```python
import os, types
import pandas as pd
from botocore.client import Config
import ibm_boto3

def __iter__(self): return 0

# @hidden_cell
# The following code accesses a file in your IBM Cloud Object Storage. It
includes your credentials.
# You might want to remove those credentials before you share the notebook.
cos_client = ibm_boto3.client(service_name='s3',
    ibm_api_key_id='Yvey0a8nHXCeOCSU6rc9-O0ZTin1RYQCH60hv1a693xn',
    ibm_auth_endpoint="https://iam.cloud.ibm.com/oidc/token",
    config=Config(signature_version='oauth'),
    endpoint_url='https://s3.private.us.cloud-object-
storage.appdomain.cloud')

bucket = 'basicmodeldeployment-donotdelete-pr-3msb4enhu3uf2k'
object_key = 'dataset_website.csv'

body = cos_client.get_object(Bucket=bucket,Key=object_key)['Body']
# add missing __iter__ method, so pandas accepts body as file-like object
if not hasattr(body, "__iter__"): body.__iter__ = types.MethodType( __iter__,
body )

df = pd.read_csv(body)
df.head()
```

Out[59]:

index	having_IPhaving_IP_Address	URLURL_Length	Shortining_Service	having_At_Symbol	double_slash_redirecting	Prefix_Suffix	having_Sub_Domain	SSLfinal_State	Domain_registration_length		popUpWindow	Iframe	age_of_domain	DNSRecord	web_traffic	Page_Rank	Google_Index	Links_pointing_to_page	Statistical_report	Result
1	-1	1	1	1	-1	-1	-1	-1	-1		1	1	-1	-1	-1	-1	1	1	-1	-1
2	1	1	1	1	1	-1	0	1	-1		1	1	-1	-1	0	-1	1	1	1	-1
3	1	0	1	1	1	-1	-1	-1	-1		1	1	1	-1	1	-1	1	0	-1	-1

index	having_IPhaving_IP_Address	URLURL_Length	Shortining_Service	having_At_Symbol	double_slash_redirecting	Prefix_Suffix	having_Sub_Domain	SSLfinal_State	Domain_registeration_length	...	popUpWidnow	Iframe	age_of_domain	DNSRecord	web_traffic	Page_Rank	Google_Index	Links_pointing_to_page	Statistical_report	Result
4	1	0	1	1	1	-1	-1	-1	1	...	1	1	-1	-1	1	-1	1	-1	1	-1
5	1	0	-1	1	1	-1	1	1	-1	...	-1	1	-1	-1	0	-1	1	1	1	1

5 rows × 32 columns

In [60]:

```
#checking null values
df.info()
```

```
RangeIndex: 11055 entries, 0 to 11054
Data columns (total 32 columns):
 #   Column                       Non-Null Count  Dtype
---  ------                       --------------  -----
 0   index                        11055 non-null  int64
 1   having_IPhaving_IP_Address   11055 non-null  int64
 2   URLURL_Length                11055 non-null  int64
 3   Shortining_Service           11055 non-null  int64
 4   having_At_Symbol             11055 non-null  int64
 5   double_slash_redirecting     11055 non-null  int64
 6   Prefix_Suffix                11055 non-null  int64
 7   having_Sub_Domain            11055 non-null  int64
 8   SSLfinal_State               11055 non-null  int64
 9   Domain_registeration_length  11055 non-null  int64
 10  Favicon                      11055 non-null  int64
 11  port                         11055 non-null  int64
 12  HTTPS_token                  11055 non-null  int64
 13  Request_URL                  11055 non-null  int64
 14  URL_of_Anchor                11055 non-null  int64
 15  Links_in_tags                11055 non-null  int64
 16  SFH                          11055 non-null  int64
 17  Submitting_to_email          11055 non-null  int64
 18  Abnormal_URL                 11055 non-null  int64
 19  Redirect                     11055 non-null  int64
 20  on_mouseover                 11055 non-null  int64
 21  RightClick                   11055 non-null  int64
 22  popUpWidnow                  11055 non-null  int64
 23  Iframe                       11055 non-null  int64
```

```
 24   age_of_domain                11055 non-null   int64
 25   DNSRecord                    11055 non-null   int64
 26   web_traffic                  11055 non-null   int64
 27   Page_Rank                    11055 non-null   int64
 28   Google_Index                 11055 non-null   int64
 29   Links_pointing_to_page       11055 non-null   int64
 30   Statistical_report           11055 non-null   int64
 31   Result                       11055 non-null   int64
dtypes: int64(32)
memory usage: 2.7 MB
```

```
 df.isnull().any()
```

```
index                          False
having_IPhaving_IP_Address     False
URLURL_Length                  False
Shortining_Service             False
having_At_Symbol               False
double_slash_redirecting       False
Prefix_Suffix                  False
having_Sub_Domain              False
SSLfinal_State                 False
Domain_registeration_length    False
Favicon                        False
port                           False
HTTPS_token                    False
Request_URL                    False
URL_of_Anchor                  False
Links_in_tags                  False
SFH                            False
Submitting_to_email            False
Abnormal_URL                   False
Redirect                       False
on_mouseover                   False
RightClick                     False
popUpWidnow                    False
Iframe                         False
age_of_domain                  False
DNSRecord                      False
web_traffic                    False
Page_Rank                      False
Google_Index                   False
Links_pointing_to_page         False
Statistical_report             False
Result                         False
dtype: bool
```

