

Spyder (Python 3.7)

```

File Edit Search Source Run Debug Consoles Projects Tools View Help
Editor - C:/Users/Dell/Desktop/FINAL SVM/main.py
main.py main_dataloadedownload.py
193 validate = AccuracyValidation()
194
195 validate.split_validation(svc_model, image_data, target_data, True)
196
197 validate.cross_validation(svc_model, 3, image_data,
198 target_data)
199 img = cv2.imread("Dataset1/1.jpg")
200 cv2.imwrite('image/car.jpg',img)
201 threshold_img = preprocess(img)
202 contours= extract_contours(threshold_img)
203 grayplate,thresh2= crop_img(img,contours)
204 cv2.imwrite('inputimage.jpg',grayplate)
205 contours, hierarchy= cv2.findContours(thresh2,mode=cv2.RETR_EXTERNAL,method=cv2.CHAIN_APPROX_SIMPLE)
206 ## Step #2 - Reshape to 2D matrices
207 contours1 = contours[0].reshape(-1,2)
208 ## Step #3 - Draw the points as individual circles in the image
209 img1 = thresh2.copy()
210 (h, w) = img1.shape[:2]
211 image_size = h*w
212 mser = cv2.MSER_create()
213 mser.setMaxArea(int(image_size/2))
214 mser.setMinArea(10)
215 regions, rects = mser.detectRegions(thresh2)
216
217 With the rects you can e.g. crop the letters
218 ii = 1
219 for (x, y, w, h) in rects:
220     cv2.rectangle(img1, (x, y), (x+w, y+h), color=(255, 0, 0), thickness=2)

```

In [16]: runfile('C:/Users/Dell/Desktop/FINAL SVM/main.py', wdir='C:/Users/Dell/Desktop/FINAL SVM')

DETECTING PLATE . . .

Detected Text :

'MH 13 BN 8454'

IPython console History log

Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 199 Column: 33 Memory: 47 %

10:47 PM 26-08-2019

Spyder (Python 3.7)

```

File Edit Search Source Run Debug Consoles Projects Tools View Help
Editor - C:/Users/Dell/Desktop/FINAL SVM/main.py
main.py main_dataloadedownload.py
193 validate = AccuracyValidation()
194
195 validate.split_validation(svc_model, image_data, target_data, True)
196
197 validate.cross_validation(svc_model, 3, image_data,
198 target_data)
199 img = cv2.imread("Dataset1/2.jpg")
200 cv2.imwrite('image/car.jpg',img)
201 threshold_img = preprocess(img)
202 contours= extract_contours(threshold_img)
203 grayplate,thresh2= crop_img(img,contours)
204 cv2.imwrite('inputimage.jpg',grayplate)
205 contours, hierarchy= cv2.findContours(thresh2,mode=cv2.RETR_EXTERNAL,method=cv2.CHAIN_APPROX_SIMPLE)
206 ## Step #2 - Reshape to 2D matrices
207 contours1 = contours[0].reshape(-1,2)
208 ## Step #3 - Draw the points as individual circles in the image
209 img1 = thresh2.copy()
210 (h, w) = img1.shape[:2]
211 image_size = h*w
212 mser = cv2.MSER_create()
213 mser.setMaxArea(int(image_size/2))
214 mser.setMinArea(10)
215 regions, rects = mser.detectRegions(thresh2)
216
217 With the rects you can e.g. crop the letters
218 ii = 1
219 for (x, y, w, h) in rects:
220     cv2.rectangle(img1, (x, y), (x+w, y+h), color=(255, 0, 0), thickness=2)

```

In [18]: runfile('C:/Users/Dell/Desktop/FINAL SVM/main.py', wdir='C:/Users/Dell/Desktop/FINAL SVM')

DETECTING PLATE . . .

