

DemandEst – AI Powered Food Demand Forecasting

TEAM ID:PNT2022TMID23576

Train the ML Model On IBM

```
In [43]: pip install ibm_watson_machine_learning
Requirement already satisfied: ibm_watson_machine_learning in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (1.0.257)
Requirement already satisfied: ibm-cos-sdk==2.11.* in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (2.11.0)
Requirement already satisfied: urllib3 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (1.26.7)
Requirement already satisfied: pandas<1.5.0,>=0.24.2 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (1.3.4)
Requirement already satisfied: packaging in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (21.3)
Requirement already satisfied: importlib-metadata in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (4.8.2)
Requirement already satisfied: lmdb in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (0.9.3)
Requirement already satisfied: tabulate in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (0.8.9)
Requirement already satisfied: certifi in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (2022.9.24)
Requirement already satisfied: requests in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm_watson_machine_learning) (2.26.0)
Requirement already satisfied: ibm-cos-sdk-s3transfer==2.11.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-sdk==2.11.*->ibm_watson_machine_learning) (2.11.0)
Requirement already satisfied: ibm-cos-sdk-core==2.11.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-sdk==2.11.*->ibm_watson_machine_learning) (2.11.0)
Requirement already satisfied: jmespath<1.0.0,>=0.7.1 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-sdk==2.11.*->ibm_watson_machine_learning) (0.9.3)
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-sdk==2.11.0->ibm-cos-sdk==2.11.*->ibm_watson_machine_learning) (2.26.2)
Requirement already satisfied: pytz>=2017.3 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from pandas<1.5.0,>=0.24.2->ibm_watson_machine_learning) (2021.3)
Requirement already satisfied: numpy>=1.17.3 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from pandas<1.5.0,>=0.24.2->ibm_watson_machine_learning) (1.20.0)
Requirement already satisfied: sin>=1.5 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from python-dateutil<3.0.0,>=2.1->ibm-cos-sdk==2.11.0->ibm-cos-sdk==2.11.*->ibm_watson_machine_learning) (1.15.0)
Requirement already satisfied: idna<4,>2.5 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from requests->ibm_watson_machine_learning) (3.3)
Requirement already satisfied: charset-normalizer>~2.0.0 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from requests->ibm_watson_machine_learning) (2.0.4)
Requirement already satisfied: ipp>=0.5 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from importlib-metadata->ibm_watson_machine_learning) (3.6.0)
Requirement already satisfied: pyyaml>=3.0.5,>=2.0.2 in /opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from packaging->ibm_watson_machine_learning) (3.0.4)

In [44]: from ibm_watson_machine_learning import APIClient
In [45]: wml_credentials={
    "url": "https://us-south.ml.cloud.ibm.com",
    "apikey": "W6HBPB07t9eq5QhvsljbioR0vBia0k781umY7Et8"
}
client = APIClient(wml_credentials)
```

```
In [45]: def guid_from_space_name(client, space_name):
    spacesclient.spaces.get_details()
    return(next(item for item in spacesclient.resources.list() if item['entity']['name']==space_name)[{'metadata':item['id']}])['metadata']['id']

In [46]: space_uid = guid_from_space_name(client,'models')
print("Space UID "+ space_uid)

Space UID =376330cd-fcc1-4a81-81e8-ad1e9433d83b

In [47]: client.set.default_space(space_uid)

Out[47]: 'SUCCESS'

In [49]: client.software_specifications.list()

NAME          ASSET_ID          TYPE
default_py3_6 0062b8c9-8b7d-44a0-a969-46c416a6cb9d base
kernel-spark3.2-scala2.12 020d69ce-7ac1-5e68-ac1a-31189867356a base
pytorch-onnx_1.3-py3.7-edt 09ea0a134-3346-5748-b513-49120e15d288 base
scikit-learn_0.20-py3.6 09c5a1d0-9c1a-4471-a344-eb7b655f6687 base
spark-mllib_3.0-scala_2.12 09fafcff0-90a7-5899-b9ed-1ef348aebedee base
pytorch-onnx_r22.1-py3.9 08848dd4-e681-[5599-bea1-b5f6]cccc6471 base
si-function_0.1-py3.6 0cd0f01e-5376-4f4d-92dd-dabfb9aa989da base
shiny-r3.6 066e70df-875e-4f24-8a90-62ccc21a48306 base
tensorflow_2.4-py3.7-horovod 1092590a-307d-563d-9b62-4eb7d54bf3f22 base
pytorch_1.1-py3.6 10ac12d6-6b30-4cc0-8392-3e922-096492 base
tensorFlow_1.15-py3.6-dd1 111e41b3-de2d-5422-a4de-b77682dc4b7 base
autoai-kb_r22.2-py3.10 125b6d9a-5b1f-5e80-972a-b251698ccf40 base
runtime_22.1-py3.9 126b3a17-24d8-5082-900f-9ab31fbfd3cb base
scikit-learn_0.22-py3.6 154010fa-5b3b-4a1c-82af-4d5ee5a5abc85 base
default_r3.6 1b70aee3-ab34-4587-8aa0-44a3c5296a36 base
pytorch-onnx_1.3-py3.6 1bc0202a-cc97-56da-b8e0-393890bbef7 base
kernel-spark3.3-r3.6 1c9e5454-f216-59dd-a20e-474a5cd9588 base
pytorch-onnx_r22.1-py3.9-edt 1d3621b86-7ad5-5b59-866c-908880bd3e7f base
tensorflow_2.1-py3.6 1eb25b84-d6ed-5dce-b6a5-3fbdf1665666 base
spark-mllib_3.2 2004772-0a98-58c7-9ff5-a77b012ebbf5 base
```

