



Title: Step by Step - How to Deploy a Model in Google Cloud Platform

— Master Thesis Support Document

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Master ADEO 2


Project Setup


Storing Preprocessed Datasets : Google Storage - Buckets

Important consideration for later stages: Make sure to unify the region (location) : Always use the same one and do not opt for multi-region when creating your bucket since it can be more costly and can be inconvenient later.

 Cloud Storage

 Buckets

 Monitoring

 Settings

← Bucket details

[REFRESH](#) [HELP ASSISTANT](#) [LEARN](#)

datasets_thesis

Location

asia-east2 (Hong Kong)

Storage class

Standard

Public access

Not public

Protection

None


OBJECTS


CONFIGURATIONPERMISSIONSPROTECTIONLIFECYCLEOBSERVABILITY


Buckets > datasets_thesis


















[UPLOAD FILES](#) [UPLOAD FOLDER](#) [CREATE FOLDER](#) [TRANSFER DATA](#) [MANAGE HOLDS](#) [DOWNLOAD](#) [DELETE](#)


Filter by name prefix only

 Filter Filter objects and folders

 Show deleted data



<input type="checkbox"/>	Name	Size	Type	Created ?	Storage class	Last modified	Public access ?	View
<input type="checkbox"/>		—	Folder	—	—	—	—	— 
<input type="checkbox"/>		—	Folder	—	—	—	—	— 
<input type="checkbox"/>		—	Folder	—	—	—	—	— 
<input type="checkbox"/>		—	Folder	—	—	—	—	— 
<input type="checkbox"/>	 preprocessed_pricing.csv	54.3 MB	text/csv	Apr 1, 2023, 2:58:58 PM	Standard	Apr 1, 2023, 2:58:58 PM	Not public	—  
<input type="checkbox"/>	 preprocessed_surge.csv	311 KB	text/csv	Apr 4, 2023, 8:44:29 AM	Standard	Apr 4, 2023, 8:44:29 AM	Not public	—  
<input type="checkbox"/>		421 B	application/json	Apr 4, 2023, 8:48:29 AM	Standard	Apr 4, 2023, 8:48:29 AM	Not public	—  

 Marketplace



Creating a Workbench Managed Notebook : Workbench

Vertex AI

TOOLS

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MODEL DEVELOPMENT

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NEW NOTEBOOK

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START

STOP

RESET

UPGRADE

DELETE

LEARN

HIDE INFO PANEL

MANAGED NOTEBOOKS

USER-MANAGED NOTEBOOKS

EXECUTIONS

SCHEDULES

Notebooks have JupyterLab 3 pre-installed and are configured with GPU-enabled machine learning frameworks. [Learn more](#)

Filter

Enter property name or value

Notebook name

Zone

Auto-upgrade

Environment

asia-east2-a

—

NumPy/SciPy/slearn

OPEN JUPYTERLAB

Info panel

DOCUMENTATION

LABELS

[Documentation Home](#)

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Upload .ipnb and create a .py version of it

The screenshot displays the JupyterLab interface. The top menu bar includes File, Edit, View, Run, Kernel, Git, Tabs, Settings, and Help. Below the menu is a toolbar with icons for creating a new file, opening a recent file, uploading, refreshing, and deleting. The left sidebar contains icons for the file browser, console, and settings. The main area is divided into two panes. The left pane shows a file browser for the directory `/mpg/trainer/`. It contains a search bar and a table of files:

Name	Last Modified
<code>__init__.py</code>	a day ago
<code></code>	11 days ago
<code></code>	a day ago
<code></code>	a day ago
<code>task.py</code>	a day ago

The right pane shows a code editor with two tabs: `task.py` and `__init__.py`. The `task.py` tab is active, displaying the following Python code:

```
1 import logging
2 import subprocess
3 import os, logging
4 #from joblib import
5 import pandas as pd
6 import numpy as np
7 from sklearn.ensemble import
8 from sklearn.model_selection import
9 from sklearn.metrics import
10 from sklearn.datasets import
11 import pickle
12
13 # # 1- Loading Data
```

