**Project development phase - Sprint 4**
**Train on IBM**

| | |
|---|---|
| Date | 16 November 2022 |
| Team ID | PNT2022TMID36413 |
| Project Name | AI-poweredNutritionAnalyserforFitnessEnthusiasts65GP |

**Sprint 4:**

```
# SAVING IN TAR

!tar -zcvf Nutrition.tgz nutrition.h5

nutrition.h5
```

```
#IMB DEPLOYMENT

!pip install watson-machine-learning-client

Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
Collecting watson-machine-learning-client
  Downloading watson_machine_learning_client-1.0.391-py3-none-any.whl (538 kB)
     |████████████████████████████████| 538 kB 32.0 MB/s
Collecting lomond
  Downloading lomond-0.3.3-py2.py3-none-any.whl (35 kB)
Requirement already satisfied: tabulate in /usr/local/lib/python3.7/dist-packages (from watson-machine-learning-client) (0.8.10)
Requirement already satisfied: urllib3 in /usr/local/lib/python3.7/dist-packages (from watson-machine-learning-client) (1.24.3)
Collecting ibm-cos-sdk
  Downloading ibm-cos-sdk-2.12.0.tar.gz (55 kB)
     |████████████████████████████████| 55 kB 4.7 MB/s
Collecting boto3
  Downloading boto3-1.26.13-py3-none-any.whl (132 kB)
     |████████████████████████████████| 132 kB 70.9 MB/s
Requirement already satisfied: requests in /usr/local/lib/python3.7/dist-packages (from watson-machine-learning-client) (2.23.0)
Requirement already satisfied: certifi in /usr/local/lib/python3.7/dist-packages (from watson-machine-learning-client) (2022.9.24)
Requirement already satisfied: pandas in /usr/local/lib/python3.7/dist-packages (from watson-machine-learning-client) (1.3.5)
Requirement already satisfied: tqdm in /usr/local/lib/python3.7/dist-packages (from watson-machine-learning-client) (4.64.1)
Collecting botocore<1.30.0,>=1.29.13
  Downloading botocore-1.29.13-py3-none-any.whl (9.9 MB)
     |████████████████████████████████| 9.9 MB 52.0 MB/s
Collecting jmespath<2.0.0,>=0.7.1
  Downloading jmespath-1.0.1-py3-none-any.whl (20 kB)
Collecting s3transfer<0.7.0,>=0.6.0
  Downloading s3transfer-0.6.0-py3-none-any.whl (79 kB)
     |████████████████████████████████| 79 kB 9.3 MB/s
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in /usr/local/lib/python3.7/dist-packages (from botocore<1.30.0,>=1.29.13->boto3->watson-
Collecting urllib3

✓ 24s  completed at 7:22 PM
```

```
!pip install ibm_watson_machine_learning

Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
Requirement already satisfied: ibm_watson_machine_learning in /usr/local/lib/python3.7/dist-packages (1.0.257)
Requirement already satisfied: packaging in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (21.3)
Requirement already satisfied: certifi in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (2022.9.24)
Requirement already satisfied: urllib3 in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (1.26.12)
Requirement already satisfied: tabulate in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (0.8.10)
Requirement already satisfied: lomond in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (0.3.3)
Requirement already satisfied: requests in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (2.28.1)
Requirement already satisfied: ibm-cos-sdk==2.7.* in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (2.7.0)
Requirement already satisfied: pandas<1.5.0,>=0.24.2 in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (1.3.5)
Requirement already satisfied: importlib-metadata in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (4.13.0)
Requirement already satisfied: ibm-cos-sdk-s3transfer==2.7.0 in /usr/local/lib/python3.7/dist-packages (from ibm-cos-sdk==2.7.*->ibm_watson_machine_le
Requirement already satisfied: ibm-cos-sdk-core==2.7.0 in /usr/local/lib/python3.7/dist-packages (from ibm-cos-sdk==2.7.*->ibm_watson_machine_learning
Requirement already satisfied: jmespath<1.0.0,>=0.7.1 in /usr/local/lib/python3.7/dist-packages (from ibm-cos-sdk==2.7.*->ibm_watson_machine_learning)
Requirement already satisfied: docutils<0.16,>=0.10 in /usr/local/lib/python3.7/dist-packages (from ibm-cos-sdk-core==2.7.0->ibm-cos-sdk==2.7.*->ibm_wa
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in /usr/local/lib/python3.7/dist-packages (from ibm-cos-sdk-core==2.7.0->ibm-cos-sdk==2.7.*-
Requirement already satisfied: numpy>=1.17.3 in /usr/local/lib/python3.7/dist-packages (from pandas<1.5.0,>=0.24.2->ibm_watson_machine_learning) (1.21.
