IPython console

Console 1/A

```
[[1246   17]
 [   0 1175]]
C:\Users\dell\anaconda3\lib\site-packages\sklearn\linear_model\_logistic.py:940: ConvergenceWarning: lbfgs failed to converge (status=1):
STOP: TOTAL NO. of ITERATIONS REACHED LIMIT.

Increase the number of iterations (max_iter) or scale the data as shown in:
    https://scikit-learn.org/stable/modules/preprocessing.html
Please also refer to the documentation for alternative solver options:
    https://scikit-learn.org/stable/modules/linear_model.html#logistic-regression
  extra_warning_msg=_LOGISTIC_SOLVER_CONVERGENCE_MSG)

In [19]: runfile('C:/Users/dell/Desktop/IEEE/Day3/mushroom.py', wdir='C:/Users/dell/Desktop/IEEE/Day3')
accuracy score= 99.30270713699754
[[1246   17]
 [   0 1175]]

In [20]: runfile('C:/Users/dell/Desktop/IEEE/Day3/mushroom.py', wdir='C:/Users/dell/Desktop/IEEE/Day3')
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[[1246   17]
 [   0 1175]]

In [21]:
```
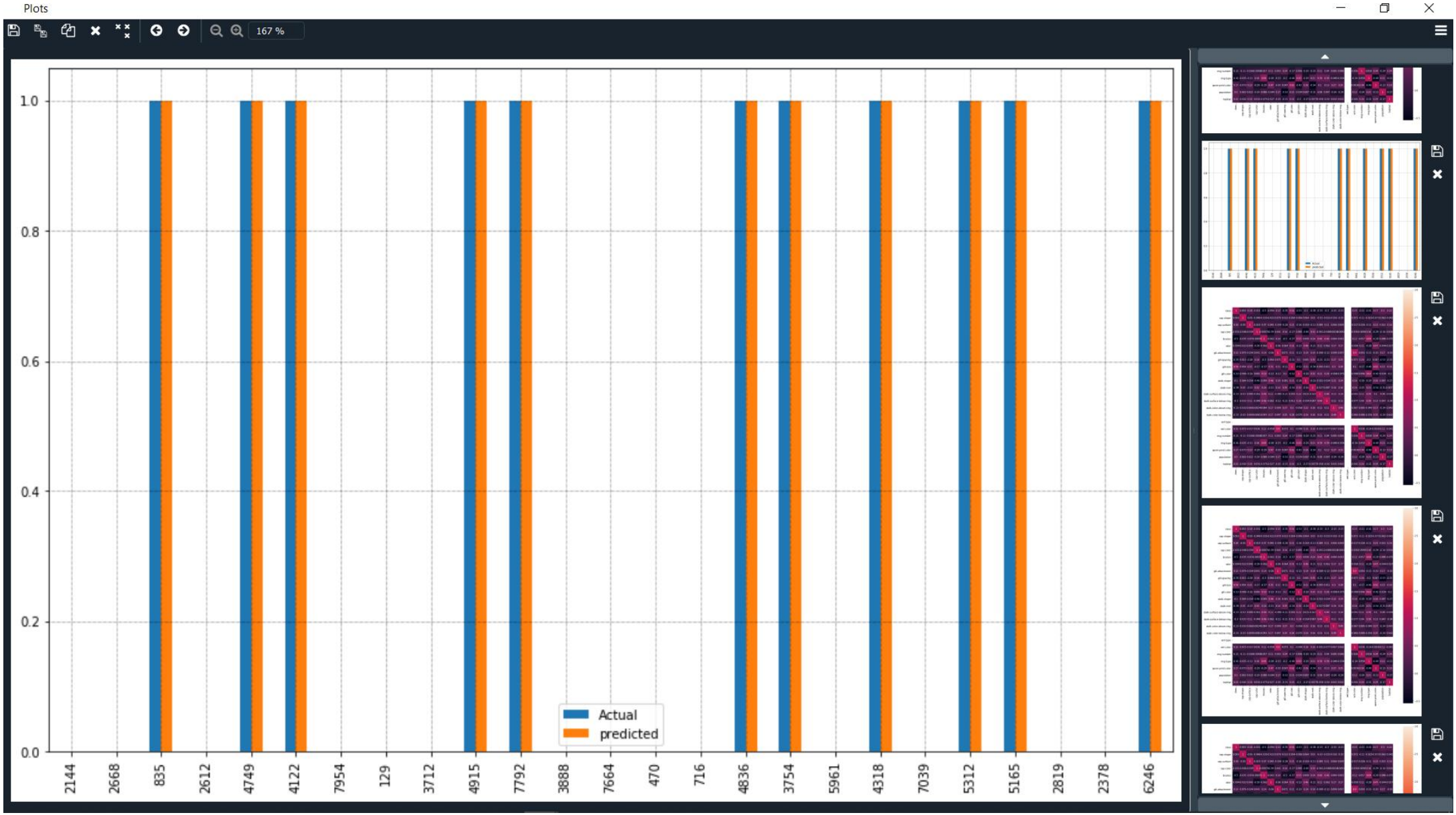
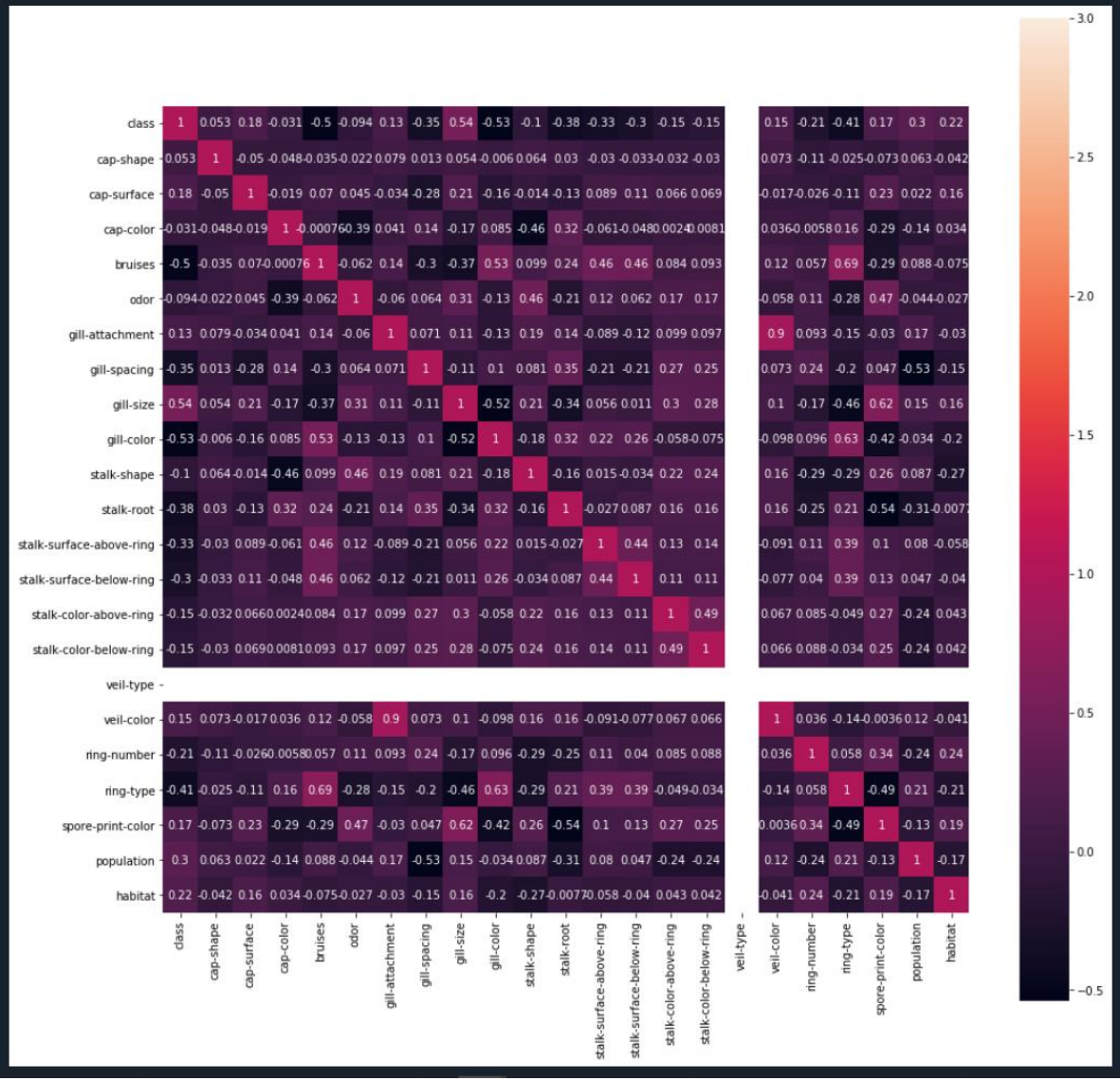


