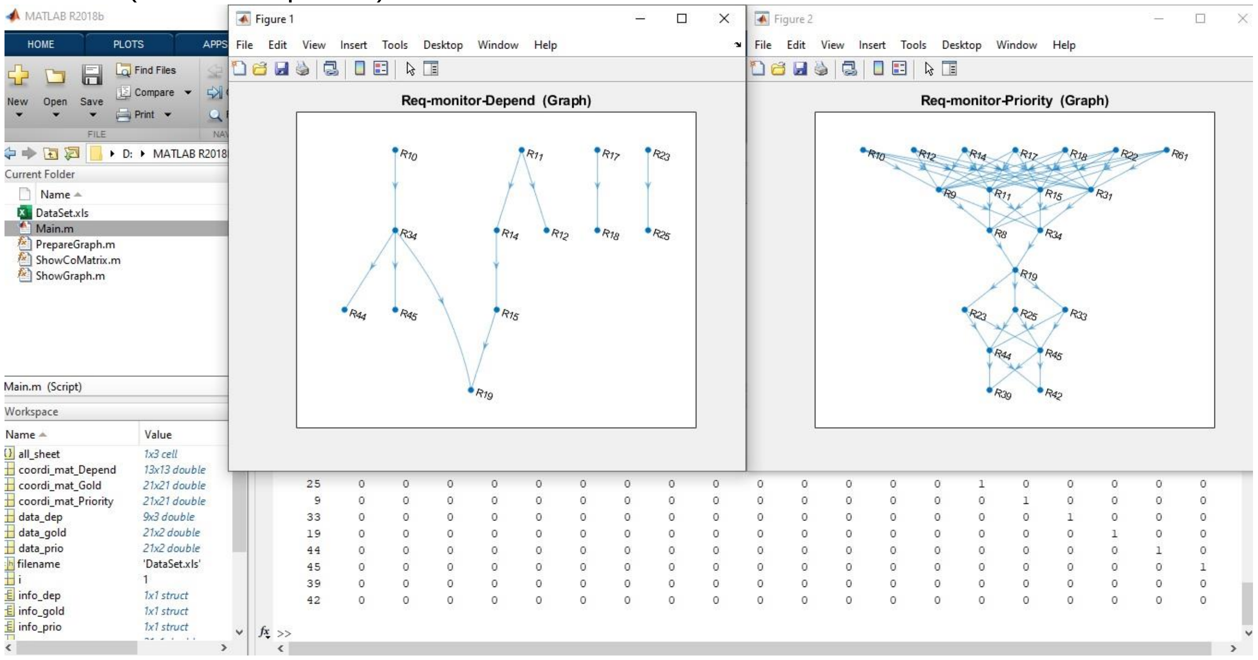
Progress Report by Saeed

Friday, April 2, 2021

There were several milestones that I should work on those. The first three is working properly as I explain it bellow.

1- The ALGA algorithm is uploaded in overleaf.
2- I understood the data set and I could transform it to be shown as a graph to a user. By running the main.m file, we can see the result. In bellow sample the monitor scenario is active. (The Git is updated)

