

TRAIN THE MODEL ON IBM

Team ID	PNT2022TMID51209
Project Name	Project - Fertilizers Recommendation System For Disease Prediction

TRAIN THE VEGETABLE MODEL ON IBM

```
train the vegetable model.ipynb
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!tar -zxvf vegetable-classification.tgz vegetable.h5
vegetable.h5

!pip install watson-machine-learning-client
Requirement already satisfied: tqdm in /usr/local/lib/python3.7/dist-packages (from watson-machine-learning-client) (4.64.1)
Collecting lomond
  Downloading lomond-0.3.3-py2.py3-none-any.whl (35 kB)
Requirement already satisfied: urllib3 in /usr/local/lib/python3.7/dist-packages (from watson-machine-learning-client) (1.24.3)
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: tabulate in /usr/local/lib/python3.7/dist-packages (from watson-machine-learning-client) (0.8.10)
Requirement already satisfied: requests in /usr/local/lib/python3.7/dist-packages (from watson-machine-learning-client) (2.23.0)
Collecting boto3<1.30.0,>=1.29.8
  Downloading boto3-1.29.8-py3-none-any.whl (9.9 MB)
    9.9 MB 44.0 MB/s
Collecting s3transfer<0.7.0,>=0.6.0
  Downloading s3transfer-0.6.0-py3-none-any.whl (79 kB)
    79 kB 5.9 MB/s
Collecting jmespath<2.0.0,>=0.7.1
  Downloading jmespath-1.0.1-py3-none-any.whl (20 kB)
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in /usr/local/lib/python3.7/dist-packages (from boto3->watson-machine-learning-client) (2.8.2)
Collecting urllib3
  Downloading urllib3-1.26.12-py3-none-any.whl (140 kB)
    140 kB 49.8 MB/s
Requirement already satisfied: six>1.5 in /usr/local/lib/python3.7/dist-packages (from python-dateutil<3.0.0,>=2.1->boto3->watson-machine-learning-client) (1.16.0)
Collecting ibm-cos-sdk-core==2.12.0
  Downloading ibm-cos-sdk-core-2.12.0.tar.gz (956 kB)
    956 kB 51.1 MB/s
Collecting ibm-cos-sdk-s3transfer==2.12.0
  Downloading ibm-cos-sdk-s3transfer-2.12.0.tar.gz (135 kB)
    135 kB 41.9 MB/s
Collecting jmespath<2.0.0,>=0.7.1
```

