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How many people were at your Passover evening?

And how long it took you to decide who sits where?

we wanted to solve this problem in one easy click (or maybe just a little bit more)
All you have to do is to take a picture of your table and tell us who is the annoying aunt you want to sit away from you, and who is inseparable.

How does it work?

01
Detecting the table's seat layout

02
Adding guest names And constrains

03
Using label relaxation

04
Returning the best sitting arrangement

Stage 1: Detecting the table's seat layout

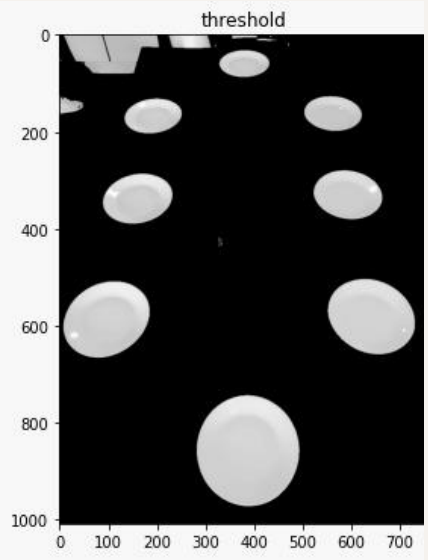
Using an image of the dining table, we want to find:

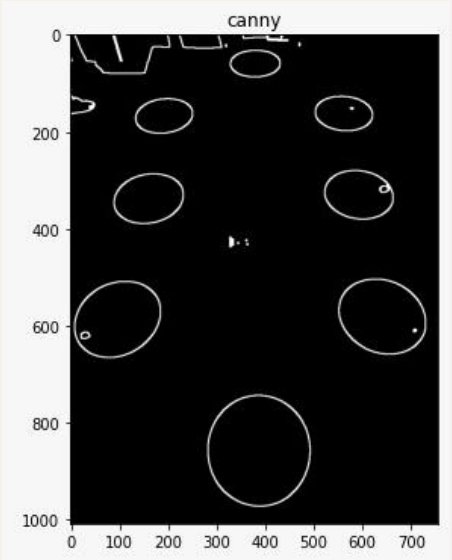
- How many seats there are
- Which seats are next to each other
- Which seats are across one another

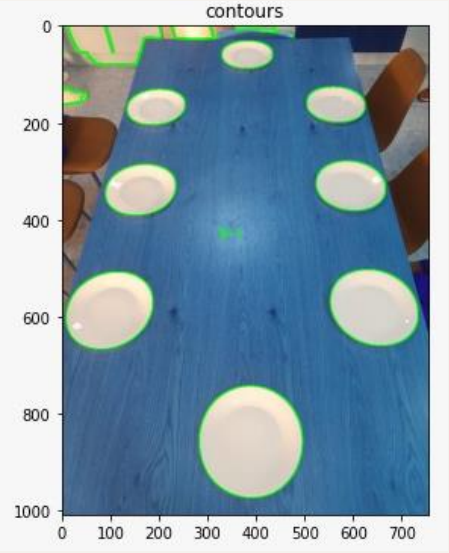
How? By detecting the plates on the table!

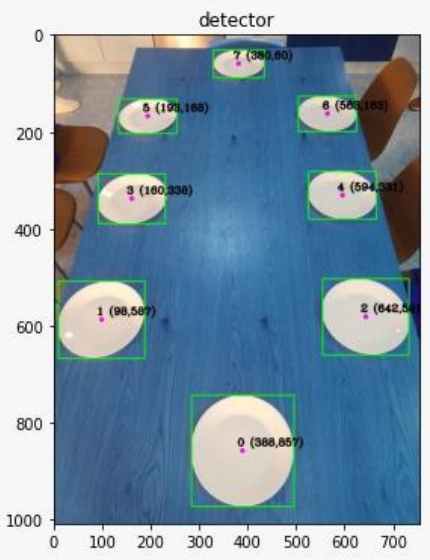
Plates detection

Setting a threshold → Canny edge detector → Finding contours → Finding the plates

