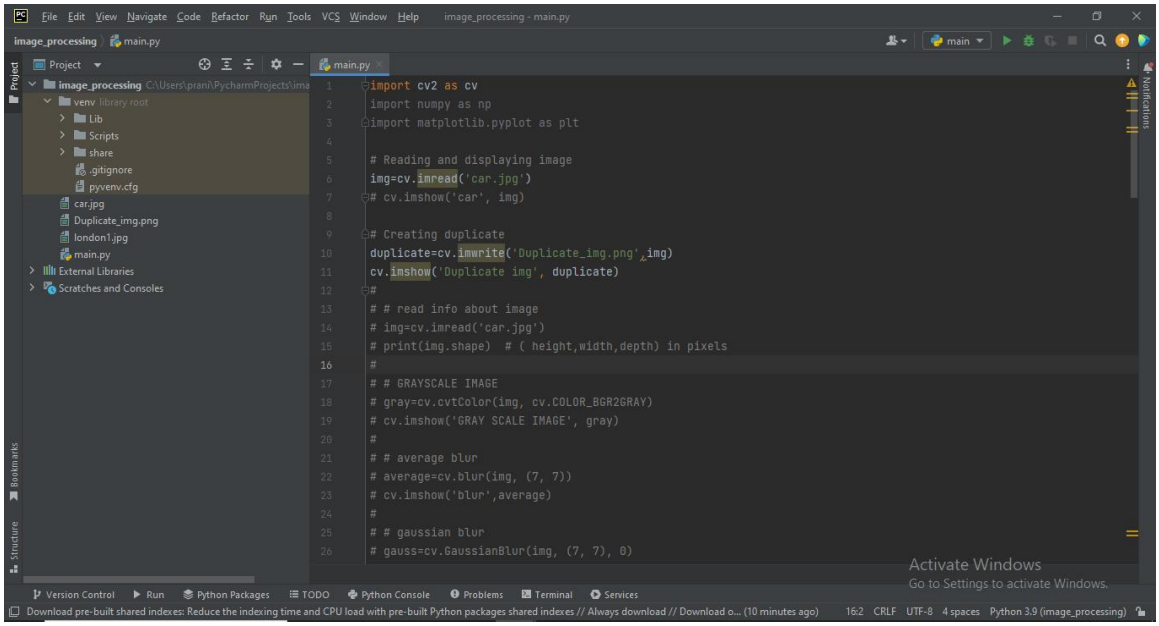
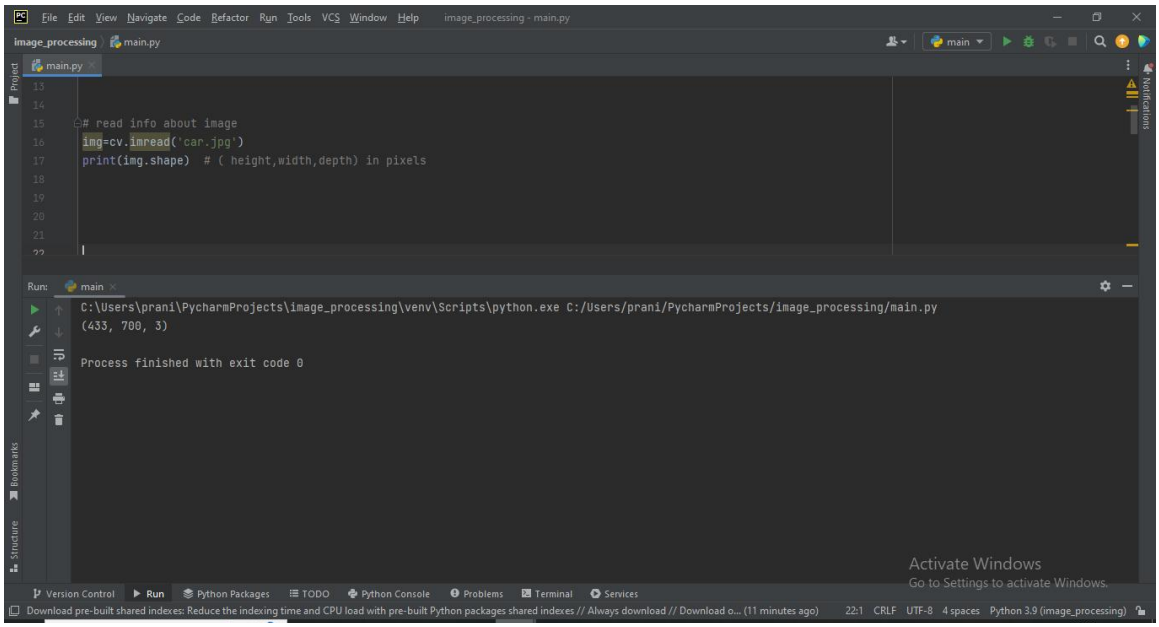
Name: Shubham Sanjay Pandharpatte