Requirement already satisfied: pytz>=2017.3 in /usr/local/lib/python3.7/dist-packages (from pandas<1.5.0,>=0.24.2->ibm_watson_machine_learning) (2022.6
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.7/dist-packages (from python-dateutil<3.0.0,>=2.1->ibm-cos-sdk-core==2.7.0->ibm-cos-s
Requirement already satisfied: charset-normalizer<3,>=2 in /usr/local/lib/python3.7/dist-packages (from requests->ibm_watson_machine_learning) (2.1.1)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.7/dist-packages (from requests->ibm_watson_machine_learning) (2.10)
Requirement already satisfied: typing-extensions>=3.6.4 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata->ibm_watson_machine_learning
Requirement already satisfied: zipp>=0.5 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata->ibm_watson_machine_learning) (3.10.0)
Requirement already satisfied: pyparsing!=3.0.5,>=2.0.2 in /usr/local/lib/python3.7/dist-packages (from packaging->ibm_watson_machine_learning) (3.0.9)
```

```
from ibm_watson_machine_learning import APIClient

wml_credentials ={
    "url":"https://eu-gb.ml.cloud.ibm.com",
    "apikey":"cRGByFFQtUmqPpyc6QMMNwcKYpmUOehoAI0T7A4D8g_C"
}

client = APIClient(wml_credentials)
client
```

```
Python 3.7 and 3.8 frameworks are deprecated and will be removed in a future release. Use Python 3.9 framework instead.
<ibm_watson_machine_learning.client.APIClient at 0x7fdb4996d850>
```

```
client.spaces.get_details()
```

```
{'resources': [{'entity': {'compute': [{'crn': 'crn:v1:bluemix:public:pm-20:eu-gb:a/c310b4bb7ea0477eb08e64a138fe90fe:44c
ea39b80dab8b::',
      'guid': '44ca8dec-ed95-4d02-8c1a-ea39b80dab8b',
      'name': 'Watson Machine Learning-ye',
      'type': 'machine_learning'}],
    'description': '',
    'name': 'Nutrition_Analyzer',
    'scope': {'bss_account_id': 'c310b4bb7ea0477eb08e64a138fe90fe'},
    'stage': {'production': False},
    'status': {'state': 'active'},
    'storage': {'properties': {'bucket_name': '25d89dc8-052a-4cf3-9be1-2f66a38fbeb9',
      'bucket_region': 'eu-gb-standard',
      'credentials': {'admin': {'access_key_id': '88f1ba805e814feeb06d346c06734a67',
        'api_key': 'lHsf-BzTS1CujisURGshmFdBJYfOPGDWU2-KvUQfTJdz',
        'secret_access_key': '04f288e156bef99c589f86fa5e28dc9ed417b8255572c0df',
        'service_id': 'ServiceId-38919c78-d2cf-482f-9dc6-1afab9a06b5f'},
       'editor': {'access_key_id': 'cb014eb9aacd45ab84d42988c9afaa9d',
        'api_key': 'KGkyKvc7wq94vGRlKyeVh8JCMWLFDPLOSNOHrKeR-KKE',
        'resource_key_crn': 'crn:v1:bluemix:public:cloud-object-storage:global:a/c310b4bb7ea0477eb08e64a138fe90fe:59e24e
3a1efd9adc6b::',
        'secret_access_key': '150de2301c548999ab3bb9da456f209f5962d3b08882118a',
        'service_id': 'ServiceId-f6795909-c727-4fbf-87e3-1119474d072f'},
       'viewer': {'access_key_id': '25bc8617290e40df9b8e19421e2dae07',
        'api_key': 'XGUODWz5iQ-SXSMV-JR9q49Q36iBTmzhj1YZMzVAnATi',
```

```
def guid_space_name(client,Nutrition_Analyzer):
  space = client.spaces.get_details()
  return(next(item for item in space['resources'] if item['entity']['name']==Nutrition_Analyzer)['metadata']['id'])
```

