SPRINT-2 PROJECT DOCUMENT

Team ID	PNT2022TMID44333
Project Name	Developing a Flight Delay Prediction Model Using Machine Learning

Sprint-2 Development Phase:-

Outline:

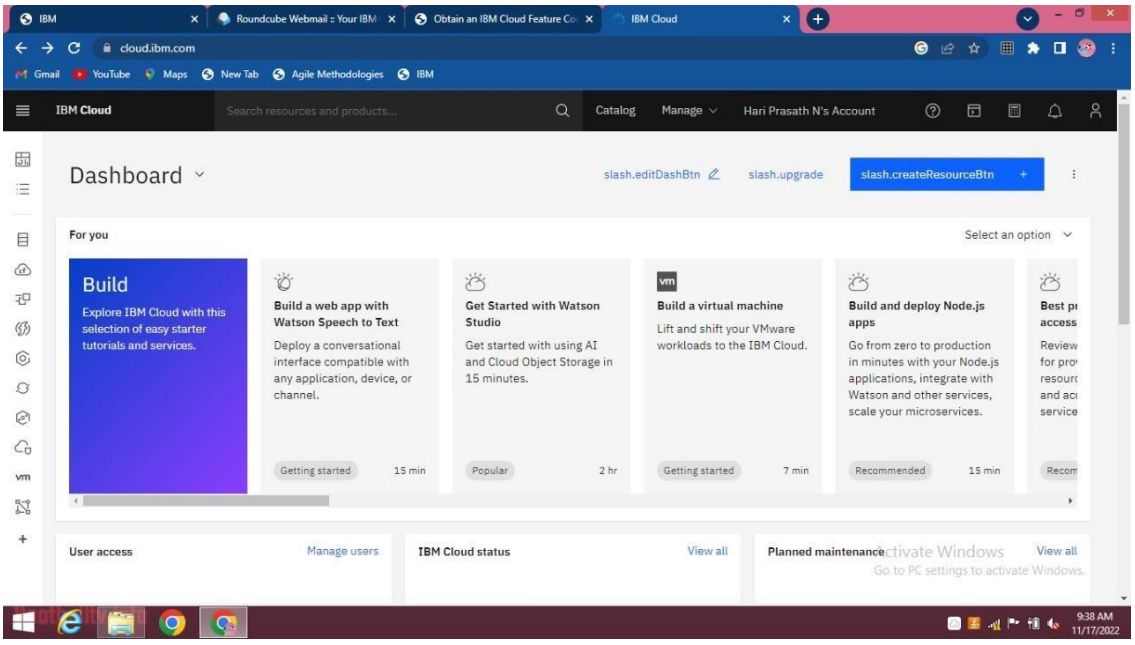
Building the Model

Evaluating the Model

Creating IBM Cloud Account

Model Deployment on IBM Cloud

Creating IBM Cloud Account:

