What is Colaboratory?

Colaboratory, or "Colab" for short, allows you to write and execute Python in your browser, with

- Zero configuration required
- Free access to GPUs
- Easy sharing

Whether you're a **student**, a **data scientist** or an **AI researcher**, Colab can make your work easier. Watch Introduction to Colab to learn more, or just get started below!

```
DataFrame: data
View
DataFrame with shape (11055, 31)
```

Getting started

The document you are reading is not a static web page, but an interactive environment called a **Colab notebook** that lets you write and execute code.

For example, here is a **code cell** with a short Python script that computes a value, stores it in a variable, and prints the result:

```
seconds_in_a_day = 24 * 60 * 60
seconds_in_a_day

     86400
```

To execute the code in the above cell, select it with a click and then either press the play button to the left of the code, or use the keyboard shortcut "Command/Ctrl+Enter". To edit the code, just click the cell and start editing.

Variables that you define in one cell can later be used in other cells:

```
seconds_in_a_week = 7 * seconds_in_a_day
seconds_in_a_week

     604800
```

Colab notebooks allow you to combine **executable code** and **rich text** in a single document, along with **images**, **HTML**, **LaTeX** and more. When you create your own Colab notebooks, they are stored in your Google Drive account. You can easily share your Colab notebooks with co-workers or friends, allowing them to comment on your notebooks or even edit them. To learn more, see Overview of Colab. To create a new Colab notebook you can use the File menu above, or use the following link: create a new Colab notebook.

Colab notebooks are Jupyter notebooks that are hosted by Colab. To learn more about the Jupyter project, see jupyter.org.

Data science

With Colab you can harness the full power of popular Python libraries to analyze and visualize data. The code cell below uses **numpy** to generate some random data, and uses **matplotlib** to visualize it. To edit the code, just click the cell and start editing.

```
import numpy as np
from matplotlib import pyplot as plt

ys = 200 + np.random.randn(100)
x = [x for x in range(len(ys))]

plt.plot(x, ys, '-')
plt.fill_between(x, ys, 195, where=(ys > 195), facecolor='g', alpha=0.6)

plt.title("Sample Visualization")
plt.show()
```

```
DataFrame: data
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DataFrame with shape (11055, 31)
```

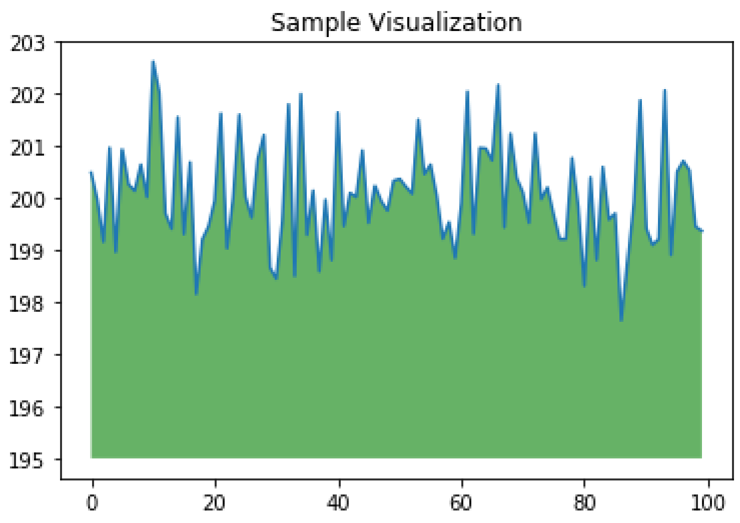

You can import your own data into Colab notebooks from your Google Drive account, including from spreadsheets, as well as from Github and many other sources. To learn more about importing data, and how Colab can be used for data science, see the links below under Working with Data.

Machine learning

With Colab you can import an image dataset, train an image classifier on it, and evaluate the model, all in just a few lines of code. Colab notebooks execute code on Google's cloud servers, meaning you can leverage the power of Google hardware, including GPUs and TPUs, regardless of the power of your machine. All you need is a browser.

