Labeling Guidelines

1) To begin clone or pull from git hub. The file that you will be using is called LabelData.py (since this is just a temp file we will be using for labeling data it is not important that it is named this).
2) Open up LabelData.py and change the paths of all of the folders. It is an easy change to make it universal paths, however, it is not super important if you do or don't implement this. It is important that you name the folders correctly, so maybe just keep the default ones that I have put into place.
3) Quick description of the different files:
    1. RawData – Contains the raw images, when you add the pictures (step 4) you will be placing them into this folder.
    2. DoneTransforming – Every time you finish selecting the four corners of an image, the raw image will be moved to here. If for whatever reason the image was not done correctly, you can always access this file and move it back to the RawData file.
    3. CutData – Contains the images of the transformed boards. This file is mainly just a way of temp storage so that the code works with Erik's code. This file can be mainly ignored but if you want to look at them you are more then welcome to.
    4. Unlabeled – Contains the individual piece images (these will be discussed more later, but again more of a temp file before you sort it).
    5. Labeled – This contains the following folders: Pawn, Knight, Bishop, Rook, Queen, King, Empty, Garbage/Not-Sure.
4) Go into the google drive and open up your named folder. Copy these images into your RawData folder.
5) Run the program with python LabelData.py (Note: Do know that I am using cv2 and a few other libraries that may need to be installed to run the program).
6) Once you start running the program, an image will show up. Left click on the four corners of the chess board (does not matter what order). Make sure it is on the corner of the square, not the board itself, see Figure 1 and Figure 2 below.

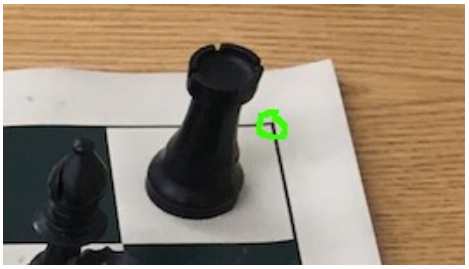

Figure 1: Good

Figure 2: Bad

7) When selecting the four corners you have three options:
    1. Press **u** to undo the most resent click.
    2. Press **c** to continue to next picture (this will only work if you have four points selected)
    3. Press **s** to stop selecting corners and move on to labeling the pieces (note, this will stop progress on the current picture, so make sure to press c and then s if you are working on one).
8) After you press **s**, it will bring up pictures of individual pieces. To sort the pieces you have the following commands: **p** or **1** for pawn, **n** or **2** for knight, **b** or **3** for bishop, **r** or **4** for rook, **q** or **5** for queen, **k** or **6** for king, **e** or **7** for empty, **g** or **8** for garbage/unsure, and **s** or **9** for stop.
9) So either finish all the images in the folder or press **s** to stop. If you ever make a mistake, just manually go into the folder that had a mistake and move it to the right folder.
10) Do note all of the shortcuts are subjective and you can change in the LabelData.py to whatever

works best for you.

11) When you are done, just hold on to the labeled data. Also you can delete any of the non labeled data (I have copies of everything), but it might be better to just hold onto it currently.

A Few Problems:

1) Right now I am scaling the images down to .25 the normal size. When doing this we lose information, so we might want a better solution.
2) Some of the pieces are cut in half due to the focal length of the iphone camera.
3) This is still not a ton of data, but we have an easy way to quadruple the data set without having to get more data.
4) The code is really sloppy cause we only need it for labeling, so don't know if we should spend time making it nicer and more efficient.