CMPE 258 – Deep Learning Assignment 2
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4. Hello custom training:

PROJECT SETUP:

- On the project selector page, created a project named: **CMPE258-HW2-Custom**

Project info ⋮

Project name
CMPE258-HW2-Custom

Project ID
cmpe258-hw2-custom

Project number
1095312788338

ADD PEOPLE TO THIS PROJECT

→ Go to project settings

Resources ⋮

Storage
1 bucket

- Enabled the API for the above created project:

≡ Google Cloud Platform CMPE258-HW2-Custom ▼

The APIs are enabled

Cloud AI Platform API, Cloud Functions API have been enabled.

Next, to use the API you'll need the right credentials.

Go to credentials

- Set up the authentication:

	Email	Name ↑		
☐	cmpe258-hw2-custom@appspot.gserviceaccount.com	App Engine default service account	✎	🗑
☐	arpitha-gurumurthy@cmpe258-hw2-custom.iam.gserviceaccount.com	Arpitha Gurumurthy	✎	🗑

CREATING CLOUD STORAGE BUCKET and downloading sample code:

```
arpitha_gurumurthy@cloudshell:~ (cmpe258-hw2-custom)$ gsutil mb -p cmpe258-hw2-custom -l us-central1 gs://cmpe258-hw2-custom-arp
itha
Creating gs://cmpe258-hw2-custom-arpitha/...
arpitha_gurumurthy@cloudshell:~ (cmpe258-hw2-custom)$ gsutil cp gs://cloud-samples-data/ai-platform/hello-custom/hello-custom-sa
mple-v1beta1.tar.gz - | tar -xzv
hello-custom-sample/
hello-custom-sample/webapp/
hello-custom-sample/function/
hello-custom-sample/setup.py
hello-custom-sample/trainer/
hello-custom-sample/trainer/task.py
hello-custom-sample/trainer/__init__.py
hello-custom-sample/function/requirements.txt
hello-custom-sample/function/main.py
hello-custom-sample/webapp/._index.html
hello-custom-sample/webapp/index.html
hello-custom-sample/webapp/image-list.txt
hello-custom-sample/webapp/index.css
hello-custom-sample/webapp/main.js
hello-custom-sample/webapp/function-url.js
```

Uploading training application to cloud storage:

```
arpitha_gurumurthy@cloudshell:~/hello-custom-sample (cmpe258-hw2-custom)$ python3 setup.py sdist --formats=gztar
running sdist
running egg_info
writing hello_custom_training.egg-info/PKG-INFO
writing dependency_links to hello_custom_training.egg-info/dependency_links.txt
writing requirements to hello_custom_training.egg-info/requires.txt
writing top-level names to hello_custom_training.egg-info/top_level.txt
reading manifest file 'hello_custom_training.egg-info/SOURCES.txt'
writing manifest file 'hello_custom_training.egg-info/SOURCES.txt'
warning: sdist: standard file not found: should have one of README, README.rst, README.txt, README.md

running check
warning: check: missing required meta-data: url

warning: check: missing meta-data: either (author and author_email) or (maintainer and maintainer_email) must be supplied

creating hello-custom-training-2.0
creating hello-custom-training-2.0/hello_custom_training.egg-info
creating hello-custom-training-2.0/trainer
copying files to hello-custom-training-2.0...
copying setup.py -> hello-custom-training-2.0
copying hello_custom_training.egg-info/PKG-INFO -> hello-custom-training-2.0/hello_custom_training.egg-info
copying hello_custom_training.egg-info/SOURCES.txt -> hello-custom-training-2.0/hello_custom_training.egg-info
copying hello_custom_training.egg-info/dependency_links.txt -> hello-custom-training-2.0/hello_custom_training.egg-info
copying hello_custom_training.egg-info/requires.txt -> hello-custom-training-2.0/hello_custom_training.egg-info
copying hello_custom_training.egg-info/top_level.txt -> hello-custom-training-2.0/hello_custom_training.egg-info
copying trainer/__init__.py -> hello-custom-training-2.0/trainer
copying trainer/task.py -> hello-custom-training-2.0/trainer
Writing hello-custom-training-2.0/setup.cfg
Creating tar archive
removing 'hello-custom-training-2.0' (and everything under it)
arpitha_gurumurthy@cloudshell:~/hello-custom-sample (cmpe258-hw2-custom)$
```

```
arpitha_gurumurthy@cloudshell:~/hello-custom-sample (cmpe258-hw2-custom)$ gsutil cp dist/hello-custom-training-2.0.tar.gz \
>   gs://cmpe258-hw2-custom-arpitha/training/
Copying file://dist/hello-custom-training-2.0.tar.gz [Content-Type=application/x-tar]...
/ [1 files][  1.9 KiB/  1.9 KiB]
Operation completed over 1 objects/1.9 KiB.
arpitha_gurumurthy@cloudshell:~/hello-custom-sample (cmpe258-hw2-custom)$
```