Colab is used extensively in the machine learning community with applications including:

- Getting started with TensorFlow
- Developing and training neural networks
- Experimenting with TPUs
- Disseminating AI research
- Creating tutorials

To see sample Colab notebooks that demonstrate machine learning applications, see the machine learning examples below.

```
DataFrame: data
```

View

```
DataFrame with shape (11055, 31)
```

More Resources

Working with Notebooks in Colab

- Overview of Colaboratory
- Guide to Markdown
- Importing libraries and installing dependencies
- Saving and loading notebooks in GitHub
- Interactive forms
- Interactive widgets
- NEW TensorFlow 2 in Colab

Working with Data

- Loading data: Drive, Sheets, and Google Cloud Storage
- Charts: visualizing data
- Getting started with BigQuery

Machine Learning Crash Course

These are a few of the notebooks from Google's online Machine Learning course. See the full course website for more.

- Intro to Pandas DataFrame
- Linear regression with tf.keras using synthetic data

Using Accelerated Hardware

- TensorFlow with GPUs
- TensorFlow with TPUs

Machine Learning Examples

To see end-to-end examples of the interactive machine learning analyses that Colaboratory makes possible, check out these tutorials using models from TensorFlow Hub.

A few featured examples:

- Retraining an Image Classifier: Build a Keras model on top of a pre-trained image classifier to distinguish flowers.
- Text Classification: Classify IMDB movie reviews as either *positive* or *negative*.
- Style Transfer: Use deep learning to transfer style between images.
- Multilingual Universal Sentence Encoder Q&A: Use a machine learning model to answer questions from the SQuAD dataset.
- Video Interpolation: Predict what happened in a video between the first and the last frame.

```
DataFrame: data

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DataFrame with shape (11055, 31)
```

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
data = pd.read_csv("/content/Phishingwebsites_Data.csv")
data.head()
```

	id	having_IP_Address	URL_Length	Shortining_Service	having_At_Symbol	double_s
0	1	-1	1	1	1	
1	2	1	1	1	1	
2	3	1	0	1	1	
3	4	1	0	1	1	
4	5	1	0	-1	1	

```
data.drop(["id"],axis=1,inplace=True)
data.columns
```

```
Index(['having_IP_Address', 'URL_Length', 'Shortining_Service',
       'having_At_Symbol', 'double_slash_redirecting', 'Prefix_Suffix',
       'having_Sub_Domain', 'SSLfinal_State', 'Domain_registeration_length',
       'Favicon', 'port', 'HTTPS_token', 'Request_URL', 'URL_of_Anchor',
       'Links_in_tags', 'SFH', 'Submitting_to_email', 'Abnormal_URL',
       'Redirect', 'on_mouseover', 'RightClick', 'popUpWidnow', 'Iframe',
       'age_of_domain', 'DNSRecord', 'web_traffic', 'Page_Rank',
       'Google_Index', 'Links_pointing_to_page', 'Statistical_report',
       'Result'],
      dtype='object')
```

```
data.shape
```

```
(11055, 31)
```

```
data.isnull().values.any()
```

```
False
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('having_IP_Address',axis=1)
y=data['having_IP_Address']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
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```

```
train set accuracy:  84.96155585707824
Test set accuracy :  84.71279963817278
              precision    recall  f1-score   support

          -1       0.83      0.70      0.76       762
           1       0.85      0.93      0.89      1449

    accuracy                           0.85      2211
   macro avg       0.84      0.81      0.82      2211
weighted avg       0.85      0.85      0.84      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('URL_Length',axis=1)
y=data['URL_Length']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  85.2894617819991
Test set accuracy :  84.62234283129806
              precision    recall  f1-score   support

          -1       0.87      0.95      0.91      1800
           0       0.24      0.20      0.22        30
           1       0.68      0.40      0.50       381

    accuracy                           0.85      2211
   macro avg       0.60      0.52      0.54      2211
weighted avg       0.83      0.85      0.83      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Shortining_Service',axis=1)
y=data['Shortining_Service']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

DataFrame: data
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DataFrame with shape (11055, 31)

```
train set accuracy:  97.42198100407056
Test set accuracy :  97.60289461781998
              precision    recall  f1-score   support

          -1       0.95      0.86      0.90       287
           1       0.98      0.99      0.99      1924

    accuracy                           0.98      2211
   macro avg       0.96      0.93      0.94      2211
weighted avg       0.98      0.98      0.98      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('having_At_Symbol',axis=1)
y=data['having_At_Symbol']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  90.06105834464043
Test set accuracy :  89.68792401628222
              precision    recall  f1-score   support