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train the vegetable model.ipynb
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Collecting ibm-cos-sdk-core==2.12.0
  Downloading ibm-cos-sdk-core-2.12.0.tar.gz (956 kB)
    956 kB 51.1 MB/s
Collecting ibm-cos-sdk-s3transfer==2.12.0
  Downloading ibm-cos-sdk-s3transfer-2.12.0.tar.gz (135 kB)
    135 kB 41.9 MB/s
Collecting jmespath<2.0.0,>=0.7.1
  Downloading jmespath-0.10.0-py2.py3-none-any.whl (24 kB)
Collecting requests
  Downloading requests-2.28.1-py3-none-any.whl (62 kB)
    62 kB 1.4 MB/s
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.7/dist-packages (from requests->watson-machine-learning-client) (2.10)
Requirement already satisfied: charset-normalizer<3,>=2 in /usr/local/lib/python3.7/dist-packages (from requests->watson-machine-learning-client) (2.1.1)
Requirement already satisfied: pytz>=2017.3 in /usr/local/lib/python3.7/dist-packages (from pandas->watson-machine-learning-client) (2022.6)
Requirement already satisfied: numpy>=1.17.3 in /usr/local/lib/python3.7/dist-packages (from pandas->watson-machine-learning-client) (1.21.6)
Building wheels for collected packages: ibm-cos-sdk, ibm-cos-sdk-core, ibm-cos-sdk-s3transfer
  Building wheel for ibm-cos-sdk (setup.py) ... done
  Created wheel for ibm-cos-sdk: filename=ibm_cos_sdk-2.12.0-py3-none-any.whl size=73931 sha256=9dc8bc595283dd512bba6518aac95fea85f7b427b6fc466f622face6c4ff099
  Stored in directory: /root/.cache/pip/wheels/ec/94/2b/57327cf0664b6614304f7958abd29d77ea0e5bbece2ae57
  Building wheel for ibm-cos-sdk-core (setup.py) ... done
  Created wheel for ibm-cos-sdk-core: filename=ibm_cos_sdk_core-2.12.0-py3-none-any.whl size=562962 sha256=a2e50525cdf2fb7a30956d24ed0eb8339e105797ad40e660eb7b2bfb10e87fde
  Stored in directory: /root/.cache/pip/wheels/64/56/fb/5cd6f4f40406c828a5289b95b2752a42a9afb359244ed8d
  Building wheel for ibm-cos-sdk-s3transfer (setup.py) ... done
  Created wheel for ibm-cos-sdk-s3transfer: filename=ibm_cos_sdk_s3transfer-2.12.0-py3-none-any.whl size=89778 sha256=257cdc4ff4f07fe9cbe0a5fa35ab4f8ad4c888e7b049eb00c1f81d3fedaff
  Stored in directory: /root/.cache/pip/wheels/57/79/6a/ffe3370ed7ebc00604f9f76766e1e0348dcdd2b2e32df9e1
Successfully built ibm-cos-sdk ibm-cos-sdk-core ibm-cos-sdk-s3transfer
Installing collected packages: urllib3, requests, jmespath, ibm-cos-sdk-core, boto3, s3transfer, ibm-cos-sdk-s3transfer, lomond, ibm-cos-sdk, boto3, watson-machine-learning-cl
Attempting uninstall: urllib3
  Found existing installation: urllib3 1.24.3
  Uninstalling urllib3-1.24.3:
  Successfully uninstalled urllib3-1.24.3
Attempting uninstall: requests
  Found existing installation: requests 2.23.0
  Uninstalling requests-2.23.0:
  Successfully uninstalled requests-2.23.0
Successfully installed boto3-1.26.8 boto3-1.29.8 ibm-cos-sdk-2.12.0 ibm-cos-sdk-core-2.12.0 ibm-cos-sdk-s3transfer-2.12.0 jmespath-0.10.0 lomond-0.3.3 requests-2.28.1 s3transfer-0.6.0
```

train the vegetable model.ipynb

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```
!pip install ibm_watson_machine_learning

Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
Collecting ibm_watson_machine_learning
  Downloading ibm_watson_machine_learning-1.0.257-py3-none-any.whl (1.8 MB)
    1.8 MB 9.4 MB/s
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: lomond in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (0.3.3)
Requirement already satisfied: urllib3 in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (1.26.12)
Requirement already satisfied: requests in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (2.28.1)
Collecting ibm-cos-sdk==2.7.*
  Downloading ibm-cos-sdk-2.7.0.tar.gz (51 kB)
    51 kB 708 kB/s
Requirement already satisfied: packaging in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (21.3)
Requirement already satisfied: importlib-metadata in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (4.13.0)
Requirement already satisfied: certifi in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (2022.9.24)
Requirement already satisfied: tabulate in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (0.8.10)
Collecting ibm-cos-sdk-core==2.7.0
  Downloading ibm-cos-sdk-core-2.7.0.tar.gz (824 kB)
    824 kB 52.1 MB/s
Collecting ibm-cos-sdk-s3transfer==2.7.0
  Downloading ibm-cos-sdk-s3transfer-2.7.0.tar.gz (133 kB)
    133 kB 51.2 MB/s
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) (0.10.0)
Collecting docutils<0.16,>=0.10
  Downloading docutils-0.15.2-py3-none-any.whl (547 kB)
    547 kB 49.4 MB/s
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.*->ibm_watson_machine_learning) (2.8.1)
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: numpy>=1.17.3 in /usr/local/lib/python3.7/dist-packages (from pandas<1.5.0,>=0.24.2->ibm_watson_machine_learning) (1.21.6)
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-sdk==2.7.*->ibm_watson_machine_learning) (1.16.0)
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: zipp>=0.5 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata->ibm_watson_machine_learning) (3.10.0)
Requirement already satisfied: typing-extensions>=3.6.4 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata->ibm_watson_machine_learning) (4.1.1)
Requirement already satisfied: pvarious<3.0.5,>=2.0.2 in /usr/local/lib/python3.7/dist-packages (from packaging->ibm_watson_machine_learning) (3.0.9)
9s completed at 4:50 PM
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train the vegetable model.ipynb

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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)
Building wheels for collected packages: ibm-cos-sdk, ibm-cos-sdk-core, ibm-cos-sdk-s3transfer
  Building wheel for ibm-cos-sdk (setup.py) ... done
  Created wheel for ibm-cos-sdk: filename=ibm_cos_sdk-2.7.0-py2.py3-none-any.whl size=72563 sha256=cd40613ff61488741dd9bde985e8c9561c1a2ae2743ed568bdeb200a974f8715
  Stored in directory: /root/.cache/pip/wheels/47/22/bf/e1154ff0f5de93cc477acd0ca69abfb8b799c5b28a66b44c2
  Building wheel for ibm-cos-sdk-core (setup.py) ... done
  Created wheel for ibm-cos-sdk-core: filename=ibm_cos_sdk_core-2.7.0-py2.py3-none-any.whl size=501813 sha256=f44c9b5718819e77836f7a0873bec7ea10d05f84b04b8e83813378e42f2accfc
  Stored in directory: /root/.cache/pip/wheels/6c/a2/e4/cl6d02f809a3ea99e17cf02c13369281f3d232aaf5902c19
  Building wheel for ibm-cos-sdk-s3transfer (setup.py) ... done
  Created wheel for ibm-cos-sdk-s3transfer: filename=ibm_cos_sdk_s3transfer-2.7.0-py2.py3-none-any.whl size=88622 sha256=8328123a45bd1abb82b1298fbf27c0d4e3ccc067064611a3c0449fab16
  Stored in directory: /root/.cache/pip/wheels/5f/b7/14/fbe02bc1ef890650c7e51743d1c83890852e598d164b9da
Successfully built ibm-cos-sdk ibm-cos-sdk-core ibm-cos-sdk-s3transfer
Installing collected packages: docutils, ibm-cos-sdk-core, ibm-cos-sdk-s3transfer, ibm-cos-sdk, ibm-watson-machine-learning
  Attempting uninstall: docutils
    Found existing installation: docutils 0.17.1
    Successfully uninstalled docutils 0.17.1
  Attempting uninstall: ibm-cos-sdk-core
    Found existing installation: ibm-cos-sdk-core 2.12.0
    Uninstalling ibm-cos-sdk-core-2.12.0:
      Successfully uninstalled ibm-cos-sdk-core-2.12.0
  Attempting uninstall: ibm-cos-sdk-s3transfer
    Found existing installation: ibm-cos-sdk-s3transfer 2.12.0
    Uninstalling ibm-cos-sdk-s3transfer-2.12.0:
      Successfully uninstalled ibm-cos-sdk-s3transfer-2.12.0
  Attempting uninstall: ibm-cos-sdk
    Found existing installation: ibm-cos-sdk 2.12.0
    Uninstalling ibm-cos-sdk-2.12.0:
      Successfully uninstalled ibm-cos-sdk-2.12.0
Successfully installed docutils-0.15.2 ibm-cos-sdk-2.7.0 ibm-cos-sdk-core-2.7.0 ibm-cos-sdk-s3transfer-2.7.0 ibm-watson-machine-learning-1.0.257
```

