# MODEL BUILDING

Team ID PNT2022TMID16204

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```python
from sklearn.ensemble import RandomForestClassifier

model = RandomForestClassifier(random_state=13)
model.fit(train_x, train_y)

RandomForestClassifier(random_state=13
```

```
predicted = model.predict(test_x)
model.score(test_x, test_y)

  0.8642634623943035

  from sklearn.metrics import roc_auc_score
  probabilities = model.predict_proba(test_x)

  from sklearn.metrics import confusion_matrix
  confusion_matrix(test_y, predicted)

  array([[1903,    33],
         [ 272,    39]])

  from sklearn.metrics import precision_score

  train_predictions = model.predict(train_x)
  precision_score(train_y, train_predictions)

  1.0

  from sklearn.metrics import recall_score

  recall_score(train_y, train_predictions)

  0.9992012779552716

  def predict_delay(departure_date_time, origin, destination):
      from datetime import datetime

      try:
          departure_date_time_parsed =
  datetime.strptime(departure_date_time, '%d/%m/%Y %H:%M:%S')
      except ValueError as e:
          return 'Error parsing date/time - {}'.format(e)

      month = departure_date_time_parsed.month
      day = departure_date_time_parsed.day
      day_of_week = departure_date_time_parsed.isoweekday()
      hour = departure_date_time_parsed.hour

      origin = origin.upper()
      destination = destination.upper()

      input = [{'MONTH': month,
                'DAY': day,
                'DAY_OF_WEEK': day_of_week,
                'CRS_DEP_TIME': hour,
                'ORIGIN_ATL': 1 if origin == 'ATL' else 0,
                'ORIGIN_DTW': 1 if origin == 'DTW' else 0,
                'ORIGIN_JFK': 1 if origin == 'JFK' else 0,
                'ORIGIN_MSP': 1 if origin == 'MSP' else 0,
```

```python
                'ORIGIN_SEA': 1 if origin == 'SEA' else 0,
                'DEST_ATL': 1 if destination == 'ATL' else 0,
                'DEST_DTW': 1 if destination == 'DTW' else 0,
                'DEST_JFK': 1 if destination == 'JFK' else 0,
                'DEST_MSP': 1 if destination == 'MSP' else 0,
                'DEST_SEA': 1 if destination == 'SEA' else 0 }]

    return model.predict_proba(pd.DataFrame(input))[0][0]

predict_delay('1/10/2018 21:45:00', 'JFK', 'ATL')
```

/opt/conda/envs/Python-3.9/lib/python3.9/site-packages/sklearn/
base.py:493: FutureWarning: The feature names should match those that
were passed during fit. Starting version 1.2, an error will be raised.
Feature names unseen at fit time:
- DAY
Feature names seen at fit time, yet now missing:
- DAY_OF_MONTH

  warnings.warn(message, FutureWarning)

0.88

```python
predict_delay('2/10/2018 21:45:00', 'JFK', 'ATL')
```

/opt/conda/envs/Python-3.9/lib/python3.9/site-packages/sklearn/
base.py:493: FutureWarning: The feature names should match those that
were passed during fit. Starting version 1.2, an error will be raised.
Feature names unseen at fit time:
- DAY
Feature names seen at fit time, yet now missing:
- DAY_OF_MONTH

  warnings.warn(message, FutureWarning)

0.87

```python
predict_delay('2/10/2018 10:00:00', 'ATL', 'SEA')
```

/opt/conda/envs/Python-3.9/lib/python3.9/site-packages/sklearn/
base.py:493: FutureWarning: The feature names should match those that
were passed during fit. Starting version 1.2, an error will be raised.
Feature names unseen at fit time:
- DAY
Feature names seen at fit time, yet now missing:
- DAY_OF_MONTH

  warnings.warn(message, FutureWarning)

0.99

