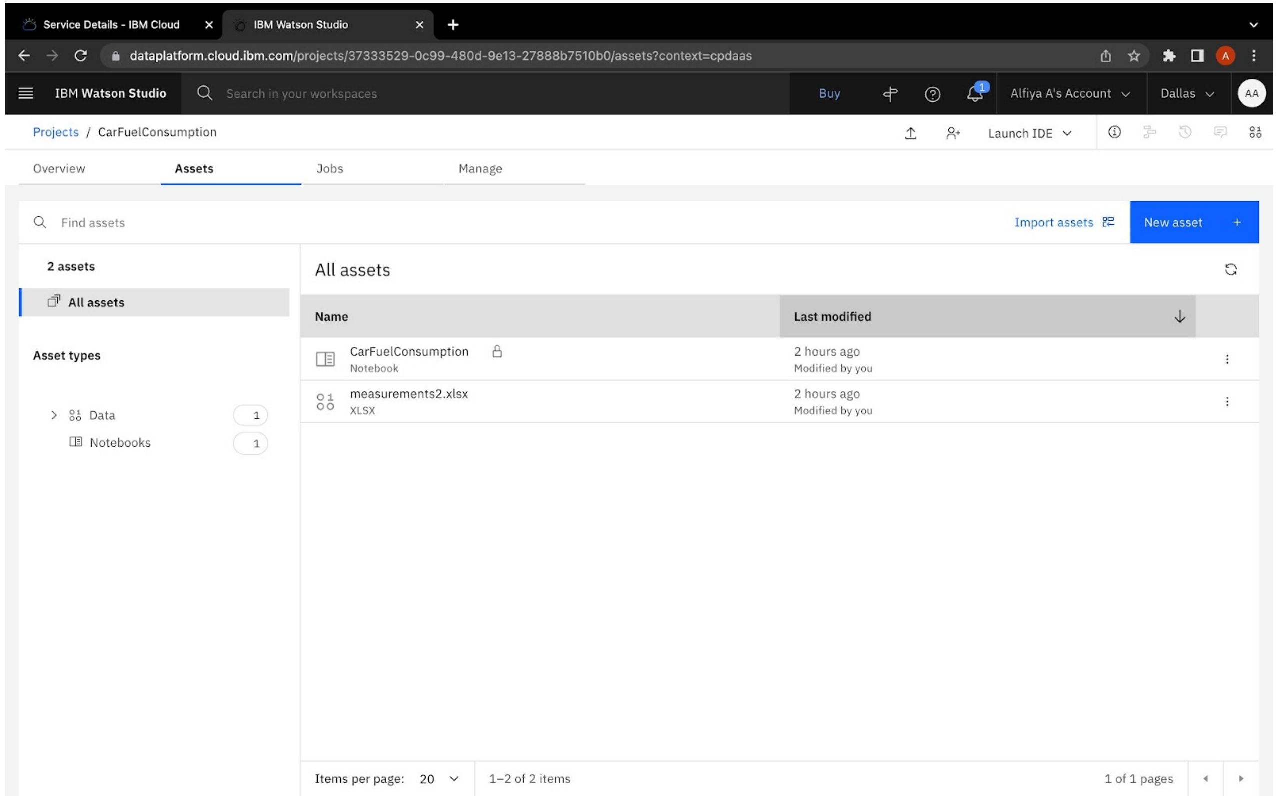
Training Machine Learning Model on IBM Watson Studio