RUNNING A CUSTOM TRAINING PIPELINE:

Training PREVIEW   ➕ CREATE   ⟳ REFRESH

TRAINING PIPELINE   CUSTOM JOB   HYPERPARAMETER TUNING

Training pipelines are the primary model training workflow in AI Platform (Unified). You can use training pipelines to create an AutoML-trained model or a custom-trained model. For custom-trained models, training pipelines orchestrate custom training jobs and hyperparameter tuning with additional steps like adding a dataset or uploading the model to AI Platform for prediction serving. Learn More

Region
us-central1 (Iowa) ▾   ❓

≡ Filter training pipelines...   ❓   ▥

Name	ID	Job type	Model type	Status	Created	Elapsed time	
✅ hello_custom	777134818512076800	Training pipeline	ⓐ Custom	Succeeded	Feb 23, 2021, 11:20:43 PM	15 min 54 sec	⋮

TRAINED MODEL:

Models PREVIEW   ➕ CREATE   ⬆ IMPORT

Models are built from your datasets or unmanaged data sources. There are many different types of machine learning models available on AI Platform, depending on your use case and level of experience with machine learning. Learn more

Region
us-central1 (Iowa) ▾   ❓

≡ Filter models...

	Name	ID	Data	Endpoints	Region	Type	Created
✅	hello_custom	2634341899221073920	—	0	us-central1	ⓐ Custom trained	Feb 23, 2021, 11:20:43 PM

DEPLOYING THE MODEL TO AN ENDPOINT:

Hello AI Platform Customer,

Due to an error, AI Platform was unable to create endpoint "hello_custom".
Additional Details:
Operation State: Failed with errors
Resource Name: projects/1095312788338/locations/us-central1/endpoints/8632098663901954048
Error Messages: Model server terminated: model server container terminated: exit_code: 255
reason: "Error"
started_at {
 seconds: 1614275367
}
finished_at {
 seconds: 1614275367
}

To view the error on Cloud Console, go back to your endpoint using https://console.cloud.google.com/ai/platform/locations/us-central1/models/2634341899221073920/deploy?folder=&organizationId=&project=cmpe258-hw2-custom

Sincerely,
The Google Cloud AI Team

← hello_custom   ⬇ EXPORT

| DEPLOY & TEST | BATCH PREDICTIONS | MODEL PROPERTIES |

Deploy your model

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

●	Endpoint	ID	Models	Region	Last updated	API	Notification	Metadata	Encryption	
❗	hello_custom	8632098663901954048	1	us-central1	Feb 25, 2021, 9:54:35 AM	—			Google-managed key	⋮
❗	hello_custom	4011405446219825152	1	us-central1	Feb 24, 2021, 11:03:03 PM	—			Google-managed key	⋮
❗	hello_custom	1962267615766249472	1	us-central1	Feb 24, 2021, 10:40:16 AM	—			Google-managed key	⋮
❗	hello_custom	2628800360617082880	1	us-central1	Feb 24, 2021, 7:19:10 AM	—			Google-managed key	⋮
❗	hello_custom	2731257252139761664	1	us-central1	Feb 24, 2021, 12:18:32 AM	—			Google-managed key	⋮