Plots
167 %
1.0
0.8
0.6
0.4
0.2
0.0
Actual
predicted
2144
2668
835
2612
4749
4122
7954
129
3712
4915
7792
3888
7664
470
716
4836
3754
5961
4318
7039
5312
5165
2819
2378
6246

Plots

106 %


class 1 0.053 0.18 -0.031 -0.5 -0.094 0.13 -0.35 0.54 -0.53 -0.1 -0.38 -0.33 -0.3 -0.15 -0.15 0.15 -0.21 -0.41 0.17 0.3 0.22
cap-shape 0.053 1 -0.05 -0.048 -0.035 -0.022 0.079 0.013 0.054 -0.006 0.064 0.03 -0.03 -0.033 -0.032 -0.03 0.073 -0.11 -0.025 -0.073 0.063 -0.042
cap-surface 0.18 -0.05 1 -0.019 0.07 0.045 -0.034 -0.28 0.21 -0.16 -0.014 -0.13 0.089 0.11 0.066 0.069 -0.017 -0.026 -0.11 0.23 0.022 0.16
cap-color -0.031 -0.048 -0.019 1 -0.00076 0.39 0.041 0.14 -0.17 0.085 -0.46 0.32 -0.061 -0.048 0.0024 0.0081 0.036 -0.0058 0.16 -0.29 -0.14 0.034
bruises -0.5 -0.035 0.07 -0.00076 1 -0.062 0.14 -0.3 -0.37 0.53 0.099 0.24 0.46 0.46 0.084 0.093 0.12 0.057 0.69 -0.29 0.088 -0.075
odor -0.094 -0.022 0.045 -0.39 -0.062 1 -0.06 0.064 0.31 -0.13 0.46 -0.21 0.12 0.062 0.17 0.17 -0.058 0.11 -0.28 0.47 -0.044 -0.027
gill-attachment 0.13 0.079 -0.034 0.041 0.14 -0.06 1 0.071 0.11 -0.13 0.19 0.14 -0.089 -0.12 0.099 0.097 0.9 0.093 -0.15 -0.03 0.17 -0.03
gill-spacing -0.35 0.013 -0.28 0.14 -0.3 0.064 0.071 1 -0.11 0.1 0.081 0.35 -0.21 -0.21 0.27 0.25 0.073 0.24 -0.2 0.047 -0.53 -0.15
gill-size 0.54 0.054 0.21 -0.17 -0.37 0.31 0.11 -0.11 1 -0.52 0.21 -0.34 0.056 0.011 0.3 0.28 0.1 -0.17 -0.46 0.62 0.15 0.16
gill-color -0.53 -0.006 -0.16 0.085 0.53 -0.13 -0.13 0.1 -0.52 1 -0.18 0.32 0.22 0.26 -0.058 -0.075 -0.098 0.096 0.63 -0.42 -0.034 -0.2
stalk-shape -0.1 0.064 -0.014 -0.46 0.099 0.46 0.19 0.081 0.21 -0.18 1 -0.16 0.015 -0.034 0.22 0.24 0.16 -0.29 -0.29 0.26 0.087 -0.27
stalk-root -0.38 0.03 -0.13 0.32 0.24 -0.21 0.14 0.35 -0.34 0.32 -0.16 1 -0.027 0.087 0.16 0.16 0.16 -0.25 0.21 -0.54 -0.31 -0.007
stalk-surface-above-ring -0.33 -0.03 0.089 -0.061 0.46 0.12 -0.089 -0.21 0.056 0.22 0.015 -0.027 1 0.44 0.13 0.14 -0.091 0.11 0.39 0.1 0.08 -0.058
stalk-surface-below-ring -0.3 -0.033 0.11 -0.048 0.46 0.062 -0.12 -0.21 0.011 0.26 -0.034 0.087 0.44 1 0.11 0.11 -0.077 0.04 0.39 0.13 0.047 -0.04
stalk-color-above-ring -0.15 -0.032 0.066 0.0024 0.084 0.17 0.099 0.27 0.3 -0.058 0.22 0.16 0.13 0.11 1 0.49 0.067 0.085 -0.049 0.27 -0.24 0.043
stalk-color-below-ring -0.15 -0.03 0.069 0.0081 0.093 0.17 0.097 0.25 0.28 -0.075 0.24 0.16 0.14 0.11 0.49 1 0.066 0.088 -0.034 0.25 -0.24 0.042
veil-type -
veil-color 0.15 0.073 -0.017 0.036 0.12 -0.058 0.9 0.073 0.1 -0.098 0.16 0.16 -0.091 -0.077 0.067 0.066 1 0.036 -0.14 -0.0036 0.12 -0.041
ring-number -0.21 -0.11 -0.026 0.0058 0.057 0.11 0.093 0.24 -0.17 0.096 -0.29 -0.25 0.11 0.04 0.085 0.088 0.036 1 0.058 0.34 -0.24 0.24
ring-type -0.41 -0.025 -0.11 0.16 0.69 -0.28 -0.15 -0.2 -0.46 0.63 -0.29 0.21 0.39 0.39 -0.049 -0.034 -0.14 0.058 1 -0.49 0.21 -0.21
spore-print-color 0.17 -0.073 0.23 -0.29 -0.29 0.47 -0.03 0.047 0.62 -0.42 0.26 -0.54 0.1 0.13 0.27 0.25 0.0036 0.34 -0.49 1 -0.13 0.19
population 0.3 0.063 0.022 -0.14 0.088 -0.044 0.17 -0.53 0.15 -0.034 0.087 -0.31 0.08 0.047 -0.24 -0.24 0.12 -0.24 0.21 -0.13 1 -0.17
habitat 0.22 -0.042 0.16 0.034 -0.075 -0.027 -0.03 -0.15 0.16 -0.2 -0.27 -0.007 0.058 -0.04 0.043 0.042 -0.041 0.24 -0.21 0.19 -0.17 1
class
cap-shape
cap-surface
cap-color
bruises
odor
gill-attachment
gill-spacing
gill-size
gill-color
stalk-shape
stalk-root
stalk-surface-above-ring
stalk-surface-below-ring
stalk-color-above-ring
stalk-color-below-ring
veil-type
veil-color
ring-number
ring-type
spore-print-color
population
habitat
3.0
2.5
2.0
1.5
1.0
0.5
0.0
−0.5

