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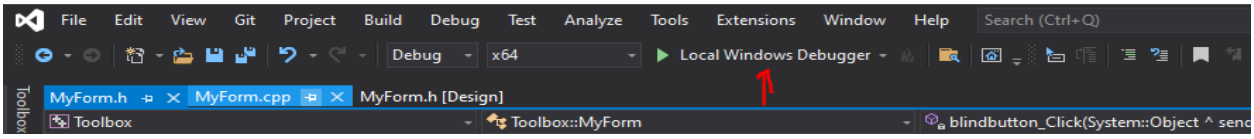
Sec: **3**

Id: **18414**

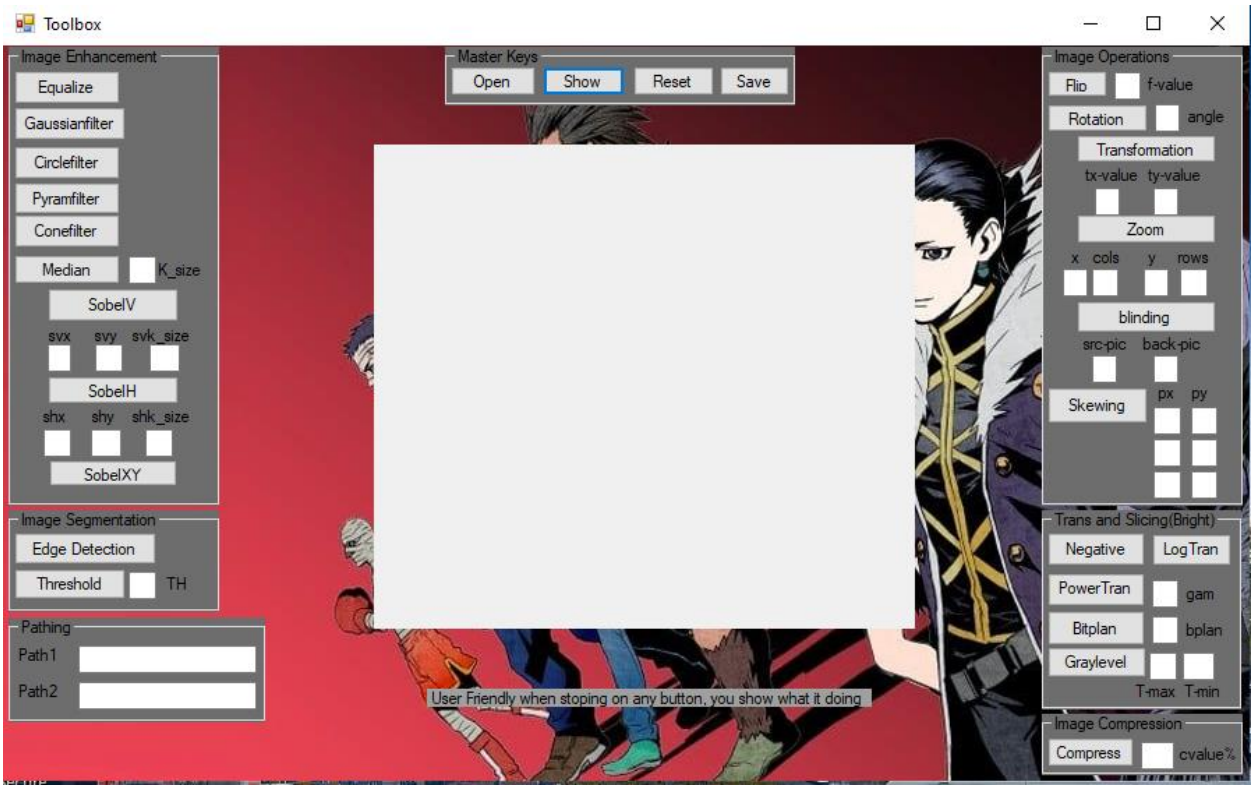
Project: **Image Digital Processing**

Steps to run Tool-Box: -

1) You should download visual studio 2019
2) You should download OpenCV version 3.4.1
3) Open Toolbox.sln
4) Run the project