TEAM ID: PNT2022TMID35033

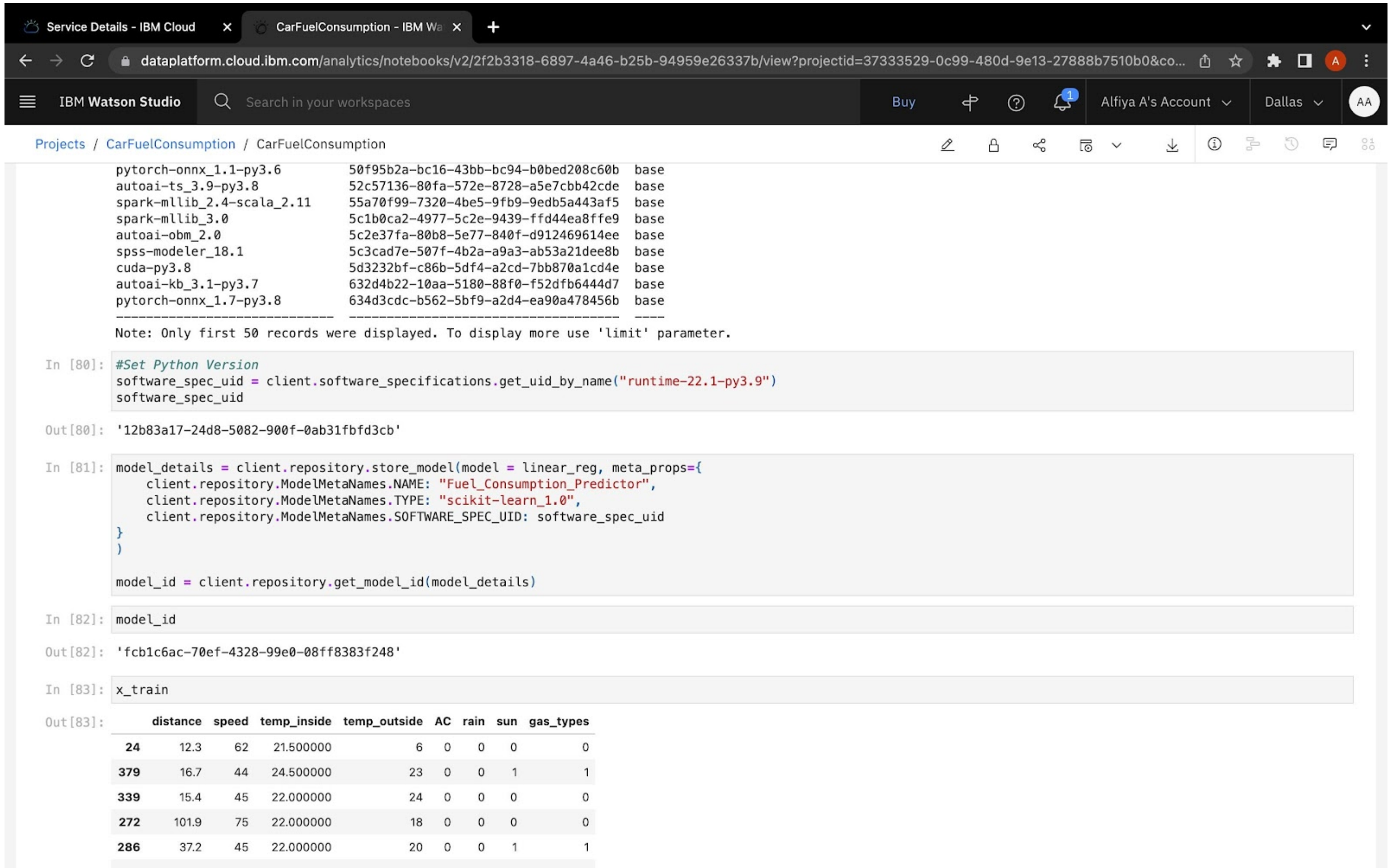
Project - University Admit Eligibility Predictor

1.Setting up Watson Studio for running Jupyter notebook



Name	Last modified
CarFuelConsumption Notebook	2 hours ago Modified by you
measurements2.xlsx XLSX	2 hours ago Modified by you