Prebuilt Container Configuration



Prebuilt Container: Create setup.py

The screenshot displays an IDE interface with a file explorer on the left and a code editor on the right. The file explorer shows a directory structure with files like `dist`, `myenv`, `trainer`, `trainer.egg-info`, `Dockerfile`, and `setup.py`. The code editor shows the content of `setup.py`, which includes imports from `setuptools` and a `setup()` function call.

```
1 from setuptools import find_packages
2 from setuptools import setup
3
4 REQUIRED_PACKAGES = ['gcsfs>=2021.4.0']
5
6 setup(
7     name='trainer',
8     version='0.1',
9     install_requires=REQUIRED_PACKAGES,
10    packages=find_packages(),
11    include_package_data=True,
12    description='My training application.'
13 )
```



Prebuilt Container: Source distribution package (.zip)

```
(jupyterlab) jupyter@python-20230401-144959:~/mpg$ gsutil cp dist/trainer-0.1.zip gs://boxwood-bliss-382412-bucket/
+zip
running sdist
running egg_info
writing trainer.egg-info/PKG-INFO
writing dependency_links to trainer.egg-info/dependency_links.txt
writing requirements to trainer.egg-info/requirements.txt
writing top-level names to trainer.egg-info/top_level.txt
reading manifest file 'trainer.egg-info/SOURCES.txt'
writing manifest file 'trainer.egg-info/SOURCES.txt'
warning: sdist: standard file not found: should have one of README, README.rst, README.txt, README.md

running check
creating trainer-0.1
creating trainer-0.1/trainer
creating trainer-0.1/trainer.egg-info
copying files to trainer-0.1...
copying setup.py -> trainer-0.1
copying trainer/__init__.py -> trainer-0.1/trainer
copying trainer/task.py -> trainer-0.1/trainer
copying trainer/train.py -> trainer-0.1/trainer
copying trainer.egg-info/PKG-INFO -> trainer-0.1/trainer.egg-info
copying trainer.egg-info/SOURCES.txt -> trainer-0.1/trainer.egg-info
copying trainer.egg-info/dependency_links.txt -> trainer-0.1/trainer.egg-info
copying trainer.egg-info/requirements.txt -> trainer-0.1/trainer.egg-info
copying trainer.egg-info/top_level.txt -> trainer-0.1/trainer.egg-info
Writing trainer-0.1/setup.cfg
creating 'dist/trainer-0.1.zip' and adding 'trainer-0.1' to it
adding 'trainer-0.1'
adding 'trainer-0.1/trainer'
adding 'trainer-0.1/trainer.egg-info'
adding 'trainer-0.1/setup.py'
adding 'trainer-0.1/PKG-INFO'
adding 'trainer-0.1/setup.cfg'
adding 'trainer-0.1/trainer/__init__.py'
adding 'trainer-0.1/trainer/task.py'
adding 'trainer-0.1/trainer/train.py'
adding 'trainer-0.1/trainer.egg-info/dependency_links.txt'
adding 'trainer-0.1/trainer.egg-info/PKG-INFO'
adding 'trainer-0.1/trainer.egg-info/top_level.txt'
adding 'trainer-0.1/trainer.egg-info/requirements.txt'
adding 'trainer-0.1/trainer.egg-info/SOURCES.txt'
removing 'trainer-0.1' (and everything under it)
(jupyterlab) jupyter@python-20230401-144959:~/mpg$ python setup.py sdist --formatsutil cp dist/trainer-0.1.zip gs://boxwood-bliss-382412-bucket/
Copying file://dist/trainer-0.1.zip [Content-Type=application/zip]...
/ [1 files][ 4.8 KiB/ 4.8 KiB]
```

Cloud Storage



Buckets



Monitoring



Settings

Bucket details

bucket

Location	Storage class	Public access	Protection
asia-east2 (Hong Kong)	Standard	Subject to object ACLs	None

OBJECTS CONFIGURATION PERMISSIONS PROTECTION

Buckets > .bucket

UPLOAD FILES UPLOAD FOLDER CREATE FOLDER TRANSFER DATA

Filter by name prefix only Filter objects and folders

<input type="checkbox"/>	Name	Size	Type
<input type="checkbox"/>	/	—	Folder
<input type="checkbox"/>		—	Folder
<input type="checkbox"/>		—	Folder
<input type="checkbox"/>		4.6 MB	application/octet-str
<input type="checkbox"/>		—	Folder
<input type="checkbox"/>		—	Folder
<input type="checkbox"/>	trainer-0.1.zip	4.8 KB	application/zip

