

```

!pip install -U -q PyDrive
import os
from pydrive.auth import GoogleAuth
from pydrive.drive import GoogleDrive
from google.colab import auth
from oauth2client.client import GoogleCredentials

# 1. Authenticate and create the PyDrive client.
auth.authenticate_user()
gauth = GoogleAuth()
gauth.credentials = GoogleCredentials.get_application_default()
drive = GoogleDrive(gauth)

# choose a local (colab) directory to store the data.
local_download_path = os.path.expanduser('~/.data')
try:
    os.makedirs(local_download_path)
except: pass

# 2. Auto-iterate using the query syntax
# https://developers.google.com/drive/v2/web/search-parameters
file_list = drive.ListFile(
    {'q': "'1imx6kKXQA1S3my_bnNlxt_XfWd3kJDi' in parents"}).GetList()

for f in file_list:
    # 3. Create & download by id.
    print('title: %s, id: %s' % (f['title'], f['id']))
    fname = os.path.join(local_download_path, f['title'])
    print('downloading to {}'.format(fname))
    f_ = drive.CreateFile({'id': f['id']})
    f_.GetContentFile(fname)

```

```

title: X_test_picked.pkl, id: 1vfG5TfcIX0WvK9dZCvgibVotnW9-YSTp
downloading to /content/data/X_test_picked.pkl
title: X_train_picked.pkl, id: 1SaUIV5ered822WzND17ozXHgfrZrLVin
downloading to /content/data/X_train_picked.pkl
title: y_train_picked.pkl, id: 17oKssXRY4NC2p8DAko5Me0N_IJRVhbzd
downloading to /content/data/y_train_picked.pkl
title: y_test_picked.pkl, id: 1bsXNqaZusrHnXV1UWsFNpyzwcSMV-PMK
downloading to /content/data/y_test_picked.pkl

```

```

import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
from sklearn.datasets import load_iris
from sklearn.feature_selection import SelectKBest
from sklearn.feature_selection import chi2
from sklearn.feature_selection import mutual_info_classif
from scipy.stats import pearsonr
from sklearn import svm
from sklearn.svm import SVC
from sklearn.metrics import accuracy_score
from sklearn.model_selection import GridSearchCV
import pickle
from sklearn.naive_bayes import GaussianNB

