Assignment 7: optional catchup assignment 2 - VERTEX AI - for midterm and quiz - this will catch up midterm.

a) Vertex AI Workbench:
Build an image classification model with transfer learning and the notebook executor

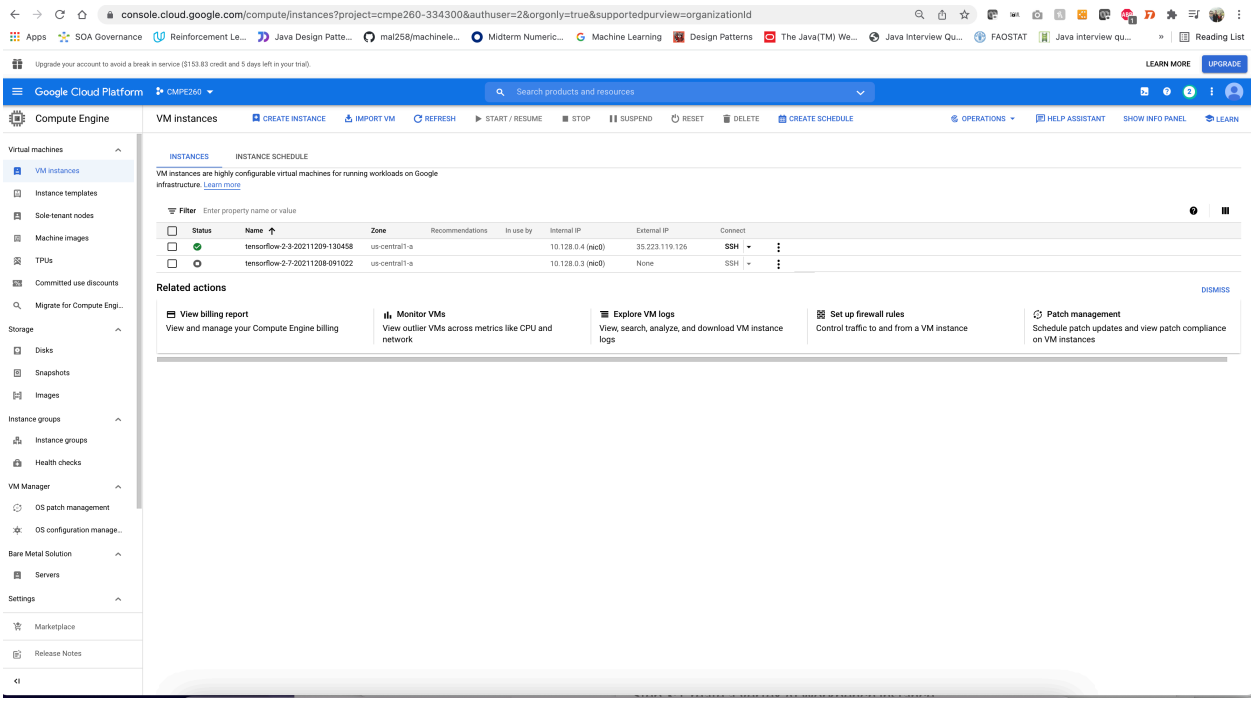
Objective:
How to configure and launch notebook executions with Vertex AI Workbench.

- Use parameters in a notebook
- Configure and launch notebook executions from the Vertex AI Workbench UI