2. Training and saving the model in IBM Watson Machine Learning Service


Service Details - IBM Cloud
CarFuelConsumption - IBM Wa
dataplatform.cloud.ibm.com/analytics/notebooks/v2/2f2b3318-6897-4a46-b25b-94959e26337b/view?projectid=37333529-0c99-480d-9e13-27888b7510b0&co...
IBM Watson Studio
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Projects / CarFuelConsumption / CarFuelConsumption

```
pytorch-onnx_1.1-py3.6          50f95b2a-bc16-43bb-bc94-b0bed208c60b  base
autoai-ts_3.9-py3.8             52c57136-80fa-572e-8728-a5e7cbb42cde  base
spark-mllib_2.4-scala_2.11      55a70f99-7320-4be5-9fb9-9edb5a443af5  base
spark-mllib_3.0                 5c1b0ca2-4977-5c2e-9439-ffd44ea8ffe9  base
autoai-obm_2.0                  5c2e37fa-80b8-5e77-840f-d912469614ee  base
spss-modeler_18.1               5c3cad7e-507f-4b2a-a9a3-ab53a21dee8b  base
cuda-py3.8                      5d3232bf-c86b-5df4-a2cd-7bb870a1cd4e  base
autoai-kb_3.1-py3.7             632d4b22-10aa-5180-88f0-f52dfb6444d7  base
pytorch-onnx_1.7-py3.8          634d3cdc-b562-5bf9-a2d4-ea90a478456b  base
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Note: Only first 50 records were displayed. To display more use 'limit' parameter.
```
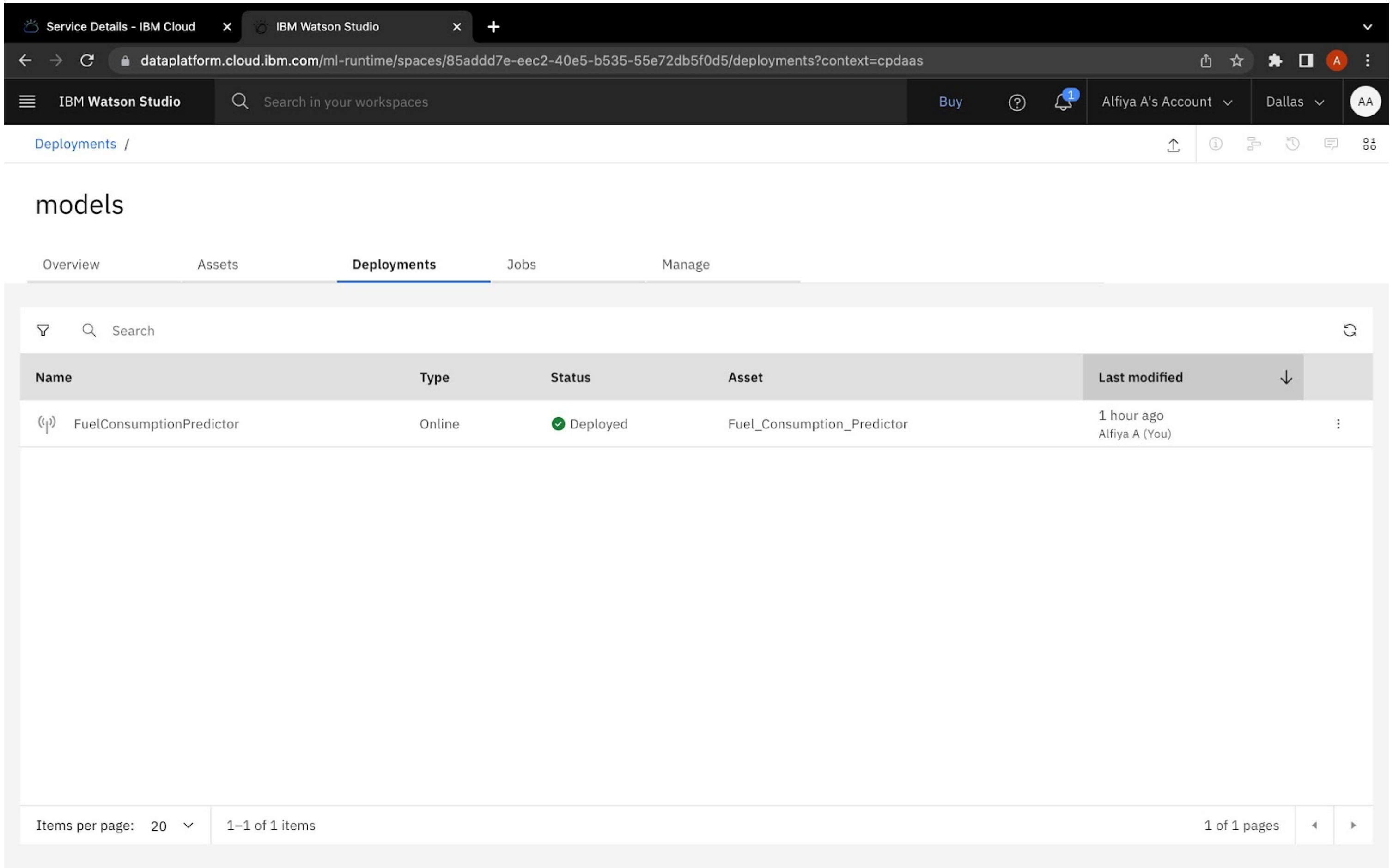

```
In [80]: #Set Python Version
         software_spec_uid = client.software_specifications.get_uid_by_name("runtime-22.1-py3.9")
         software_spec_uid

Out[80]: '12b83a17-24d8-5082-900f-0ab31fbfd3cb'

In [81]: model_details = client.repository.store_model(model = linear_reg, meta_props={
             client.repository.ModelMetaNames.NAME: "Fuel_Consumption_Predictor",
             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)

In [82]: model_id

Out[82]: 'fcb1c6ac-70ef-4328-99e0-08ff8383f248'

In [83]: x_train
```