College: Pune Institute of Computer Technology, Pune

Year:2nd year




File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
# read info about image
img=cv.imread('car.jpg')
print(img.shape) # (height,width,depth) in pixels
Run:
main
C:\Users\prani\PycharmProjects\image_processing\venv\Scripts\python.exe C:/Users/prani/PycharmProjects/image_processing/main.py
(433, 700, 3)
Process finished with exit code 0
Activate Windows
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Version Control
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TODO
Python Console
Problems
Terminal
Services
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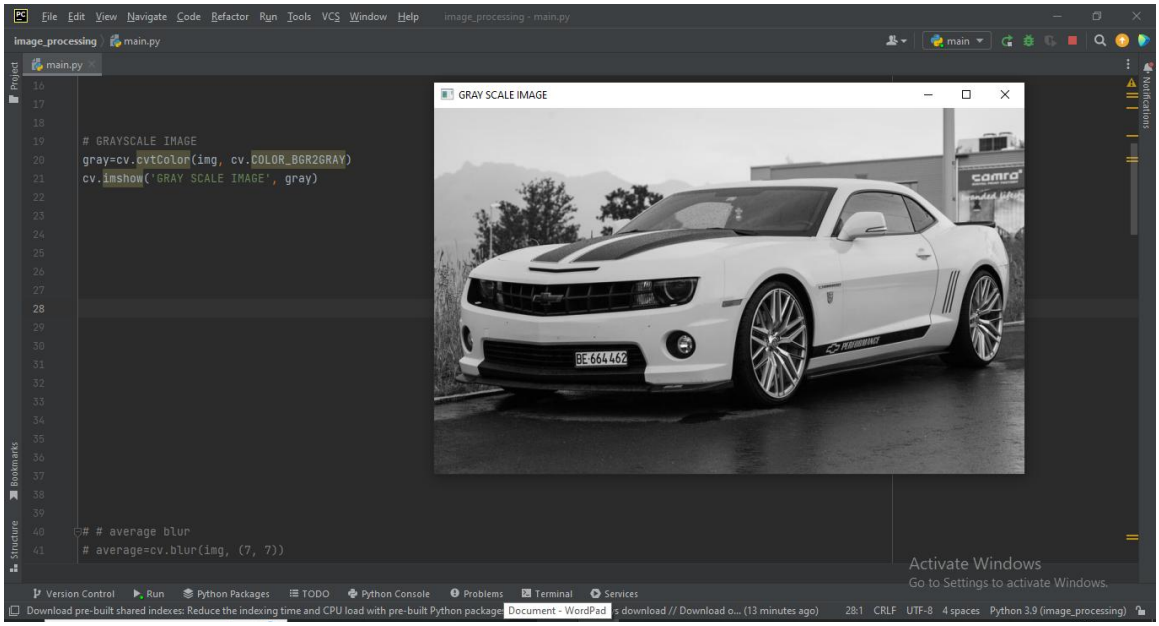
22:1 CRLF UTF-8 4 spaces Python 3.9 (image_processing)


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
GRAY SCALE IMAGE
# GRAYSCALE IMAGE
gray=cv.cvtColor(img, cv.COLOR_BGR2GRAY)
cv.imshow('GRAY SCALE IMAGE', gray)
# # average blur
# average=cv.blur(img, (7, 7))
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Services
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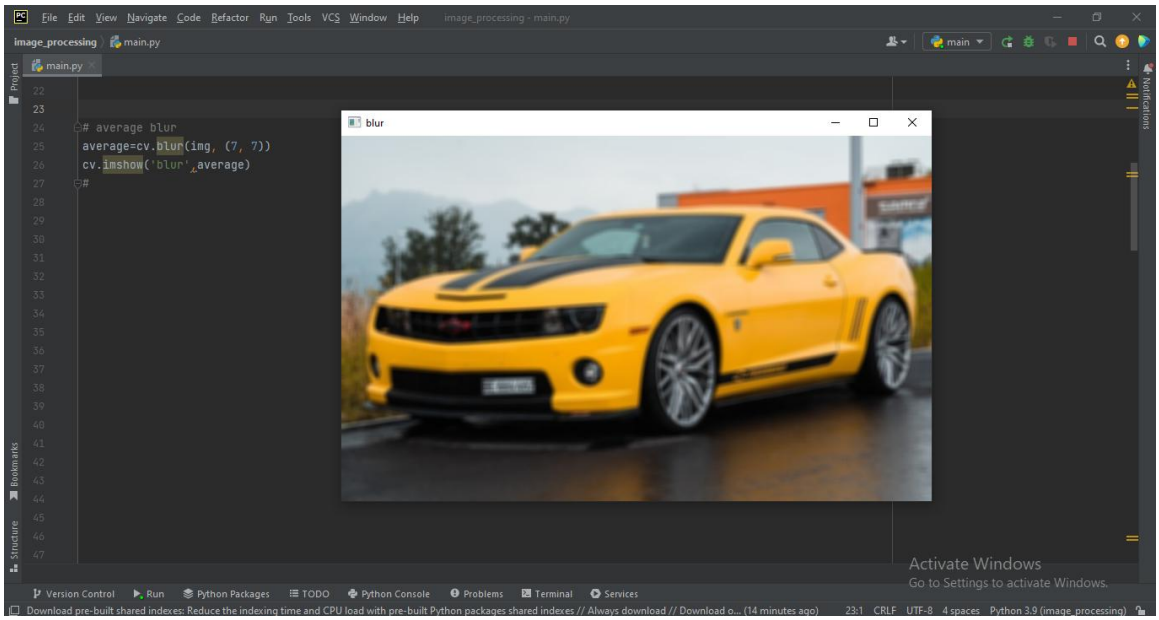
Document - WordPad
s download // Download o... (13 minutes ago)
28:1 CRLF UTF-8 4 spaces Python 3.9 (image_processing)


