

# Training ML Model on IBM Watson

**TEAM ID: PNT2022TMID03343**

**PROJECT: University Admit Eligibility Predictor**

## i) Setting up Watson Studio for running Jupyter notebooks

The top screenshot shows the 'Overview' tab for a project named 'uaep'. It displays a list of assets on the left, including 'graduate\_admission\_prediction\_C', 'IBM\_Watson\_ML\_Model\_Deployment', 'assignment 3', and 'UAPE'. The 'Resource usage' section shows '10 CUH' for this month. The 'Project history' section shows a message: 'You created project uaep Nov 12, 2022 04:21 PM'.

The bottom screenshot shows the 'Assets' tab. It displays a list of assets with columns 'Name' and 'Last modified'. The assets listed are:

Name	Last modified
graduate_admission_prediction_C Notebook	2 hours ago Modified by you
IBM_Watson_ML_Model_Deployment... Notebook	23 hours ago Modified by you
assignment 3 Notebook	2 days ago Modified by you
admission_predict.csv CSV	5 days ago Modified by you
UAPE Notebook	5 days ago Modified by you

**Training and saving the model in IBM Watson Machine Learning Service**

## PERSISTING THE MULTIPLE LINEAR REGRESSION MODEL AND DEPLOYING IT IN IBM CLOUD

```
In [60]: #Set Python Version
software_spec_uid = client.software_specifications.get_uid_by_name("runtime-22.1-py3.9")
software_spec_uid
```

```
Out[60]: '12b83a17-24d8-5082-900f-0ab31fbfd3cb'
```

```
In [61]: model_details = client.repository.store_model(model = multiple_lin_reg, meta_props={
    client.repository.ModelMetaNames.NAME: "UAEP_Multiple_Linear_Regression",
    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 [62]: model_id
```

```
Out[62]: '8083e827-e81f-40d1-84ab-20d511771869'
```

### Assets:

Deployments /

### Regression-Models

Deployment space for the University Admit Eligibility Predictor project

Overview **Assets** Deployments Jobs Manage

Find assets Import assets

**1 asset**

All assets 1

**Asset types**

Models 1

Name	Last modified
UAEP_Multiple_Linear_Regression Model	34 minutes ago Service

### Deployments:

Deployments /

### Regression-Models

Deployment space for the University Admit Eligibility Predictor project

Overview Assets **Deployments** Jobs Manage

Search

Name	Type	Status	Asset	Last modified
UAEP_Multiple_Linear_Regression_Deployment	Online	Deployed	UAEP_Multiple_Linear_Regression	35 minutes ago Krishnan S (You)

## ii) Testing the created model using the API created for the deployed model:

```
import requests

# NOTE: you must manually set API_KEY below using information retrieved from your IBM Cloud account.
API_KEY = "<Your-API-Key>"
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": ["GRE Score", "TOEFL Score", "University Rating", "SOP", "LOR ", "CGPA", "Research"]}, {"values": [[326, 110, 2, 3.5, 4, 9.23, 1]]}]}

response_scoring = requests.post('https://us-south.ml.cloud.ibm.com/ml/v4/deployments/uaep_deployment/predictions?version=2022-11-12', json=payload_scoring,
    headers={'Authorization': 'Bearer ' + mltoken})
print("Scoring response")
print(response_scoring.json())

Scoring response
{'predictions': [{'fields': ['prediction'], 'values': [[[0.8448151378927107]]]]}]}
```