```python
train_x
```

|  | MONTH | DAY_OF_MONTH | DAY_OF_WEEK | CRS_DEP_TIME | ORIGIN_ATL | ORIGIN_DTW |
| --- | --- | --- | --- | --- | --- | --- |
| 10303 | 11 | 3 | 4 | 20 | 0 | 1 |
| 6037 | 7 | 23 | 6 | 11 | 0 | 0 |
| 1315 | 2 | 19 | 5 | 7 | 1 | 0 |
| 9661 | 11 | 13 | 7 | 17 | 0 | 1 |
| 10594 | 12 | 10 | 6 | 5 | 0 | 0 |
| ... | ... | ... | ... | ... | ... | ... |
| 5734 | 7 | 14 | 4 | 15 | 0 | 0 |
| 5191 | 6 | 27 | 1 | 11 | 0 | 0 |
| 5390 | 7 | 2 | 6 | 13 | 0 | 0 |
| 860 | 2 | 1 | 1 | 20 | 0 | 1 |
| 7270 | 8 | 25 | 4 | 13 | 0 | 0 |

|  | ORIGIN_JFK | ORIGIN_MSP | ORIGIN_SEA | DEST_ATL | DEST_DTW | DEST_JFK |
| --- | --- | --- | --- | --- | --- | --- |
| 10303 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6037 | 0 | 0 | 1 | 0 | 0 | 1 |
| 1315 | 0 | 0 | 0 | 0 | 1 | 0 |
| 9661 | 0 | 0 | 0 | 1 | 0 | 0 |
| 10594 | 0 | 1 | 0 | 1 | 0 | 0 |
| ... | ... | ... | ... | ... | ... | ... |
| 5734 | 0 | 1 | 0 | 0 | 1 | 0 |
| 5191 | 0 | 1 | 0 | 0 | 1 | 0 |
| 5390 | 0 | 0 | 1 | 1 | 0 | 0 |
| 860 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7270 | 0 | 1 | 0 | 0 | 1 | 0 |

```
        DEST_MSP   DEST_SEA
10303          1          0
6037           0          0
1315           0          0
9661           0          0
10594          0          0
...          ...        ...
5734           0          0
5191           0          0
5390           0          0
860            0          1
7270           0          0

[8984 rows x 14 columns]
```

```
!pip install -U 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: tabulate in /opt/conda/envs/Python-
3.9/lib/python3.9/site-packages (from ibm-watson-machine-learning)
(0.8.9)
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: lomond in
/opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-
watson-machine-learning) (0.3.3)
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: packaging in /opt/conda/envs/Python-
3.9/lib/python3.9/site-packages (from ibm-watson-machine-learning)
(21.3)
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==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: certifi in
/opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-
watson-machine-learning) (2022.9.24)
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: 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) (0.10.0)
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: 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: python-dateutil<3.0.0,>=2.1 in
/opt/conda/envs/Python-3.9/lib/python3.9/site-packages (from ibm-cos-
sdk-core==2.11.0->ibm-cos-sdk==2.11.*->ibm-watson-machine-learning)
(2.8.2)
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) (1.20.3)
Requirement already satisfied: six>=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-core==2.11.0->ibm-cos-sdk==2.11.*->ibm-watson-machine-
learning) (1.15.0)
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: 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: zipp>=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: pyparsing!=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)

from ibm_watson_machine_learning import APIClient
import json

wml_credentials = {
    "apikey":"umsddhtqxmQOPqQ64OJQe42AIiwDoBozC9qxgTdp45sJ",
    "url":"https://us-south.ml.cloud.ibm.com"
}

wml_client = APIClient(wml_credentials)
wml_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
1f8cbe22-b491-4cdd-895f-8cfac5245a83  flight_delay_prediction  2022-
11-11T09:54:35.212Z
```

```
---------------------------------------  ------------------------
--------------------------

SPACE_ID= "1f8cbe22-b491-4cdd-895f-8cfac5245a83"

wml_client.set.default_space(SPACE_ID)

'SUCCESS'

wml_client.software_specifications.list(500)