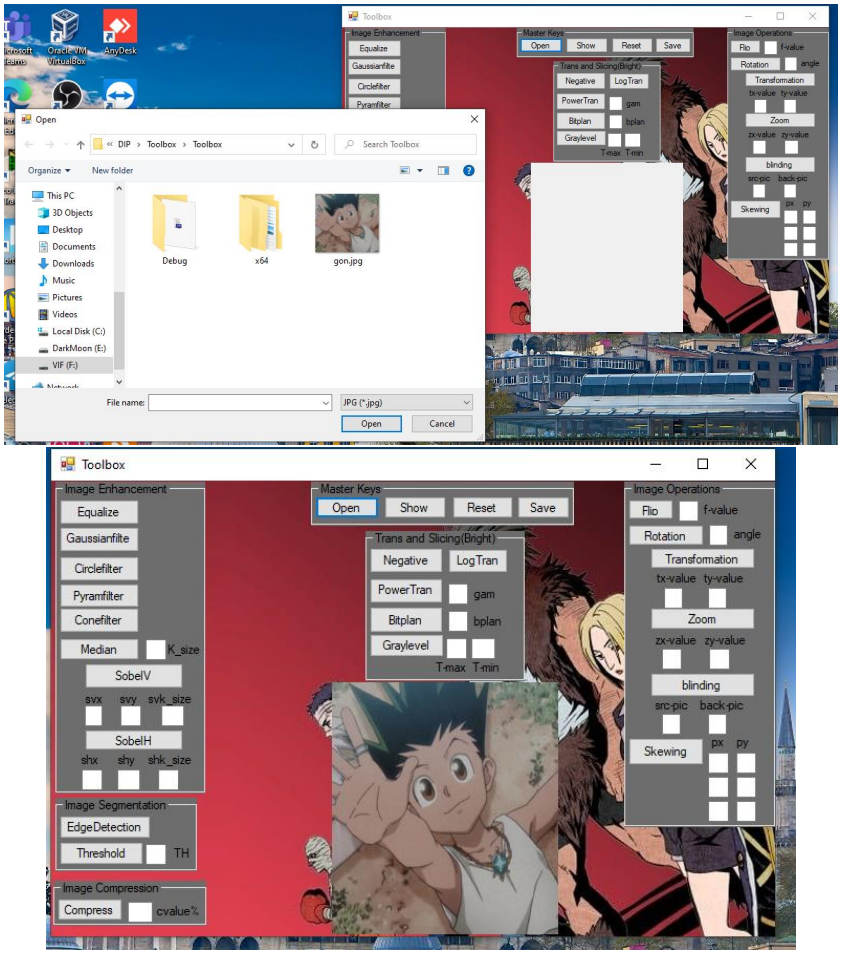


Form of Tool-Box: -

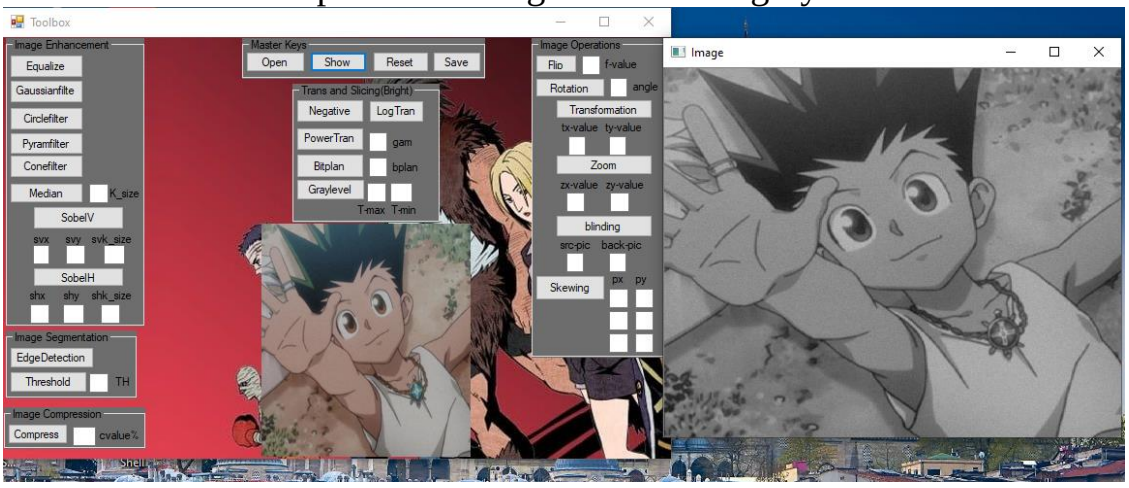


1) Master keys: -

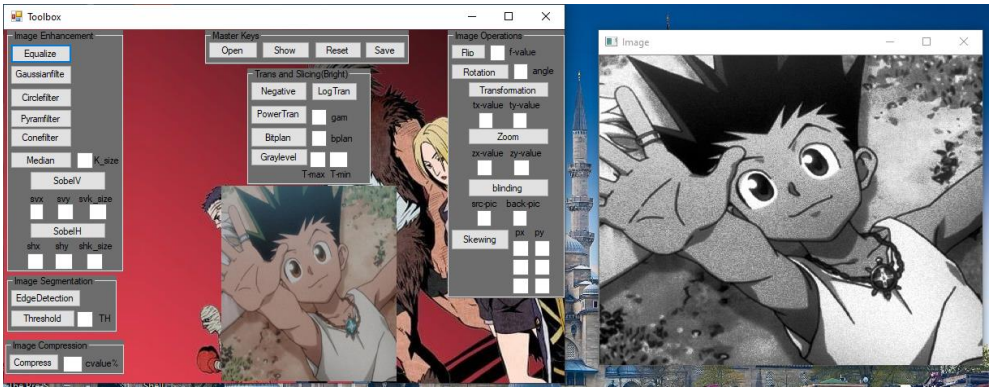
- Open button: choose the image from pc.



- Show button: this button represented image and made it grayscale.



- Reset button: return to image source (grayscale). I did here equalization and use reset button to return back.