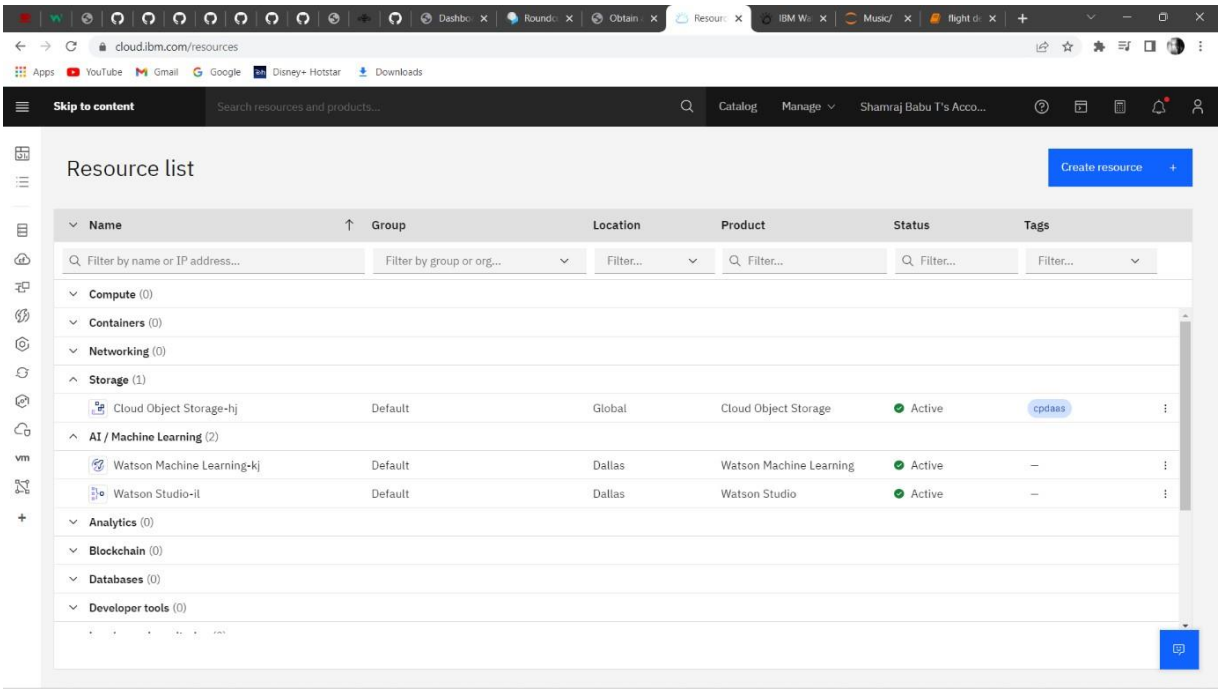


IBM Cloud Required Resources:

Watson Studio

Watson Machine Learning

Cloud Object Storage



Deploy the Model on IBM Watson Studio:

```
pip install -U ibm-watson-machine-learning
from ibm_watson_machine_learning import APIClient
import json
```

In [63]:

In [64]:

```
wml_credentials = {
   "apikey":"4fJbepuok7oCO1UkeKU831Sq5rz5-JP0R_hljeB2oaEL",
   "url":"https://us-south.ml.cloud.ibm.com"
}
```

In [65]:

```
wml_client = APIClient(wml_credentials)
wml_client.spaces.list()
```

```
SPACE_ID="deaaa6e0-4843-467d-94d8-71d0272de83b"
```

In [67]:

```
wml_client.set.default_space(SPACE_ID)
```

In [68]:

```
wml_client.software_specifications.list(500)
import sys
```

In [70]:

```
sys.version
```

In [71]:

```
pip install ibm-watson-machine-learning

import sklearn
sklearn.__version__
```

In [93]:

```
MODEL_NAME = "RandomForestClassifier()"
DEPLOYMENT_NAME = 'flight delay'
DEMO_MODEL = model
```

In [94]:

```
software_spec_uid = wml_client.software_specifications.get_id_by_name('runtime-22.1-py3.9')
```

In [95]:

```
model_props = {
    wml_client.repository.ModelMetaNames.NAME: MODEL_NAME,
    wml_client.repository.ModelMetaNames.TYPE: 'scikit-learn_1.0',
    wml_client.repository.ModelMetaNames.SOFTWARE_SPEC_UID:  software_spec_uid
}
```

In [96]:

```
model_details = wml_client.repository.store_model(
    model=DEMO_MODEL,
    meta_props=model_props,
    training_data=x_train,
    training_target=y_train
)
```

In [97]:

```
model_details
```

```
model_id = wml_client.repository.get_model_id(model_details)
model_id
```

In [99]:

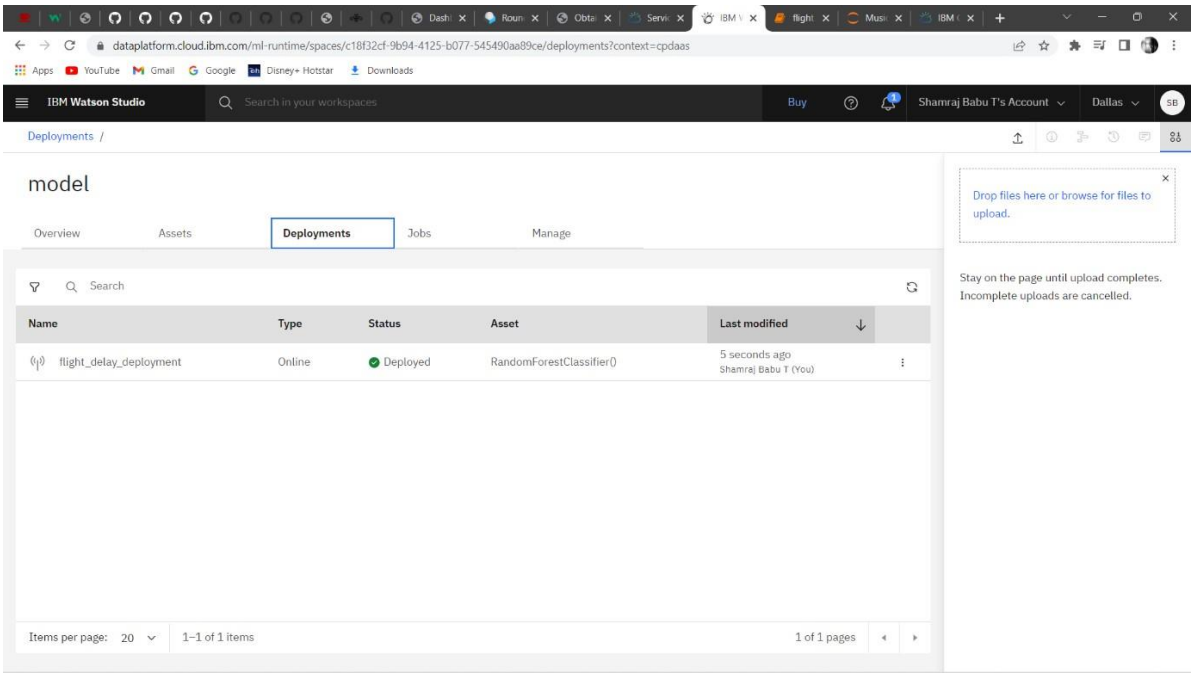
```
deployment_props = {
    wml_client.deployments.ConfigurationMetaNames.NAME:DEPLOYMENT_NAME,
```

```
    wml_client.deployments.ConfigurationMetaNames.ONLINE: {}
}
```

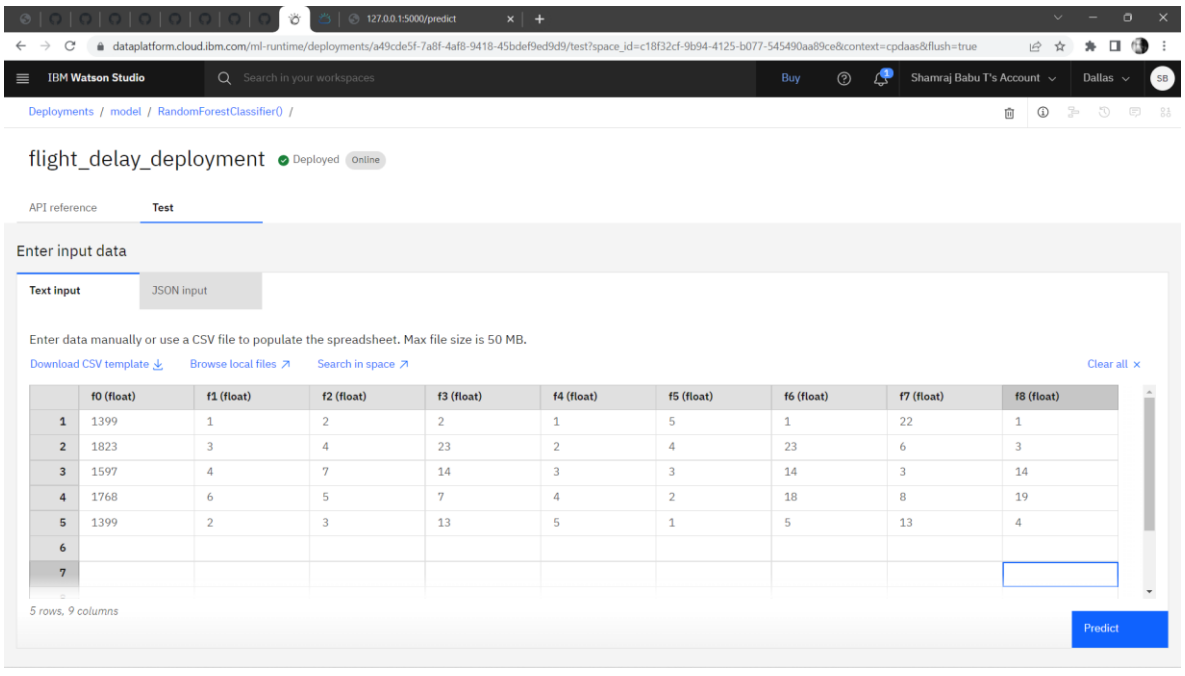
In [101]:

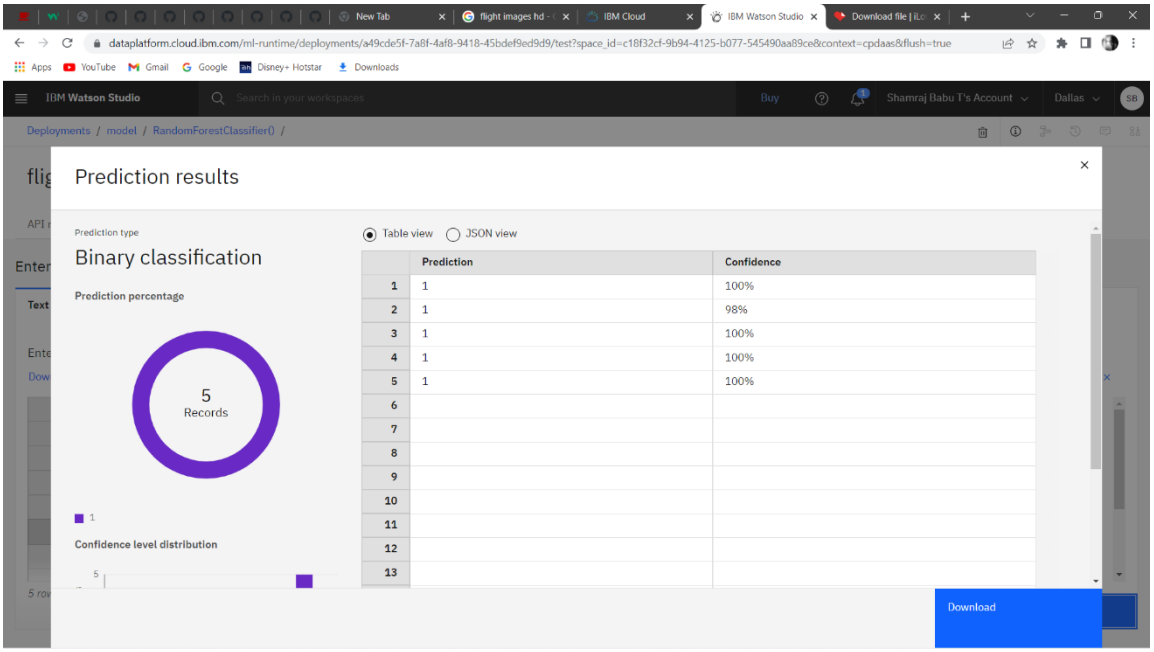
```
deployment_props = {
    wml_client.deployments.ConfigurationMetaNames.NAME:DEPLOYMENT_NAME,
    wml_client.deployments.ConfigurationMetaNames.ONLINE: {}
}
```

Deployment The Model:



Testing the Deployment Model:




IBM Watson Studio
Deployments / model / RandomForestClassifier() /
Prediction results
Prediction type
Binary classification
Prediction percentage
5
Records
1
Confidence level distribution
Table view
JSON view
Prediction
Confidence
1 1 100%
2 1 98%
3 1 100%
4 1 100%
5 1 100%
6
7
8
9
10
11
12
13
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