There is no null values

splitting data as dependent and independent values.

```
x=df.iloc[:,1:31].values
y=df.iloc[:,-1].values

print(x,y)

[[-1  1  1 ...  1  1 -1]
 [ 1  1  1 ...  1  1  1]
 [ 1  0  1 ...  1  0 -1]
 ...
 [ 1 -1  1 ...  1  0  1]
 [-1 -1  1 ...  1  1  1]
 [-1 -1  1 ... -1  1 -1]] [-1 -1 -1 ... -1 -1 -1]
```

```
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.2,random_
state=0)
```

```
x_train.shape
```

```
(8844, 30)
```

```
x_test.shape
```

```
(2211, 30)
```

```
y_train.shape
```

```
(8844,)
```

```
y_test.shape
```

```
(2211,)
```

```
from sklearn.linear_model import LogisticRegression
lr=LogisticRegression()
lr.fit(x_train,y_train)
```

```
LogisticRegression()
```

```
from sklearn.ensemble import RandomForestClassifier
rf=RandomForestClassifier(n_estimators=10,criterion='entropy',random_sta
te=42)
rf.fit(x_train,y_train)
```

```
RandomForestClassifier(criterion='entropy', n_estimators=10,
random_state=42)
```

```
from sklearn.linear_model import LinearRegression
linr=LinearRegression()
linr.fit(x_train,y_train)
```

```
LinearRegression()
```

```
from sklearn.tree import DecisionTreeClassifier
dtree = DecisionTreeClassifier()
dtree.fit(x_train, y_train)
```

```
DecisionTreeClassifier()
```

```
from sklearn.naive_bayes import GaussianNB
gnb = GaussianNB()
gnb.fit(x_train, y_train)
```

```
GaussianNB()
```

```
!pip install ibm_watson_machine_learning
```

```
Requirement already satisfied: ibm_watson_machine_learning in
/opt/conda/envs/Python-3.9/lib/python3.9/site-packages (1.0.257)
Requirement already satisfied: packaging in /opt/conda/envs/Python-
3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (21.3)
Requirement already satisfied: pandas<1.5.0,>=0.24.2 in
/opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from
ibm_watson_machine_learning) (1.3.4)
Requirement already satisfied: lomond in /opt/conda/envs/Python-
3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (0.3.3)
Requirement already satisfied: urllib3 in /opt/conda/envs/Python-
3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning)
(1.26.7)
```