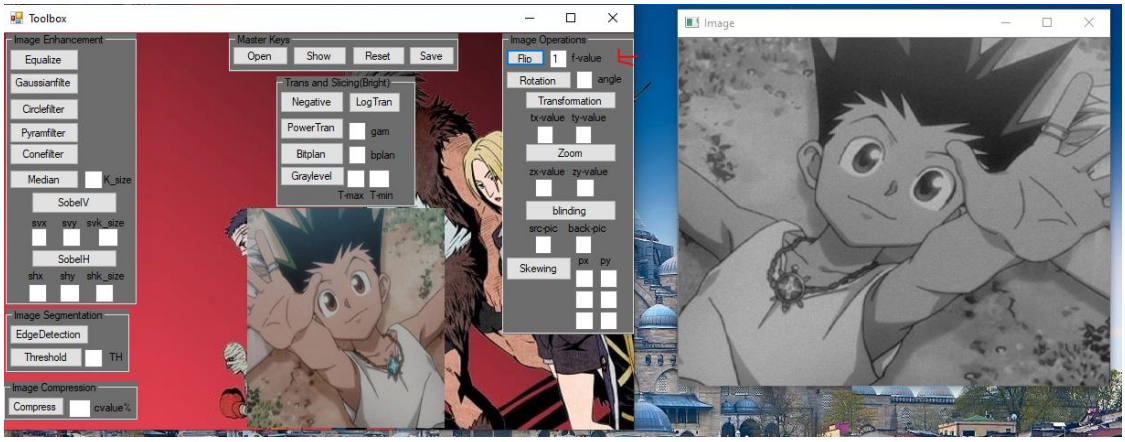
- Save button: it saved image.

gon.jpg

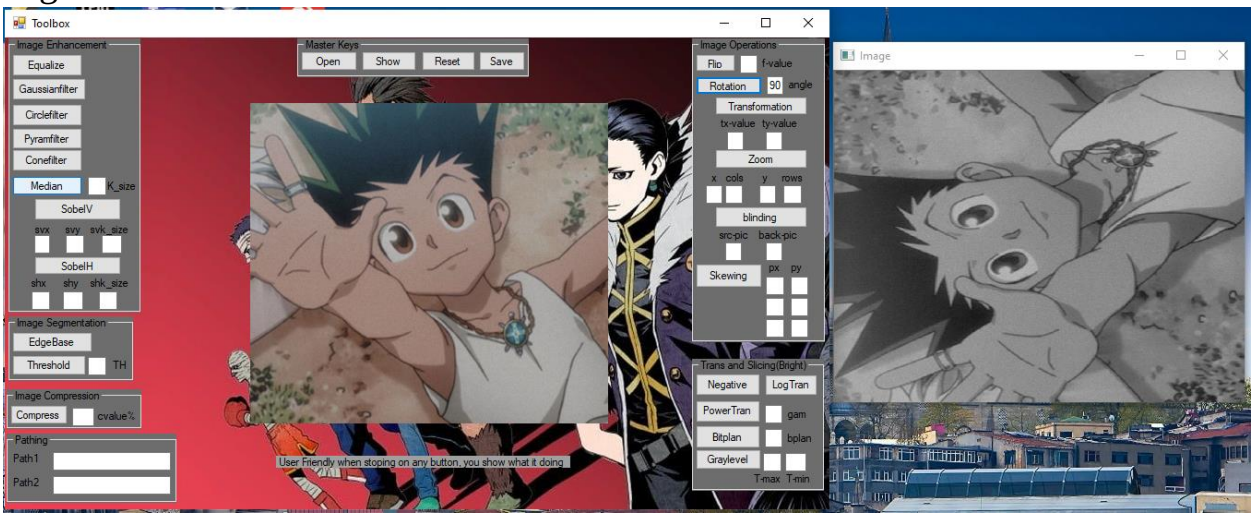
New.jpg

2) Image Operations: -

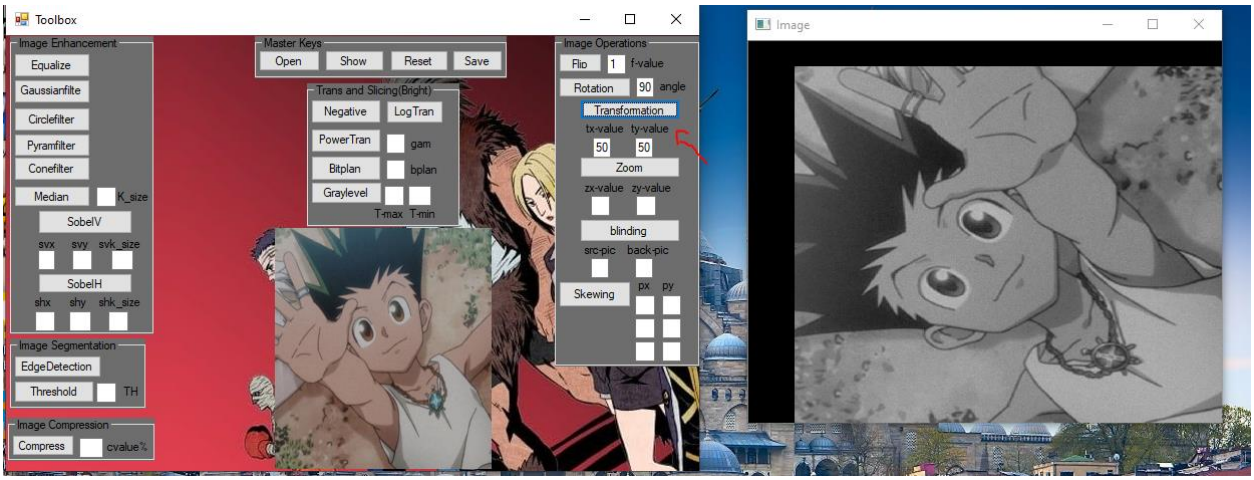
- Flip button: flip around x = 0, flip around y = 1, flip around xy = -1.