Customer Built Container Configuration



Custom Built Container: Create Dockerfile

File Edit View Run Kernel Git Tabs Settings Help

Filter files by name

/ mpg /

Name	Last Modified
dist	2 days ago
myenv	3 days ago
trainer	20 hours ago
trainer.egg-info	a day ago
Dockerfile	a day ago
	a day ago
	a day ago

```
1 FROM python:3.9.2
2 WORKDIR /
3
4 COPY trainer /trainer
5
6 RUN pip install --upgrade pip
7 RUN pip install scikit-learn gcsfs numpy matplotlib google-cloud-storage joblib TensorFlow
8 #RUN pip install -r trainer/requirements.txt
9 RUN pip install pandas
10 RUN pip list
11
12 # create virtual environment
13 #RUN python -m venv myenv
14 #ENV PATH="/myenv/bin:$PATH"
15
16 # install dependencies inside virtual environment
17 #RUN pip install -r /requirements.txt
18 RUN . /usr/local/bin
19 CMD ["python", "/trainer/task.py" ]
```



Custom Built Container: Build, Run & Push Docker Image

```
(jupyterlab) jupyter@python-20230401-144959:~/mpg$ docker build -t asia-east2-docker.pkg.dev/boxwood-bliss-382412/mpg/dockerimage:V2 .
Sending build context to Docker daemon 442.7MB
Step 1/9 : FROM python:3.9.2
----> 587b1bc803b3
Step 2/9 : WORKDIR /
----> Using cache
----> c11eae721bdf
Step 3/9 : COPY trainer /trainer
----> 54d90cae06be
Step 4/9 : RUN pip install --upgrade pip
----> Running in 13abb34c4804
Requirement already satisfied: pip in /usr/local/lib/python3.9/site-packages (21.0.1)
Collecting pip
  Downloading pip-23.0.1-py3-none-any.whl (2.1 MB)
Installing collected packages: pip
  Attempting uninstall: pip
    Found existing installation: pip 21.0.1
    Uninstalling pip-21.0.1:
      Successfully uninstalled pip-21.0.1
Successfully installed pip-23.0.1
Removing intermediate container 13abb34c4804
----> 64820698e936
Step 5/9 : RUN pip install scikit-learn gcfs numpy matplotlib google-cloud-storage joblib TensorFlow
----> Running in a27c4b86fa01
Collecting scikit-learn
  Downloading scikit_learn-1.2.2-cp39-cp39-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (9.6 MB)
----- 9.6/9.6 MB 68.5 MB/s eta 0:00:00
-----
Removing intermediate container 061ba1bb79ae
----> 93c62b3696ca
Step 8/9 : RUN . /usr/local/bin
----> Running in 3144472f395d
Removing intermediate container 3144472f395d
----> d6ce02887662
Step 9/9 : CMD ["python", "/trainer/task.py" ]
----> Running in 6ab94f330432
Removing intermediate container 6ab94f330432
----> df974a45e6cf
Successfully built df974a45e6cf
Successfully tagged asia-east2-docker.pkg.dev/boxwood-bliss-382412/mpg/dockerimage:V2
```

```
(jupyterlab) jupyter@python-20230401-144959:~/mpg$ docker run --rm asia-east2-docker.pkg.dev/boxwood-bliss-382412/mpg/dockerimage:V2
Predicted values:
[1.5275 1.045 1.395 1.2525 1.715 1.025 1.25 1.1375 1.4025 1.92
1.6125 1.32 1.0175 1.51 1. 1.025 1.2475 1.5625 1.7925 1.895
1. 1.195 1.81 1.2475 1.7525 1.175 1.5175 1.045 1.4575 1.32
1.235 1.5475 1.4975 1.7675 1.47 1.5625 1.4675 1.5875 1.8275 1.09
1.995 1.6325 1.17 1.8 1.0175 1. 1.8825 1.0975 1.015 1.025
1.035 1.005 1.005 1.315 1.25 1.0025 1.23 1.005 1.1175 1.12
1.9775 1.7075 1.26 1.0125 1.155 1.0075 1.0475 1.8175 1.0025 1.06
1.5125 1.0875 1.72 1.5175 1.885 1.86 1.66 1.575 1.5675 1.0275
1.65 1.025 1.0175 1.4375 1.98 1.0825 1.4925 1. 1.245 1.1825
1.3975 1.465 1.3125 1.585 1.395 1.84 1.9075 1.6775 1.8175 1.2575
1.0675 1.2125 1.2575 1.34 1.005 1.04 1.4025 1.0125 1.5225 1.33
1.2075 1.3425 1.02 1.84 1.5125 1.5225 1.955 1.1375 1.2325 1.
1.1625 1.03 1.455 1.0475 1.0475 1.505 1.7625 1.2725 1.2975 1.14
1.22 1.31 1.1025 1.9825 1.135 1.35 1.005 1.4575 1.46 1.
]
↓
1.2825 1.51 1.9525 1.99 1.2375 1.115 1.105 1.9875 1.6625 1.455
1.4875 1.2475 1.5575 1.3125 1.5025 1.7325 1.4675 1.52 1.51 1.1875
1. 1.3275 1.965 1.6175 1.04 1.01 1.1725 1.7775 1.3175 1.0975
1.25 1.5025 1.0025]
INFO:root:Model exported to: gs://boxwood-bliss-382412-bucket/./model.pkl
```

```
(jupyterlab) jupyter@python-20230401-144959:~/mpg$ docker push asia-east2-docker.pkg.dev/boxwood-bliss-382412/mpg/dockerimage:V2
The push refers to repository [asia-east2-docker.pkg.dev/boxwood-bliss-382412/mpg/dockerimage]
5b2ce1240cc3: Pushed
cd5cd3b3b064: Pushing [=====] 1.314GB/2.687GB
d370c834963d: Pushed
16f6988ec7e8: Pushed
c249277a0e30: Layer already exists
e0b2f4d03f7b: Layer already exists
4cbe584e1645: Layer already exists
5ece9340957c: Layer already exists
093501b0a9e2: Layer already exists
b1169e57b139: Layer already exists
b3577d595e75: Layer already exists
3ee270f20d54: Layer already exists
4ef4adca5c3b: Layer already exists
[]
```



