

Registering on IBM Cloud and Training the Model

NAME	20 November 2022
TEAM ID	PNT2022TMID44242
PROJECT NAME	Crude Oil Price Prediction

IBM Cloud

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Cloud Object Storage

Storage instances

Cloud Object Storage-1w

Buckets

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Usage details

Service credentials

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Buckets

Buckets serve as containers for objects, and can be individually configured in terms of their location, resiliency, billing rates, security, and object lifecycle rules.

Search

Create bucket +

Name	Public access ⓘ	Location ⓘ	Storage class	Created
crudeoil-donotdelete-pr-sy3osvd1watsdj	No	ap-geo	Standard	2022-11-20 11:08 PM
crudeoilpredict	No	jp-tok	Smart Tier	2022-11-20 10:05 PM

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notebook/new_app_OL061VY1V.ipynb

Download object ⬇ Delete object 🗑

Overview Lifecycle

Object details

Last modified	Object size	Storage class	Tags
2022-11-20 11:15 PM	588.6 KB	Standard	0 Tags

Access with Data Engine

If this file is of a supported format, you can access the object using an Data Engine instance. To learn more about support file formats, [visit our docs](#).

Object Data Engine URL ⓘ

cos://ap-geo/crudeoil-donotdelete-pr-sy3osvd1watsdj/notebook/new_app_OL061VY1V.ipynb

There is no Data Engine instance available. To provision an Data Engine instance, visit [Integrations](#).

Data Engine instance

No available instance

Open in Data Engine 📄

```
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Projects / crudeoil / new_app

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In [9]: cos_credentials = {
    "apikey": "xqldavF5vp-xk-0HmGxh-_5KouUxjoi-9ldTxLk6A_w",
    "cos_hmac_keys": {
        "access_key_id": "00762a997fa14acc98f3d903cf09101d",
        "secret_access_key": "06521556a6bbabc41f9ff836890db8b6c0e52086ac9458e6"
    },
    "endpoints": "https://control.cloud-object-storage.cloud.ibm.com/v2/endpoints",
    "iam_apikey_description": "Auto-generated for key crn:v1:bluemix:public:cloud-object-storage:global:a/c5148020ed1348e6a5283fe24f499b3c:ef856fcf-61",
    "iam_apikey_name": "Service credentials-1",
    "iam_role_crn": "crn:v1:bluemix:public:iam::::serviceRole:Writer",
    "iam_serviceid_crn": "crn:v1:bluemix:public:iam-identity::a/c5148020ed1348e6a5283fe24f499b3c::serviceid:ServiceId-98c08caa-aa3b-46e3-bb2e-171533d2",
    "resource_instance_id": "crn:v1:bluemix:public:cloud-object-storage:global:a/c5148020ed1348e6a5283fe24f499b3c:ef856fcf-6199-4005-99ce-d690ba20d0f1"
}

auth_endpoint = 'https://iam.cloud.ibm.com/oidc/token'
#cos://jp-tok/crudeoilpredict/Crude%20Oil%20Price%20Prediction.xlsx
service_endpoint = 'https://s3.jp-tok.cloud-object-storage.appdomain.cloud'
cos = ibm_boto3.client('s3',
    ibm_api_key_id=cos_credentials['apikey'],
    ibm_service_instance_id=cos_credentials['resource_instance_id'],
    ibm_auth_endpoint=auth_endpoint,
    config=Config(signature_version='oauth'),
    endpoint_url=service_endpoint)

obj = cos.get_object(Bucket='crudeoilpredict', Key='Crude Oil Price Prediction.xlsx')
df = pd.read_excel(io.BytesIO(obj['Body'].read()), header=None, names=['date', 'price'], skiprows=1)
df.head()
```

```
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In [24]: model = Sequential()
model.add(LSTM(units = 10, return_sequences = True, input_shape = (X_train.shape[1], 1)))
model.add(LSTM(units = 10, return_sequences = True))
model.add(LSTM(units = 10))
model.add(Dense(units = 1))
model.compile(optimizer = 'adam', loss = 'mean_squared_error')
model.summary()

Model: "sequential"
Layer (type) Output Shape Param #
-----
lstm (LSTM) (None, 10, 10) 480
lstm_1 (LSTM) (None, 10, 10) 840
lstm_2 (LSTM) (None, 10) 840
dense (Dense) (None, 1) 11
-----
Total params: 2,171
Trainable params: 2,171
Non-trainable params: 0
```