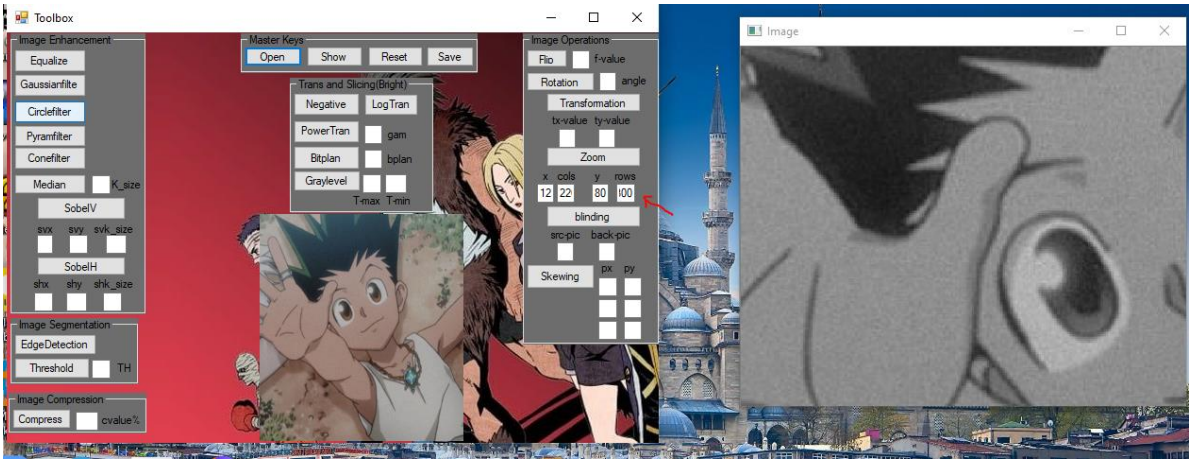
- Rotation button: do rotating image by angle. In this output I put angle = 90 degree.



- Transformation button: to do moving image by tx-value and ty-value. In this example I put tx=50 and ty=50.

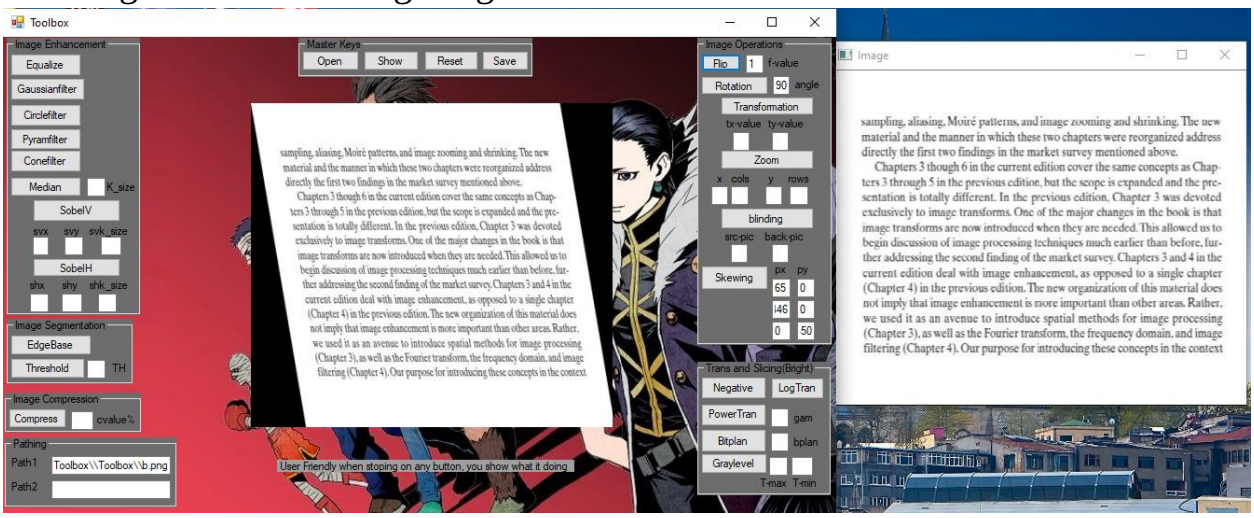


- Zoom button: to show the object that is being photographed from closer/further away.