train the vegetable model.ipynb

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[5] from ibm_watson_machine_learning import APIClient

wml_credentials = {

"url": "https://eu-gb.ml.cloud.ibm.com",

"apikey": "wHviGg2JmvaTL5iOX_iIRsFEiTs97bQQIt3fFv1wGXC"

}

client = APIClient(wml_credentials)

Python 3.7 and 3.8 frameworks are deprecated and will be removed in a future release. Use Python 3.9 framework instead.

6

client

<ibm_watson_machine_learning.client.APIClient at 0x7f335d3cc750>

client.spaces.get_details()

[{"resources": [{"entity": {"compute": [{"crn": "crn:v1:bluemix:public:pm-20:eu-gb:a/d2a512c7590048cfaf7f28cd26438f49:f78a826e-3c47-40ec-9ced-ab40e6d544d3::", "guid": "f78a826e-3c47-40ec-9ced-ab40e6d544d3", "name": "Watson Machine Learning-ak", "type": "machine_learning"}], "description": "", "name": "v1_Deploy", "scope": {"bss_account_id": "d2a512c7590048cfaf7f28cd26438f49"}, "stage": {"production": False}, "status": {"state": "active"}, "storage": {"properties": {"bucket_name": "a90b4771-730e-49cc-b5e5-1758dc2fb7c1", "bucket_region": "eu-gb-standard", "credentials": {"admin": {"access_key_id": "e827a1d463054462be58c11d21f4a342", "api_key": "h1knXvB0Wj461q3pDFSLZ-NvecEz7cnq5m8c01Qa4LG3", "secret_access_key": "e730510472c7fed75868de0d665b713b701909a93da86a73", "service_id": "ServiceId-a30f82e7-316e-46bd-b229-331030406a23"}, "editor": {"access_key_id": "004f08db143c4550b25166a8f5271771", "api_key": "9Vsax1Y9-XoJQa56GwvJ2Kf64HyFtwcx67ncD-jrXqu", "resource_key_crn": "crn:v1:bluemix:public:cloud-object-storage:global:a/d2a512c7590048cfaf7f28cd26438f49:0e43b750-15aa-4634-9c02-9954d7f0be49::", "secret_access_key": "7cbbs54037e5876c10f85a86b0acd6e6fba4b2caa4338f7"}}, "service_id": "ServiceId-68abd7ca-11d3-4e3e-b8dd-da81d9c938e4", "viewer": {"access_key_id": "08ec080406014223b26317ff7d844345", "api_key": "amCNS-0BgCOFE6cm8F118Pz5kTVU85FI7PFL284uWPP", "resource_key_crn": "crn:v1:bluemix:public:cloud-object-storage:global:a/d2a512c7590048cfaf7f28cd26438f49:0e43b750-15aa-4634-9c02-9954d7f0be49::", "secret_access_key": "e7c659f9ebf2790368703f119b8a0f28082cf7256833fd2d", "service_id": "ServiceId-ea9f16f2-4120-4ae0-b248-f5bc5605c424"}], "endpoint_url": "https://s3.eu-gb.cloud-object-storage.apcdomain.cloud", "guid": "0e43b750-15aa-4634-9c02-9954d7f0be49", "resource_crn": "crn:v1:bluemix:public:cloud-object-storage:global:a/d2a512c7590048cfaf7f28cd26438f49:0e43b750-15aa-4634-9c02-9954d7f0be49::", "type": "bmcos_object_storage"}], "metadata": {"created_at": "2022-11-13T10:24:33.382Z", "creator_id": "IBMId-6640043H30", "id": "c77baaef-a816-44c5-95eb-9d2bf178dc6f", "updated_at": "2022-11-13T10:24:47.901Z", "url": "/v2/spaces/c77baaef-a816-44c5-95eb-9d2bf178dc6f"}]]}

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train the vegetable model.ipynb

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[5] from ibm_watson_machine_learning import APIClient

wml_credentials = {

"url": "https://eu-gb.ml.cloud.ibm.com",

"apikey": "wHviGg2JmvaTL5iOX_iIRsFEiTs97bQQIt3fFv1wGXC"

}

client = APIClient(wml_credentials)