          -1       0.77      0.47      0.59       342
           1       0.91      0.97      0.94      1869

    accuracy                           0.90      2211
   macro avg       0.84      0.72      0.76      2211
weighted avg       0.89      0.90      0.89      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('double_slash_redirecting',axis=1)
y=data['double_slash_redirecting']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

DataFrame: data
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```
     train set accuracy:  97.85165083672547
     Test set accuracy :  97.3767526006332
                   precision    recall  f1-score   support

              -1       0.91      0.88      0.89       278
               1       0.98      0.99      0.99      1933

        accuracy                           0.97      2211
       macro avg       0.95      0.93      0.94      2211
    weighted avg       0.97      0.97      0.97      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Prefix_Suffix',axis=1)
y=data['Prefix_Suffix']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
     train set accuracy:  87.05336951605608
     Test set accuracy :  88.42152872003618
                   precision    recall  f1-score   support

              -1       0.89      0.99      0.94      1930
               1       0.66      0.18      0.28       281

        accuracy                           0.88      2211
       macro avg       0.78      0.58      0.61      2211
    weighted avg       0.86      0.88      0.85      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
```

```
x=data.drop('having_Sub_Domain',axis=1)
y=data['having_Sub_Domain']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
                                             DataFrame: data
train set accuracy:  55.461329715061055
Test set accuracy :  55.992763455450024     View
              precision    recall  f1-score   support
                                               DataFrame with shape (11055, 31)
          -1       0.45      0.33      0.38       650
           0       0.54      0.56      0.55       712
           1       0.63      0.73      0.68       849

    accuracy                           0.56      2211
   macro avg       0.54      0.54      0.54      2211
weighted avg       0.55      0.56      0.55      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('SSLfinal_State',axis=1)
y=data['SSLfinal_State']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  79.69244685662596
Test set accuracy :  78.01899592944369
              precision    recall  f1-score   support

          -1       0.65      0.75      0.70       710
           0       0.48      0.34      0.40       247
           1       0.91      0.88      0.90      1254

    accuracy                           0.78      2211
   macro avg       0.68      0.66      0.66      2211
weighted avg       0.78      0.78      0.78      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
```

```
x=data.drop('Domain_registeration_length',axis=1)
y=data['Domain_registeration_length']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
                                                DataFrame: data
     train set accuracy:  80.68747173224786
     Test set accuracy :  80.05427408412483      View
                   precision    recall  f1-score   support
                                                DataFrame with shape (11055, 31)
              -1       0.86      0.82      0.84      1436
               1       0.70      0.76      0.73       775

        accuracy                           0.80      2211
       macro avg       0.78      0.79      0.79      2211
    weighted avg       0.81      0.80      0.80      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Favicon',axis=1)
y=data['Favicon']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
     train set accuracy:  98.30393487109905
     Test set accuracy :  98.10040705563094
                   precision    recall  f1-score   support

              -1       0.96      0.94      0.95       426
               1       0.99      0.99      0.99      1785

        accuracy                           0.98      2211
       macro avg       0.97      0.97      0.97      2211
    weighted avg       0.98      0.98      0.98      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('port',axis=1)
y=data['port']
```

```
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  98.73360470375395
Test set accuracy :  98.28132066938036
              precision    recall  f1-score   support

          -1       0.92      0.95      0.94       295
           1       0.99      0.99      0.99      1916

    accuracy                           0.98      2211
   macro avg       0.96      0.97      0.96      2211
weighted avg       0.98      0.98      0.98      2211
```

DataFrame: data

View

DataFrame with shape (11055, 31)

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('HTTPS_token',axis=1)
y=data['HTTPS_token']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  94.4708276797829
Test set accuracy :  93.441881501583
              precision    recall  f1-score   support

          -1       0.88      0.70      0.78       368
           1       0.94      0.98      0.96      1843

    accuracy                           0.93      2211
   macro avg       0.91      0.84      0.87      2211
weighted avg       0.93      0.93      0.93      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Request_URL',axis=1)
y=data['Request_URL']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
```

```
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  81.70511080958842
Test set accuracy :  81.63726820443237
              precision    recall  f1-score   support

          -1       0.84      0.71      0.77       950
           1       0.80      0.90      0.85      1261

    accuracy                           0.82      2211
   macro avg       0.82      0.80      0.81      2211
weighted avg       0.82      0.82      0.81      2211
```

DataFrame: data

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DataFrame with shape (11055, 31)