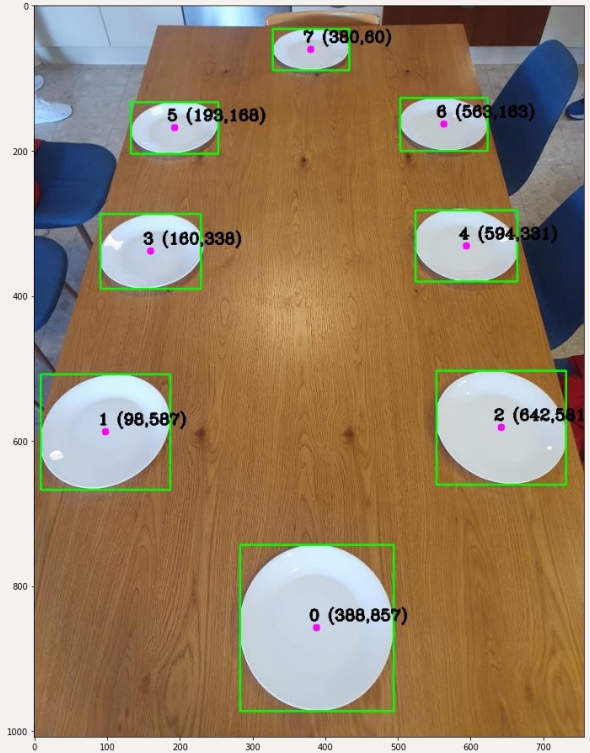


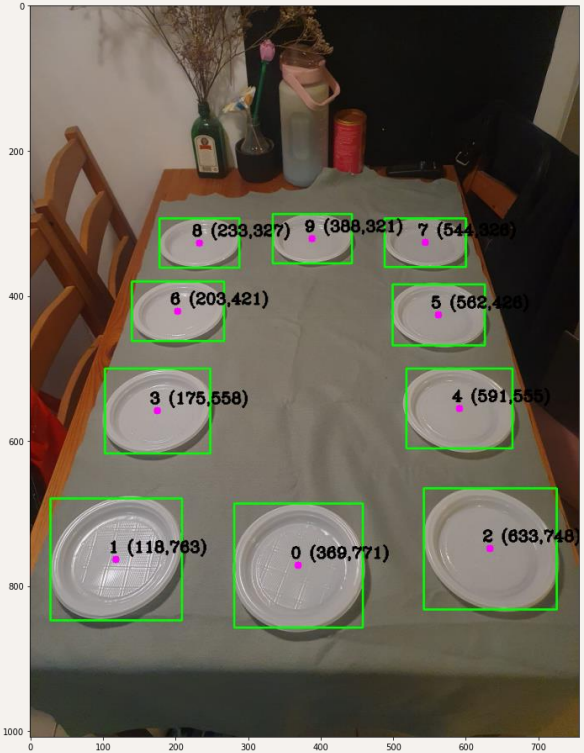


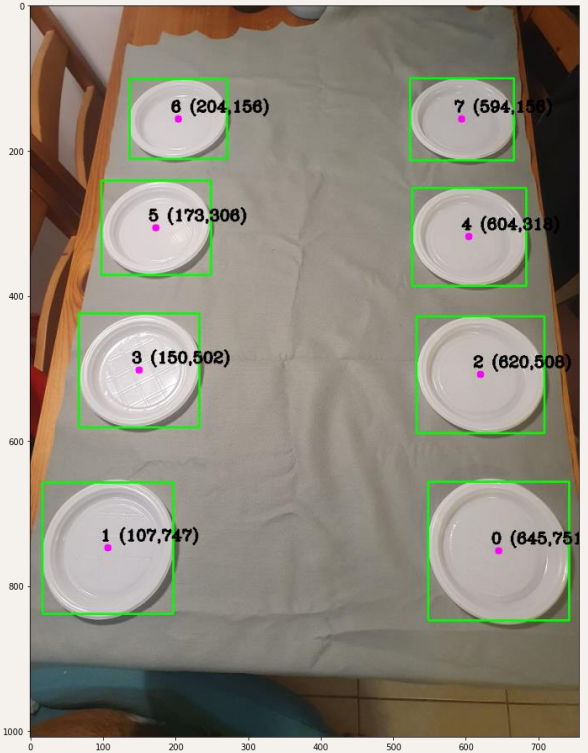




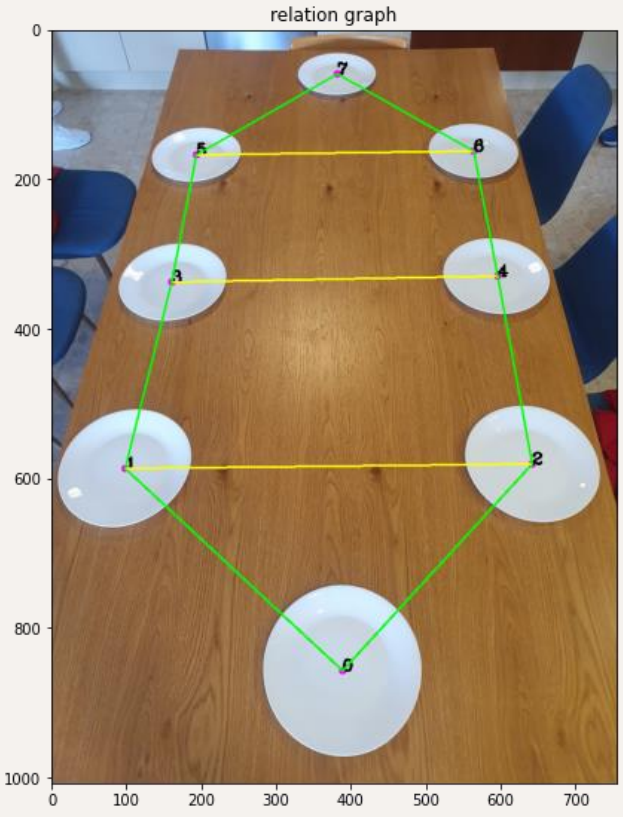
Detector Results





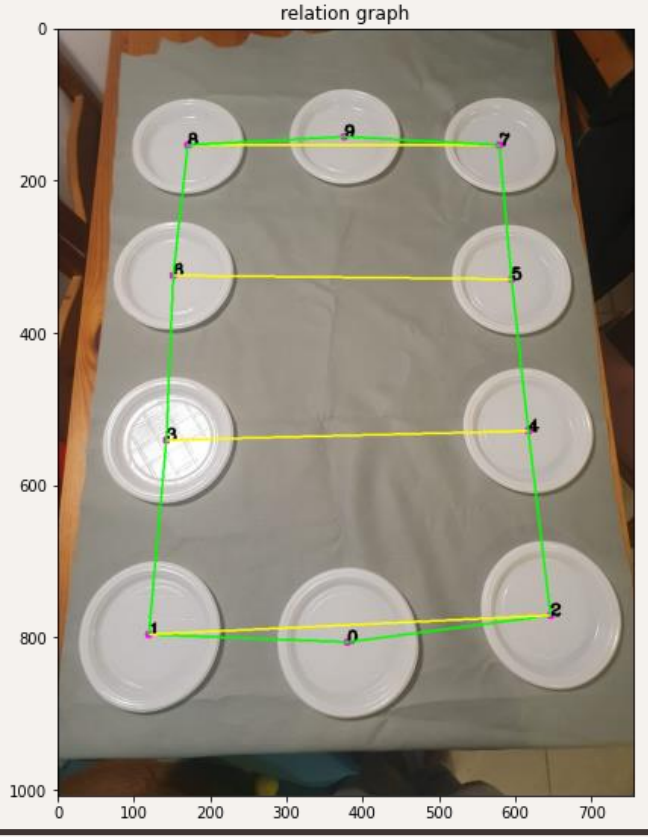


Relations between seats



= near

= across



Stage 2: Adding guest names and constraints

The user enters names of the guests around the table.

- Paying attention to the number of detected spots

The user also provides pairs of people who want to sit together, or sit far away from each other (for example – your boyfriend wants to sit next to you, but not your father…)

