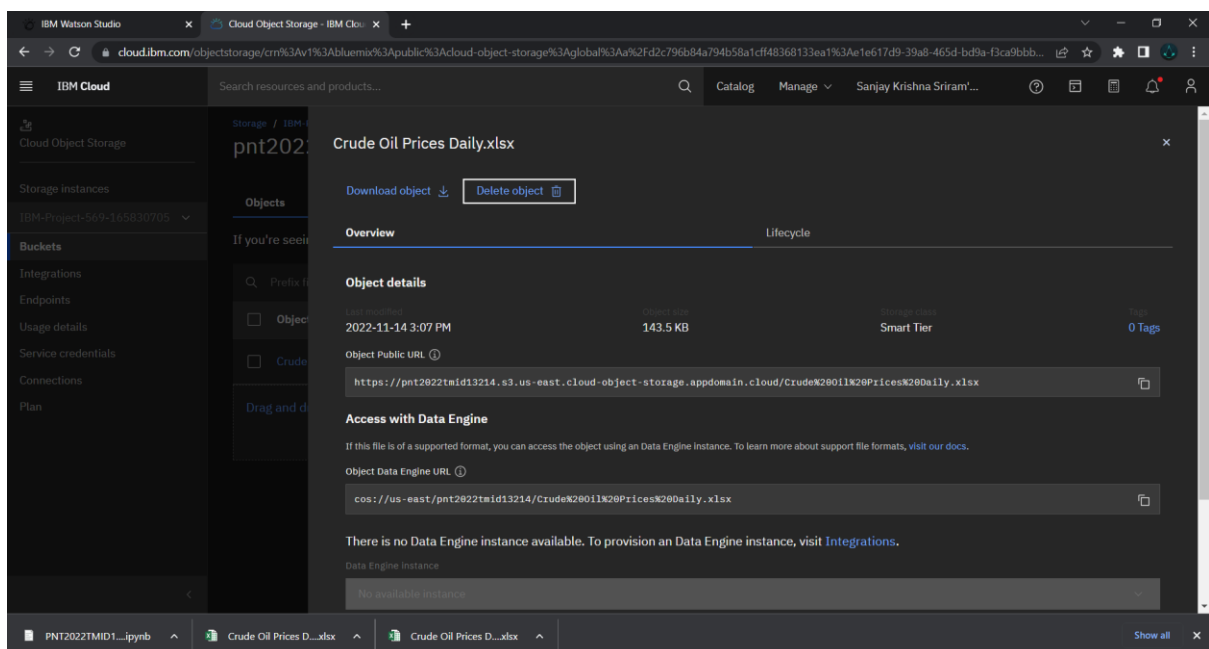
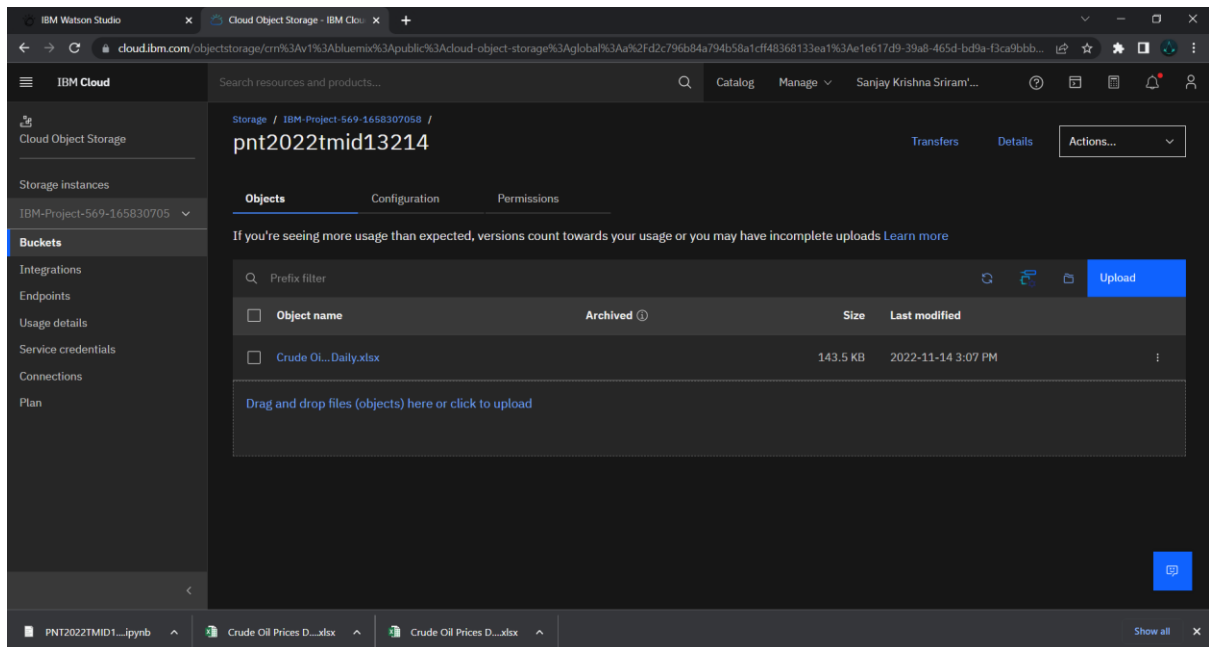