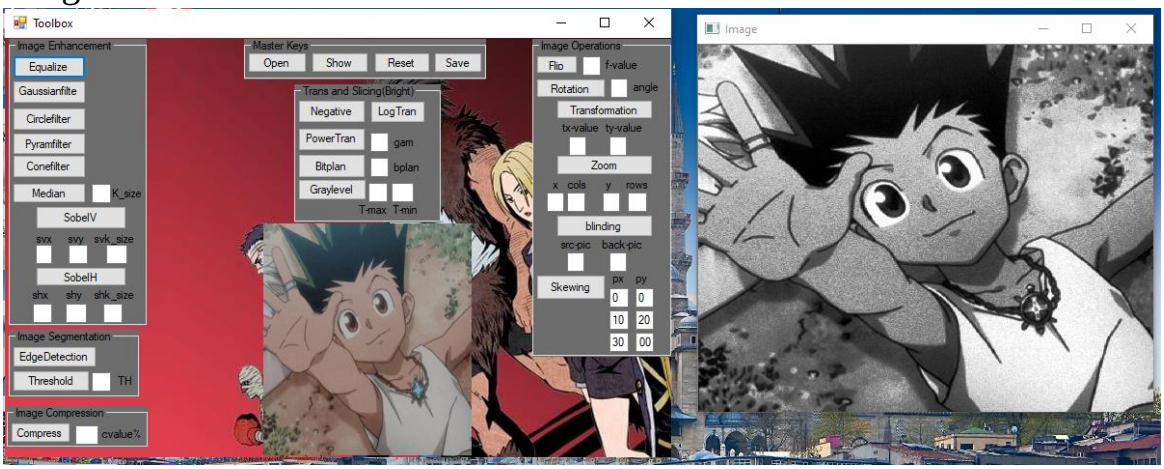
- Blinding button: to add two images together.

- Skewing button: stretching image.

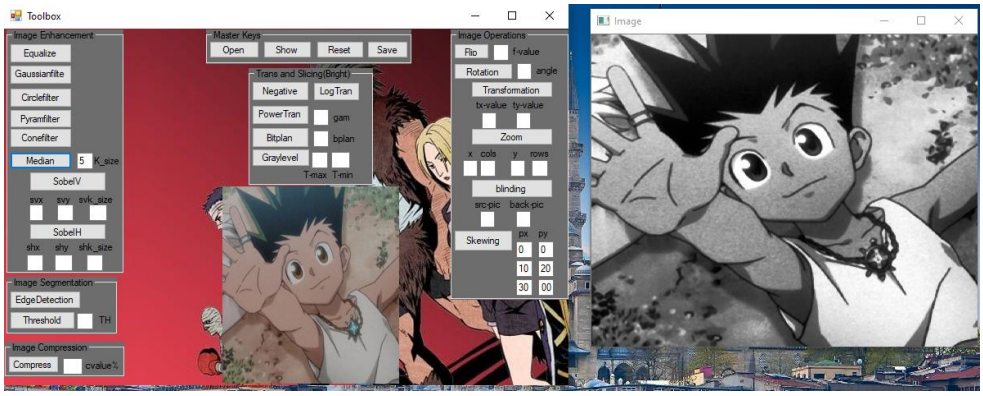


3) Image Enhancement: -

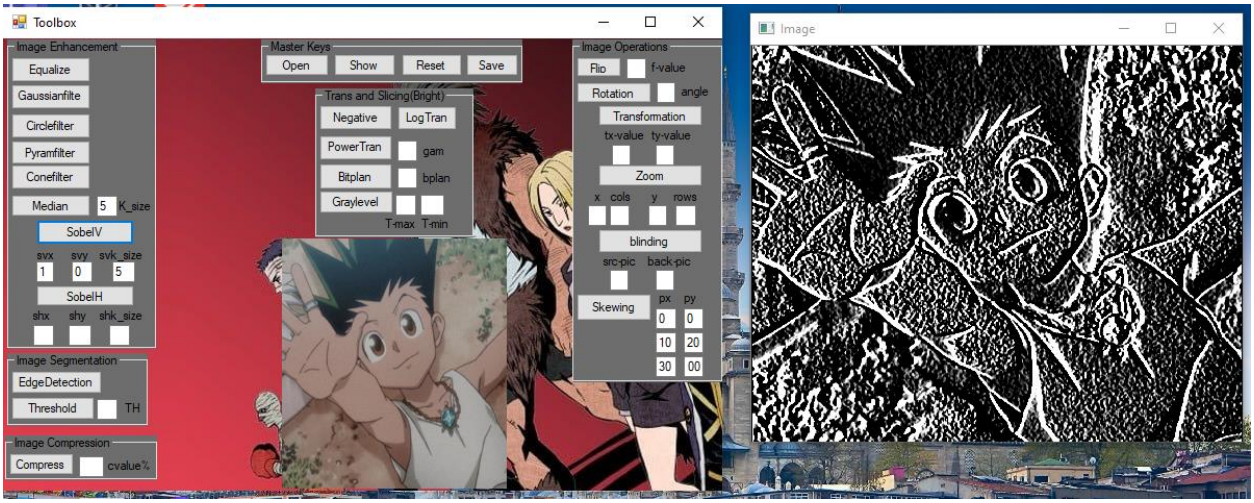
- Equalize button: increase intensities to solve problem of low contrast images.