Requirement already satisfied: tabulate in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (0.8.9)
Requirement already satisfied: ibm-cos-sdk==2.11.* in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (2.11.0)
Requirement already satisfied: certifi in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (2022.9.24)
Requirement already satisfied: importlib-metadata in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (4.8.2)
Requirement already satisfied: requests in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (2.26.0)
Requirement already satisfied: ibm-cos-sdk-s3transfer==2.11.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-sdk==2.11.*->ibm_watson_machine_learning) (2.11.0)
Requirement already satisfied: jmespath<1.0.0,>=0.7.1 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-sdk==2.11.*->ibm_watson_machine_learning) (0.10.0)
Requirement already satisfied: ibm-cos-sdk-core==2.11.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-sdk==2.11.*->ibm_watson_machine_learning) (2.11.0)
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-sdk-core==2.11.0->ibm-cos-sdk==2.11.*->ibm_watson_machine_learning) (2.8.2)
Requirement already satisfied: pytz>=2017.3 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from pandas<1.5.0,>=0.24.2->ibm_watson_machine_learning) (2021.3)
Requirement already satisfied: numpy>=1.17.3 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from pandas<1.5.0,>=0.24.2->ibm_watson_machine_learning) (1.20.3)
Requirement already satisfied: six>=1.5 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from python-dateutil<3.0.0,>=2.1->ibm-cos-sdk-core==2.11.0->ibm-cos-sdk==2.11.*->ibm_watson_machine_learning) (1.15.0)
Requirement already satisfied: idna<4,>=2.5 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from requests->ibm_watson_machine_learning) (3.3)
Requirement already satisfied: charset-normalizer~=2.0.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from requests->ibm_watson_machine_learning) (2.0.4)
Requirement already satisfied: zipp>=0.5 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from importlib-metadata->ibm_watson_machine_learning) (3.6.0)
Requirement already satisfied: pyparsing!=3.0.5,>=2.0.2 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from packaging->ibm_watson_machine_learning) (3.0.4)

In [74]:

```python
from ibm_watson_machine_learning import APIClient
wml_credentials={"url":"https://us-south.ml.cloud.ibm.com",
 "apikey":"001tA0u5406fPphWBHm7tmkdjxeN_rhZem6AvnxQsLaa"}
```

```
client=APIClient(wml_credentials)
```

```
def guid_from_space_name(client,space_name):
    space=client.spaces.get_details()
    return(next(item for item in space['resources'] if
item['entity']['name'] == space_name)['metadata']['id'])
```

```
space_uid =guid_from_space_name(client,'modeldeployment')
print ('Space ID = '+space_uid)
```

Space ID = 3d7b865c-63f8-414a-9247-2d78f19081e5

```
client.set.default_space(space_uid)
```

'SUCCESS'

```
client.software_specifications.list(500)
```

```
-----------------------------  -----------------------------------  ---
-
NAME                           ASSET_ID
TYPE
default_py3.6                  0062b8c9-8b7d-44a0-a9b9-46c416adcbd9
base
kernel-spark3.2-scala2.12      020d69ce-7ac1-5e68-ac1a-31189867356a
base
pytorch-onnx_1.3-py3.7-edt     069ea134-3346-5748-b513-49120e15d288
base
scikit-learn_0.20-py3.6        09c5a1d0-9c1e-4473-a344-eb7b665ff687
base
spark-mllib_3.0-scala_2.12     09f4cff0-90a7-5899-b9ed-1ef348aebdee
base
pytorch-onnx_rt22.1-py3.9      0b848dd4-e681-5599-be41-b5f6fccc6471
base
ai-function_0.1-py3.6          0cdb0f1e-5376-4f4d-92dd-da3b69aa9bda
base
shiny-r3.6                     0e6e79df-875e-4f24-8ae9-62dcc2148306
base
tensorflow_2.4-py3.7-horovod   1092590a-307d-563d-9b62-4eb7d64b3f22
base
pytorch_1.1-py3.6              10ac12d6-6b30-4ccd-8392-3e922c096a92
base
tensorflow_1.15-py3.6-ddl      111e41b3-de2d-5422-a4d6-bf776828c4b7
base
runtime-22.1-py3.9             12b83a17-24d8-5082-900f-0ab31fbfd3cb
base
scikit-learn_0.22-py3.6        154010fa-5b3b-4ac1-82af-4d5ee5abbc85
base
```

```
default_r3.6                        1b70aec3-ab34-4b87-8aa0-a4a3c8296a36
base
pytorch-onnx_1.3-py3.6              1bc6029a-cc97-56da-b8e0-39c3880dbbe7
base
kernel-spark3.3-r3.6                1c9e5454-f216-59dd-a20e-474a5cdf5988
base
pytorch-onnx_rt22.1-py3.9-edt       1d362186-7ad5-5b59-8b6c-9d0880bde37f
base
tensorflow_2.1-py3.6                1eb25b84-d6ed-5dde-b6a5-3fbdf1665666
base
spark-mllib_3.2                     20047f72-0a98-58c7-9ff5-a77b012eb8f5
base
tensorflow_2.4-py3.8-horovod        217c16f6-178f-56bf-824a-b19f20564c49
base
runtime-22.1-py3.9-cuda             26215f05-08c3-5a41-a1b0-da66306ce658
base
do_py3.8                            295addb5-9ef9-547e-9bf4-92ae3563e720
base
autoai-ts_3.8-py3.8                 2aa0c932-798f-5ae9-abd6-15e0c2402fb5
base
tensorflow_1.15-py3.6               2b73a275-7cbf-420b-a912-eae7f436e0bc
base
kernel-spark3.3-py3.9               2b7961e2-e3b1-5a8c-a491-482c8368839a
base
pytorch_1.2-py3.6                   2c8ef57d-2687-4b7d-acce-01f94976dac1
base
spark-mllib_2.3                     2e51f700-bca0-4b0d-88dc-5c6791338875
base
pytorch-onnx_1.1-py3.6-edt          32983cea-3f32-4400-8965-dde874a8d67e
base
spark-mllib_3.0-py37                36507ebe-8770-55ba-ab2a-eafe787600e9
base
spark-mllib_2.4                     390d21f8-e58b-4fac-9c55-d7ceda621326
base
xgboost_0.82-py3.6                  39e31acd-5f30-41dc-ae44-60233c80306e
base
pytorch-onnx_1.2-py3.6-edt          40589d0e-7019-4e28-8daa-fb03b6f4fe12
base
default_r36py38                     41c247d3-45f8-5a71-b065-8580229facf0
base
autoai-ts_rt22.1-py3.9              4269d26e-07ba-5d40-8f66-2d495b0c71f7
base
autoai-obm_3.0                      42b92e18-d9ab-567f-988a-4240ba1ed5f7
base
pmml-3.0_4.3                        493bcb95-16f1-5bc5-bee8-81b8af80e9c7
base
spark-mllib_2.4-r_3.6               49403dff-92e9-4c87-a3d7-a42d0021c095
base
xgboost_0.90-py3.6                  4ff8d6c2-1343-4c18-85e1-689c965304d3
base
pytorch-onnx_1.1-py3.6              50f95b2a-bc16-43bb-bc94-b0bed208c60b
base
```