We build a symmetrical constraints matrix to represent the relationships between the people

Stage 3: using label relaxation

Using an adaptation of the Relaxation Algorithm we learned in class, we find the best overall sitting arrangement

We picked the

Guest names

To be the Labels

And the

Sitting spots

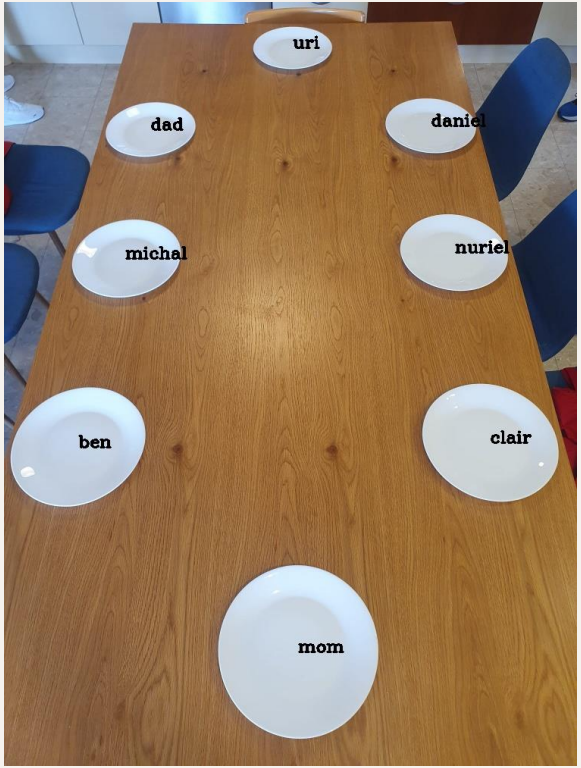
To be the Objects

- The original order of insertion is the initial assignment
- Unlike the original algo, assigning a label to 2 different objects is not allowed