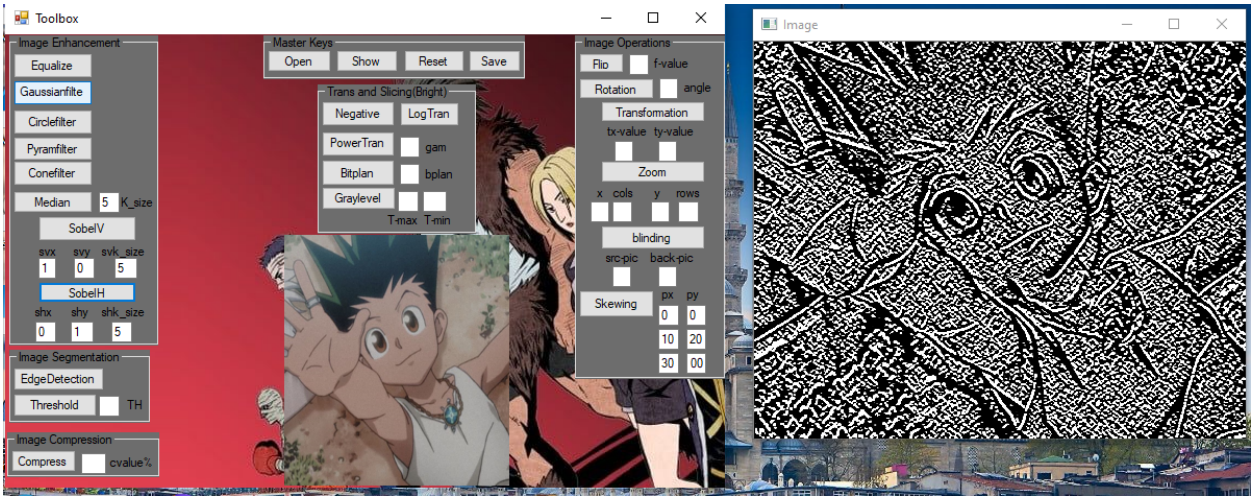
- filters: to do enhancing (remove spark noise) to image by different ranges. In this example, I used median filter.



- Sobel vertical button: use to detect edges and enhancement image.

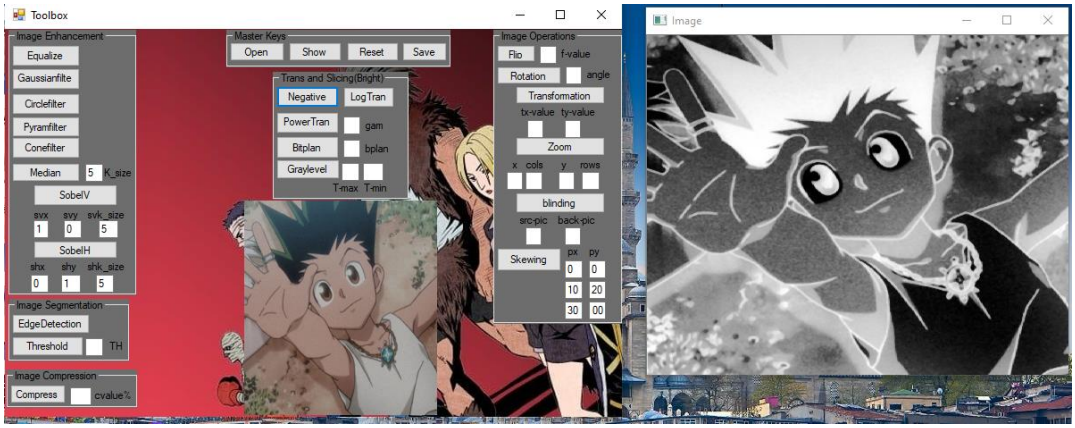


- Sobel horizontal button: use to detect edges and enhancement image.