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
# average blur
average=cv.blur(img, (7, 7))
cv.imshow('blur', average)
#
blur
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Python Packages
TODO
Python Console
Problems
Terminal
Services
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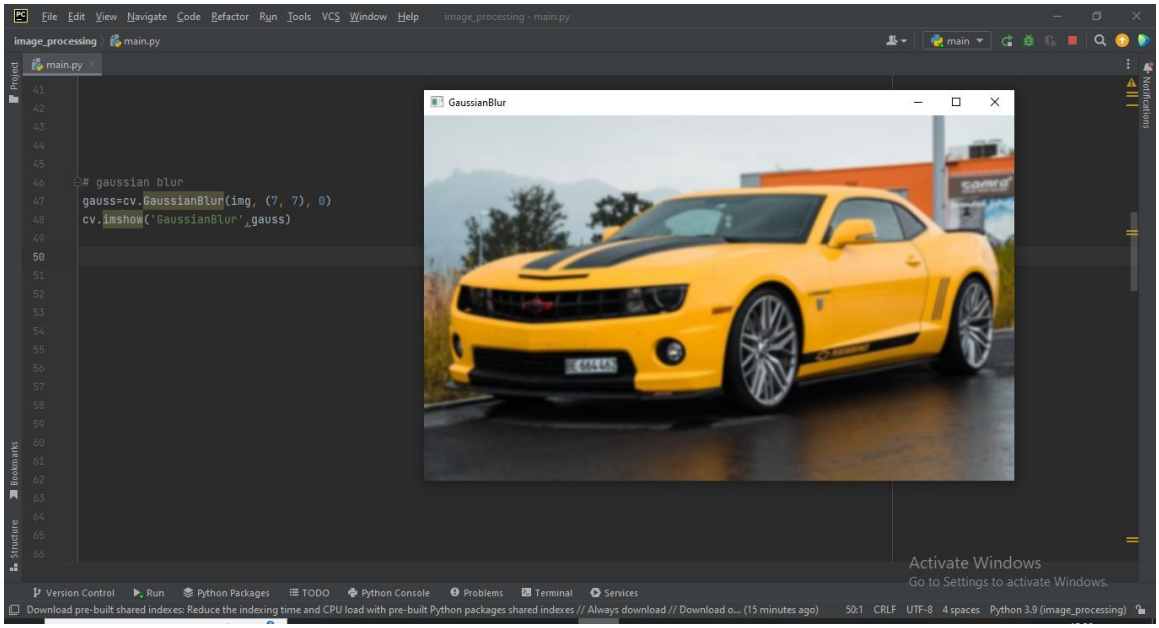
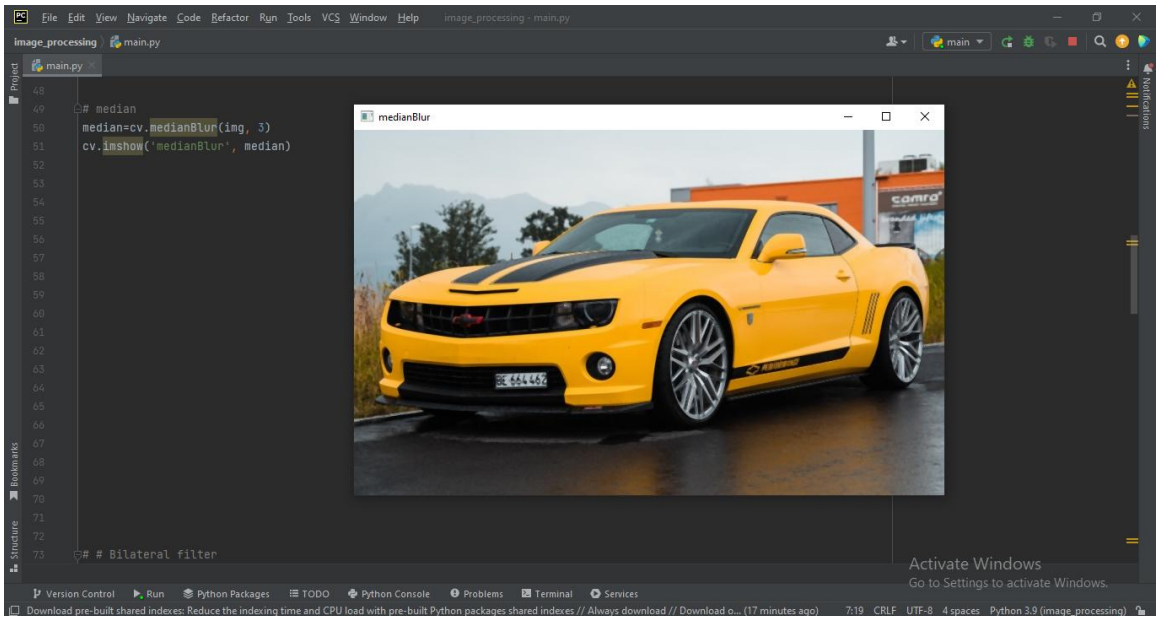
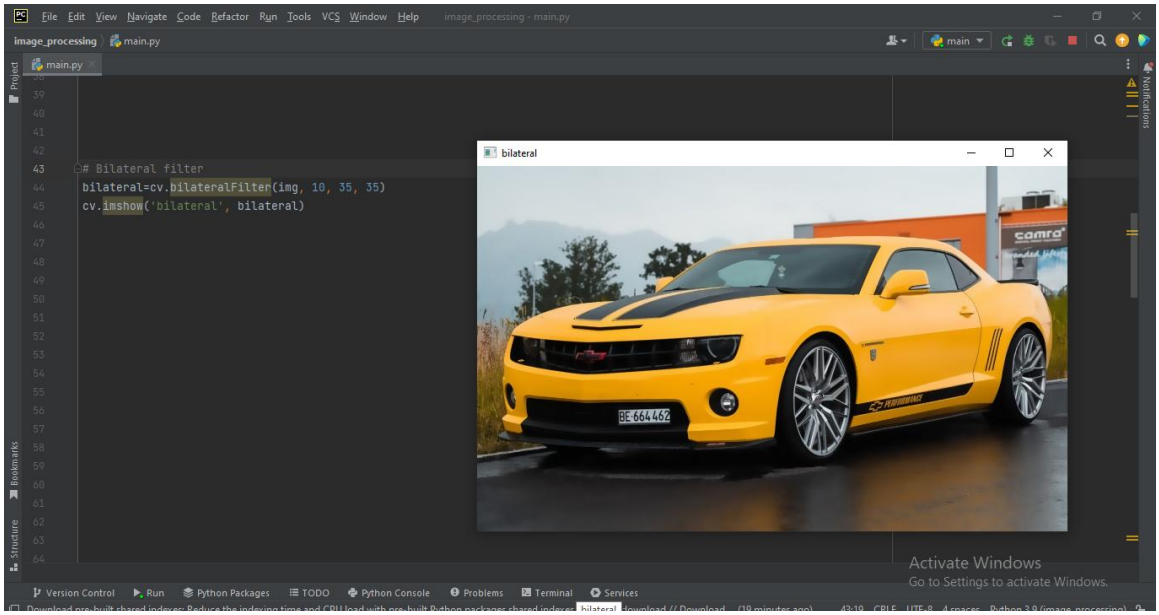
23:1 CRLF UTF-8 4 spaces Python 3.9 (image_processing)


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
# gaussian blur
gauss=cv.GaussianBlur(img, (7, 7), 0)
cv.imshow('GaussianBlur', gauss)
GaussianBlur
Activate Windows
Go to Settings to activate Windows.
Version Control
Run
Python Packages
TODO
Python Console
Problems
Terminal
Services
Download pre-built shared indexes: Reduce the indexing time and CPU load with pre-built Python packages shared indexes // Always download // Download o... (15 minutes ago)
50:1 CRLF UTF-8 4 spaces Python 3.9 (image_processing)


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
# median
median=cv.medianBlur(img, 3)
cv.imshow('medianBlur', median)
# # Bilateral filter
medianBlur
Version Control
Run
Python Packages
TODO
Python Console
Problems
Terminal
Services
Activate Windows
Go to Settings to activate Windows.