autoai-ts_3.9-py3.8 base	52c57136-80fa-572e-8728-a5e7cbb42cde
spark-mllib_2.4-scala_2.11 base	55a70f99-7320-4be5-9fb9-9edb5a443af5
spark-mllib_3.0 base	5c1b0ca2-4977-5c2e-9439-ffd44ea8ffe9
autoai-obm_2.0 base	5c2e37fa-80b8-5e77-840f-d912469614ee
spss-modeler_18.1 base	5c3cad7e-507f-4b2a-a9a3-ab53a21dee8b
cuda-py3.8 base	5d3232bf-c86b-5df4-a2cd-7bb870a1cd4e
autoai-kb_3.1-py3.7 base	632d4b22-10aa-5180-88f0-f52dfb6444d7
pytorch-onnx_1.7-py3.8 base	634d3cdc-b562-5bf9-a2d4-ea90a478456b
spark-mllib_2.3-r_3.6 base	6586b9e3-ccd6-4f92-900f-0f8cb2bd6f0c
tensorflow_2.4-py3.7 base	65e171d7-72d1-55d9-8ebb-f813d620c9bb
spss-modeler_18.2 base	687eddc9-028a-4117-b9dd-e57b36f1efa5
pytorch-onnx_1.2-py3.6 base	692a6a4d-2c4d-45ff-a1ed-b167ee55469a
spark-mllib_2.3-scala_2.11 base	7963efe5-bbec-417e-92cf-0574e21b4e8d
spark-mllib_2.4-py37 base	7abc992b-b685-532b-a122-a396a3cdbaab
caffe_1.0-py3.6 base	7bb3dbe2-da6e-4145-918d-b6d84aa93b6b
pytorch-onnx_1.7-py3.7 base	812c6631-42b7-5613-982b-02098e6c909c
cuda-py3.6 base	82c79ece-4d12-40e6-8787-a7b9e0f62770
tensorflow_1.15-py3.6-horovod base	8964680e-d5e4-5bb8-919b-8342c6c0dfd8
hybrid_0.1 base	8c1a58c6-62b5-4dc4-987a-df751c2756b6
pytorch-onnx_1.3-py3.7 base	8d5d8a87-a912-54cf-81ec-3914adaa988d
caffe-ibm_1.0-py3.6 base	8d863266-7927-4d1e-97d7-56a7f4c0a19b
spss-modeler_17.1 base	902d0051-84bd-4af6-ab6b-8f6aa6fdeabb
do_12.10 base	9100fd72-8159-4eb9-8a0b-a87e12eefa36
do_py3.7 base	9447fa8b-2051-4d24-9eef-5acb0e3c59f8
spark-mllib_3.0-r_3.6 base	94bb6052-c837-589d-83f1-f4142f219e32
cuda-py3.7-opence base	94e9652b-7f2d-59d5-ba5a-23a414ea488f