DATE	19 November 2022
TEAM ID	PNT2022TMID13214
PROJECT NAME	Crude Oil Price Prediction

REGISTERING ON IBM AND TRAINING THE MODEL



PN2022TMD13214 - IBM Watson

dataplatfrom.cloud.ibm.com/analytics/notebooks/v2/c7595c35-bfd6-47a3-b148-5acde9863b88/projectid=86ffa1c6-b7b8-4136-a272-7e47f5dccc832&context=cpdaas

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Data Preprocessing

Import the libraries

```
In [1]: !pip install ibm-cos-sdk | grep -v 'already satisfied'
import ibm_boto3
from ibm_botocore.client import Config
import pandas as pd
import numpy as np
import io, datetime
import matplotlib.pyplot as plt
import seaborn as sns
import statsmodels.api as sm
from pylab import rcParams
from sklearn.preprocessing import MinMaxScaler
```

Importing the dataset

```
In [2]: cos_credentials={
    "apikey": "51DfM8QcqpTF1KVvJKm062GbSpFR6gGpmBFDWLLRc",
    "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/d2c796b84a794b58a1cff48368133eal:e1e617d9-39a8-465d-bd9a-f3ca9bb5297:re",
    "iam_apikey_name": "pnt2022tmd13214",
    "iam_role_crn": "crn:v1:bluemix:public:iam::::serviceRole:Writer",
    "iam_serviceid_crn": "crn:v1:bluemix:public:iam-identity:ia/d2c796b84a794b58a1cff48368133eal:serviceid:ServiceId-469be452-375b-4d58-9c23-d742c9a3256e",
    "resource_instance_id": "crn:v1:bluemix:public:cloud-object-storage:global:a/d2c796b84a794b58a1cff48368133eal:e1e617d9-39a8-465d-bd9a-f3ca9bb5297::"
```

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dataplatfrom.cloud.ibm.com/analytics/notebooks/v2/c7595c35-bfd6-47a3-b148-5acde9863b88/view/projectid=86ffa1c6-b7b8-4136-a272-7e47f5dccc832&context=cpdaas

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IBM WATSON Deployment

```
In [26]: !pip install ibm_watson_machine_learning watson-machine-learning-client | grep -v 'already satisfied'
Collecting watson-machine-learning-client
  Downloading watson-machine-learning-client-1.0.391-py3-none-any.whl (538 kB)
Installing collected packages: watson-machine-learning-client
Successfully installed watson-machine-learning-client-1.0.391
```

```
In [27]: from ibm_watson_machine_learning import APIClient
credentials = {
    "url": "https://us-south.ml.cloud.ibm.com",
    "apikey": "hymE15xsoY-nbEWz2Af1PHQJJe6HvRC0opZU-GSxtCEZ"
}
client = APIClient(credentials)
```

```
In [28]: 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']
```

```
In [29]: space_uid = guid_from_space_name(client, 'model')
print("Space - {}".format(space_uid))
Space - 0570a6bf-fbb3-4149-b9fd-3a7d7008a00b
```

```
In [30]: client.set.default_space(space_uid)
Out[30]: 'SUCCESS'
```

```
In [31]: client.software_specifications.list()
```

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

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- CrudeOil Price Prediction 4 hours ago
- CrudeOil Price Prediction 5 hours ago

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Crude Oil Price Prediction

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Predict Oil Price

Technology	Artificial Intelligence
Team ID	PNT2022TMID13214
Team Leader : ARJUN V	[718020I461]
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Team member : SANJAY KRISHNA SRIRAM	[718019I344]

Crude Oil Price Prediction

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