MATLAB Homework

Deadline: June 21st

Email: signalspring2022@gmail.com

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project: solving a puzzle

In this project you are tasked with proposing and implementing an algorithm that solves a 4*4 puzzle using MATLAB. In the input, there are 16 pieces of a puzzle that are needed to be placed next to each other in order to make a bigger picture. To not make the project harder than it already is, pieces are not rotated in any way and you only need to find the correct place of each piece in a 4*4 structure. Also, to give you a head start, the image is surrounded by a rectangle of black pixels. This way if your algorithm detects a piece with black pixels at its first row and column, you are sure that it belongs to position '*a*' in Fig.1 and so on.

Your main challenge is to find the correct pieces for positions '*f*', '*g*', '*j*' and '*k*' because there is no guide from black pixels in those positions. Develop an algorithm that solves this challenge. As a hint I can say that rows and columns in boundary positions of the pieces, play a pivotal role in finding a solution. It is obvious that your algorithm shall be able to solve any 4*4 puzzle and not just the attached puzzle, so feel free to develop your code based on other 16 pieces of your own choosing, as long as you keep the structure of Fig.1, it is totally okay.

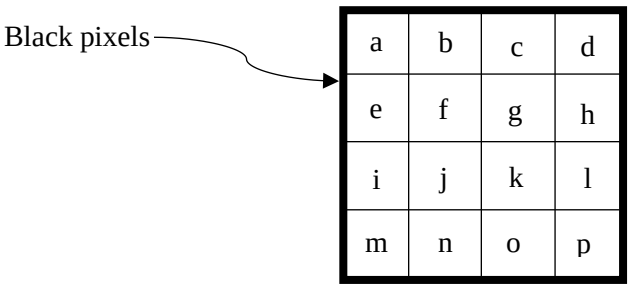

Figure 1. the solved puzzle

About submission:

Send your .m files and results along with a detailed report (in .pdf format) in a single .rar file to the email address of the class before the deadline is reached. **For this project you can work in groups of two**. There will be a presentation session for all the groups in which you will present your algorithm and show your results and we will learn a lot from your experience and challenges you faced in the process.

submission won’t be considered if:

- It is sent after the deadline (June 21_{st})
- There is no report explaining your work.

Good luck :)