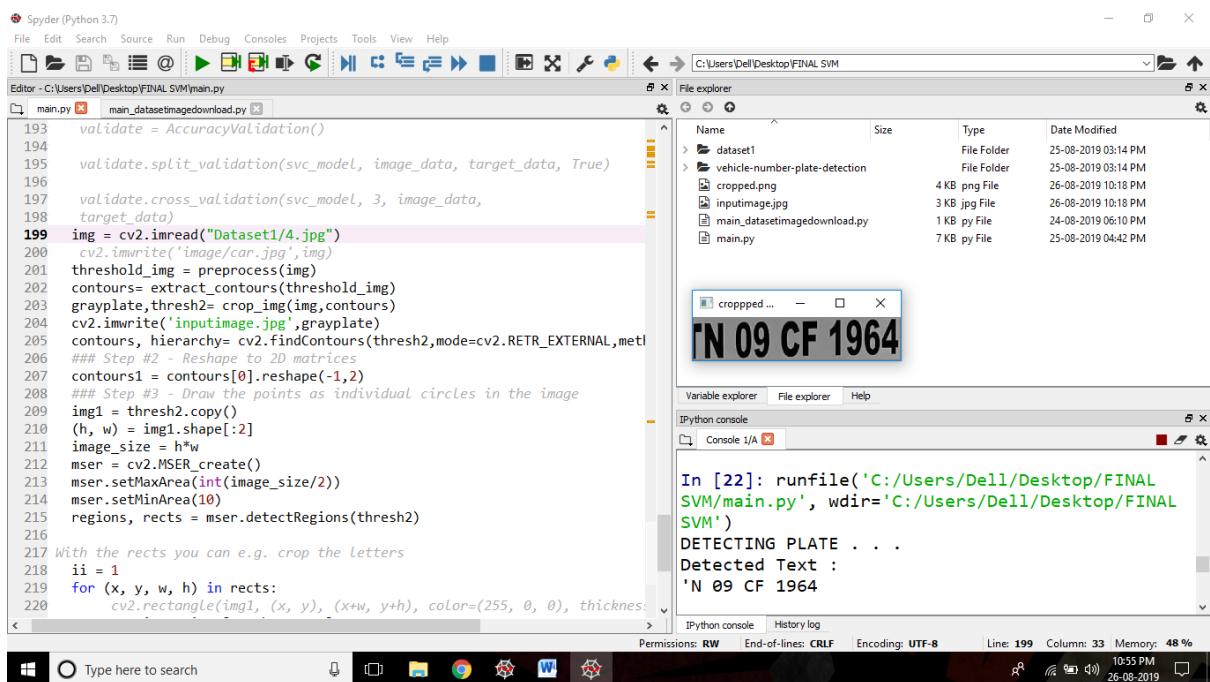
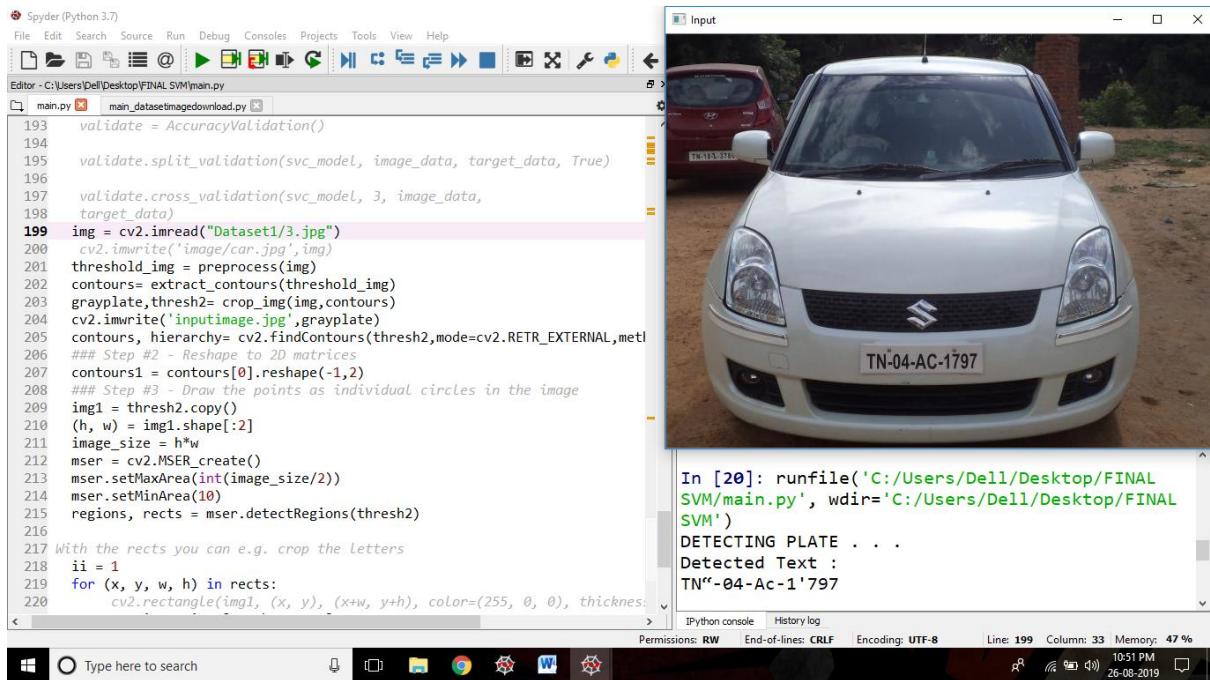
Detected Text :