In [48]: `software_spec_uid = client.software_specifications.get_uid_by_name("default_py3.7")`
software_spec_uid

Out[48]: `'e4429883-c883-42b6-87a8-f419d64088cd'`

In [49]: `MODEL_NAME='Data_preprocessing_and_Model_building'`
`DEPLOYMENT_NAME='models'`
`DEMO_MODEL=GB`

In [51]: `software_spec_uid=client.software_specifications.get_id_by_name('runtime-22.1-py3.9')`

In [53]: `model_props=[`
 `client.repository.ModelMetaNames.NAME:MODEL_NAME,`
 `client.repository.ModelMetaNames.TYPE:'scikit-learn_1.0',`
 `client.repository.ModelMetaNames.SOFTWARE_SPEC_UID:software_spec_uid`
]
}

In [55]: `models_details=client.repository.store_model(`
 `model=DEMO_MODEL,`
 `meta_props=model_props,`
 `training_data=X,`
 `training_target=y`
)
I

In [56]: `models_details`

Out[56]: `{'entity': {'hybrid_pipeline_software_specs': [],`
 `'label_column': 'l1',`
 `'schemas': {'input': [{fields': [{name': 'f0', 'type': 'float'},`
 `{name': 'f1', 'type': 'float'},`
 `{name': 'f2', 'type': 'float'},`
 `{name': 'f3', 'type': 'float'},`
 `{name': 'f4', 'type': 'float'},`
 `{name': 'f5', 'type': 'float'}]`

The screenshot shows the IBM Cloud Pak for Data interface. The top navigation bar includes links for Home, Service Details - IBM, IBM Cloud Pak for Data, demo link - ashwarya, and IBM Merged video. The user is signed in as AISHWARYA G's Account from Dallas. The main page title is "models". Below it, there are tabs for Overview, Assets, Deployments (which is selected), Jobs, and Manage. A search bar is present above the table. The table lists one item: "models" (Type: Online, Status: Deployed, Asset: Data_preprocessing_and_Model_building). The last modified date is 10 hours ago by AISHWARYA G (You). To the right of the table is a dashed box for file uploads with the instruction "Drop files here or browse for files to upload." Below the table are pagination controls: "Items per page: 20" and "1–1 of 1 items". The bottom of the screen shows a Windows taskbar with various icons and system status information.

This screenshot is identical to the one above, showing the IBM Cloud Pak for Data interface for the "models" asset. The Deployments tab is selected, displaying the same table of one item: "models" (Type: Online, Status: Deployed, Asset: Data_preprocessing_and_Model_building). The last modified date is 10 hours ago by AISHWARYA G (You). The right side features a file upload area and pagination controls. The Windows taskbar at the bottom remains consistent.