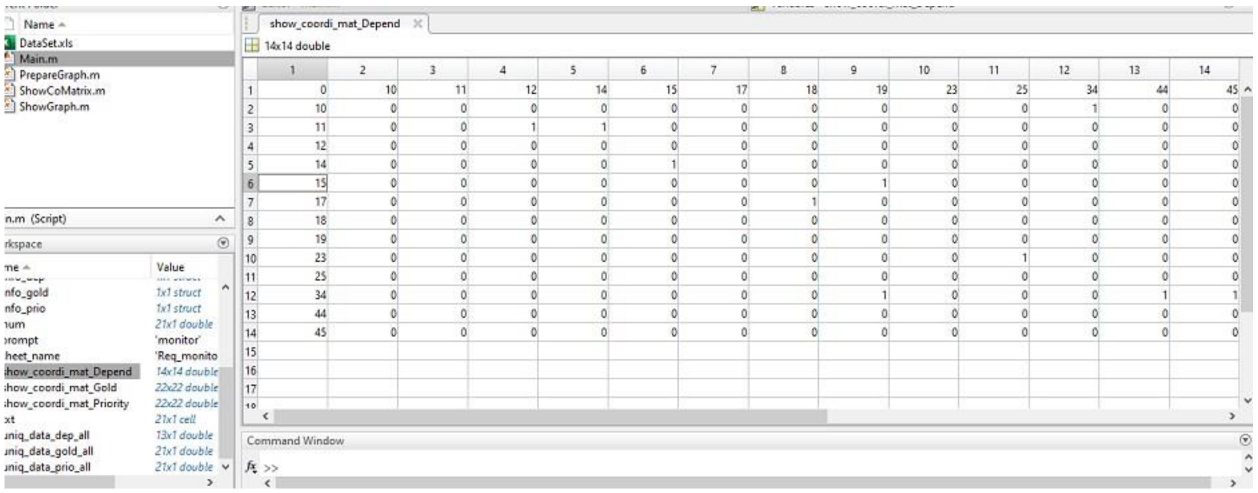


Name	Value
all_sheet	1x3 cell
coordi_mat_Depend	13x13 double
coordi_mat_Gold	21x21 double
coordi_mat_Priority	21x21 double
data_dep	9x3 double
data_gold	21x2 double
data_prio	21x2 double
filename	'DataSet.xls'
i	1
info_dep	1x1 struct
info_gold	1x1 struct
info_prio	1x1 struct

```
    25    0    0    0    0    0    0    0    0    0    0    0    0    0    0    1    0    0    0    0    0
     9    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    1    0    0    0    0
    33    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    1    0    0    0
    19    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    1    0    0
    44    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    1    0
    45    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    1
    39    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
    42    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0

fx >>
```

As you explained to me, the matrix should present the graph in a proper way. In order to solve this issue, for example if we open the "show_coordi_mat_Depend "matrix, it clearly shows the name of the nodes and the relation between them (Edges with the value of "1" in matrix)



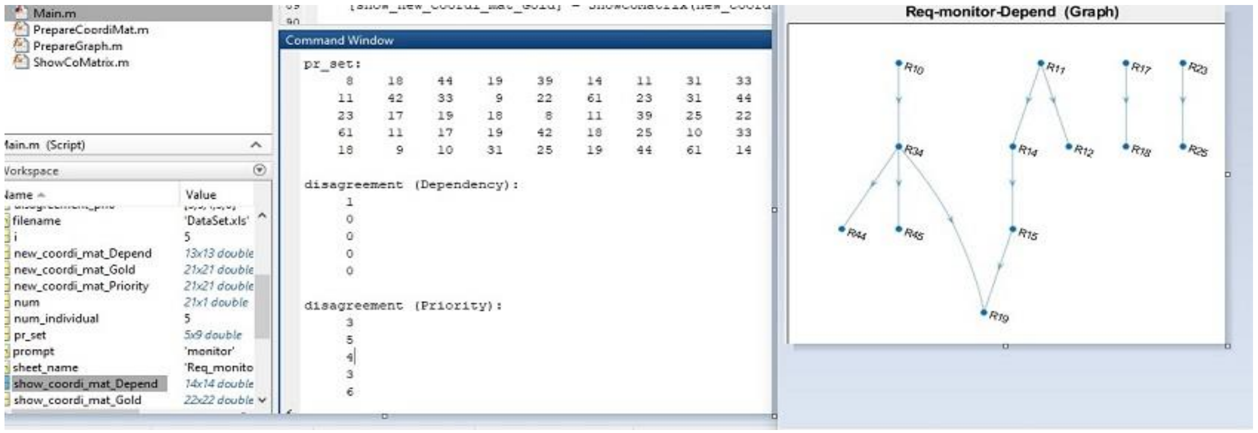
me	Value
nfo_gold	1x1 struct
nfo_prio	1x1 struct
ıum	21x1 double
prompt	'monitor'
heet_name	'Req_monito
how_coordi_mat_Depend	14x14 double
how_coordi_mat_Gold	22x22 double
how_coordi_mat_Priority	22x22 double
xt	21x1 cell
ıniq_data_dep_all	13x1 double
ıniq_data_gold_all	21x1 double
ıniq_data_prio_all	21x1 double