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
# Bilateral filter
bilateral=cv.bilateralFilter(img, 10, 35, 35)
cv.imshow('bilateral', bilateral)
bilateral
Version Control
Run
Python Packages
TODO
Python Console
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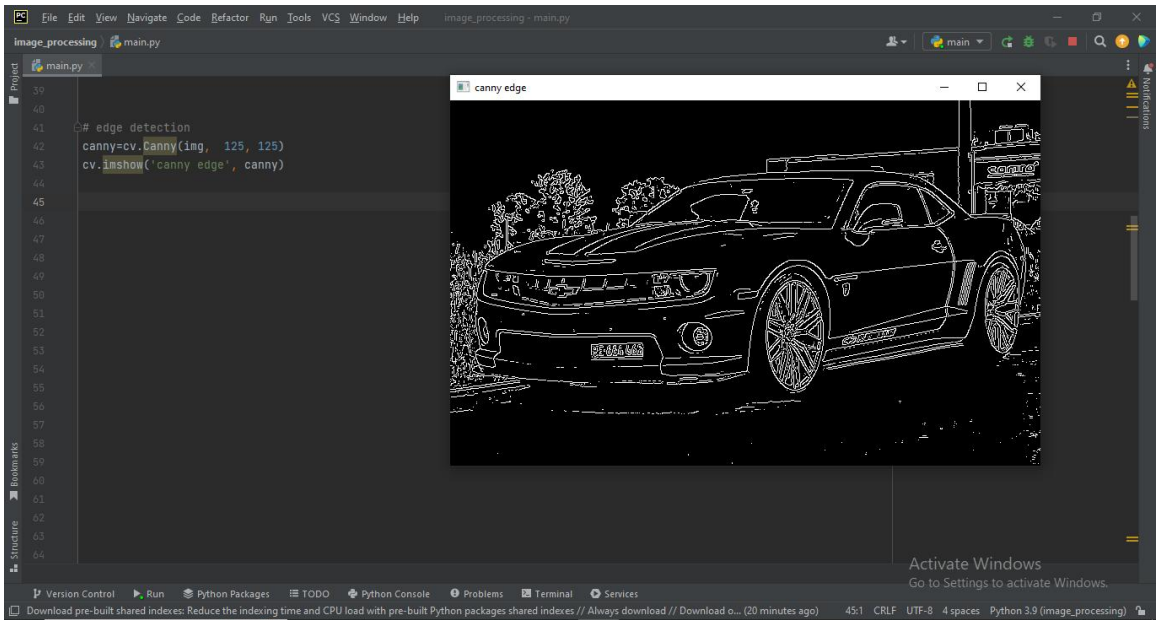
Terminal
Services
Activate Windows
Go to Settings to activate Windows.