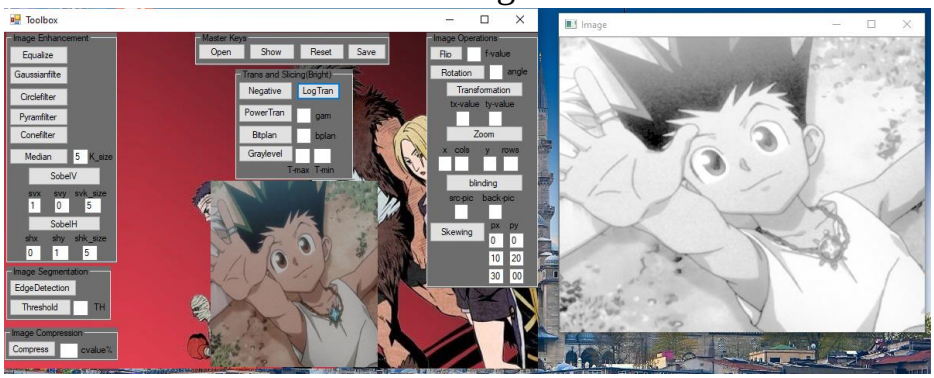


4) Image Transformation & Slicing: -

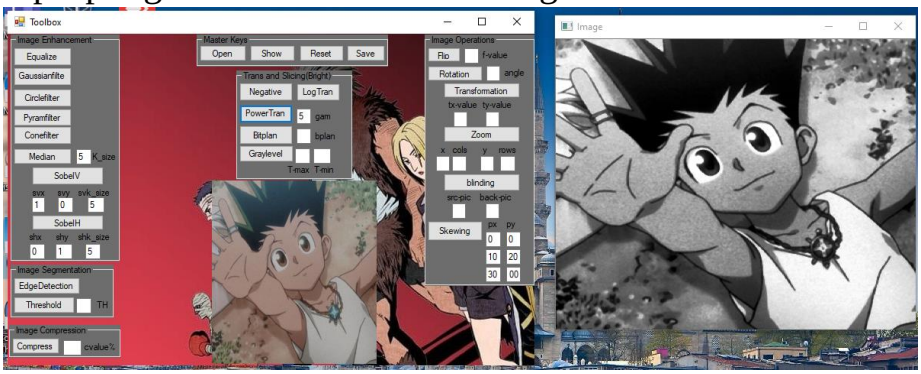
- Negative button: reverse pixels (0 to 255) or (255 to 0).



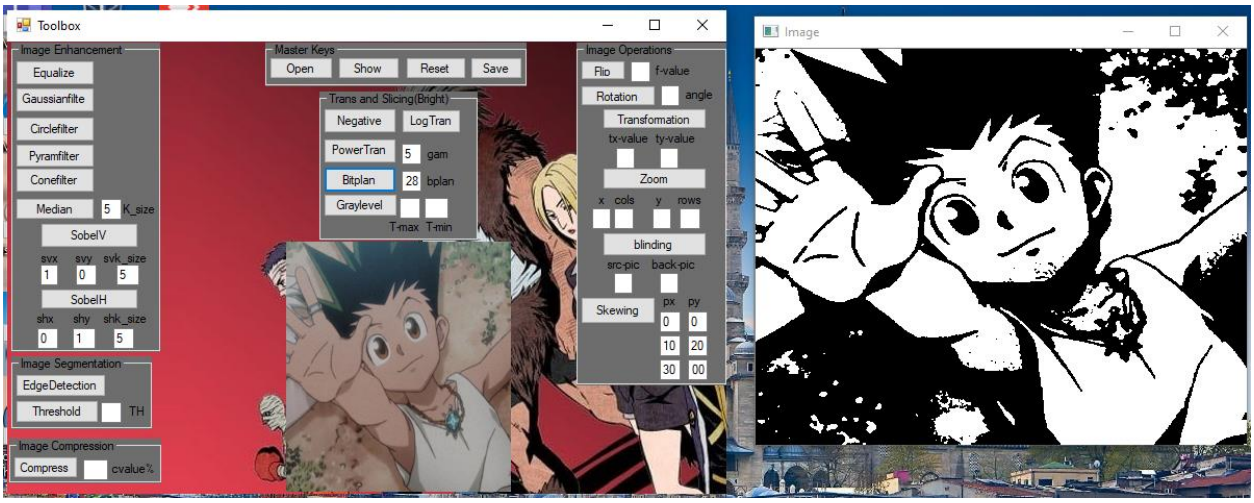
- Log Transformation button: increase brightness.



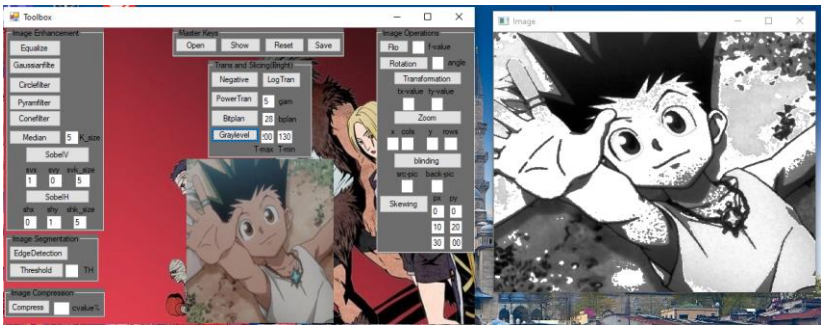
- Power Transformation button: increase or decrease brightness by gamma. If gamma > 1 so decrease brightness or gamma < 1 so increase brightness. In this example put gamma = 5 to decrease brightness.