```
space_uid = guid_space_name(client,'Nutrition_Analyzer')
space_uid
```

```
'1fe1654b-b263-4c21-aea3-d4f7ca4a7b2f'
```

```
client.set.default_space(space_uid)
```

```
'SUCCESS'
```

```
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
pytorch-onnx_rt22.1-py3.9       0b848dd4-e681-5599-be41-b5f6fccc6471  base
ai-function_0.1-py3.6           0cdb0f1e-5376-4f4d-92dd-da3b69aa9bda  base
shiny-r3.6                      0e6e79df-875e-4f24-8ae9-62dcc2148306  base
tensorflow_2.4-py3.7-horovod    1092590a-307d-563d-9b62-4eb7d64b3f22  base
pytorch_1.1-py3.6               10ac12d6-6b30-4ccd-8392-3e922c096a92  base
tensorflow_1.15-py3.6-ddl       111e41b3-de2d-5422-a4d6-bf776828c4b7  base
autoai-kb_rt22.2-py3.10         125b6d9a-5b1f-5e8d-972a-b251688ccf40  base
runtime-22.1-py3.9              12b83a17-24d8-5082-900f-0ab31fbfd3cb  base
scikit-learn_0.22-py3.6         154010fa-5b3b-4ac1-82af-4d5ee5abbc85  base
default_r3.6                    1b70aec3-ab34-4b87-8aa0-a4a3c8296a36  base
pytorch-onnx_1.3-py3.6          1bc6029a-cc97-56da-b8e0-39c3880dbbe7  base
kernel-spark3.3-r3.6            1c9e5454-f216-59dd-a20e-474a5cdf5988  base
pytorch-onnx_rt22.1-py3.9-edt   1d362186-7ad5-5b59-8b6c-9d0880bde37f  base
tensorflow_2.1-py3.6            1eb25b84-d6ed-5dde-b6a5-3fbdf1665666  base
spark-mllib_3.2                 20047f72-0a98-58c7-9ff5-a77b012eb8f5  base
tensorflow_2.4-py3.8-horovod    217c16f6-178f-56bf-824a-b19f20564c49  base
runtime-22.1-py3.9-cuda         26215f05-08c3-5a41-a1b0-da66306ce658  base
do_py3.8                        295addb5-9ef9-547e-9bf4-92ae3563e720  base
autoai-ts_3.8-py3.8             2aa0c932-798f-5ae9-abd6-15e0c2402fb5  base
tensorflow_1.15-py3.6           2b73a275-7cbf-420b-a912-eae7f436e0bc  base
```

```
[ ] software_space_uid = client.software_specifications.get_uid_by_name('tensorflow_rt22.1-py3.9')
    software_space_uid
```

```
'acd9c798-6974-5d2f-a657-ce06e986df4d'
```

```
[ ] model_details = client.repository.store_model(model='Nutrition.tgz',meta_props={
        client.repository.ModelMetaNames.NAME:"CNN B2 Model",
        client.repository.ModelMetaNames.TYPE:"tensorflow_2.7",
        client.repository.ModelMetaNames.SOFTWARE_SPEC_UID:software_space_uid
    })
```

```
model_details
```


```
{'entity': {'hybrid_pipeline_software_specs': [],
   'software_spec': {'id': 'acd9c798-6974-5d2f-a657-ce06e986df4d',
    'name': 'tensorflow_rt22.1-py3.9'},
   'type': 'tensorflow_2.7'},
  'metadata': {'created_at': '2022-11-19T10:31:00.988Z',
   'id': 'ae4eefd5-445f-4328-8cd1-627d1ca26a3b',
   'modified_at': '2022-11-19T10:31:05.964Z',
   'name': 'CNN B2 Model',
   'owner': 'IBMid-6670004314',
   'resource_key': '88c7c35d-fa6a-4684-925e-0157afda1ba5',
   'space_id': '1fe1654b-b263-4c21-aea3-d4f7ca4a7b2f'},
  'system': {'warnings': []}}
```

```
[ ]  model_id = client.repository.get_model_id(model_details)
     model_id

     'ae4eefd5-445f-4328-8cd1-627d1ca26a3b'
```

```
[ ]  client.repository.download(model_id,'Nutrition.tar.gb')

     Successfully saved model content to file: 'Nutrition.tar.gb'
     '/content/Nutrition.tar.gb'
```

**Nutrition.tgz , Nutrition.tar.gb :**