```

```
path_dataset_save = '/content/data/'
```

```
file = open(path_dataset_save+'X_train_picked.pkl', 'rb')
```

```
X_train_picked = pickle.load(file); file.close()
file = open(path_dataset_save+'X_test_picked.pkl','rb')
X_test_picked = pickle.load(file); file.close()
file = open(path_dataset_save+'y_train_picked.pkl','rb')
y_train_picked = pickle.load(file); file.close()
file = open(path_dataset_save+'y_test_picked.pkl','rb')
y_test_picked = pickle.load(file); file.close()
```

```
A=pd.DataFrame(X_train_picked)
B=pd.DataFrame(y_train_picked)
C=pd.DataFrame(X_test_picked)
D=pd.DataFrame(y_test_picked)
```

```
A.to_csv('X_train_picked.csv')
B.to_csv('Y_train_picked.csv')
C.to_csv('X_test_picked.csv')
D.to_csv('Y_test_picked.csv')
```

```
from google.colab import files
```

```
files.download('X_train_picked.csv')
#files.download('Y_train_picked.csv')
#files.download('X_test_picked.csv')
#files.download('Y_test_picked.csv')
```

```
df1 = pd.DataFrame(X_train_picked)
```

```
Y=pd.DataFrame(y_train_picked)
Y.columns=['f1']
```

```
#-----CHI-SQUARED-----
```


```
X=df1;
#Using all the samples for
c=SelectKBest(chi2, k=400)
c.fit_transform(X,Y)
names1 = X.columns.values[c.get_support()]
```

```
names1
```



```
array([ 67,  68,  69,  70,  71,  72,  73,  74,  75,  76,  77,  93,  94,
        95,  96,  97,  98,  99, 100, 101, 102, 103, 104, 105, 119, 120,
       121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 134,
       135, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156,
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       714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726,
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       779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791,
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       805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817,
       818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830,
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       844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856,
       857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869,
       870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882,
       883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895,
       896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908,
       909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921,
       922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934,
       935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947,
       948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960,
       961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973,
       974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986,
       987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999])
```

```
#tuned_parameters = [{'kernel': ['rbf'], 'gamma': [1e-3, 1e-4], 'C': [1, 10, 100, 1000]}]
#clf = GridSearchCV( LassoLarsCV(), parameters, cv=6, n_jobs=4, verbose=1)
#clf1 = GridSearchCV(GaussianNB(), cv=3)
clf1=GaussianNB()
clf1.fit(X[names1],Y)
#clf1.fit(df1[names1],Y)
#clf1.fit(X,Y)
#clf.grid_scores_
#print (clf1.grid_scores_)
#model = clf1.best_estimator_
```


```
 /usr/local/lib/python3.6/dist-packages/sklearn/utils/validation.py:578: DataConversionWarning:
  y = column_or_1d(y, warn=True)
  GaussianNB(priors=None)
```

```
721 724 725 726 727 728 729 740 741 742 743 744 745
```


```
X1=pd.DataFrame(X_test_picked)
Y1=pd.DataFrame(y_test_picked)

y_pred = clf1.predict(X1[names1])
```

```
accuracy_score(Y1, y_pred)
```

```
 0.6746
```

```
#-----MI-----
c2=SelectKBest(mutual_info_classif, k=400)
c2.fit_transform(X,Y)
names2 = X.columns.values[c2.get_support()]
```

```
 /usr/local/lib/python3.6/dist-packages/sklearn/utils/validation.py:578: DataConversionWarning:
  y = column_or_1d(y, warn=True)
```

```
clf2=GaussianNB()  
clf2.fit(X[names2],Y)
```



```
/usr/local/lib/python3.6/dist-packages/sklearn/utils/validation.py:578: DataConversionWarning:   
  y = column_or_1d(y, warn=True)  
GaussianNB(priors=None)
```

names2



```
array([ 4, 38, 39, 43, 68, 69, 70, 71, 72, 73, 74, 75, 76,  
       94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 118,  
      119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131,  
      132, 133, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155,  
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      190, 191, 192, 193, 200, 201, 202, 203, 204, 205, 206, 207, 208,  
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      387, 388, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406,  
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      428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440,  
      441, 442, 443, 444, 447, 452, 453, 454, 455, 456, 457, 458, 459,  
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      473, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489,  
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      537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549,  
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      568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580,  
      581, 582, 583, 584, 585, 591, 592, 593, 594, 595, 596, 597, 598,  
      599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611,  
      612, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630,  
      631, 632, 633, 634, 635, 636, 637, 639, 649, 650, 651, 652, 653,  
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      691, 692, 693, 695, 696, 701, 707, 708, 709, 710, 711, 712, 713,  
      714, 715, 716, 717, 718, 719, 720, 735, 736, 737, 738, 739, 740,  
      741, 742, 743, 744, 745, 746])
```


```
X1=pd.DataFrame(X_test_picked)  
Y1=pd.DataFrame(y_test_picked)  
y_pred = clf2.predict(X1[names2])
```

Y1.shape



```
(5000, 1)
```


```
accuracy_score(Y1, y_pred)
```

 0.677

```
result = X.join(Y,how='outer')
result
X3=result.loc[1:10001,abs(result.corr()['f1']>0.01)]
X3=X3.drop(['f1'],axis=1)
len(X3.columns)
```


 290

```
clf3=GaussianNB()
clf3.fit(X3,Y[1:10000])
```

 /usr/local/lib/python3.6/dist-packages/sklearn/utils/validation.py:578: DataConversionWarning: A column-vector y was passed when a 1d array was expected. Please change the shape of y to (n,) or (n, 1) to bypass this warning.
 y = column_or_1d(y, warn=True)
GaussianNB(priors=None)

```
X1=pd.DataFrame(X_test_picked)
Y1=pd.DataFrame(y_test_picked)
y_pred = clf3.predict(X1[X3.columns])
```

```
accuracy_score(Y1, y_pred)
```

 0.4916