Out[83]:

	distance	speed	temp_inside	temp_outside	AC	rain	sun	gas_types
24	12.3	62	21.500000	6	0	0	0	0
379	16.7	44	24.500000	23	0	0	1	1
339	15.4	45	22.000000	24	0	0	0	0
272	101.9	75	22.000000	18	0	0	0	0
286	37.2	45	22.000000	20	0	0	1	1

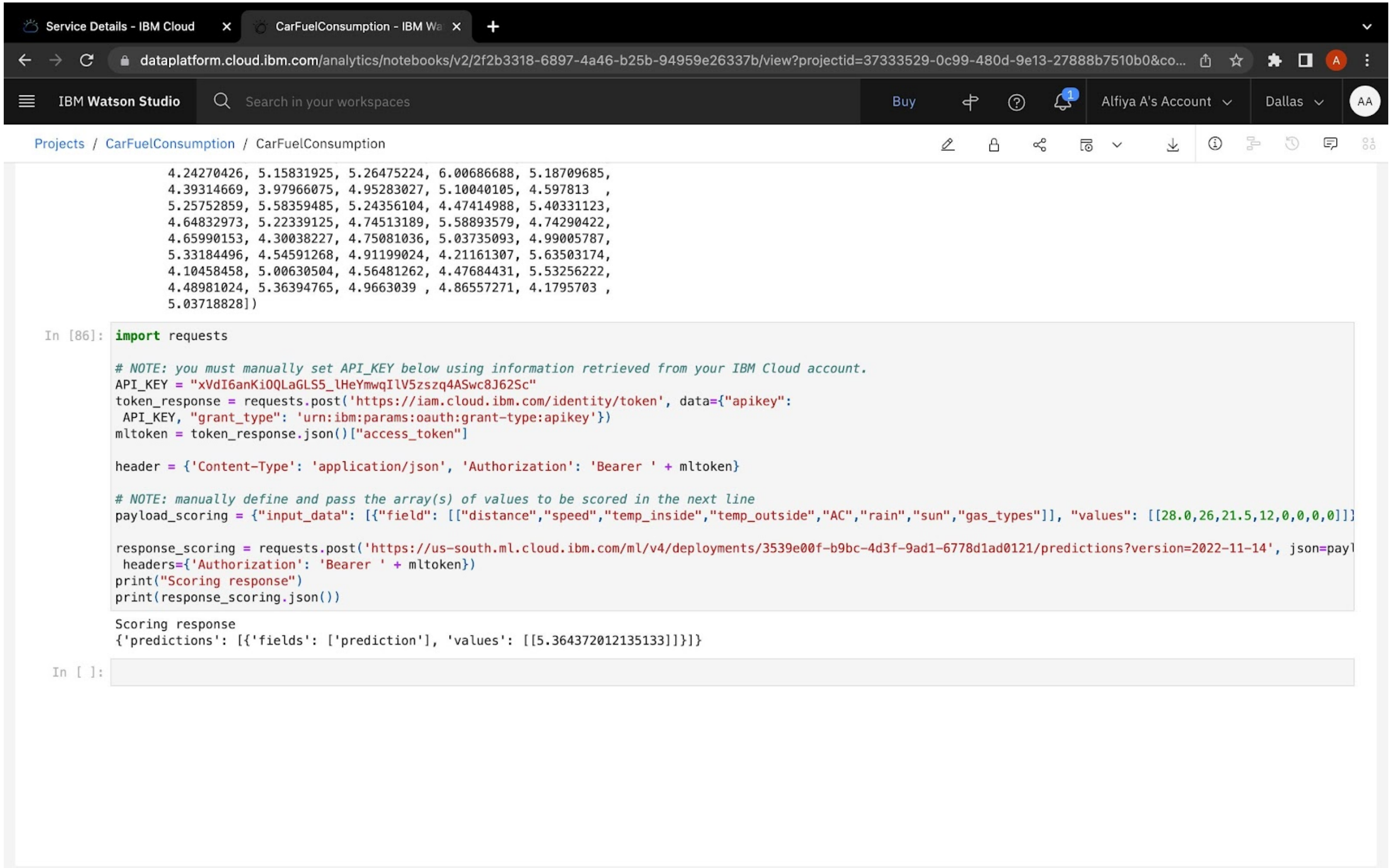
3.Deployed the model in IBM Watson Machine Learning Service