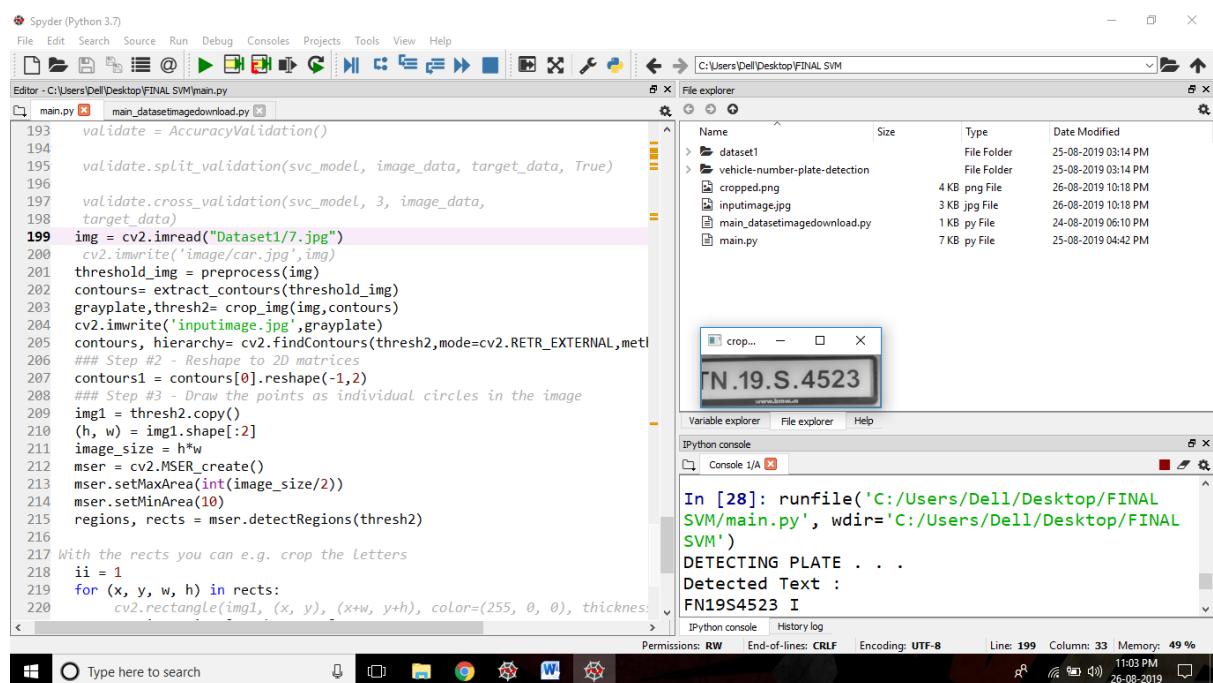
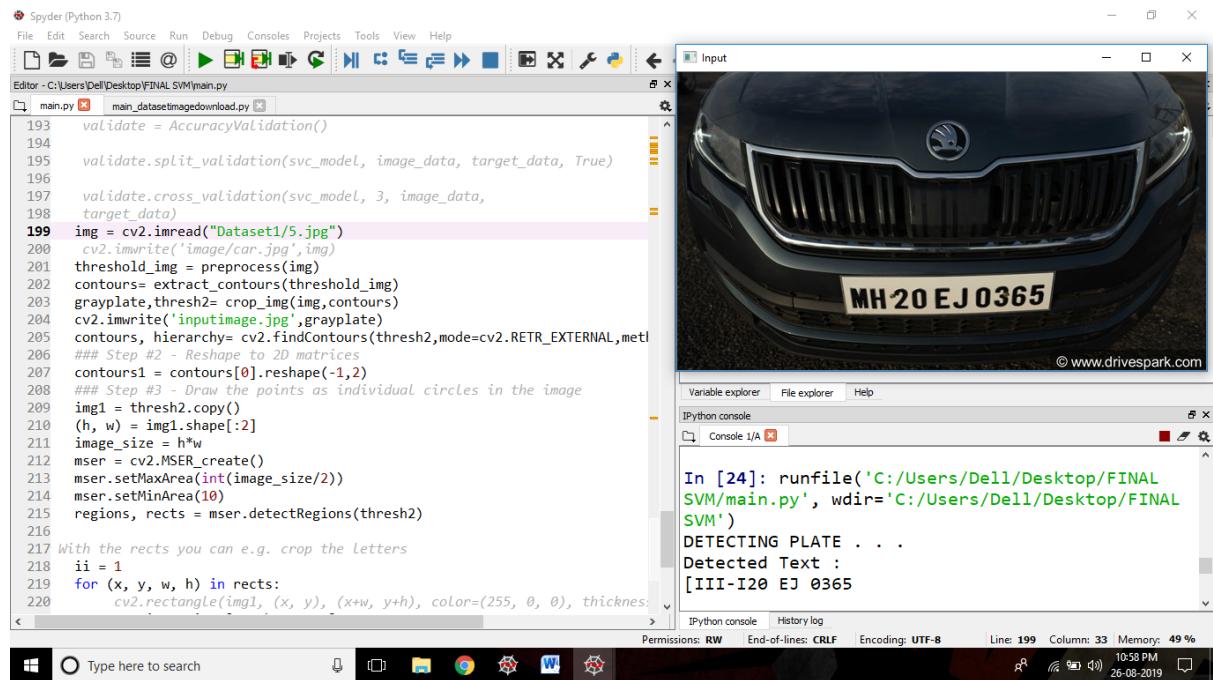
'MH 20 EE 7598'

IPython console History log

Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 199 Column: 33 Memory: 47 %

10:49 PM 26-08-2019





Spyder (Python 3.7)

File Edit Search Source Run Debug Consoles Projects Tools View Help

Editor - C:\Users\DELL\Desktop\FINAL SVM\main.py

```

193 validate = AccuracyValidation()
194
195 validate.split_validation(svc_model, image_data, target_data, True)
196
197 validate.cross_validation(svc_model, 3, image_data,
198 target_data)
199 img = cv2.imread("Dataset1/8.jpg")
200 cv2.imwrite('image/car.jpg',img)
201 threshold_img = preprocess(img)
202 contours= extract_contours(threshold_img)
203 grayplate,thresh2= crop_img(img,contours)
204 cv2.imwrite('inputimage.jpg',grayplate)
205 contours, hierarchy= cv2.findContours(thresh2,mode=cv2.RETR_EXTERNAL,method=cv2.CHAIN_APPROX_SIMPLE)
206 contours1 = contours[0].reshape(-1,2)
207
208
209
210
211
212
213
214
215
216
217 With the rects you can e.g. crop the letters
218 ii = 1
219 for (x, y, w, h) in rects:
220     cv2.rectangle(img1, (x, y), (x+w, y+h), color=(255, 0, 0), thickness=2)

```

File explorer

Name

- > dataset1
- > vehicle-number-plate
- cropped.png
- inputimage.jpg
- main_datalsetimagedownload.py
- main.py

Input

Variable explorer File explorer Help

In [30]: runfile('C:/Users/DELL/Desktop/FINAL SVM/main.py', wdir='C:/Users/DELL/Desktop/FINAL SVM')

DETECTING PLATE . . .