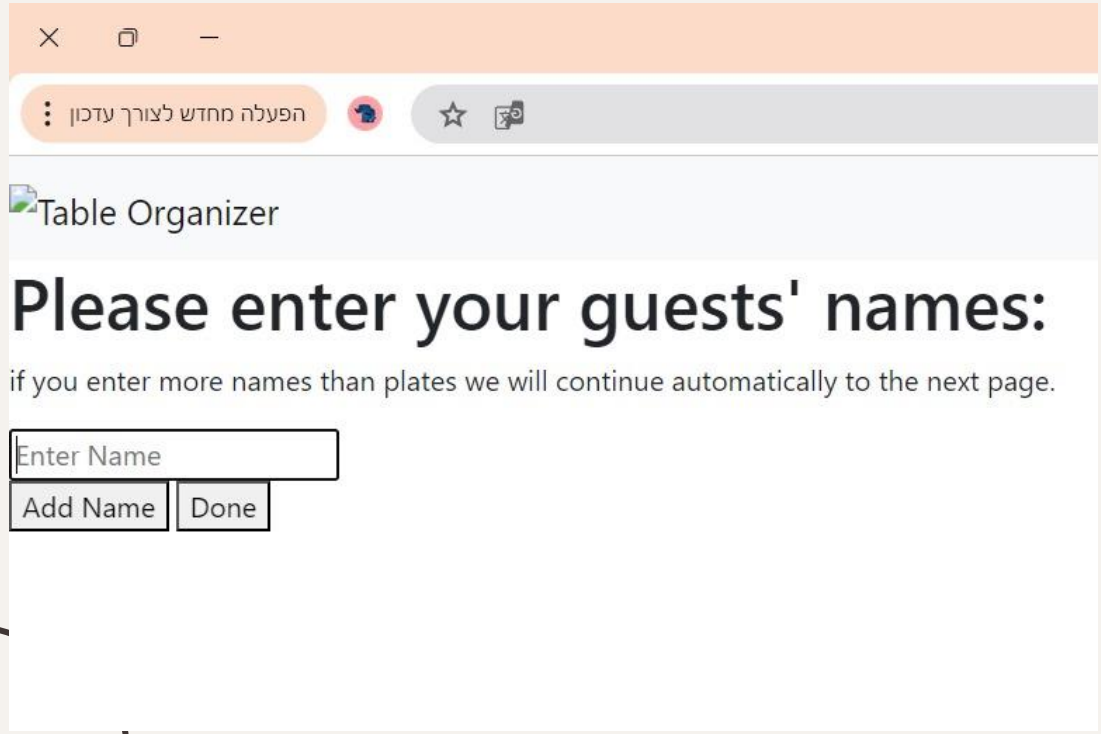
Stage 4: finding the best arrangement

We find the best arrangement possible according to the constraints

We can’t promise everyone will end up happy, but we sure try...



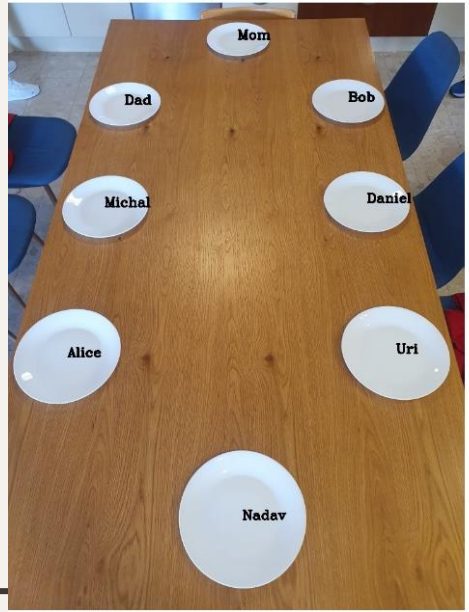
User Interface: Flask Website



User Interface: Flask Website

TABLE ORGANIZER

Your Sitting Arrangement for today:



הפעלה מחדש לצורך עדכון

Select two names and their seating preference:

Michal Uri

Preference:

Like each other Dislike each other

Submit Done

Thanks for listening!