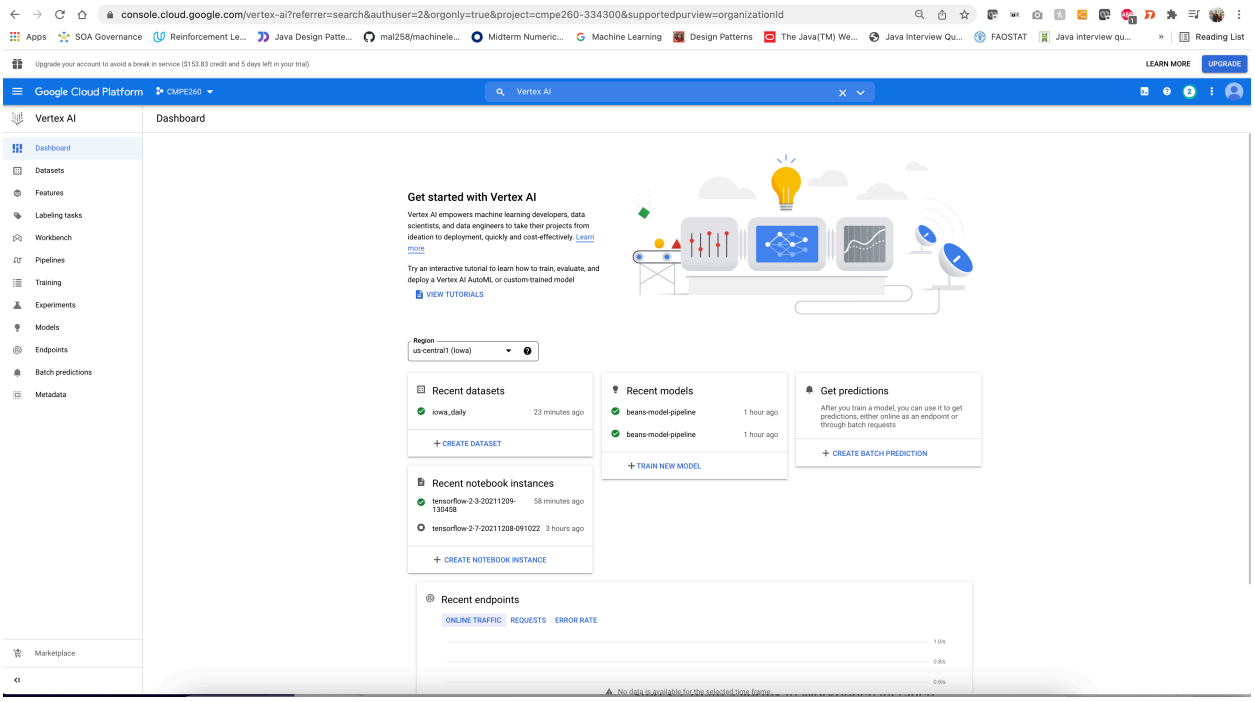
In this lab, you'll use transfer learning to train an image classification model on the DeepWeeds dataset from TensorFlow Datasets. You'll use TensorFlow Hub to experiment with feature vectors extracted from different model architectures, such as ResNet50, Inception, and MobileNet, all pre-trained on the ImageNet benchmark dataset. By leveraging the notebook executor via the Vertex AI Workbench UI, you'll launch jobs on Vertex AI Training that use these pre-trained models and retrain the last layer to recognize the classes from the DeepWeeds dataset.

