This is a semi-automatic Python code to detect and measure the Drosophila suzukii wing size. The code is written with reference to the paper **Drosophila suzukii wing spot size is robust to developmental temperature** written by Ceferino Varón-González et.al.

Note:

- Since Python couldn't detect the 500 nm reference line from the original image, the code draws a line with the same size to the original image, save the image, and then read the new image.
- OpenCV is used to detect the contour, and the contour list is sorted from top to bottom. Manually adjust the for-loop to make sure that the first contour detected is the reference line. Press <Enter> to iterate through each contour and look for the one that estimates the wing size.
- The result will be printed on the console.

How to use:

Go to mine -> final.py to run the code.

Several Things to Change Manually:

- To analyze an image, change the Global variable <path> to the route of the image.
- In the for-loop, adjust the range for cv2.contourArea() to reduce the number of contours detected.
- If needed, uncomment the last several lines in the file to look for the area for each contour, and get rid of the ones that are too small or too large.

Description about each folder:

- Dryad files: The original source code from the author of the paper
- mine: Stores python files used for the project. Compile final.py to run.
- pics: Stores original images captured from microscope
- line: New images with a 500 nm reference line drawn by OpenCV
- data: File line_coordinator.txt is used to draw the reference line