**LearnToWrite Documentation**

**Overview of Letter Creation**

8/27/21

Creating the Letter

ImageToExcel.py: The program that converts image files into excel for labeling. To start first, create a 800 x 600 picture in paint. Using the Script font in a large size, write a letter and save the file under Letter\_X.

Graphical user interface, application

Description automatically generated

Figure 1. Creation of Letter M in Paint

Save the file in the same directory as ImageToExcel.py. In ImageToExcel.py, change the file name to that letter and run the program.

A picture containing text, device, gauge, meter

Description automatically generated

Figure 2: Updating filename in ImageToExcel.py

An excel file is then created showing the coordinates of the picture.

A picture containing sky, insect, lamp

Description automatically generated

Figure 3. Letter m in Excel

From here, you can see the pixels of the letter m. All black pixels are read by LearnToWrite as 0s so all the dark spaces contain 0s. To create decision window 1, zoom in on where the letter would start. In the case of m, we are starting on the leftmost part of the image as seen below.

Chart

Description automatically generated

Figure 4. Pixels of Letter M in Excel

To make your first decision window, place two 1s in the bottom corner and top corner of the box diagonally across. LearnToWrite will be able to read these two coordinates and calculate the other points of the box. In this example, the number 1 is highlighted and the decision window as it would be created is highlighted between the two corners.

Chart

Description automatically generated

Figure 5. Creation of First Decision Window

To make additional decision windows, proceed to the number 2 with two coordinates of the number 2.

Chart, bar chart

Description automatically generated

Figure 6. The First Two Decision Windows

Diagram

Description automatically generated

Figure 7. Shows the first two decision windows

Repeat until finished.

Chart

Description automatically generated

Figure 8. All Decision Windows Shown

(The white spaces are from decision windows overlapping)

Once the decision window labeling is finished, place the finished excel file in the letter\_images file. Upon running LearnToWrite, you can select and run the program. In addition you could also use the program DecisionWindowViewer.py to see all the decision windows.