Custom Built Container: Build, Run & Push Docker Image



Artifact Registry



Repositories



Settings



Digests for dockerimage



DELETE

[SETUP INSTRUCTIONS](#)



Turn on vulnerability scanning

Your registry is not being monitored for known vulnerabilities. GCP offers automatic vulnerability cost of \$0.26 per image.

[TURN ON](#)

[LEARN MORE](#)

asia-east2-docker.pkg.dev > boxw

pg > dockerimage

Filter Enter property name or value

<input type="checkbox"/>	Name	Description	Tags	Created	Updated	↓
<input type="checkbox"/>	0		V2			⋮
<input type="checkbox"/>	€					⋮
<input type="checkbox"/>	2		V1			⋮
<input type="checkbox"/>	8					⋮
<input type="checkbox"/>	{					⋮
<input type="checkbox"/>						⋮

Model Training & Deployment



Model Training

Vertex AI

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DEPLOY AND USE

Model Registry

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Batch predictions

Matching Engine

Marketplace

<|

Training

+ CREATE

Region

asia-east2 (Hong Kong)

Filter

Enter a property name

Name	ID	Status	Job type	Model type	Duration	Created	Ended	Labels
surgee-20230412-102338	5341132818619564032	Finished	Training pipeline	Custom	2 min 32 sec	Apr 12, 2023, 10:23:37 AM	Apr 12, 2023, 10:26:10 AM	—
surgee-20230412-092621	4142049417832169472	Finished	Training pipeline	Custom	2 min 32 sec	Apr 12, 2023, 9:26:21 AM	Apr 12, 2023, 9:28:53 AM	—
surgee-20230411-181841	5977266265985646592	Finished	Training pipeline	Custom	2 min 32 sec	Apr 11, 2023, 6:18:41 PM	Apr 11, 2023, 6:21:14 PM	—
surgee-20230411-180839	4583402181314478080	Finished	Training pipeline	Custom	2 min 32 sec	Apr 11, 2023, 6:08:38 PM	Apr 11, 2023, 6:11:11 PM	—
surgee-20230411-175457	368032930095693824	Finished	Training pipeline	Custom	2 min 32 sec	Apr 11, 2023, 5:54:56 PM	Apr 11, 2023, 5:57:29 PM	—
surgee-20230411-173338	8042166695135019008	Finished	Training pipeline	Custom	2 min 32 sec	Apr 11, 2023, 5:33:38 PM	Apr 11, 2023, 5:36:10 PM	—
surgee-20230411-164121	7681878724945379328	Finished	Training pipeline	Custom	2 min 32 sec	Apr 11, 2023, 4:41:21 PM	Apr 11, 2023, 4:43:53 PM	—
surgee-20230411-160607	3894351438326792192	Finished	Training pipeline	Custom	2 min 32 sec	Apr 11, 2023, 4:06:07 PM	Apr 11, 2023, 4:08:39 PM	—
Surgee	8265094876689858560	Finished	Training pipeline	Custom	2 min 32 sec	Apr 11, 2023, 3:15:27 PM	Apr 11, 2023, 3:18:00 PM	—
Trial2	6896000589969227776	Failed	Training pipeline	Custom	2 min 32 sec	Apr 11, 2023, 2:41:44 PM	Apr 11, 2023, 2:44:16 PM	—