Spyder (Python 3.7)

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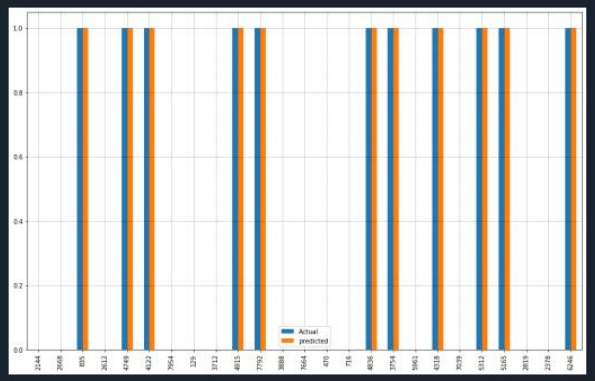
C:\Users\dell\Desktop\IEEE\Day3

C:\Users\dell\Desktop\IEEE\Day3\mushroom.py

temp.py | mushroom.py | social.py

```
9   import matplotlib.pyplot as plt
10  import pandas as pd
11  data=pd.read_csv("mushroom.csv")
12  from sklearn.preprocessing import LabelEncoder,OneHotEncoder
13  le=LabelEncoder()
14  data=data.apply(le.fit_transform)
15  y=data["class"]
16  x=data.drop("class",axis=1)
17
18  corr = data.corr()
19  f, ax = plt.subplots(figsize=(16, 16))
20  sns.heatmap(corr,square=True,vmax=3,annot=True)
21  plt.show()
22  x=data.drop(["class","cap-color","bruises","odor","gill-spacing","gill-color","stalk
23
24  import numpy as np
25
26  one=OneHotEncoder()
27  x=one.fit_transform(x).toarray()
28
29
30  from sklearn.model_selection import train_test_split
31
32  from sklearn.metrics import accuracy_score, confusion_matrix
33  from sklearn.model_selection import train_test_split
34  x_train,x_test,y_train,y_test=train_test_split(x,y,random_state=0,stratify=y,test_si
35  from sklearn.tree import DecisionTreeClassifier
36  dt=DecisionTreeClassifier()
37  clf=dt.fit(x_train,y_train)
38  ypred_train=dt.predict(x_train)
39  ypred=dt.predict(x_test)
40  accuracy=accuracy_score(ypred,y_test)
41  print("accuracy score=",accuracy*100)
42  cm=confusion_matrix(y_test, ypred)
43  print(cm)
44  df=pd.DataFrame({'Actual':y_test,"predicted":ypred})
45  df1=df.head(25)
46  df1.plot(kind="bar",figsize=(16,10))
47  plt.grid(which='major',linestyle='-',linewidth='0.5',color='green')
48  plt.grid(which='major',linestyle=':',linewidth='0.5',color='black')
49  plt.show()
50
```

55 %



Variable explorer | Help | Files | Profiler | Code Analysis | Plots

Console 1/A

```
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failed to converge (status=1):
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  extra_warning_msg=_LOGISTIC_SOLVER_CONVERGENCE_MSG)

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In [21]:
```

History | IPython console

conda: base (Python 3.7.6) | Line 27, Col 33 | UTF-8 | CRLF | RW | Mem 69%