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6

client

<ibm_watson_machine_learning.client.APIClient at 0x7f335d3cc750>

client.spaces.get_details()

[{"resources": [{"entity": {"compute": [{"crn": "crn:v1:bluemix:public:pm-20:eu-gb:a/d2a512c7590048cfaf7f28cd26438f49:f78a826e-3c47-40ec-9ced-ab40e6d544d3::", "guid": "f78a826e-3c47-40ec-9ced-ab40e6d544d3", "name": "Watson Machine Learning-ak", "type": "machine_learning"}], "description": "", "name": "v1_Deploy", "scope": {"bss_account_id": "d2a512c7590048cfaf7f28cd26438f49"}, "stage": {"production": False}, "status": {"state": "active"}, "storage": {"properties": {"bucket_name": "a90b4771-730e-49cc-b5e5-1758dc2fb7c1", "bucket_region": "eu-gb-standard", "credentials": {"admin": {"access_key_id": "e827a1d463054462be58c11d21f4a342", "api_key": "h1knXvB0Wj461q3pDFSLZ-NvecEz7cnq5m8c01Qa4LG3", "secret_access_key": "e730510472c7fed75868de0d665b713b701909a93da86a73", "service_id": "ServiceId-a30f82e7-316e-46bd-b229-331030406a23"}, "editor": {"access_key_id": "004f08db143c4550b25166a8f5271771", "api_key": "9Vsax1Y9-XoJQa56GwvJ2Kf64HyFtwcx67ncD-jrXqu", "resource_key_crn": "crn:v1:bluemix:public:cloud-object-storage:global:a/d2a512c7590048cfaf7f28cd26438f49:0e43b750-15aa-4634-9c02-9954d7f0be49::", "secret_access_key": "7cbbs54037e5876c10f85a86b0acd6e6fba4b2caa4338f7"}, "service_id": "ServiceId-68abd7ca-11d3-4e3e-b8dd-da81d9c938e4", "viewer": {"access_key_id": "08ec080406014223b26317ff7d844345", "api_key": "amCNS-0BgCOFE6cm8F118Pz5kTVU85FI7PFL284uWPP", "resource_key_crn": "crn:v1:bluemix:public:cloud-object-storage:global:a/d2a512c7590048cfaf7f28cd26438f49:0e43b750-15aa-4634-9c02-9954d7f0be49::", "secret_access_key": "e7c659f9ebf2790368703f119b8a0f28082cf7256833fd2d", "service_id": "ServiceId-ea9f16f2-4120-4ae0-b248-f5bc5605c424"}], "endpoint_url": "https://s3.eu-gb.cloud-object-storage.apcdomain.cloud", "guid": "0e43b750-15aa-4634-9c02-9954d7f0be49", "resource_crn": "crn:v1:bluemix:public:cloud-object-storage:global:a/d2a512c7590048cfaf7f28cd26438f49:0e43b750-15aa-4634-9c02-9954d7f0be49::", "type": "bmcos_object_storage"}], "metadata": {"created_at": "2022-11-13T10:24:33.382Z", "creator_id": "IBMId-6640043H30", "id": "c77baaef-a816-44c5-95eb-9d2bf178dc6f", "updated_at": "2022-11-13T10:24:47.901Z", "url": "/v2/spaces/c77baaef-a816-44c5-95eb-9d2bf178dc6f"}]]}

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[8] client.spaces.list()

Note: 'limit' is not provided. Only first 50 records will be displayed if the number of records exceed 50

ID NAME CREATED

c77baaef-a816-44c5-95eb-9d2bf178dc6f v1_Deploy 2022-11-13T10:24:33.382Z

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[9] space_uid = "c77baaef-a816-44c5-95eb-9d2bf178dc6f"

space_uid

'c77baaef-a816-44c5-95eb-9d2bf178dc6f'

[10] 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	069ea13d-3346-5748-b513-49120e15d288	base
scikit-learn_0.20-py3.6	09c5a1d0-9c1e-4473-a344-eb7b665ff887	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	0cd00f1e-5376-4f4d-92dd-da3b69aa9bda	base
shiny-r_3.6	06e979df-875e-4ff24-8ae9-62d0c21a8306	base
tensorflow_2.4-py3.7-horovod	1892590a-307d-563d-9b62-4eb7d6ab3f22	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-e4a3c8296a36	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-b6a5-3fbd16656666	base
spark-mllib_3.2	20047f72-0a98-58c7-9ff5-a77b012eb8f5	base
tensorflow_2.4-py3.8-horovod	217c16f6-178f-56bf-824a-b19f20564c49	base