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
canny edge
# edge detection
canny=cv.Canny(img, 125, 125)
cv.imshow('canny edge', canny)
Activate Windows
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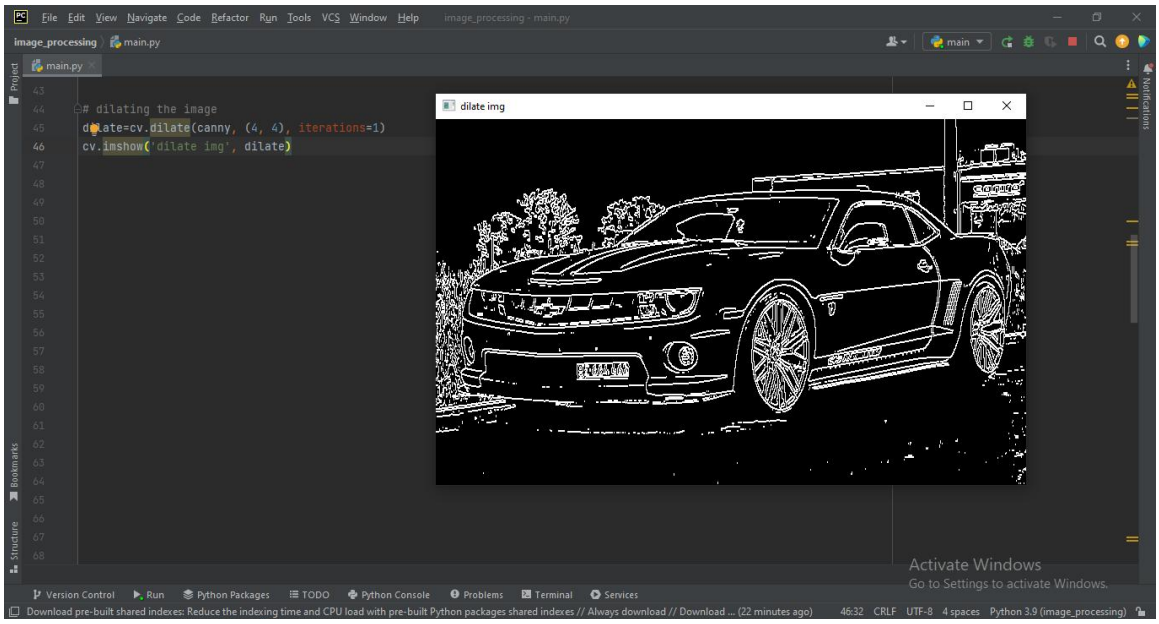
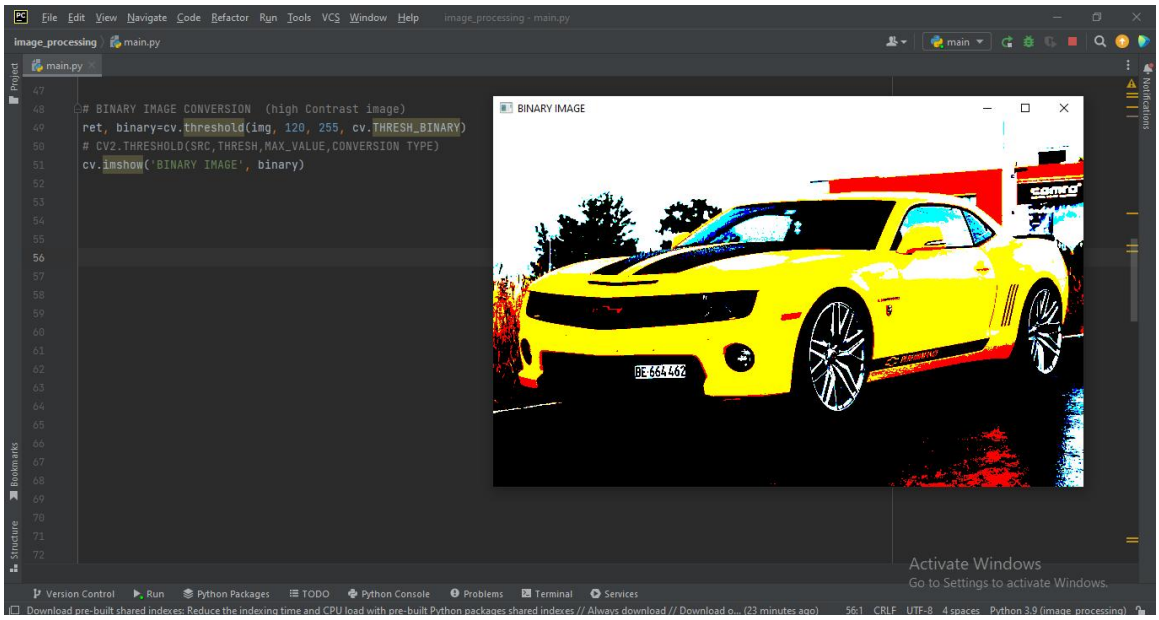
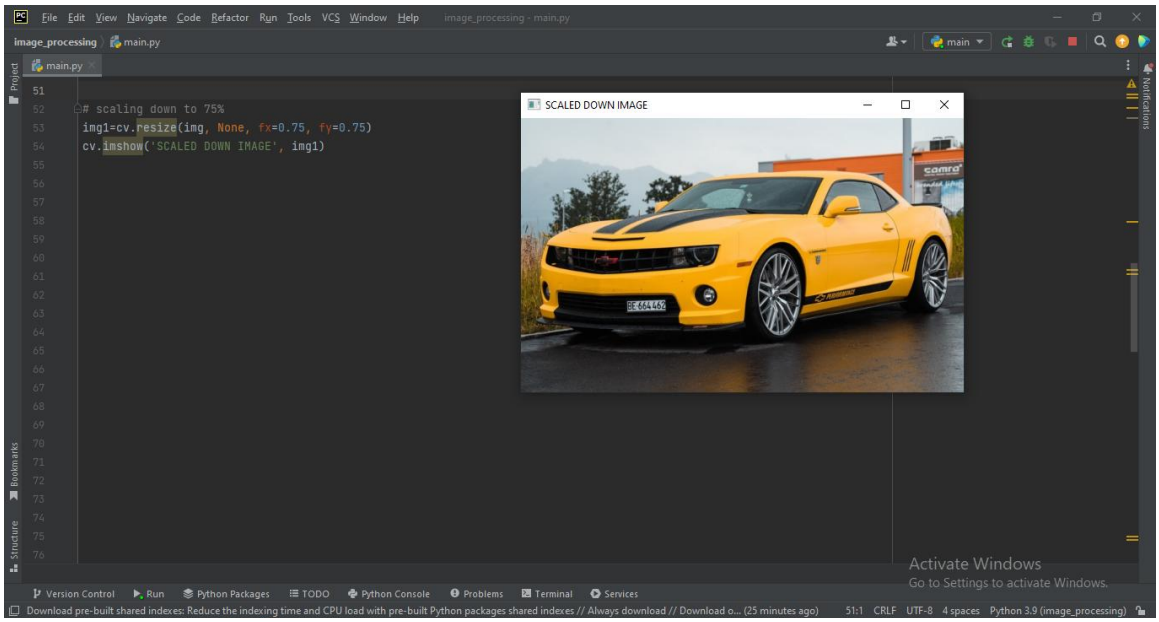
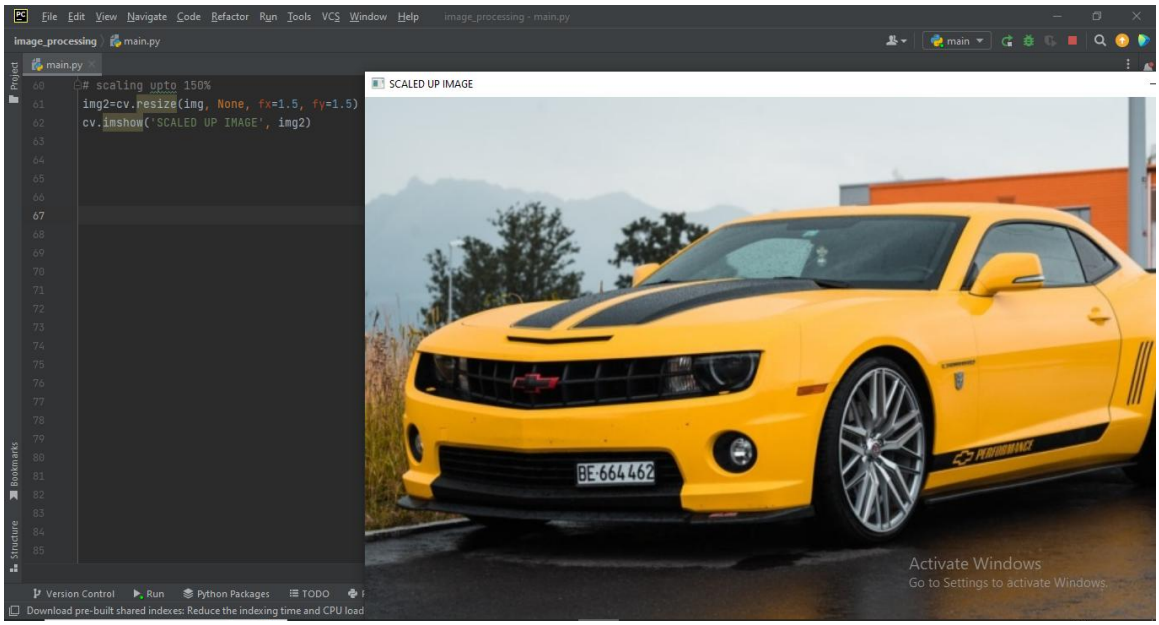
Version Control
Run
Python Packages
TODO
Python Console
Problems
Terminal
Services
Download pre-built shared indexes: Reduce the indexing time and CPU load with pre-built Python packages shared indexes // Always download // Download o... (20 minutes ago)
45:1 CRLF UTF-8 4 spaces Python 3.9 (image_processing)