Detected Text :

CH01AN0001

IPython console History log

Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 199 Column: 33 Memory: 49 %

11:05 PM 26-08-2019

Spyder (Python 3.7)

File Edit Search Source Run Debug Consoles Projects Tools View Help

Editor - C:\Users\DELL\Desktop\FINAL SVM\main.py

```

193 validate = AccuracyValidation()
194
195 validate.split_validation(svc_model, image_data, target_data, True)
196
197 validate.cross_validation(svc_model, 3, image_data,
198 target_data)
199 img = cv2.imread("Dataset1/9.jpg")
200 cv2.imwrite('image/car.jpg',img)
201 threshold_img = preprocess(img)
202 contours= extract_contours(threshold_img)
203 grayplate,thresh2= crop_img(img,contours)
204 cv2.imwrite('inputimage.jpg',grayplate)
205 contours, hierarchy= cv2.findContours(thresh2,mode=cv2.RETR_EXTERNAL,method=cv2.CHAIN_APPROX_SIMPLE)
206 contours1 = contours[0].reshape(-1,2)
207
208
209
210
211
212
213
214
215
216
217 With the rects you can e.g. crop the letters
218 ii = 1
219 for (x, y, w, h) in rects:
220     cv2.rectangle(img1, (x, y), (x+w, y+h), color=(255, 0, 0), thickness=2)

```

File explorer

Name

- > dataset1
- > vehicle-number-plate-de
- cropped.png
- inputimage.jpg
- main_datalsetimagedownload.py
- main.py

Input

Variable explorer File explorer Help

In [34]: runfile('C:/Users/DELL/Desktop/FINAL SVM/main.py', wdir='C:/Users/DELL/Desktop/FINAL SVM')

DETECTING PLATE . . .

Detected Text :

UP16 TC 1470

IPython console History log

Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 199 Column: 33 Memory: 50 %

11:07 PM 26-08-2019

Spyder (Python 3.7)

```

193 validate = AccuracyValidation()
194
195 validate.split_validation(svc_model, image_data, target_data, True)
196
197 validate.cross_validation(svc_model, 3, image_data,
198 target_data)
199 img = cv2.imread("Dataset1/10.jpg")
200 cv2.imwrite('image/car.jpg',img)
201 threshold_img = preprocess(img)
202 contours= extract_contours(threshold_img)
203 grayplate,thresh2= crop_img(img,contours)
204 cv2.imwrite('inputimage.jpg',grayplate)
205 contours, hierarchy= cv2.findContours(thresh2,mode=cv2.RETR_EXTERNAL,method=cv2.CHAIN_APPROX_SIMPLE)
206 contours1 = contours[0].reshape(-1,2)
207
208
209
210
211
212
213
214
215
216
217 With the rects you can e.g. crop the letters
218 ii = 1
219 for (x, y, w, h) in rects:
220     cv2.rectangle(img1, (x, y), (x+w, y+h), color=(255, 0, 0), thickness=2)

```

File explorer

Name

- > dataset1
- > vehicle-n
- cropped
- inputimage
- main_data
- main.py

Input

Variable explorer

IPython console

```
In [37]: runfile('C:/Users/Dell/Desktop/FINAL SVM/main.py', wdir='C:/Users/Dell/Desktop/FINAL SVM')
DETECTING PLATE . . .
Detected Text :
MH12HJ6336
```

IPython console History log

Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 199 Column: 40 Memory: 50 %

11:11 PM 26-08-2019

Spyder (Python 3.7)

```

193 validate = AccuracyValidation()
194
195 validate.split_validation(svc_model, image_data, target_data, True)
196
197 validate.cross_validation(svc_model, 3, image_data,
198 target_data)
199 img = cv2.imread("Dataset1/11.jpg")
200 cv2.imwrite('image/car.jpg',img)
201 threshold_img = preprocess(img)
202 contours= extract_contours(threshold_img)
203 grayplate,thresh2= crop_img(img,contours)
204 cv2.imwrite('inputimage.jpg',grayplate)
205 contours, hierarchy= cv2.findContours(thresh2,mode=cv2.RETR_EXTERNAL,method=cv2.CHAIN_APPROX_SIMPLE)
206 contours1 = contours[0].reshape(-1,2)
207
208
209
210
211
212
213
214
215
216
217 With the rects you can e.g. crop the letters
218 ii = 1
219 for (x, y, w, h) in rects:
220     cv2.rectangle(img1, (x, y), (x+w, y+h), color=(255, 0, 0), thickness=2)

```

File explorer

Name

- > dataset1
- > vehicle-n
- cropped
- inputimage
- main_data
- main.py

Input

Variable explorer

IPython console

```
In [39]: runfile('C:/Users/Dell/Desktop/FINAL SVM/main.py', wdir='C:/Users/Dell/Desktop/FINAL SVM')
DETECTING PLATE . . .
Detected Text :
MH-12-TC-605-K
```

IPython console History log

Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 199 Column: 34 Memory: 50 %

11:13 PM 26-08-2019

Spyder (Python 3.7)