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runtime-22.1-py3.9

scikit-learn_0.22-py3.6

default_r3.6

pytorch-onnx_1.3-py3.6

kernel-spark3.3-r3.6

pytorch-onnx_rt22.1-py3.9-edt

tensorflow_2.1-py3.6

spark-mllib_3.2

tensorflow_2.4-py3.8-horovod

runtime-22.1-py3.9-cuda

do_py3.8

autoai-ts_3.8-py3.8

tensorflow_1.15-py3.6

kernel-spark3.3-py3.9

pytorch_1.2-py3.6

spark-mllib_2.3

pytorch-onnx_1.1-py3.6-edt

spark-mllib_3.0-py37

spark-mllib_2.4

autoai-ts_rt22.2-py3.10

xgboost_0.82-py3.6

pytorch-onnx_1.2-py3.6-edt

pytorch-onnx_rt22.2-py3.10

default_r36py38

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pytorch-onnx_1.1-py3.6

autoai-ts_3.9-py3.8

spark-mllib_2.4-scala_2.11

spark-mllib_3.0

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spss-modeler_18.1

cuda-py3.8

autoai-kb_3.1-py3.7

12b83a17-24d8-5082-900f-0ab31fbfd3cb	base
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5d3232bf-c86b-5df4-a2cd-7bb870a1cd4e	base
632d4b22-10aa-5180-88f0-f52dfb6444d7	base

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autoai-obm_2.0 5c2e37fa-80b8-5e77-840f-d912469614ee base

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spss-modeler_18.1 5c3cad7e-507f-4b2a-a9a3-ab53a21dee0b base

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cuda-py3.8 5d3232bf-c86b-5df4-a2cd-7bb870a1cd4e base

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autoai-kb_3.1-py3.7 632d4b22-10aa-5180-88f0-f52dfb6444d7 base

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pytorch-onnx_1.7-py3.8 634d3cdc-b562-5bf9-a2d4-ea90a478456b base

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TRAIN THE FRUIT MODEL ON IBM

colab.research.google.com/drive/1fDKbPix1h_VKBEi3N9hhvkWVL-4Nd4B#scrollTo=9WHdhgb2xZeZ

train the fruit model.pynb

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[1] !tar -zxvf fruit-classification.tgz fruit.hs

fruit.hs

!pip install watson-machine-learning-client

Collecting lomond
Downloading lomond-0.3.3-py2.py3-none-any.whl (35 kB)
Collecting boto3
Downloading boto3-1.26.8-py3-none-any.whl (132 kB)
Collecting ibm-cos-sdk
Downloading ibm-cos-sdk-2.12.0.tar.gz (55 kB)
Collecting boto-core<1.30.0,>=1.29.8
Downloading boto-core-1.29.8-py3-none-any.whl (9.9 MB)
Collecting s3transfer<0.7.0,>=0.6.0
Downloading s3transfer-0.6.0-py3-none-any.whl (79 kB)
Collecting jmespath<2.0.0,>=0.7.1
Downloading jmespath-1.0.1-py3-none-any.whl (20 kB)
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in /usr/local/lib/python3.7/dist-packages (from boto-core<1.30.0,>=1.29.8->boto3->watson-machine-learning-client) (2.8.2)
Collecting urllib3
Downloading urllib3-1.26.12-py2.py3-none-any.whl (140 kB)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.7/dist-packages (from python-dateutil<3.0.0,>=2.1->boto-core<1.30.0,>=1.29.8->boto3->watson-machine-learning-client) (1.16.0)
Collecting ibm-cos-sdk-core==2.12.0
Downloading ibm-cos-sdk-core-2.12.0.tar.gz (956 kB)
Collecting ibm-cos-sdk-s3transfer==2.12.0
Downloading ibm-cos-sdk-s3transfer-2.12.0.tar.gz (135 kB)
Collecting jmespath<2.0.0,>=0.7.1
Downloading jmespath-1.0.1-py3-none-any.whl (20 kB)

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train the fruit model.pynb

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Collecting ibm-cos-sdk-core==2.12.0
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Collecting ibm-cos-sdk-s3transfer==2.12.0
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Collecting jmespath<2.0.0,>=0.7.1
Downloading jmespath-1.0.1-py3-none-any.whl (20 kB)
Collecting requests
Downloading requests-2.28.1-py3-none-any.whl (62 kB)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.7/dist-packages (from requests->watson-machine-learning-client) (2.10)
Requirement already satisfied: charset-normalizer<3,>=2 in /usr/local/lib/python3.7/dist-packages (from requests->watson-machine-learning-client) (2.1.1)
Requirement already satisfied: urllib3<1.27.0,>=1.25 in /usr/local/lib/python3.7/dist-packages (from requests->watson-machine-learning-client) (1.26.13)
Requirement already satisfied: certifi<2023.0.0,>=2021.9.11 in /usr/local/lib/python3.7/dist-packages (from requests->watson-machine-learning-client) (2022.12.7)
Building wheels for collected packages: ibm-cos-sdk-core, ibm-cos-sdk-s3transfer
Building wheel for ibm-cos-sdk-core (setup.py) ... done
Created wheel for ibm-cos-sdk-core: filename=ibm_cos_sdk_core-2.12.0-py3-none-any.whl size=73931 sha256=9c62751312ee101ea1732629c42c49bbe2b77edc96b4ae74cacb52e850d27c29
Stored in directory: /root/.cache/pip/wheels/ec/94/29/2b57327cf00664b6614304f7958abd29d77ea0e5bbece2ae57
Building wheel for ibm-cos-sdk-s3transfer (setup.py) ... done
Created wheel for ibm-cos-sdk-s3transfer: filename=ibm_cos_sdk_s3transfer-2.12.0-py3-none-any.whl size=89778 sha256=bc9709818f7e6f806a5413f23f9869bb3677e22028f593906800981e713
Stored in directory: /root/.cache/pip/wheels/57/79/6a/f7f370ed7ebc00604f9f766e1e0348dcad2b2e32df9e1
Successfully built ibm-cos-sdk-core ibm-cos-sdk-s3transfer
Installing collected packages: urllib3, requests, jmespath, ibm-cos-sdk-core, boto-core, s3transfer, ibm-cos-sdk-s3transfer, lomond, ibm-cos-sdk, boto3, watson-machine-learning-client
Attempting uninstall: urllib3
Found existing installation: urllib3 1.24.3
Uninstalling urllib3-1.24.3:
Successfully uninstalled urllib3-1.24.3
Attempting uninstall: requests
Found existing installation: requests 2.23.0
Uninstalling requests-2.23.0:
Successfully uninstalled requests-2.23.0
Successfully installed boto3-1.26.8 boto-core-1.29.8 ibm-cos-sdk-2.12.0 ibm-cos-sdk-core-2.12.0 ibm-cos-sdk-s3transfer-2.12.0 jmespath-1.0.1 lomond-0.3.3 requests-2.28.1 s3transfer-0.6.0