Rows per page: 10 1 – 10 of many



Model Registration & Version Control



Vertex AI



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DEPLOY AND USE



Model Registry



Endpoints



Batch predictions



Matching Engine



Batch predictions



Matching Engine



surgee



EDIT DETAILS

Model description

—

Region

asia-east2 (Hong Kong)

Model labels

—

Versions



Filter Enter a property name



<input type="checkbox"/>	Version ID ↓	Alias	Status	Description	Endpoints	Created	Labels
<input type="checkbox"/>	9	—	✓ Deployed on Vertex AI	—	surgee	Apr 11, 2023, 6:23:54 PM	⋮
<input type="checkbox"/>	8	—	✓ Ready	—	—	Apr 11, 2023, 6:12:31 PM	⋮
<input type="checkbox"/>	4	—	✓ Ready	—	—	Apr 11, 2023, 4:10:14 PM	⋮
<input type="checkbox"/>	13	★ default	✓ Deployed on Vertex AI	—	surgee2	Apr 12, 2023, 11:16:07 AM	⋮
<input type="checkbox"/>	11	—	✓ Ready	—	—	Apr 12, 2023, 10:26:55 AM	⋮
<input type="checkbox"/>	10	—	✓ Deployed on Vertex AI	—	surgee	Apr 12, 2023, 9:29:52 AM	⋮
<input type="checkbox"/>	1	—	✓ Ready	—	—	Apr 11, 2023, 3:30:19 PM	⋮



Deployment of Model in Endpoint



Vertex AI



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Labeling tasks

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DEPLOY AND USE



Model Registry



Endpoints



Batch predictions



Matching Engine



Batch predictions



Matching Engine



surgee



EDIT DETAILS

Model description

—

Region

asia-east2 (Hong Kong)

Model labels

—

Versions



Filter Enter a property name



<input type="checkbox"/>	Version ID ↓	Alias	Status	Description	Endpoints	Created	Labels
<input type="checkbox"/>	9	—	✓ Deployed on Vertex AI	—	surgee	Apr 11, 2023, 6:23:54 PM	⋮
<input type="checkbox"/>	8	—	✓ Ready	—	—	Apr 11, 2023, 6:12:31 PM	⋮
<input type="checkbox"/>	4	—	✓ Ready	—	—	Apr 11, 2023, 4:10:14 PM	⋮
<input type="checkbox"/>	13	★ default	✓ Deployed on Vertex AI	—	surgee2	Apr 12, 2023, 11:16:07 AM	⋮
<input type="checkbox"/>	11	—	✓ Ready	—	—	Apr 12, 2023, 10:26:55 AM	⋮
<input type="checkbox"/>	10	—	✓ Deployed on Vertex AI	—	surgee	Apr 12, 2023, 9:29:52 AM	⋮
<input type="checkbox"/>	1	—	✓ Ready	—	—	Apr 11, 2023, 3:30:19 PM	⋮



Deployment of Model in Endpoint



Vertex AI



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Endpoints



Batch predictions



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Endpoints

[+ CREATE ENDPOINT](#)

[REFRESH](#)

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Endpoints are machine learning models made available for online prediction requests. Endpoints are useful for timely predictions from many users (for example, in response to an application request). You can also request batch predictions if you don't need immediate results.

