Marks extraction from Answersheets (Image) in Tabular Form

There are three python files which act as modules and perform three seperate functions, and one main.py. These three files are -

- **extract_ROI.py**
  - Rectifies the orientation of the image to portrait form.
  - Extract the ROI (Table containing marks), with help of Canny Edge Detection, Contour Detection, and Perspective Transformation.
  - Detect each individual cell of the table, using Hough Transformation (Line Detection).
- **number_extraction.py**
  - Remove extra border pixels from the cells using color based thresholding in HSV color space.
  - Binary Thresholding and morphological closing on each cell.
  - Used Contour Detection to extract individual digits and decimal point using some area approximation.
- **number_detection.py**
  - Thresholded (OTSU's Binarization) and resized the image of each digit into 28x28.
  - Used MNIST based digit prediction model (After some manual training upon pre-existed model) to detect each digit of the cells.