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```
!pip install ibm_watson_machine_learning

Requirement already satisfied: lomond in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (0.3.3)
Requirement already satisfied: packaging in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (21.3)
Requirement already satisfied: requests in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (2.28.1)
Requirement already satisfied: importlib-metadata in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (4.13.0)
Requirement already satisfied: tabulate in /usr/local/lib/python3.7/dist-packages (from ibm_watson_machine_learning) (0.8.10)
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: 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)
Collecting ibm-cos-sdk-core==2.7.0
  Downloading ibm-cos-sdk-core-2.7.0.tar.gz (824 kB)
    824 kB 19.0 MB/s
Collecting ibm-cos-sdk-s3transfer==2.7.0
  Downloading ibm-cos-sdk-s3transfer-2.7.0.tar.gz (133 kB)
    133 kB 61.8 MB/s
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) (0.10.0)
Collecting docutils<0.16,>=0.10
  Downloading docutils-0.15.2-py3-none-any.whl (547 kB)
    547 kB 62.9 MB/s
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_watson_machine_learning) (1.21.6)
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) (1.21.6)
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_watson_machine_learning) (1.16.0)
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) (4.1.1)
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)
Building wheels for collected packages: ibm-cos-sdk, ibm-cos-sdk-core, ibm-cos-sdk-s3transfer
Building wheel for ibm-cos-sdk (setup.py) ... done
Created wheel for ibm-cos-sdk: filename=ibm_cos_sdk-2.7.0-py2.py3-none-any.whl size=72563 sha256=fa8c58715e9ddfd8350537fcfbf2acbd45d7a6b69eae3a28aeb718abe8e56577
Stored in directory: /root/.cache/pip/wheels/47/22/bf/e1154ff0f5de93cc477acd0ca69abfb8b799c5b28a66b44c2
Building wheel for ibm-cos-sdk-core (setup.py) ... done
Created wheel for ibm-cos-sdk-core: filename=ibm_cos_sdk_core-2.7.0-py2.py3-none-any.whl size=501013 sha256=3fc30f924895c68b671b029e838b369c72ca3a5c5c132c3127a0d208bfff9d7b
Stored in directory: /root/.cache/pip/wheels/6c/a2/e4/c16d02f809a998e17cfd02c13369281f3d232aa5f902c19
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```

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```
[18] from ibm_watson_machine_learning import APIClient
wml_credentials = {
    "url": "https://eu-gb.ml.cloud.ibm.com",
    "apikey": "AQ_xcScv7Q5JrYnfPbfmSyAc6YnZ5fPpHuU-V8mdF1P"
}
client = APIClient(wml_credentials)

Python 3.7 and 3.8 frameworks are deprecated and will be removed in a future release. Use Python 3.9 framework instead.

[19] client

<ibm_watson_machine_learning.client.APIClient at 0x7fb57312f350>

client.spaces.get_details()