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('URL_of_Anchor',axis=1)
y=data['URL_of_Anchor']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  66.7910447761194
Test set accuracy :  67.20940750791497
              precision    recall  f1-score   support

          -1       0.75      0.84      0.80       694
           0       0.65      0.72      0.68      1043
           1       0.53      0.33      0.41       474

    accuracy                           0.67      2211
   macro avg       0.65      0.63      0.63      2211
weighted avg       0.66      0.67      0.66      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Links_in_tags',axis=1)
y=data['Links_in_tags']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
```

```
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  47.8629579375848
Test set accuracy :  46.675712347354136
              precision    recall  f1-score   support

          -1       0.49      0.47      0.48       785
           0       0.47      0.59      0.53       869
           1       0.40      0.26      0.31       557

    accuracy                           0.47      2211
   macro avg       0.45      0.44      0.44      2211
weighted avg       0.46      0.47      0.46      2211
```

```
DataFrame: data
View
DataFrame with shape (11055, 31)
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('SFH',axis=1)
y=data['SFH']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  78.3355947535052
Test set accuracy :  78.24513794663048
              precision    recall  f1-score   support

          -1       0.81      0.96      0.88      1712
           0       0.00      0.00      0.00       151
           1       0.49      0.24      0.33       348

    accuracy                           0.78      2211
   macro avg       0.43      0.40      0.40      2211
weighted avg       0.71      0.78      0.73      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Submitting_to_email',axis=1)
y=data['Submitting_to_email']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
```

```
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  95.16056083220262
Test set accuracy :  93.35142469470827
              precision    recall  f1-score   support

          -1       0.93      0.70      0.80       420
           1       0.93      0.99      0.96      1791

    accuracy                           0.93      2211
   macro avg       0.93      0.85      0.88      2211
weighted avg       0.93      0.93      0.93      2211
```

DataFrame: data

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DataFrame with shape (11055, 31)

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Abnormal_URL',axis=1)
y=data['Abnormal_URL']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  95.88421528720036
Test set accuracy :  95.61284486657621
              precision    recall  f1-score   support

          -1       0.88      0.81      0.85       327
           1       0.97      0.98      0.97      1884

    accuracy                           0.96      2211
   macro avg       0.92      0.90      0.91      2211
weighted avg       0.96      0.96      0.96      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Redirect',axis=1)
y=data['Redirect']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  93.13658977838082
Test set accuracy :  92.67299864314789
              precision    recall  f1-score   support

           0       0.94      0.98      0.96      1951
           1       0.76      0.55      0.64       260

    accuracy                           0.93      2211
   macro avg       0.85      0.76      0.80      2211
weighted avg       0.92      0.93      0.92      2211
```

DataFrame: data

View

DataFrame with shape (11055, 31)

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('on_mouseover',axis=1)
y=data['on_mouseover']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  95.16056083220262
Test set accuracy :  93.9846223428313
              precision    recall  f1-score   support

          -1       0.74      0.76      0.75       260
           1       0.97      0.96      0.97      1951

    accuracy                           0.94      2211
   macro avg       0.85      0.86      0.86      2211
weighted avg       0.94      0.94      0.94      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('RightClick',axis=1)
y=data['RightClick']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  96.40434192672998
Test set accuracy :  96.11035730438715
              precision    recall  f1-score   support

          -1       0.56      0.47      0.51        96
           1       0.98      0.98      0.98      2115

    accuracy                           0.96      2211
   macro avg       0.77      0.73      0.75      2211
weighted avg       0.96      0.96      0.96      2211
```

DataFrame: data

View

DataFrame with shape (11055, 31)

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('popUpWidnow',axis=1)
y=data['popUpWidnow']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  98.37177747625509
Test set accuracy :  98.05517865219358
              precision    recall  f1-score   support

          -1       0.96      0.94      0.95       439
           1       0.98      0.99      0.99      1772

    accuracy                           0.98      2211
   macro avg       0.97      0.96      0.97      2211
weighted avg       0.98      0.98      0.98      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Iframe',axis=1)
y=data['Iframe']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  96.42695612844867
```

```
Test set accuracy :  96.47218453188603
              precision    recall  f1-score   support

          -1       0.81      0.78      0.80       194
           1       0.98      0.98      0.98      2017

    accuracy                           0.96      2211
   macro avg       0.89      0.88      0.89      2211
weighted avg       0.96      0.96      0.96      2211
```