--------------------------------  ---------------------------------------
-----
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 base | 1eb25b84-d6ed-5dde-b6a5-3fbdf1665666 | |
| spark-mllib_3.2 base | 20047f72-0a98-58c7-9ff5-a77b012eb8f5 | |
| tensorflow_2.4-py3.8-horovod base | 217c16f6-178f-56bf-824a-b19f20564c49 | |
| runtime-22.1-py3.9-cuda base | 26215f05-08c3-5a41-a1b0-da66306ce658 | |
| do_py3.8 base | 295addb5-9ef9-547e-9bf4-92ae3563e720 | |
| autoai-ts_3.8-py3.8 base | 2aa0c932-798f-5ae9-abd6-15e0c2402fb5 | |
| tensorflow_1.15-py3.6 base | 2b73a275-7cbf-420b-a912-eae7f436e0bc | |
| kernel-spark3.3-py3.9 base | 2b7961e2-e3b1-5a8c-a491-482c8368839a | |
| pytorch_1.2-py3.6 base | 2c8ef57d-2687-4b7d-acce-01f94976dac1 | |
| spark-mllib_2.3 base | 2e51f700-bca0-4b0d-88dc-5c6791338875 | |
| pytorch-onnx_1.1-py3.6-edt base | 32983cea-3f32-4400-8965-dde874a8d67e | |
| spark-mllib_3.0-py37 base | 36507ebe-8770-55ba-ab2a-eafe787600e9 | |
| spark-mllib_2.4 base | 390d21f8-e58b-4fac-9c55-d7ceda621326 | |
| autoai-ts_rt22.2-py3.10 base | 396b2e83-0953-5b86-9a55-7ce1628a406f | |
| xgboost_0.82-py3.6 base | 39e31acd-5f30-41dc-ae44-60233c80306e | |
| pytorch-onnx_1.2-py3.6-edt base | 40589d0e-7019-4e28-8daa-fb03b6f4fe12 | |
| pytorch-onnx_rt22.2-py3.10 base | 40e73f55-783a-5535-b3fa-0c8b94291431 | |
| default_r36py38 base | 41c247d3-45f8-5a71-b065-8580229facf0 | |
| autoai-ts_rt22.1-py3.9 base | 4269d26e-07ba-5d40-8f66-2d495b0c71f7 | |
| autoai-obm_3.0 base | 42b92e18-d9ab-567f-988a-4240ba1ed5f7 | |
| pmml-3.0_4.3 base | 493bcb95-16f1-5bc5-bee8-81b8af80e9c7 | |
| spark-mllib_2.4-r_3.6 base | 49403dff-92e9-4c87-a3d7-a42d0021c095 | |
| xgboost_0.90-py3.6 base | 4ff8d6c2-1343-4c18-85e1-689c965304d3 | |
| pytorch-onnx_1.1-py3.6 base | 50f95b2a-bc16-43bb-bc94-b0bed208c60b | |
| autoai-ts_3.9-py3.8 base | 52c57136-80fa-572e-8728-a5e7cbb42cde | |

| | |
|---|---|
| spark-mllib_2.4-scala_2.11<br>base | 55a70f99-7320-4be5-9fb9-9edb5a443af5 |
| spark-mllib_3.0<br>base | 5c1b0ca2-4977-5c2e-9439-ffd44ea8ffe9 |
| autoai-obm_2.0<br>base | 5c2e37fa-80b8-5e77-840f-d912469614ee |
| spss-modeler_18.1<br>base | 5c3cad7e-507f-4b2a-a9a3-ab53a21dee8b |
| cuda-py3.8<br>base | 5d3232bf-c86b-5df4-a2cd-7bb870a1cd4e |
| autoai-kb_3.1-py3.7<br>base | 632d4b22-10aa-5180-88f0-f52dfb6444d7 |
| pytorch-onnx_1.7-py3.8<br>base | 634d3cdc-b562-5bf9-a2d4-ea90a478456b |
| spark-mllib_2.3-r_3.6<br>base | 6586b9e3-ccd6-4f92-900f-0f8cb2bd6f0c |
| tensorflow_2.4-py3.7<br>base | 65e171d7-72d1-55d9-8ebb-f813d620c9bb |
| spss-modeler_18.2<br>base | 687eddc9-028a-4117-b9dd-e57b36f1efa5 |
| pytorch-onnx_1.2-py3.6<br>base | 692a6a4d-2c4d-45ff-a1ed-b167ee55469a |
| spark-mllib_2.3-scala_2.11<br>base | 7963efe5-bbec-417e-92cf-0574e21b4e8d |
| spark-mllib_2.4-py37<br>base | 7abc992b-b685-532b-a122-a396a3cdbaab |
| caffe_1.0-py3.6<br>base | 7bb3dbe2-da6e-4145-918d-b6d84aa93b6b |
| pytorch-onnx_1.7-py3.7<br>base | 812c6631-42b7-5613-982b-02098e6c909c |
| cuda-py3.6<br>base | 82c79ece-4d12-40e6-8787-a7b9e0f62770 |
| tensorflow_1.15-py3.6-horovod<br>base | 8964680e-d5e4-5bb8-919b-8342c6c0dfd8 |
| hybrid_0.1<br>base | 8c1a58c6-62b5-4dc4-987a-df751c2756b6 |
| pytorch-onnx_1.3-py3.7<br>base | 8d5d8a87-a912-54cf-81ec-3914adaa988d |
| caffe-ibm_1.0-py3.6<br>base | 8d863266-7927-4d1e-97d7-56a7f4c0a19b |
| spss-modeler_17.1<br>base | 902d0051-84bd-4af6-ab6b-8f6aa6fdeabb |
| do_12.10<br>base | 9100fd72-8159-4eb9-8a0b-a87e12eefa36 |
| do_py3.7<br>base | 9447fa8b-2051-4d24-9eef-5acb0e3c59f8 |
| spark-mllib_3.0-r_3.6<br>base | 94bb6052-c837-589d-83f1-f4142f219e32 |
| cuda-py3.7-opence<br>base | 94e9652b-7f2d-59d5-ba5a-23a414ea488f |