- Bit-plan button: Converting a gray level image to a binary image. In this example I put value 128 bit

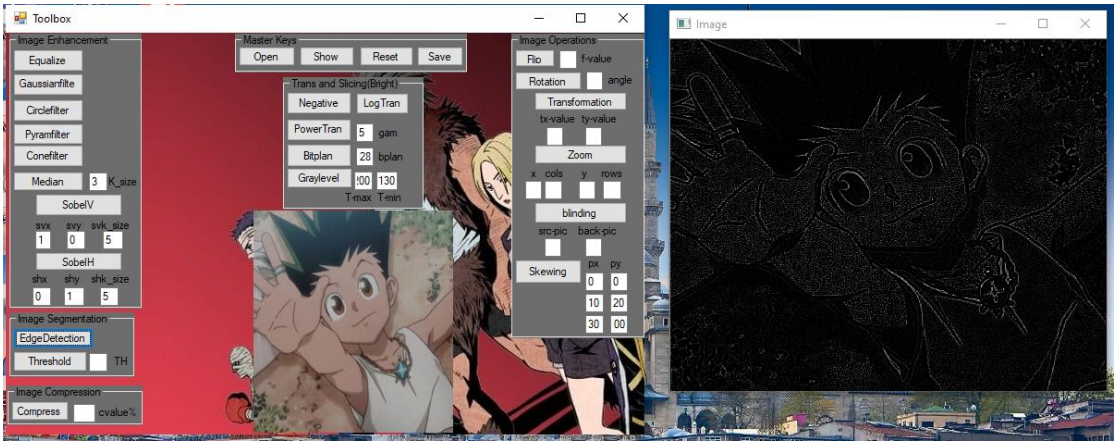


- Gray-level button: Used when we need to make an object more clear.
  S= 255 *if Tmin* > r

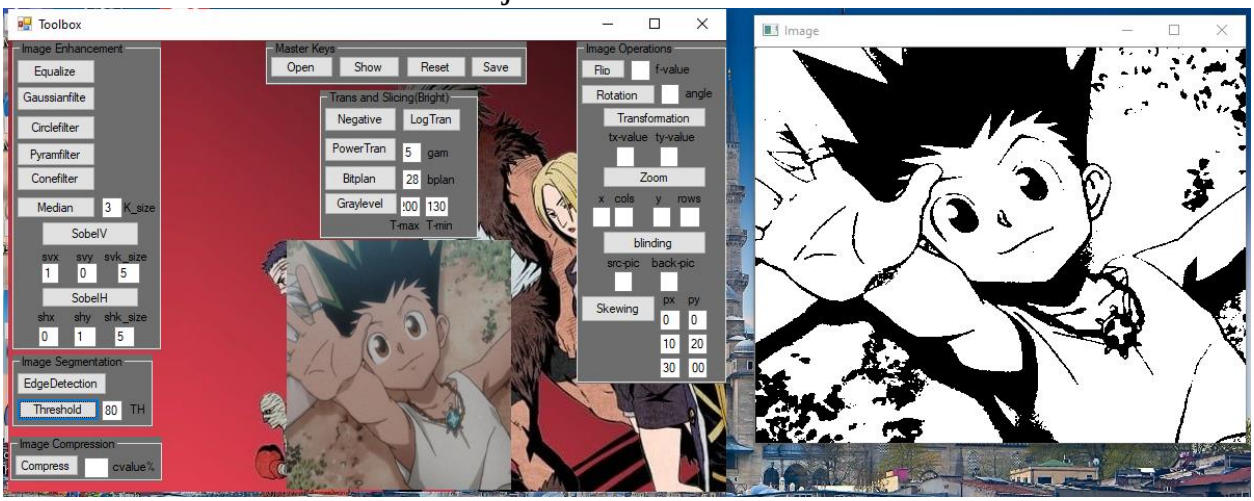


5) Image Segmentation: -

- Edge Detection (Laplacian) button: use derivative filter, makes a high pass filter to detect the edges to get the object off the image. Condition: use any filter button before use this button.

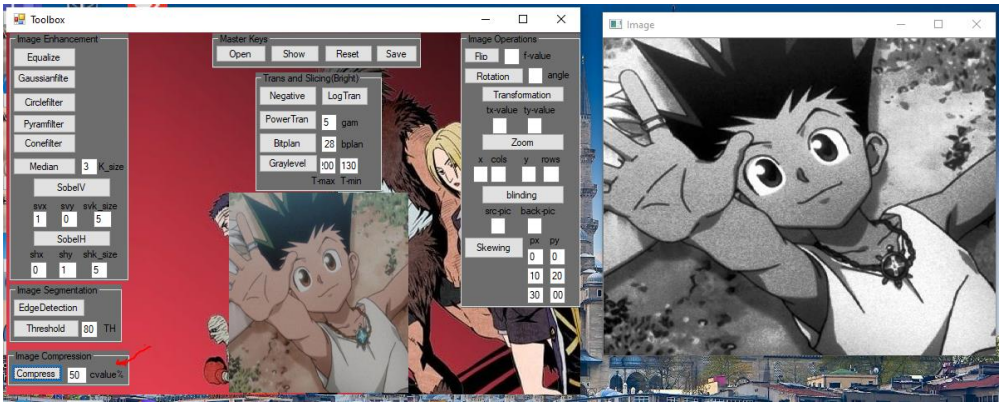


- Threshold button: we choose a specific value and make it the Threshold and what is before it is considered object.



6) Image Compression: -

- Compress button: to press something into a smaller space.



Output:

compress.jpg	12/25/2021 9:47 PM	JPG File	58 KB
gon.jpg	11/16/2021 9:37 PM	JPG File	77 KB