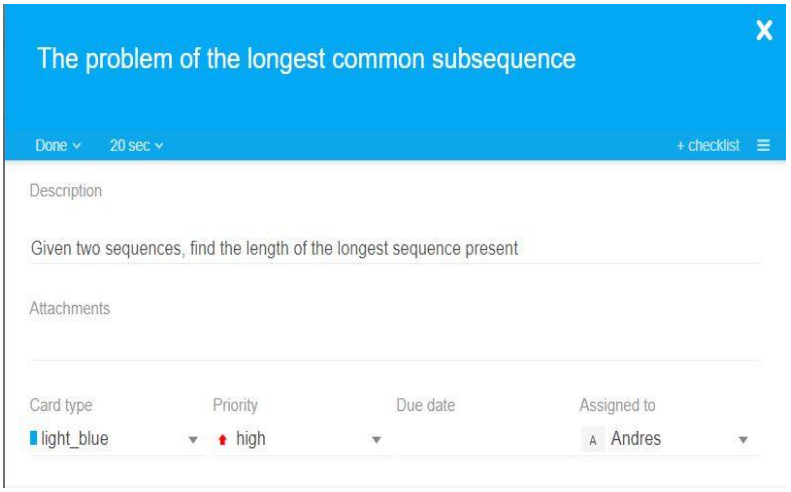


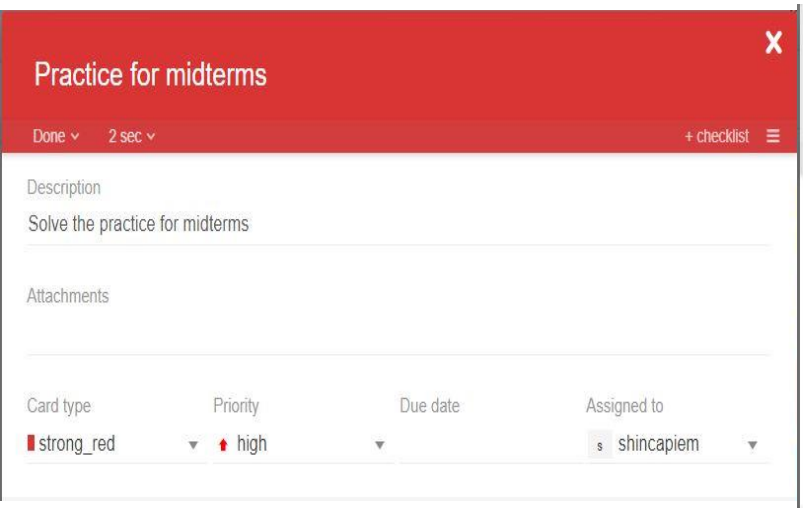


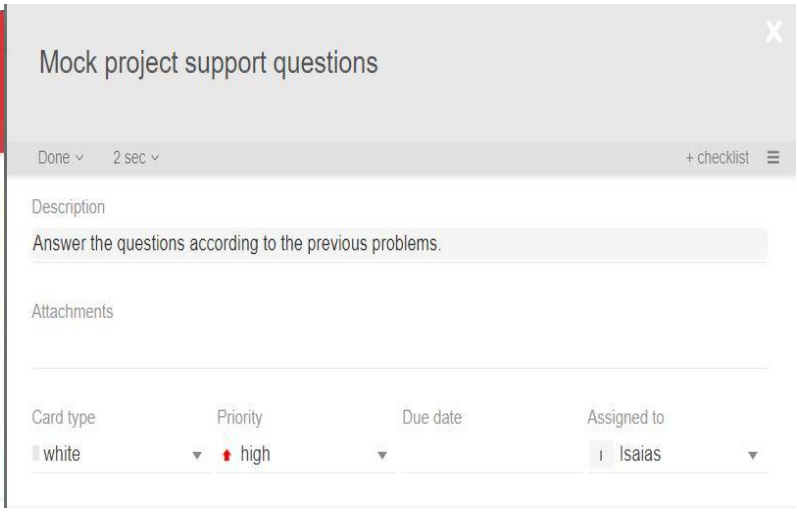


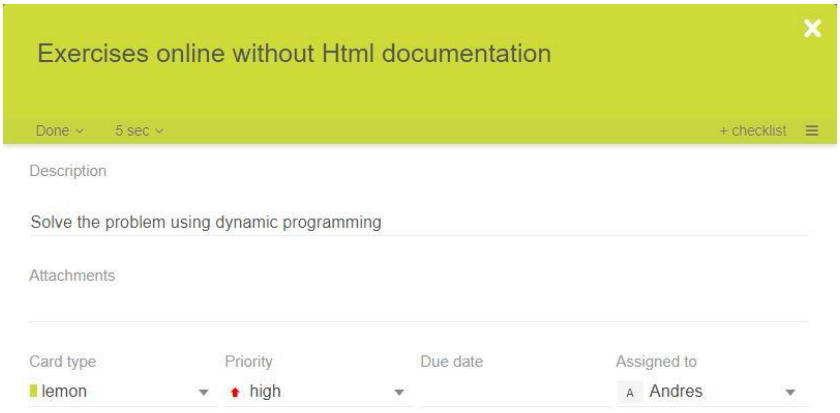


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