DataFrame: data

View

DataFrame with shape (11055, 31)

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('age_of_domain',axis=1)
y=data['age_of_domain']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  69.2672998643148
Test set accuracy :  68.475802804161
              precision    recall  f1-score   support

          -1       0.66      0.63      0.65      1010
           1       0.70      0.73      0.71      1201

    accuracy                           0.68      2211
   macro avg       0.68      0.68      0.68      2211
weighted avg       0.68      0.68      0.68      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('DNSRecord',axis=1)
y=data['DNSRecord']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  85.87743102668476
Test set accuracy :  86.883763003166
              precision    recall  f1-score   support
```

```
          -1       0.83      0.72      0.77       674
           1       0.88      0.93      0.91      1537

    accuracy                           0.87      2211
   macro avg       0.86      0.83      0.84      2211
weighted avg       0.87      0.87      0.87      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('web_traffic',axis=1)
y=data['web_traffic']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
DataFrame: data
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```

```
train set accuracy:  59.55450022614202
Test set accuracy :  60.741745816372685
              precision    recall  f1-score   support

          -1       0.52      0.40      0.45       553
           0       0.45      0.32      0.37       501
           1       0.68      0.83      0.74      1157

    accuracy                           0.61      2211
   macro avg       0.55      0.52      0.52      2211
weighted avg       0.58      0.61      0.59      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Page_Rank',axis=1)
y=data['Page_Rank']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  75.62189054726367
Test set accuracy :  75.7123473541384
              precision    recall  f1-score   support
```

```
          -1       0.78      0.94      0.85      1636
           1       0.58      0.25      0.34       575

    accuracy                           0.76      2211
   macro avg       0.68      0.59      0.60      2211
weighted avg       0.73      0.76      0.72      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Google_Index',axis=1)
y=data['Google_Index']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

DataFrame: data

View

DataFrame with shape (11055, 31)

```
train set accuracy:  86.94029850746269
Test set accuracy :  86.83853459972863
              precision    recall  f1-score   support

          -1       0.63      0.15      0.24       310
           1       0.88      0.99      0.93      1901

    accuracy                           0.87      2211
   macro avg       0.75      0.57      0.59      2211
weighted avg       0.84      0.87      0.83      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Links_pointing_to_page',axis=1)
y=data['Links_pointing_to_page']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  75.02261420171868
Test set accuracy :  74.94346449570331
              precision    recall  f1-score   support

          -1       0.17      0.05      0.07       107
           0       0.78      0.82      0.80      1238
           1       0.73      0.73      0.73       866

    accuracy                           0.75      2211
   macro avg       0.56      0.53      0.53      2211
weighted avg       0.73      0.75      0.74      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Statistical_report',axis=1)
y=data['Statistical_report']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
DataFrame: data
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DataFrame with shape (11055, 31)
```

```
train set accuracy:  89.80099502487562
Test set accuracy :  89.91406603346903
              precision    recall  f1-score   support

          -1       0.74      0.40      0.52       300
           1       0.91      0.98      0.94      1911

    accuracy                           0.90      2211
   macro avg       0.82      0.69      0.73      2211
weighted avg       0.89      0.90      0.89      2211
```

```
from sklearn.ensemble import AdaBoostClassifier
from sklearn.metrics import accuracy_score
from sklearn.metrics import mean_squared_error
from sklearn import metrics
from sklearn.model_selection import train_test_split
x=data.drop('Result',axis=1)
y=data['Result']
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=0)
adc=AdaBoostClassifier(random_state=0)
adc.fit(x_train,y_train)
y_predict=adc.predict(x_test)
print("train set accuracy: ",100*adc.score(x_train,y_train))
print("Test set accuracy : ",100*adc.score(x_test,y_test))
print(metrics.classification_report(y_test,y_predict))
```

```
train set accuracy:  93.8150158299412
Test set accuracy :  93.26096788783356
              precision    recall  f1-score   support

          -1       0.94      0.91      0.93      1014
           1       0.93      0.95      0.94      1197
```

```
    accuracy                           0.93      2211
   macro avg       0.93      0.93      0.93      2211
weighted avg       0.93      0.93      0.93      2211
```

```
DataFrame: data
```

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```
DataFrame with shape (11055, 31)
```

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