ASSIGNMENT 2

Q1) JIGSAW SOLVER

a) In the input jigsaw.jpg image, as shown in the figure, some portions and sections are misaligned or jumbled. As taught in the previous session, an image is actually a matrix. So, you need to perform rearrangements of the sub-matrices (i.e. pieces of the jigsaw puzzle which are not at their place), to solve the puzzle. Create a google colab file which will contain the code and finally output the solved image.

The image will be provided in the discord channel (check the channel). Do not take a snippet of this image because that may create different dimensions of image for all of you, if you do not take a perfect image. This image is just for demonstration.

Try to add comments in your code, so that it is easier for you as well as us to debug in case need arises.

b).py or .ipynb?

PLAYING WITH COLAB AND PYTHON FILES

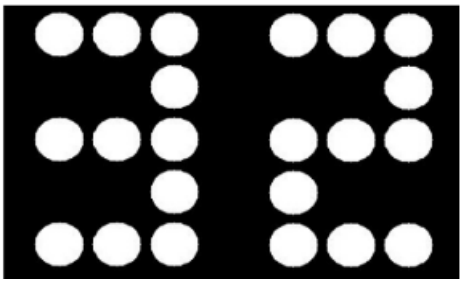
Write a python program file jigsolver.py, which solves the same question. The program should accept command line file path for input jigsaw.jpg and directly store the jigsolved.jpg file at the current location where the command.

{$python jigsolver.py ./jigsaw.jpg} is being executed.

Q2) **DOT MATRIX DISPLAY**

Dot Matrix displays are mostly used in LED sea markers or places where we need to put numbers for people's attention.

There are some rules to it though. Each dot in the dotmatrix should be a circular disc of white or black colour with a radius of 25 pixels, taking into account the Mach band effect and the spatial frequency response properties of human visual systems.



15 discs can make up each number from 00 to 99 (row x col - 5 × 3). Height and width of dot matrix image should be 300 × 500 and it should be grayscale (unsigned int) having any pixel value to be either 0 or 255. (Recall which pixel value represents white and which one will represent black)

For an input of a 6 digit number (say someone's roll number may be), you need to extract the last two digits and represent in the dot matrix format.

Create a google colab file which will contain the code. It will take an input of a 6 digit number and output an image which will actually be a dot matrix representation of the last two digits in the order.

Have FUN!!