models

Name	Type	Status	Asset	Last modified
FuelConsumptionPredictor	Online	Deployed	Fuel_Consumption_Predictor	1 hour ago Alfiya A (You)

4. Testing the created model using the API created for the deployed model



Service Details - IBM Cloud
CarFuelConsumption - IBM Wa
dataplatform.cloud.ibm.com/analytics/notebooks/v2/2f2b3318-6897-4a46-b25b-94959e26337b/view?projectid=37333529-0c99-480d-9e13-27888b7510b0&co...
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```
       4.24270426, 5.15831925, 5.26475224, 6.00686688, 5.18709685,
       4.39314669, 3.97966075, 4.95283027, 5.10040105, 4.597813  ,
       5.25752859, 5.58359485, 5.24356104, 4.47414988, 5.40331123,
       4.64832973, 5.22339125, 4.74513189, 5.58893579, 4.74290422,
       4.65990153, 4.30038227, 4.75081036, 5.03735093, 4.99005787,
       5.33184496, 4.54591268, 4.91199024, 4.21161307, 5.63503174,
       4.10458458, 5.00630504, 4.56481262, 4.47684431, 5.53256222,
       4.48981024, 5.36394765, 4.9663039 , 4.86557271, 4.1795703 ,
       5.03718828])
```

```
In [86]: import requests

# NOTE: you must manually set API_KEY below using information retrieved from your IBM Cloud account.
API_KEY = "xVdI6anKiOQLaGLS5_lHeYmwqIlV5zszq4ASwc8J62Sc"
token_response = requests.post('https://iam.cloud.ibm.com/identity/token', data={"apikey":
 API_KEY, "grant_type": 'urn:ibm:params:oauth:grant-type:apikey'})
mltoken = token_response.json()["access_token"]

header = {'Content-Type': 'application/json', 'Authorization': 'Bearer ' + mltoken}

# NOTE: manually define and pass the array(s) of values to be scored in the next line
payload_scoring = {"input_data": [{"field": [["distance","speed","temp_inside","temp_outside","AC","rain","sun","gas_types"]], "values": [[28.0,26,21.5,12,0,0,0,0]]}

response_scoring = requests.post('https://us-south.ml.cloud.ibm.com/ml/v4/deployments/3539e00f-b9bc-4d3f-9ad1-6778d1ad0121/predictions?version=2022-11-14', json=payl
 headers={'Authorization': 'Bearer ' + mltoken})
print("Scoring response")
print(response_scoring.json())
```

```
Scoring response
{'predictions': [{'fields': ['prediction'], 'values': [[5.364372012135133]]}]}
```

```
In [ ]:
```