show_coordi_mat_Depend

14x14 double

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	0	10	11	12	14	15	17	18	19	23	25	34	44	45
2	10	0	0	0	0	0	0	0	0	0	0	1	0	0
3	11	0	0	1	1	0	0	0	0	0	0	0	0	0
4	12	0	0	0	0	0	0	0	0	0	0	0	0	0
5	14	0	0	0	0	1	0	0	0	0	0	0	0	0
6	15	0	0	0	0	0	0	0	1	0	0	0	0	0
7	17	0	0	0	0	0	0	1	0	0	0	0	0	0
8	18	0	0	0	0	0	0	0	0	0	0	0	0	0
9	19	0	0	0	0	0	0	0	0	0	0	0	0	0
10	23	0	0	0	0	0	0	0	0	0	1	0	0	0
11	25	0	0	0	0	0	0	0	0	0	0	0	0	0
12	34	0	0	0	0	0	0	0	1	0	0	0	1	1
13	44	0	0	0	0	0	0	0	0	0	0	0	0	0
14	45	0	0	0	0	0	0	0	0	0	0	0	0	0
15														
16														
17														

3- The next milestone was about the implementation of the “fitness function”. The point in this function is about calculation the disagreement. By running the main.m file, we can see the result. In bellow sample the monitor scenario is active. Based on the induvial that we have, the disagreement against constrains and the sum of the disagreement (dep &Prio) are calculated. The result is saved in “disagreement_dep” matrix. At this stage we do not need to show the pairwise result but in final version when the graph is encoded, the user can see the result.



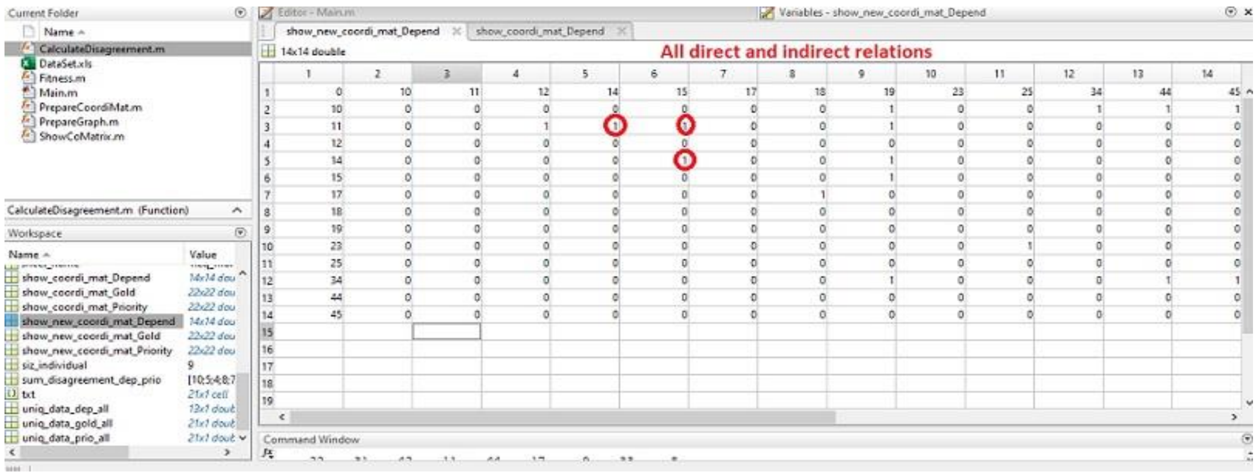
Name	Value
filename	'DataSet.xls'
i	5
new_coordi_mat_Depend	13x13 double
new_coordi_mat_Gold	21x21 double
new_coordi_mat_Priority	21x21 double
num	21x1 double
num_individual	5
pr_set	5x9 double
prompt	'monitor'
sheet_name	'Req_monito
show_coordi_mat_Depend	14x14 double
show_coordi_mat_Gold	22x22 double

```
pr_set:
     8    18    44    19    39    14    11    31    33
    11    42    33     9    22    61    23    31    44
    23    17    19    18     8    11    39    25    22
    61    11    17    19    42    18    25    10    33
    18     9    10    31    25    19    44    61    14

disagreement (Dependency):
     1
     0
     0
     0
     0

disagreement (Priority):
     3
     5
     4
     3
     6
```