File Edit Search Source Run Debug Consoles Projects Tools View Help

Editor - C:/Users/Dell/Desktop/FINAL SVM/main.py

main.py main_dataloadedownload.py

```

193 validate = AccuracyValidation()
194
195 validate.split_validation(svc_model, image_data, target_data, True)
196
197 validate.cross_validation(svc_model, 3, image_data,
198 target_data)
199 img = cv2.imread("Dataset1/13.jpg")
200 cv2.imwrite('image/car.jpg',img)
201 threshold_img = preprocess(img)
202 contours= extract_contours(threshold_img)
203 grayplate,thresh2= crop_img(img,contours)
204 cv2.imwrite('inputimage.jpg',grayplate)
205 contours, hierarchy= cv2.findContours(thresh2,mode=cv2.RETR_EXTERNAL,method=cv2.CHAIN_APPROX_SIMPLE)
206 ## Step #2 - Reshape to 2D matrices
207 contours1 = contours[0].reshape(-1,2)
208 ## Step #3 - Draw the points as individual circles in the image
209 img1 = thresh2.copy()
210 (h, w) = img1.shape[:2]
211 image_size = h*w
212 mser = cv2.MSER_create()
213 mser.setMaxArea(int(image_size/2))
214 mser.setMinArea(10)
215 regions, rects = mser.detectRegions(thresh2)

With the rects you can e.g. crop the letters
ii = 1
for (x, y, w, h) in rects:
    cv2.rectangle(img1, (x, y), (x+w, y+h), color=(255, 0, 0), thickness=2)

216
217
218
219
220

```

In [43]: runfile('C:/Users/Dell/Desktop/FINAL SVM/main.py', wdir='C:/Users/Dell/Desktop/FINAL SVM')

DETECTING PLATE . . .

Detected Text :

TN DI AY D016

IPython console History log

Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 199 Column: 34 Memory: 49 %

11:17 PM 26-08-2019

Spyder (Python 3.7)

File Edit Search Source Run Debug Consoles Projects Tools View Help

Editor - C:/Users/Dell/Desktop/FINAL SVM/main.py

main.py main_dataloadedownload.py

```

181 #
182 ## kernel can be Linear, rbf e.t.c
183 # svc_model = SVC(kernel='Linear', probability=True)
184 #
185 # svc_model.fit(image_data, target_data)
186 #
187 ##config.save_model(svc_model, 'SVC_model')
188 #
189 #####
190 ## for validation and testing purposes
191 #####
192 #
193 # validate = AccuracyValidation()
194 #
195 # validate.split_validation(svc_model, image_data, target_data, True)
196 #
197 # validate.cross_validation(svc_model, 3, image_data,
198 # target_data)
199 img = cv2.imread("Dataset1/14.jpg")
200 cv2.imwrite('image/car.jpg',img)
201 threshold_img = preprocess(img)
202 contours= extract_contours(threshold_img)
203 grayplate,thresh2= crop_img(img,contours)
204 cv2.imwrite('inputimage.jpg',grayplate)
205 contours, hierarchy= cv2.findContours(thresh2,mode=cv2.RETR_EXTERNAL,method=cv2.CHAIN_APPROX_SIMPLE)
206 ## Step #2 - Reshape to 2D matrices
207 contours1 = contours[0].reshape(-1,2)
208 ## Step #3 - Draw the points as individual circles in the image
209 img1 = thresh2.copy()
210 (h, w) = img1.shape[:2]


```

In [1]: runfile('C:/Users/Dell/Desktop/FINAL SVM/main.py', wdir='C:/Users/Dell/Desktop/FINAL SVM')

DETECTING PLATE . . .