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
dilate img
# dilating the image
dilate=cv.dilate(canny, (4, 4), iterations=1)
cv.imshow('dilate img', dilate)
Activate Windows
Go to Settings to activate Windows.
Version Control
Run
Python Packages
TODO
Python Console
Problems
Terminal
Services
Download pre-built shared indexes: Reduce the indexing time and CPU load with pre-built Python packages shared indexes // Always download // Download ... (22 minutes ago)
46:32 CRLF UTF-8 4 spaces Python 3.9 (image_processing)


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
BINARY IMAGE CONVERSION (high Contrast image)
ret, binary=cv.threshold(img, 120, 255, cv.THRESH_BINARY)
# CV2.THRESHOLD(SRC,THRESH,MAX_VALUE,CONVERSION TYPE)
cv.imshow('BINARY IMAGE', binary)
BINARY IMAGE
Version Control
Run
Python Packages
TODO
Python Console
Problems
Terminal
Services
Activate Windows
Go to Settings to activate Windows.


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
# scaling down to 75%
img1=cv.resize(img, None, fx=0.75, fy=0.75)
cv.imshow('SCALED DOWN IMAGE', img1)
SCALED DOWN IMAGE
Version Control
Run
Python Packages
TODO
Python Console
Problems
Terminal
Services
Activate Windows
Go to Settings to activate Windows.