| | |
|---|---|
| nlp-py3.8<br>base | 96e60351-99d4-5a1c-9cc0-473ac1b5a864 |
| cuda-py3.7<br>base | 9a44990c-1aa1-4c7d-baf8-c4099011741c |
| hybrid_0.2<br>base | 9b3f9040-9cee-4ead-8d7a-780600f542f7 |
| spark-mllib_3.0-py38<br>base | 9f7a8fc1-4d3c-5e65-ab90-41fa8de2d418 |
| autoai-kb_3.3-py3.7<br>base | a545cca3-02df-5c61-9e88-998b09dc79af |
| spark-mllib_3.0-py39<br>base | a6082a27-5acc-5163-b02c-6b96916eb5e0 |
| runtime-22.1-py3.9-do<br>base | a7e7dbf1-1d03-5544-994d-e5ec845ce99a |
| default_py3.8<br>base | ab9e1b80-f2ce-592c-a7d2-4f2344f77194 |
| tensorflow_rt22.1-py3.9<br>base | acd9c798-6974-5d2f-a657-ce06e986df4d |
| kernel-spark3.2-py3.9<br>base | ad7033ee-794e-58cf-812e-a95f4b64b207 |
| autoai-obm_2.0 with Spark 3.0<br>base | af10f35f-69fa-5d66-9bf5-acb58434263a |
| default_py3.7_opence<br>base | c2057dd4-f42c-5f77-a02f-72bdbd3282c9 |
| tensorflow_2.1-py3.7<br>base | c4032338-2a40-500a-beef-b01ab2667e27 |
| do_py3.7_opence<br>base | cc8f8976-b74a-551a-bb66-6377f8d865b4 |
| spark-mllib_3.3<br>base | d11f2434-4fc7-58b7-8a62-755da64fdaf8 |
| autoai-kb_3.0-py3.6<br>base | d139f196-e04b-5d8b-9140-9a10ca1fa91a |
| spark-mllib_3.0-py36<br>base | d82546d5-dd78-5fbb-9131-2ec309bc56ed |
| autoai-kb_3.4-py3.8<br>base | da9b39c3-758c-5a4f-9cfd-457dd4d8c395 |
| kernel-spark3.2-r3.6<br>base | db2fe4d6-d641-5d05-9972-73c654c60e0a |
| autoai-kb_rt22.1-py3.9<br>base | db6afe93-665f-5910-b117-d879897404d9 |
| tensorflow_rt22.1-py3.9-horovod<br>base | dda170cc-ca67-5da7-9b7a-cf84c6987fae |
| autoai-ts_1.0-py3.7<br>base | deef04f0-0c42-5147-9711-89f9904299db |
| tensorflow_2.1-py3.7-horovod<br>base | e384fce5-fdd1-53f8-bc71-11326c9c635f |
| default_py3.7<br>base | e4429883-c883-42b6-87a8-f419d64088cd |
| do_22.1<br>base | e51999ba-6452-5f1f-8287-17228b88b652 |

```
autoai-obm_3.2                     eae86aab-da30-5229-a6a6-1d0d4e368983
base
tensorflow_rt22.2-py3.10           f65bd165-f057-55de-b5cb-f97cf2c0f393
base
do_20.1                            f686cdd9-7904-5f9d-a732-01b0d6b10dc5
base
pytorch-onnx_rt22.2-py3.10-edt     f8a05d07-e7cd-57bb-a10b-23f1d4b837ac
base
scikit-learn_0.19-py3.6            f963fa9d-4bb7-5652-9c5d-8d9289ef6ad9
base
tensorflow_2.4-py3.8               fe185c44-9a99-5425-986b-59bd1d2eda46
base
------------------------------     ---------------------------------------
-----
```

```python
import sklearn
sklearn.__version__
```

```
'1.0.2'
```

```python
MODEL_NAME = 'flightdelayprediction'
DEPLOYMENT_NAME = 'flight_delay_prediction'
DEMO_MODEL = model

software_spec_uid =
wml_client.software_specifications.get_id_by_name('runtime-22.1-
py3.9')

# Setup model meta
model_props = {
    wml_client.repository.ModelMetaNames.NAME: MODEL_NAME,
    wml_client.repository.ModelMetaNames.TYPE: 'scikit-learn_1.0',
