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