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
# scaling upto 150%
img2=cv.resize(img, None, fx=1.5, fy=1.5)
cv.imshow('SCALED UP IMAGE', img2)
SCALED UP IMAGE
BE·664462
Activate Windows
Go to Settings to activate Windows.
Version Control
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Python Packages
TODO
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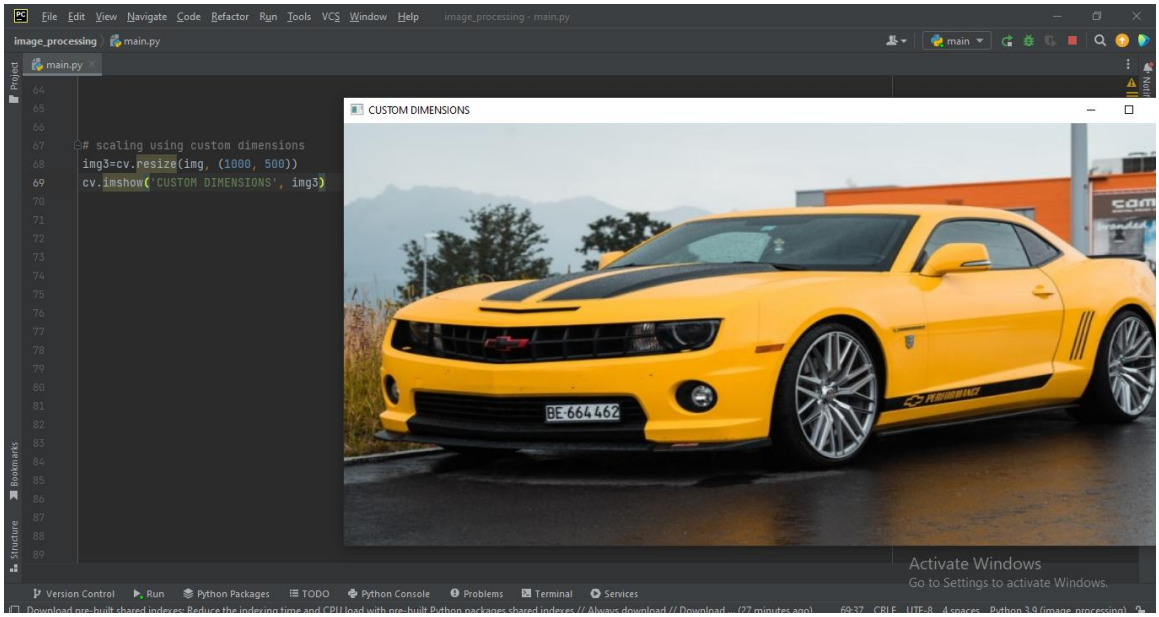
File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
# scaling using custom dimensions
img3=cv.resize(img, (1000, 500))
cv.imshow('CUSTOM DIMENSIONS', img3)
CUSTOM DIMENSIONS
BE·664462
Activate Windows
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Version Control
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Python Console
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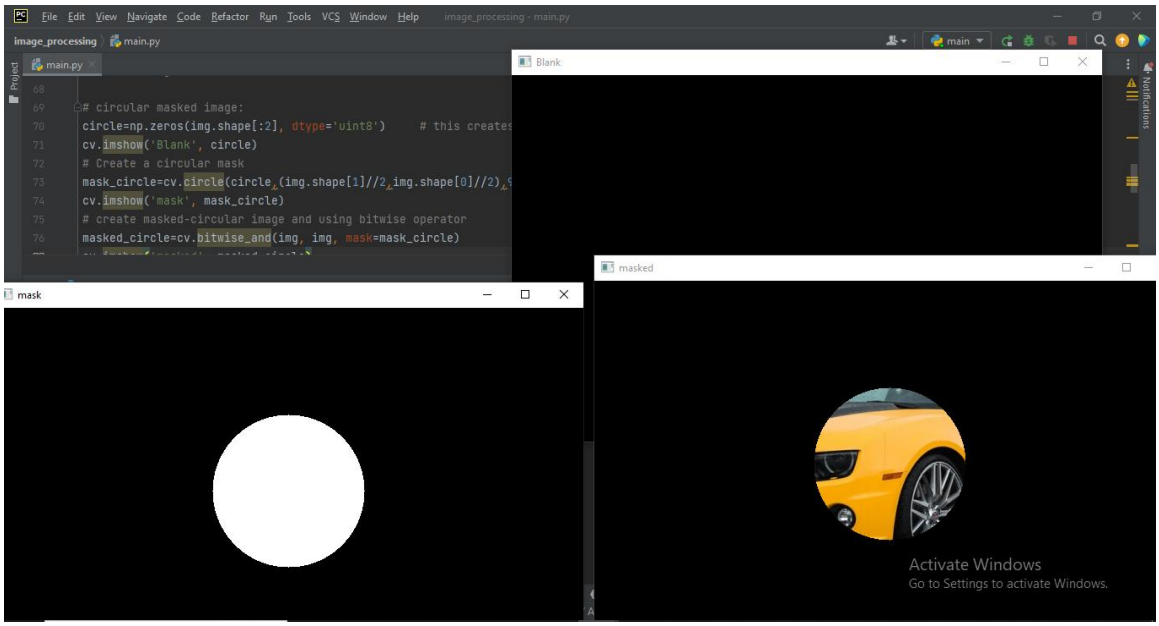
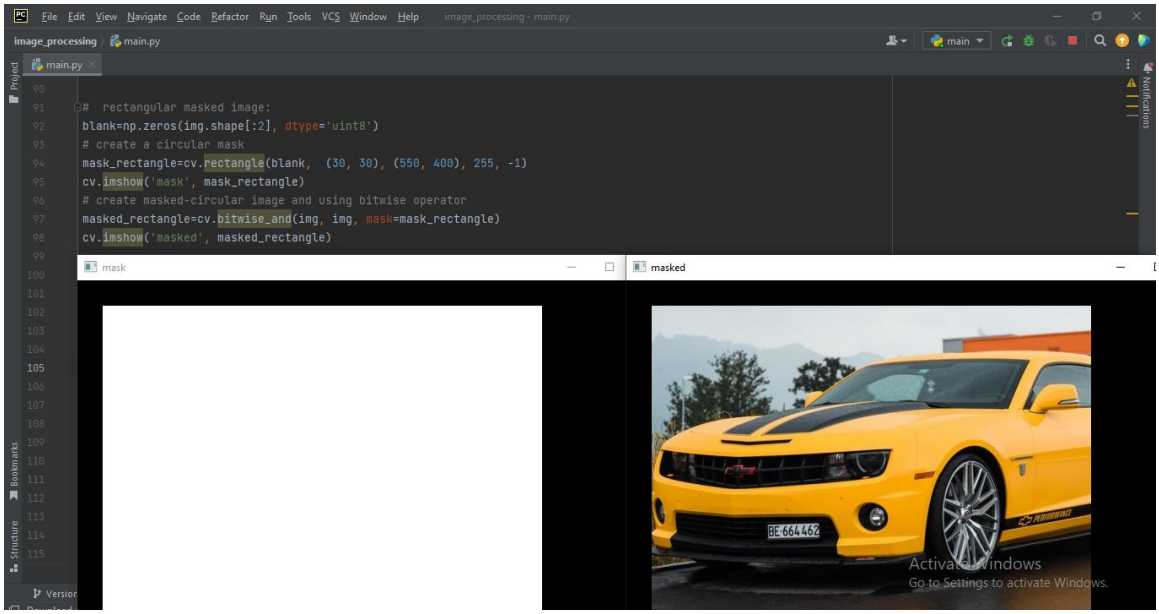
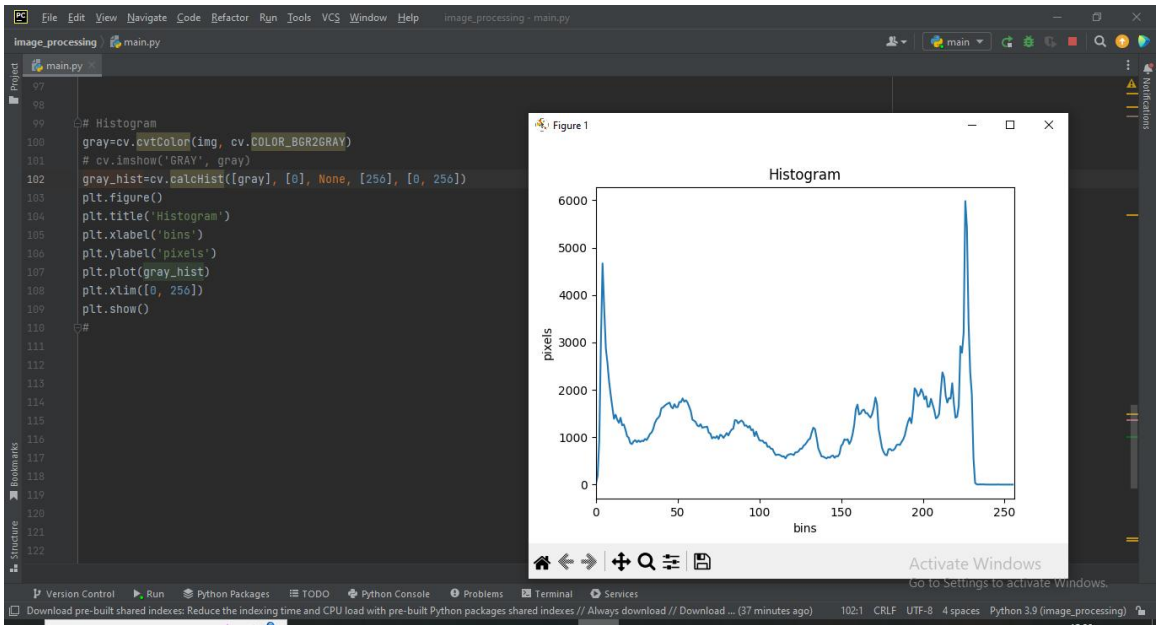
Terminal
Services


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
Blank
mask
masked
# circular masked image:
circle=np.zeros(img.shape[:2], dtype='uint8')
cv.imshow('Blank', circle)
# Create a circular mask
mask_circle=cv.circle(circle,(img.shape[1]//2,img.shape[0]//2),
cv.imshow('mask', mask_circle)
# create masked-circular image and using bitwise operator
masked_circle=cv.bitwise_and(img, img, mask=mask_circle)
Activate Windows
Go to Settings to activate Windows.


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
mask
masked
# rectangular masked image:
blank=np.zeros(img.shape[:2], dtype='uint8')
# create a circular mask
mask_rectangle=cv.rectangle(blank, (30, 30), (550, 400), 255, -1)
cv.imshow('mask', mask_rectangle)
# create masked-circular image and using bitwise operator
masked_rectangle=cv.bitwise_and(img, img, mask=mask_rectangle)
cv.imshow('masked', masked_rectangle)
BE 664462
Activate Windows
Go to Settings to activate Windows.