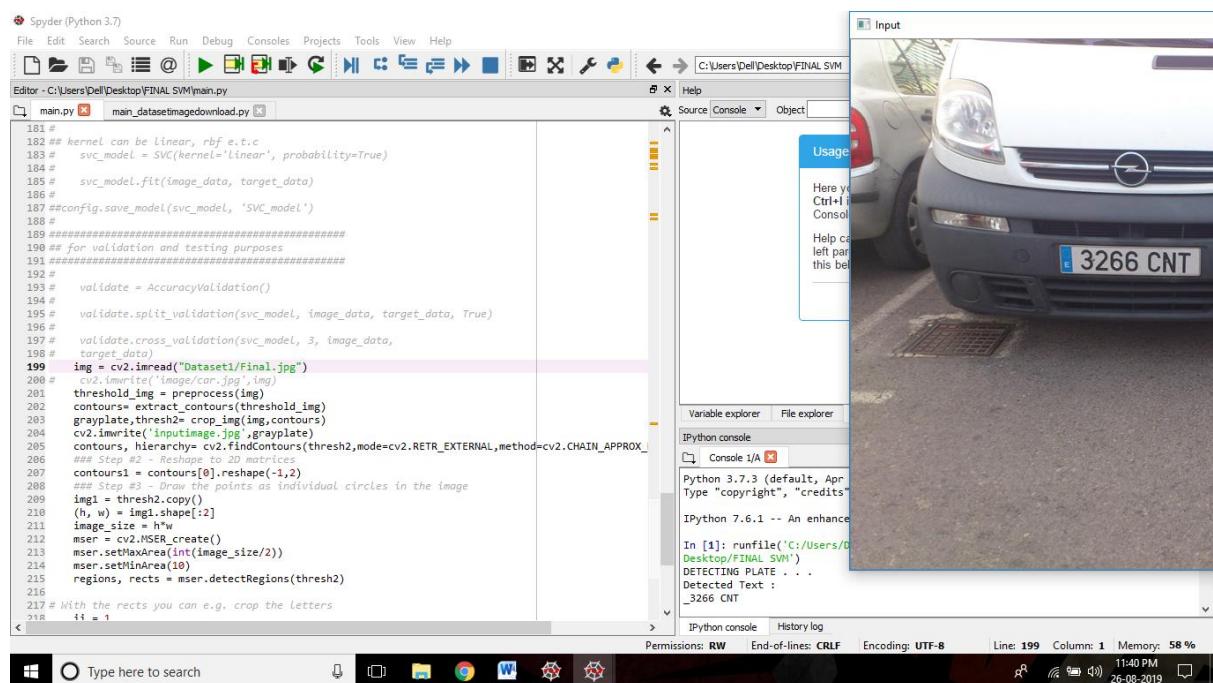
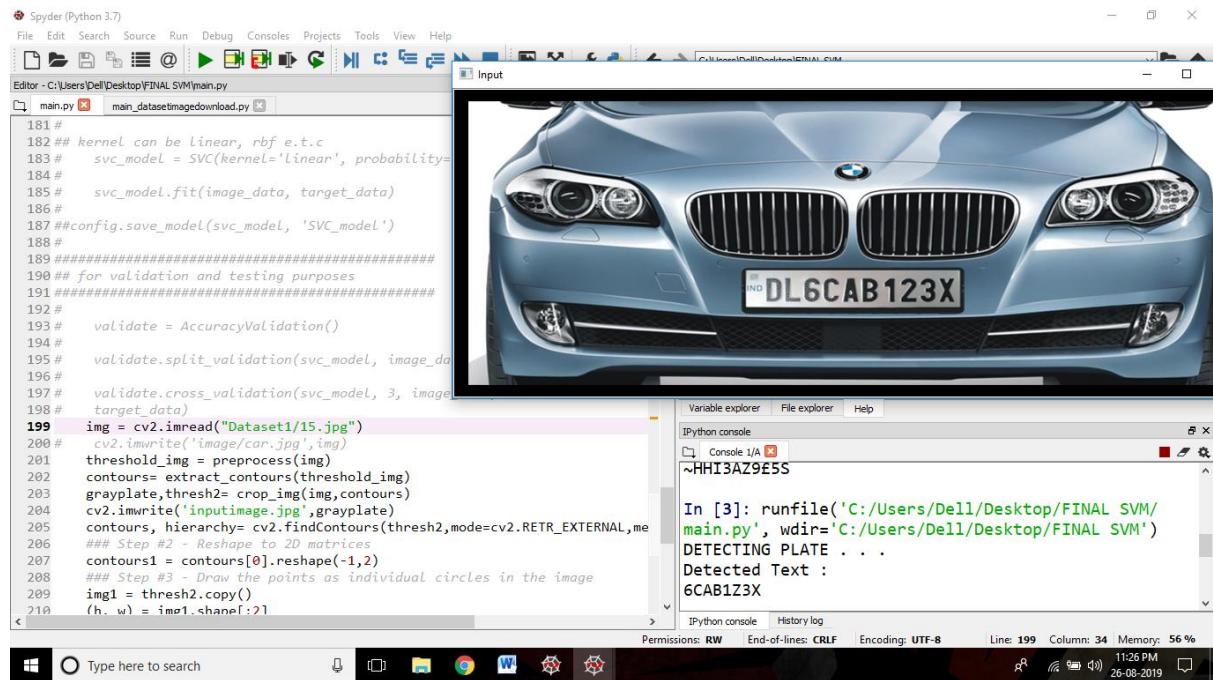
Detected Text :