Another issue that you mentioned in our last meeting, was about the transformation.
For example, if (R11-> R14) && (R14->R15) => R11->R15
The above rule should be presented in a matrix. In order to solve it, when I calculate the disagreement by looking at the previous steps, another matrix is created that presents the direct and indirect relations based on the graph(show_new_coordi_mat_Depend).



Name	Value
show_coordi_mat_Depend	14x14 dou
show_coordi_mat_Gold	22x22 dou
show_coordi_mat_Priority	22x22 dou
show_new_coordi_mat_Depend	14x14 dou
show_new_coordi_mat_Gold	22x22 dou
show_new_coordi_mat_Priority	22x22 dou
siz_individual	9
sum_disagreement_dep_prio	[10;5;4;8;7
txt	21x1 cell
uniq_data_dep_all	13x1 dout
uniq_data_gold_all	21x1 dout
uniq_data_prio_all	21x1 dout

14x14 double

All direct and indirect relations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	0	10	11	12	14	15	17	18	19	23	25	34	44	45
2	10	0	0	0	0	0	0	0	1	0	0	1	1	1
3	11	0	0	1	1	1	0	0	1	0	0	0	0	0
4	12	0	0	0	0	0	0	0	0	0	0	0	0	0
5	14	0	0	0	0	1	0	0	1	0	0	0	0	0
6	15	0	0	0	0	0	0	0	1	0	0	0	0	0
7	17	0	0	0	0	0	0	1	0	0	0	0	0	0
8	18	0	0	0	0	0	0	0	0	0	0	0	0	0
9	19	0	0	0	0	0	0	0	0	0	0	0	0	0
10	23	0	0	0	0	0	0	0	0	0	1	0	0	0
11	25	0	0	0	0	0	0	0	0	0	0	0	0	0
12	34	0	0	0	0	0	0	0	1	0	0	0	1	1
13	44	0	0	0	0	0	0	0	0	0	0	0	0	0
14	45	0	0	0	0	0	0	0	0	0	0	0	0	0

Generally, If I want implement an operator in each milestone individually just to pass the milestone, it seems that it will take time more than it should. Because the result of each step has direct effect on next step. Probably I cannot give further progress in our next meeting (5th April). But currently I am working on operator implementation. Although, my progress is not as fast as I expect but I think I can finish it in 10 days and move to next step.

I have one question;

it is about the use case of GS. For example, we have an individual that has its own disagreement with regarding to the Pri and Dep. We can follow the same rule for that individual and find the disagreement with looking at the GS of that specific scenario and find the exact number for it. If we want this, I think a function can do that.

But if I remember correctly, at the end, I need to compare my set (the order that I have in my set) and the order in GS of that specific scenario and find the number of pairs that are in the reverse order or in the opposite order.

1- So, I should look for the pairs or just the number to present?
2- We have three sheets (*Req_all_gold, Req_all_Priority, Req_all_Depend*). What would be the general point of running the program and compare it with these sheets? It seems that I should just look at it as a separate scenario.