{'bucket_region': 'eu-gb-standard',
 'credentials': {'admin': {'access_key_id': 'e827ad463054462be58c11d21f4a342',
 'api_key': 'h1knXb0Wj461q3p0F5L2-WvctEz7cnq5m8c01Q94LG3',
 'secret_access_key': 'e730510472c7fed75868de0d656713b01909e93da86a73',
 'service_id': 'ServiceId-a30f82e7-316e-46bd-b229-331030406a23'},
 'editor': {'access_key_id': '004f08db143c4550b25166a8f5271771',
 'api_key': '9Ysax1Y9-Xo3Qa56GuvJ2Kf6HyFtwcxf67ncD-JrXqu',
 'resource_key_crn': 'crn:v1:bluemix:public:cloud-object-storage:global:a/d2a512c7590048cfaf7f28cd26438f49:0e43b750-15aa-4634-9c02-9954d7f0be49::',
 'secret_access_key': '7cbb5e54037e5876c10f85a86b0acd6e6fba4b2caa4338f7',
 'service_id': 'ServiceId-68abd7ca-11d3-4e3e-b8dd-da61d9c93ee'},
 'viewer': {'access_key_id': '08ec08d406014223b26317f7f7d844345',
 'api_key': 'amCH5-0BgCOFE6cmRF118Pz5k1VU85F1PPL284UwPP',
 'resource_key_crn': 'crn:v1:bluemix:public:cloud-object-storage:global:a/d2a512c7590048cfaf7f28cd26438f49:0e43b750-15aa-4634-9c02-9954d7f0be49::',
 'secret_access_key': 'e7c59f9ebf2790368703f119b8a9f20802cf7256833fd2d',
 'service_id': 'ServiceId-ea9f16f2-4120-4ae0-b248-f5bc5605c424'},
 'endpoint_url': 'https://s3-eu-gb-cloud-object-storage.apcdomain.cloud',
 'guid': '0e43b750-15aa-4634-9c02-9954d7f0be49',
 'resource_crn': 'crn:v1:bluemix:public:cloud-object-storage:global:a/d2a512c7590048cfaf7f28cd26438f49:0e43b750-15aa-4634-9c02-9954d7f0be49::',
 'type': 'bmcos_object_storage'}}
```


train the fruit model.pybnt

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```
"url": "/v2/spaces/c77baaef-a816-44c5-95eb-9d2bf178dc6f"}],
('entity': {'compute': [{'crn': 'crn:v1:bluemix:public:pm-20:eu-gb:a/d2a512c7590048cfaf7f28cd26438f49:f78a826e-3c47-40ec-9ced-ab40e6d544d3:',
'guid': 'f78a826e-3c47-40ec-9ced-ab40e6d544d3',
'name': 'Watson Machine Learning-ak',
'type': 'machine_learning'}],
'description': '',
'name': 'f1',
'scope': {'bss_account_id': 'd2a512c7590048cfaf7f28cd26438f49'},
'stage': {'production': False},
'status': {'state': 'active'}},
'storage': {'properties': {'bucket_name': 'f4356370-41d7-4406-9b54-9eaddfb02d12',
'bucket_region': 'eu-gb-standard',
'credentials': {'admin': {'access_key_id': '0345751f3168af7d988cf9bd2d9a633c',
'api_key': 'f1ncb_KsJgr-XfouA038EfQYvsz-c_QguyJrpVcGQ',
'secret_access_key': '0bb6e5186f2aee7525776c876cf74f9dcec8c50f0dea71c',
'service_id': 'ServiceId-560fac55-10b4-494d-983d-15821b101c02'},
'editor': {'access_key_id': 'f016e464721b4db2a0fbba1879de673a',
'api_key': 'H80TzyHwioVldg6d0cNT9NYZnQENRbJbQqplbaUVA9KF',
'resource_key_crn': 'crn:v1:bluemix:public:cloud-object-storage:global:a/d2a512c7590048cfaf7f28cd26438f49:0e43b750-15aa-4634-9c02-9954d7f0be49:',
'secret_access_key': '921110b4f02600f7b655f740b7de3af0b5620bd3f88b2108',
'service_id': 'ServiceId-c6333f38-a775-4ffe-8461-f9451f8ce259'},
'viewer': {'access_key_id': '2ae1637c88ce48bfa3e80cd8b161a4d',
'api_key': 'U853PKfPKa12F08jyP808wJnZC4u8F_v7Gz0LmJkCU',
'resource_key_crn': 'crn:v1:bluemix:public:cloud-object-storage:global:a/d2a512c7590048cfaf7f28cd26438f49:0e43b750-15aa-4634-9c02-9954d7f0be49:',
'secret_access_key': '348290e05e1c239dbc638225fd69349dee370472db875bb8',
'service_id': 'ServiceId-16fbfab2-dfd6-4c87-9219-03d0470377db'}],
'endpoint_url': 'https://s3.eu-gb.cloud-object-storage.appdomain.cloud',
'guid': '0e43b750-15aa-4634-9c02-9954d7f0be49',
'resource_crn': 'crn:v1:bluemix:public:cloud-object-storage:global:a/d2a512c7590048cfaf7f28cd26438f49:0e43b750-15aa-4634-9c02-9954d7f0be49:',
'type': 'bmcos_object_storage'}],
'metadata': {'created_at': '2022-11-13T11:47:24.278Z',
'creator_id': 'f81d1d-6640049b38',
'id': '4ad0fa56-67ce-4b1a-b30f-e8035c8149b8',
'updated_at': '2022-11-13T11:47:37.954Z',
'url': '/v2/spaces/4ad0fa56-67ce-4b1a-b30f-e8035c8149b8'}}]]}
```

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```
[21] client.spaces.list()
Note: 'limit' is not provided. Only first 50 records will be displayed if the number of records exceed 50
-----
ID NAME CREATED
4ad0fa56-67ce-4b1a-b30f-e8035c8149b8 f1 2022-11-13T11:47:24.278Z
c77baaef-a816-44c5-95eb-9d2bf178dc6f v1_Deploy 2022-11-13T10:24:33.382Z
-----

[22] space_uid = "4ad0fa56-67ce-4b1a-b30f-e8035c8149b8"
space_uid

'4ad0fa56-67ce-4b1a-b30f-e8035c8149b8'

[23] client.set.default_space(space_uid)

'SUCCESS'