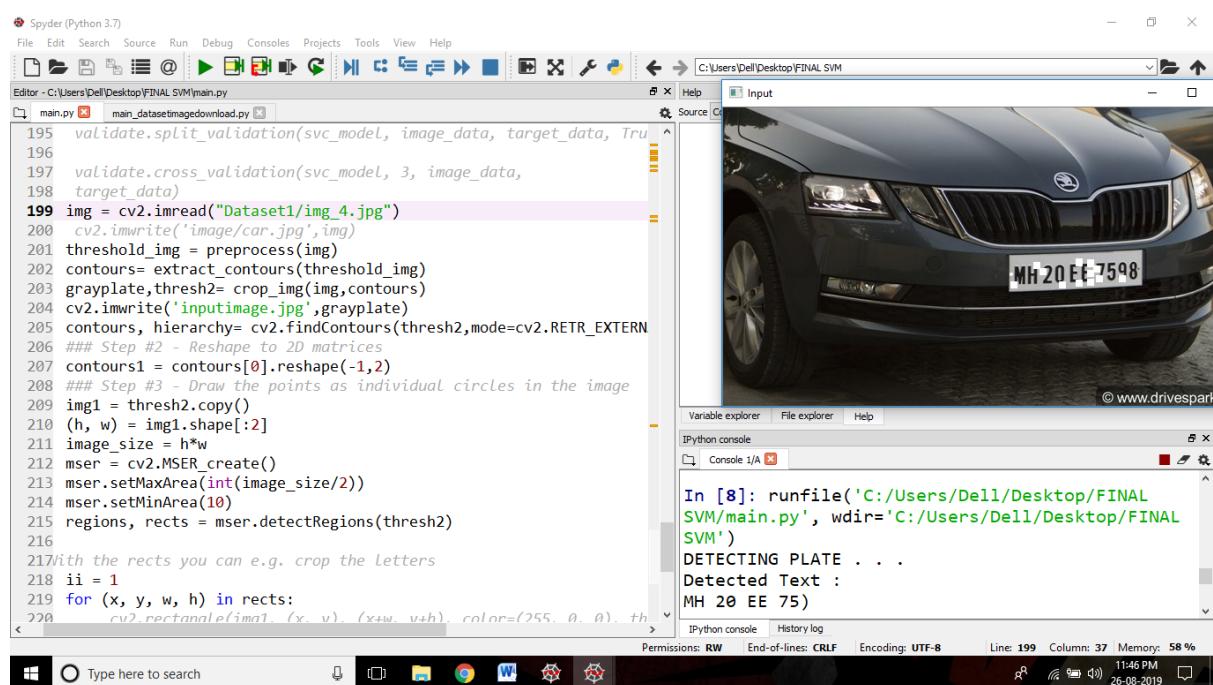
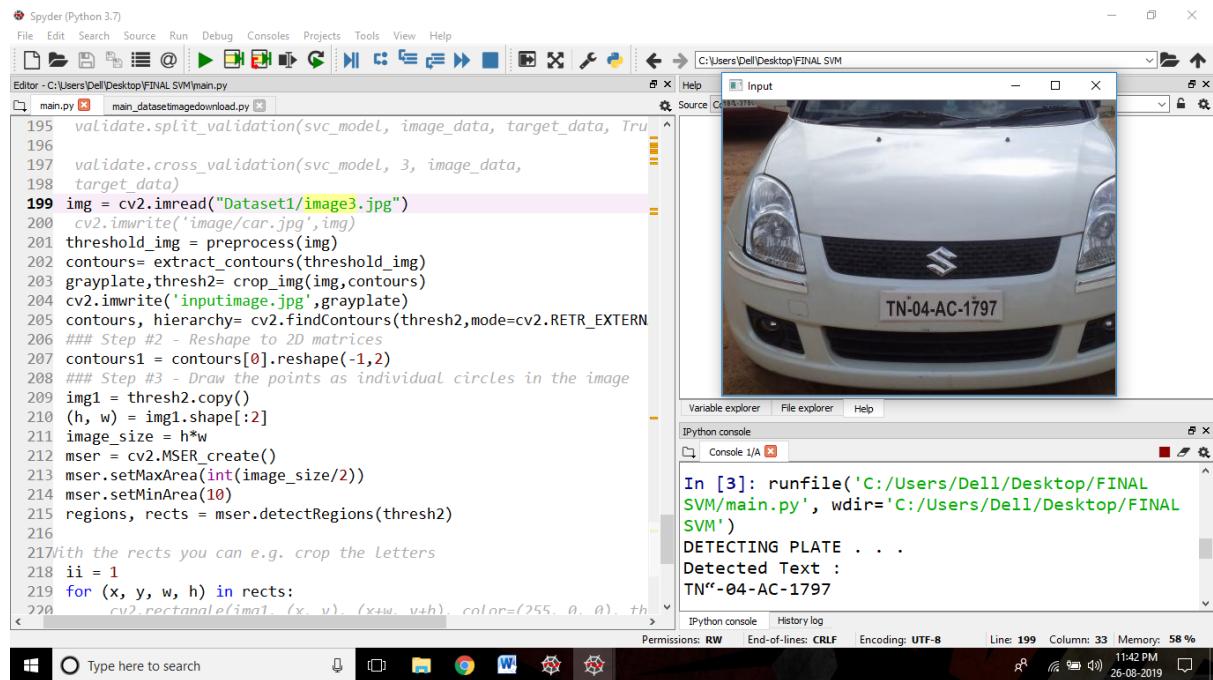
~HHI3AZ9E5S