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
# Histogram
gray=cv.cvtColor(img, cv.COLOR_BGR2GRAY)
# cv.imshow('GRAY', gray)
gray_hist=cv.calcHist([gray], [0], None, [256], [0, 256])
plt.figure()
plt.title('Histogram')
plt.xlabel('bins')
plt.ylabel('pixels')
plt.plot(gray_hist)
plt.xlim([0, 256])
plt.show()
#
Figure 1
Histogram
pixels
bins
0
1000
2000
3000
4000
5000
6000
0
50
100
150
200
250
Activate Windows
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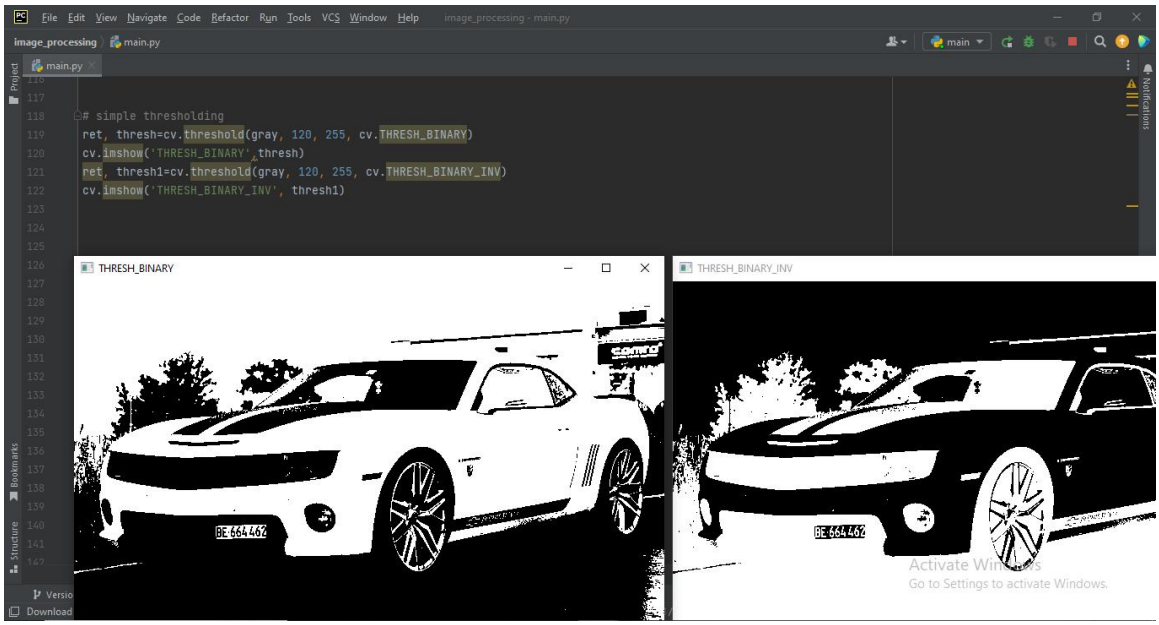
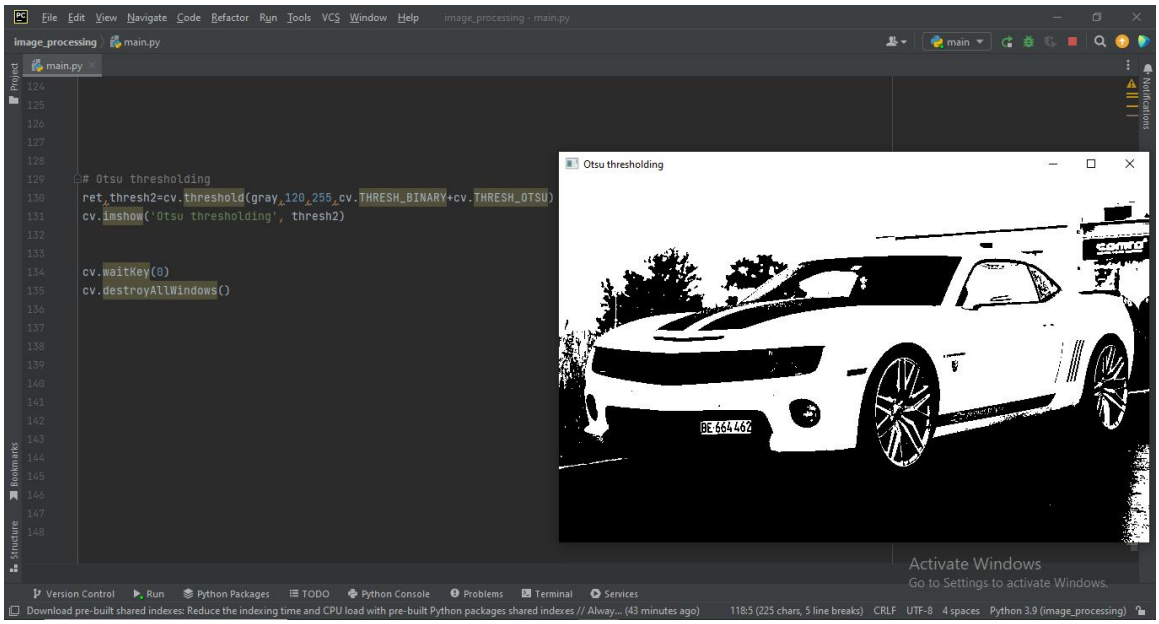
102:1
CRLF
UTF-8
4 spaces
Python 3.9 (image_processing)


File Edit View Navigate Code Refactor Run Tools VCS Window Help
image_processing - main.py
image_processing
main.py
main
main.py
simple thresholding
ret, thresh=cv.threshold(gray, 120, 255, cv.THRESH_BINARY)
cv.imshow('THRESH_BINARY',thresh)
ret, thresh1=cv.threshold(gray, 120, 255, cv.THRESH_BINARY_INV)
cv.imshow('THRESH_BINARY_INV', thresh1)
THRESH_BINARY
THRESH_BINARY_INV
BE 664462
BE 664462
Activate Windows
Go to Settings to activate Windows.



Github link: https://github.com/shubhampandharpatte/Image_processing.git