To create an endpoint, you need at least one machine learning model. [Learn more](#)

Region

asia-east2 (Hong Kong)

[Filter](#) Enter a property name

<input type="checkbox"/>	Name	ID	Status	Models	Region	Monitoring	Most recent alerts	Last updated ↓	API	Notification	L
<input type="checkbox"/>	surgee2		✓ Active	1	asia-east2	Disabled	—	Apr 12, 2023, 11:19:35 AM	Sample request		
<input type="checkbox"/>	surgeexg		❌ Creation failed	0	asia-east2	Disabled	—	Apr 12, 2023, 11:07:48 AM	—		
<input type="checkbox"/>	surgee		✓ Active	1	asia-east2	Disabled	—	Apr 12, 2023, 9:32:37 AM	Sample request		
<input type="checkbox"/>	surgee		✓ Active	1	asia-east2	Disabled	—	Apr 11, 2023, 6:25:37 PM	Sample request		
<input type="checkbox"/>	surgV3		❌ Creation failed	0	asia-east2	Disabled	—	Apr 11, 2023, 5:26:36 PM	—		
<input type="checkbox"/>	endpointsurge		❌ Creation failed	0	asia-east2	Disabled	—	Apr 10, 2023, 9:04:43 PM	—		



Testing Deployment

← surgee > Version 13 ▾ [EXPORT](#)

[LEARN](#)

EVALUATE **DEPLOY & TEST** BATCH PREDICT VERSION DETAILS

Endpoints are machine learning models made available for online prediction requests. Endpoints are useful for timely predictions from many users (for example, in response to an application request). You can also request batch predictions if you don't need immediate results.

DEPLOY TO ENDPOINT

Name	ID	Status	Models	Region	Monitoring	Most recent monitoring job	Most recent alerts	Last updated ↓	API	Notification	Labels ?
surgee2		✓ Active	1	asia-east2	Disabled	—	—	Apr 12, 2023, 11:19:35 AM	Sample request		

Test your model **PREVIEW**

Your JSON request must contain an `instances` field and an optional `parameters` field if you're using a custom container. No other fields can be present in the JSON request. [Learn how to format your JSON request.](#)

JSON request

```
{
  "instances": [
    [1, 1, 0, 1.495619524, 2.704968711, 15.95906133, 3.5, 0.5, 1,
    25.2, 37.9, 36.94705882]
  ]
}
```

PREDICT

Response

```
{
  "predictions": [
    1.2325
  ],
  "deployedModelId": "projects/your-project-id/locations/asia-east2/models/surgee2",
  "model": "projects/your-project-id/locations/asia-east2/models/surgee2",
  "modelDisplayName": "surgee",
  "modelVersionId": "13"
}
```

Invoking Model Endpoint



Testing Deployment

```
os.environ["GOOGLE_APPLICATION_CREDENTIALS"] = ".json" # GCP key
```

```
def endpoint_predict_sample(
    project: str, location: str, instances: list, endpoint: str
):
    aiplatform.init(project=project, location=location)

    endpoint = aiplatform.Endpoint(endpoint)

    instances_list = [list(instance.values()) for instance in instances]
    prediction = endpoint.predict(instances=instances_list)
    print(prediction)
    return prediction
```

```
project = "
endpoint = "
location = "asia-east2"

instances = [
    {
        "Day": 1,
        "Month": 1,
        "Hour": 0,
        "passenger_count": 1,
        "trip_distance": 1.495619524,
        "total_amount": 2.704968711,
        "temp": 15.95906133,
        "feelslike": 3.5,
        "snow": 0.5,
        "windspeed": 25.2,
        "cloudcover": 37.9,
        "duration": 36.94705882
    }
    # Add more instances here if needed
]

endpoint_predict_sample(project, location, instances, endpoint)
```

```
PermissionDenied: 403 This API method requires billing to be enabled. Please enable billing on project #247345565503 by visiting
https://console.developers.google.com/billing/enable?project=247345565503 then retry. If you enabled billing for this project recently, wait a few minutes for the action
to propagate to our systems and retry. [links {
  description: "Google developers console billing"
  url: "https://console.developers.google.com/billing/enable?project=247345565503"
}]
, reason: "BILLING_DISABLED"
domain: "googleapis.com"
metadata {
  key: "consumer"
  value: "projects"
}
metadata {
  key: "service"
  value: "aiplatform.googleapis.com"
}
```

Important Note:

Due to some billing limitations, I was not able to invoke my endpoint in the frontend. However, if I would have upgraded my account, since the testing works, we would have gotten the results of the prediction

Thank you for your Attention

Feel free to ask any questions or give your feedback