nlp-py3.8	96e60351-99d4-5a1c-9cc0-473ac1b5a864	
base		
cuda-py3.7	9a44990c-1aa1-4c7d-baf8-c4099011741c	
base		
hybrid_0.2	9b3f9040-9cee-4ead-8d7a-780600f542f7	
base		
spark-mllib_3.0-py38	9f7a8fc1-4d3c-5e65-ab90-41fa8de2d418	
base		
autoai-kb_3.3-py3.7	a545cca3-02df-5c61-9e88-998b09dc79af	
base		
spark-mllib_3.0-py39	a6082a27-5acc-5163-b02c-6b96916eb5e0	
base		
runtime-22.1-py3.9-do	a7e7dbf1-1d03-5544-994d-e5ec845ce99a	
base		
default_py3.8	ab9e1b80-f2ce-592c-a7d2-4f2344f77194	
base		
tensorflow_rt22.1-py3.9	acd9c798-6974-5d2f-a657-ce06e986df4d	
base		
kernel-spark3.2-py3.9	ad7033ee-794e-58cf-812e-a95f4b64b207	
base		
autoai-obm_2.0 with Spark 3.0	af10f35f-69fa-5d66-9bf5-acb58434263a	
base		
default_py3.7_opence	c2057dd4-f42c-5f77-a02f-72bdbd3282c9	
base		
tensorflow_2.1-py3.7	c4032338-2a40-500a-beef-b01ab2667e27	
base		
do_py3.7_opence	cc8f8976-b74a-551a-bb66-6377f8d865b4	
base		
spark-mllib_3.3	d11f2434-4fc7-58b7-8a62-755da64fdaf8	
base		
autoai-kb_3.0-py3.6	d139f196-e04b-5d8b-9140-9a10ca1fa91a	
base		
spark-mllib_3.0-py36	d82546d5-dd78-5fbb-9131-2ec309bc56ed	
base		
autoai-kb_3.4-py3.8	da9b39c3-758c-5a4f-9cfd-457dd4d8c395	
base		
kernel-spark3.2-r3.6	db2fe4d6-d641-5d05-9972-73c654c60e0a	
base		
autoai-kb_rt22.1-py3.9	db6afe93-665f-5910-b117-d879897404d9	
base		
tensorflow_rt22.1-py3.9-horovod	dda170cc-ca67-5da7-9b7a-cf84c6987fae	
base		
autoai-ts_1.0-py3.7	deef04f0-0c42-5147-9711-89f9904299db	
base		
tensorflow_2.1-py3.7-horovod	e384fce5-fdd1-53f8-bc71-11326c9c635f	
base		
default_py3.7	e4429883-c883-42b6-87a8-f419d64088cd	
base		
do_22.1	e51999ba-6452-5f1f-8287-17228b88b652	
base		
autoai-obm_3.2	eae86aab-da30-5229-a6a6-1d0d4e368983	
base		

```
do_20.1                             f686cdd9-7904-5f9d-a732-01b0d6b10dc5
base
scikit-learn_0.19-py3.6             f963fa9d-4bb7-5652-9c5d-8d9289ef6ad9
base
tensorflow_2.4-py3.8                fe185c44-9a99-5425-986b-59bd1d2eda46
base
----------------------------  ----------------------------------  ---
-
```

```
software_spec_uid=client.software_specifications.get_uid_by_name("runtim
e-22.1-py3.9")
software_spec_uid
```

```
'12b83a17-24d8-5082-900f-0ab31fbfd3cb'
```

```
import sklearn
sklearn.__version__
```

```
'1.0.2'
```

```
model_details = client.repository.store_model(model=rf,meta_props={
  client.repository.ModelMetaNames.NAME:"modeldeployment",
  client.repository.ModelMetaNames.TYPE:"scikit-learn_1.0",
  client.repository.ModelMetaNames.SOFTWARE_SPEC_UID:software_spec_uid }
                              )
model_id = client.repository.get_model_id(model_details)
```

```
model_id
```

```
'21a65b8c-7f36-4748-b76f-4d399013a0f7'
```

```
<html>
```