[24] 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 0cd0f1e-5376-4f4d-92dd-da3b69aa9bda base
shiny-r3.6 0e0e79df-875e-4f24-8ae9-62dccc214806 base
tensorflow_2.4-py3.7-horovod 1092590a-307d-563d-9062-4eb7d64b3f22 base
pytorch_1.1-py3.6 10ac12d6-6630-4ccd-8392-3e922c096a92 base
tensorflow_1.15-py3.6-ddl 111e41b3-de2d-5422-a4d6-bf776828c4b7 base
```

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train the fruit model.pynb

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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-b6a5-3fbd1665666 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 295adb05-9ef9-547e-9bf4-92ae3563e720 base

autoai-ts_3.8-py3.8 2a80c932-798f-5ae9-abd6-15e0c2402f05 base

tensorflow_1.13-py3.6 2b73a275-7cbf-420b-e912-ee7f436e0bc base

kernel-spark3.3-py3.9 2b7961e2-e3b1-5a8c-a491-482c8368839a base

pytorch_1.2-py3.6 2c8ef57d-2687-4b7d-acce-01f94976dac1 base

spark-mllib_2.3 2e51f700-bca0-4b0d-88dc-5c6791338875 base

pytorch-onnx_1.1-py3.6-edt 32983cea-3f32-4400-8965-dde874a8d67e base

spark-mllib_3.0-py37 36507ebe-8770-55ba-ab2a-eafe787600e9 base

spark-mllib_2.4 390d21f8-e58b-4fac-9c55-d7ceda621326 base

autoai-ts_rt22.2-py3.10 396b2e83-0953-5b86-9a55-7ce1628a406f base

xgboost_0.82-py3.6 39e31acd-5f30-41dc-ae44-60233c80306e base

pytorch-onnx_1.2-py3.6-edt 4059908e-7019-4e28-8daa-f00306f4ffe12 base

pytorch-onnx_rt22.2-py3.10 40e73f55-783a-5535-b3fa-0c8b94291431 base

default_r36py38 41c247d3-45f8-5a71-b065-8580229facf0 base

autoai-ts_rt22.1-py3.9 4269d26e-07ba-5d40-8f66-2d495b0c71f7 base

autoai-obm_3.0 42b92e18-d9ab-567f-988a-4240ba1ed5f7 base

pml-3.0.4.3 493bcb95-16f1-5bc5-bee8-81b8af80e9c7 base

spark-mllib_2.4-r_3.6 49403dff-92e9-4c87-a3d7-a42d0021c095 base

xgboost_0.90-py3.6 4ff8d6c2-1343-4c18-85e1-689c965304d3 base

pytorch-onnx_1.1-py3.6 50f95b2a-bc16-43bb-bc94-b0bed208c60b base

autoai-ts_3.9-py3.8 52c57136-80fa-572e-0728-a5e7cbb42cde base

spark-mllib_2.4-scala_2.11 55a70f99-7320-4be5-9fb9-9e0b5a443af5 base

spark-mllib_3.0 5c1b0ca2-4077-5c2e-9439-ffd44ea8ffe9 base

autoai-obm_2.0 5c2c37fa-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

Note: Only first 50 records were displayed. To display more use 'limit' parameter.

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train the fruit model.pynb

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[25] 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="fruit-classification.tgz", meta_props={

client.repository.Model/MetaNames.NAME:"fruit",

client.repository.Model/MetaNames.TYPE:"tensorflow_rt22.1",

client.repository.Model/MetaNames.SOFTWARE_SPEC_UID:software_space_uid

})

[27] model_details

{'entity': {'hybrid_pipeline_software_specs': [],

'software_spec': {'id': 'acd9c798-6974-5d2f-a657-ce06e986df4d',

'name': 'tensorflow_rt22.1-py3.9'},

'type': 'tensorflow_rt22.1'},

'metadata': {'created_at': '2022-11-13T11:52:22.919Z',

'id': '7656b11c-b4d6-4c77-83aa-bce9052215df',

'modified_at': '2022-11-13T11:52:27.272Z',

'name': 'fruit',

'owner': 'IBMid-6640043H38',

'resource_key': 'a1e6d912-974d-477f-8809-2ab9871afe44',

'space_id': '4ad0fa56-67ce-4b1a-b30f-e8035c8149b8'},

'system': {'warnings': []}}

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

model_id

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fruit_IBM_Model.tgz

Show all



train the fruit model.pynb ☆

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[26] })

model_details

```
{'entity': {'hybrid_pipeline_software_specs': [],
'software_spec': {'id': 'acd9c798-6974-5d2f-a657-ce06e986df4d',
'name': 'tensorflow_rt22.1-py3.9'},
'type': 'tensorflow_rt22.1'},
'metadata': {'created_at': '2022-11-13T11:52:22.919Z',
'id': '7656b11c-b4d6-4c77-83aa-bce9052215df',
'modified_at': '2022-11-13T11:52:27.272Z',
'name': 'fruit',
'owner': 'IBMid-6640043H3B',
'resource_key': 'a1e6d912-974d-477f-8809-2ab9871afe44',
'space_id': '4ad0fa56-67ce-4b1a-b30f-e8035c8149b8'},
'system': {'warnings': []}}
```

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

```
'7656b11c-b4d6-4c77-83aa-bce9052215df'
```

```
[30] client.repository.download(model_id, 'fruit_IBM_Model.tgz')
```

```
Successfully saved model content to file: 'fruit_IBM_Model.tgz'
'/content/fruit_IBM_Model.tgz'
```



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