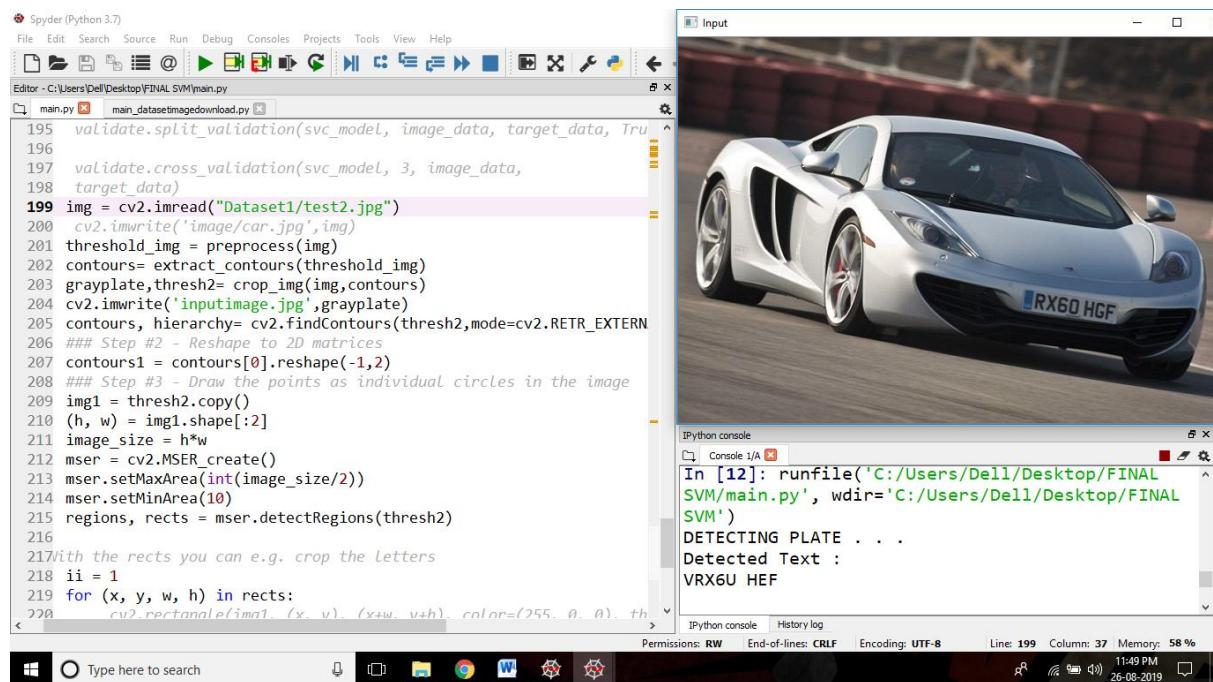
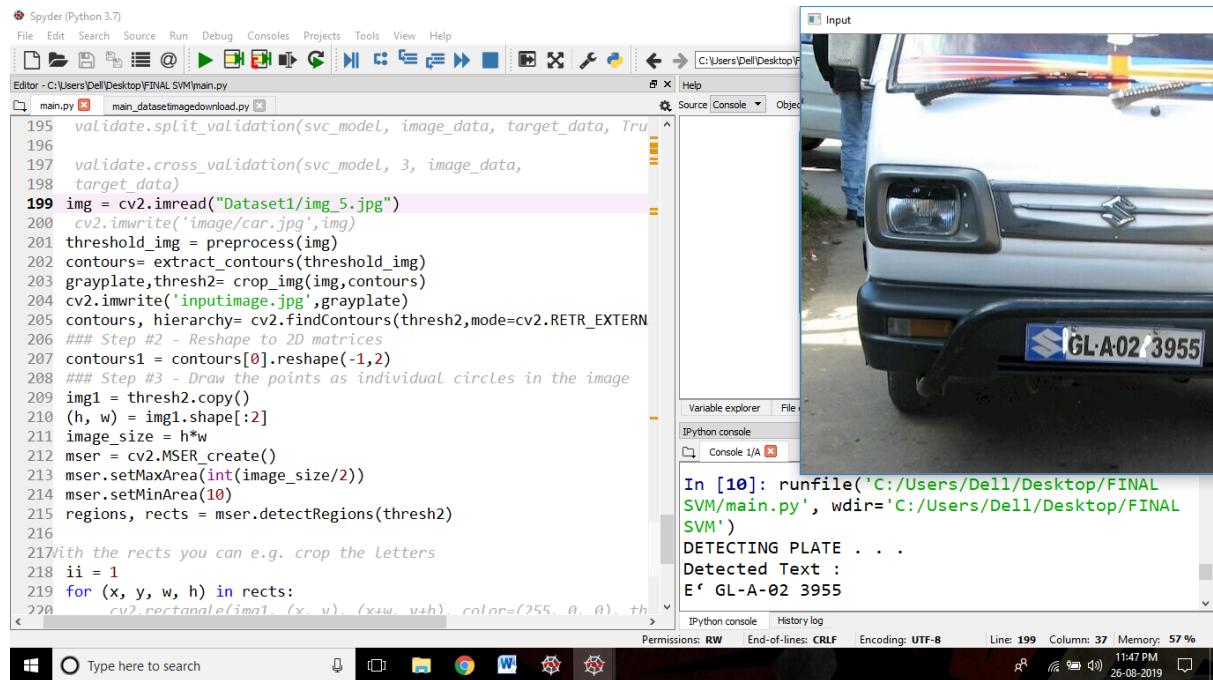
IPython console History log

Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 211 Column: 21 Memory: 57 %

11:23 PM 26-08-2019







Spyder (Python 3.7)

File Edit Search Source Run Debug Consoles Projects Tools View Help

Editor - C:\Users\DELL\Desktop\FINAL SVM\main.py

```

195 validate.split_validation(svc_model, image_data, target_data, True)
196
197 validate.cross_validation(svc_model, 3, image_data,
198 target_data)
199 img = cv2.imread("Dataset1/test3.jpg")
200 cv2.imwrite('image/car.jpg',img)
201 threshold_img = preprocess(img)
202 contours= extract_contours(threshold_img)
203 grayplate,thresh2= crop_img(img,contours)
204 cv2.imwrite('inputimage.jpg',grayplate)
205 contours, hierarchy= cv2.findContours(thresh2,mode=cv2.RETR_EXTERNAL,
206 method=cv2.CHAIN_APPROX_SIMPLE)
207 contours1 = contours[0].reshape(-1,2)
208 ##### Step #2 - Reshape to 2D matrices
209 contours1 = contours[0].reshape(-1,2)
210 img1 = thresh2.copy()
211 (h, w) = img1.shape[:2]
212 image_size = h*w
213 mser = cv2.MSER_create()
214 mser.setMaxArea(int(image_size/2))
215 mser.setMinArea(10)
216 regions, rects = mser.detectRegions(thresh2)
217 with the rects you can e.g. crop the letters
218 ii = 1
219 for (x, y, w, h) in rects:
220     cv2.rectangle(img1, (x, y), (x+w, y+h), color=(255, 0, 0), thickness=2)

```

Input

Variable explorer File

IPython console

In [14]: runfile('C:/Users/DELL/Desktop/FINAL SVM/main.py', wdir='C:/Users/DELL/Desktop/FINAL SVM')
DETECTING PLATE . . .
Detected Text :
[GL-A-023955]

IPython console History log

Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 199 Column: 37 Memory: 58 %

11:51 PM 26-08-2019