    wml_client.repository.ModelMetaNames.SOFTWARE_SPEC_UID:
software_spec_uid
}

#Save model
model_details = wml_client.repository.store_model(
    model=DEMO_MODEL,
    meta_props=model_props,
    training_data=train_x,
    training_target=train_y
)

model_details
```

```
{'entity': {'hybrid_pipeline_software_specs': [],
  'label_column': 'ARR_DEL15',
  'schemas': {'input': [{'fields': [{'name': 'MONTH', 'type':
'int64'},
      {'name': 'DAY_OF_MONTH', 'type': 'int64'},
      {'name': 'DAY_OF_WEEK', 'type': 'int64'},
```

```
             {'name': 'CRS_DEP_TIME', 'type': 'int64'},
             {'name': 'ORIGIN_ATL', 'type': 'uint8'},
             {'name': 'ORIGIN_DTW', 'type': 'uint8'},
             {'name': 'ORIGIN_JFK', 'type': 'uint8'},
             {'name': 'ORIGIN_MSP', 'type': 'uint8'},
             {'name': 'ORIGIN_SEA', 'type': 'uint8'},
             {'name': 'DEST_ATL', 'type': 'uint8'},
             {'name': 'DEST_DTW', 'type': 'uint8'},
             {'name': 'DEST_JFK', 'type': 'uint8'},
             {'name': 'DEST_MSP', 'type': 'uint8'},
             {'name': 'DEST_SEA', 'type': 'uint8'}],
          'id': '1',
          'type': 'struct'}],
       'output': []},
     'software_spec': {'id': '12b83a17-24d8-5082-900f-0ab31fbfd3cb',
       'name': 'runtime-22.1-py3.9'},
     'type': 'scikit-learn_1.0'},
   'metadata': {'created_at': '2022-11-11T11:48:38.088Z',
     'id': 'aae0ddb1-5562-4e59-860a-7f28afc694ad',
     'modified_at': '2022-11-11T11:48:51.701Z',
     'name': 'flightdelayprediction',
     'owner': 'IBMid-666002MR4W',
     'resource_key': '1bbba327-eee7-4adb-b46b-1b129f15d36b',
     'space_id': '1f8cbe22-b491-4cdd-895f-8cfac5245a83'},
   'system': {'warnings': []}}

model_id = wml_client.repository.get_model_id(model_details)
model_id

'aae0ddb1-5562-4e59-860a-7f28afc694ad'

# Set meta
deployment_props = {

wml_client.deployments.ConfigurationMetaNames.NAME:DEPLOYMENT_NAME,
    wml_client.deployments.ConfigurationMetaNames.ONLINE: {}
}

# Deploy
deployment = wml_client.deployments.create(
    artifact_uid=model_id,
    meta_props=deployment_props
)




######################################################################
#################

Synchronous deployment creation for uid: 'aae0ddb1-5562-4e59-860a-
7f28afc694ad' started
```

```
################################################################
#################

initializing
Note: online_url is deprecated and will be removed in a future
release. Use serving_urls instead.

ready


-----------------------------------------------------------------------
----------------------------
Successfully finished deployment creation, deployment_uid='da808bb7-
ffdd-41a9-a4e8-84d47d0506eb'
-----------------------------------------------------------------------
----------------------------
```