Set up Cloud environment

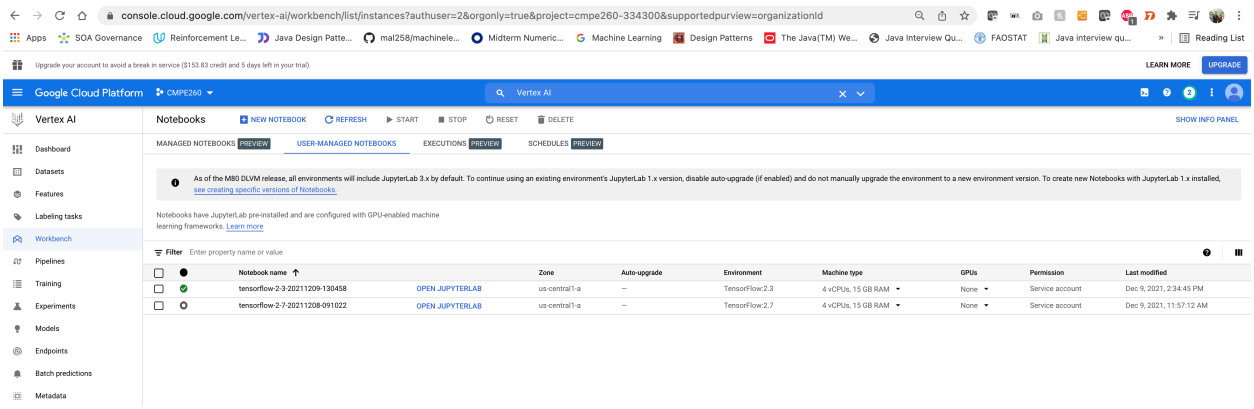
Step 1: Enable the Compute Engine API



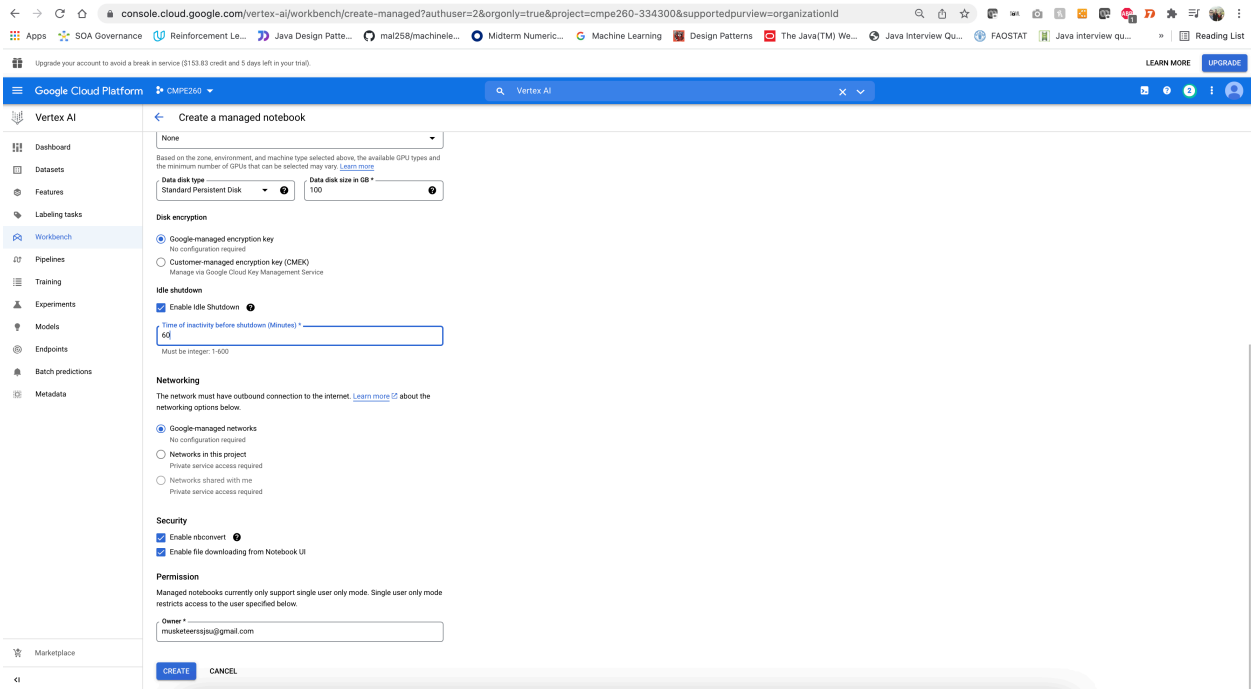
Step 2: Enable the Vertex AI API

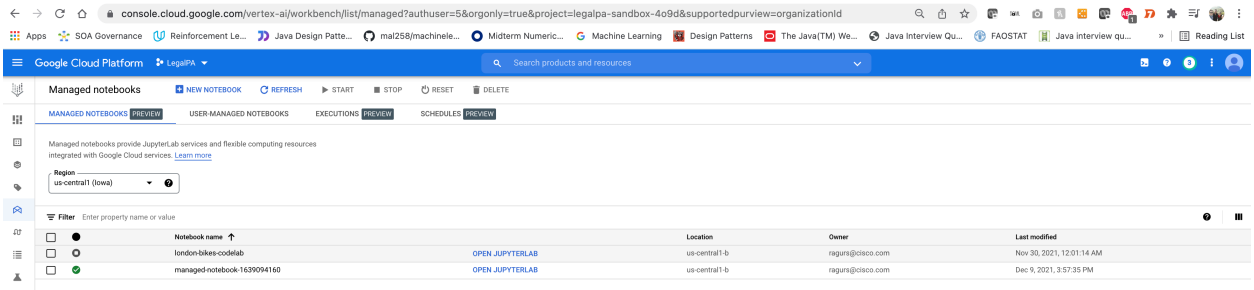


Step 3: Create a Vertex AI Workbench instance



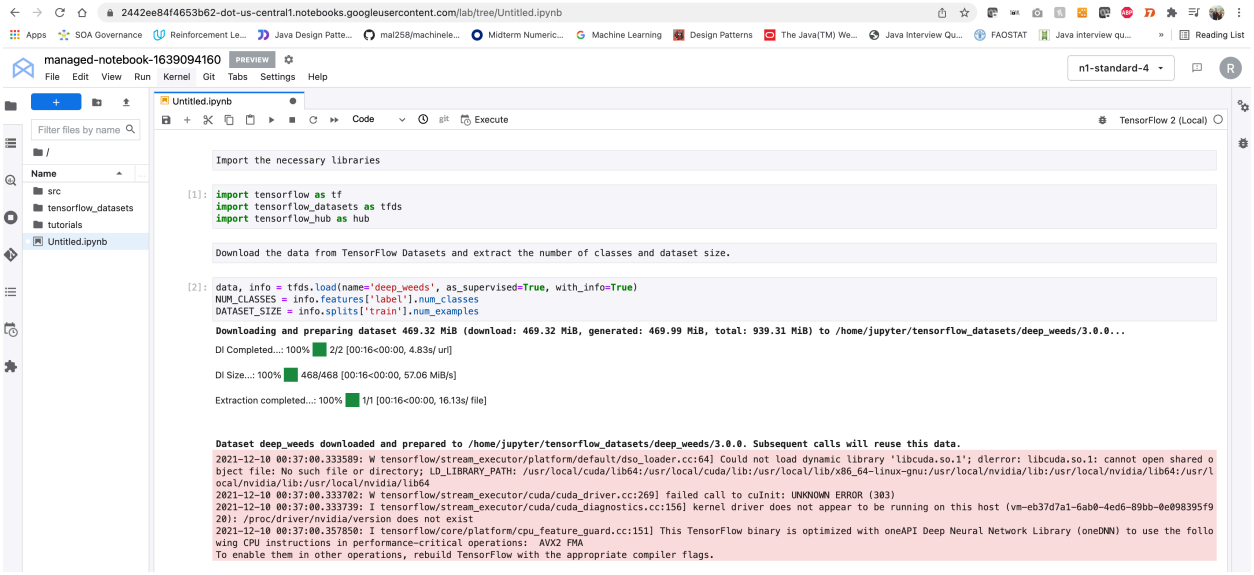
Create Managed Notebook:



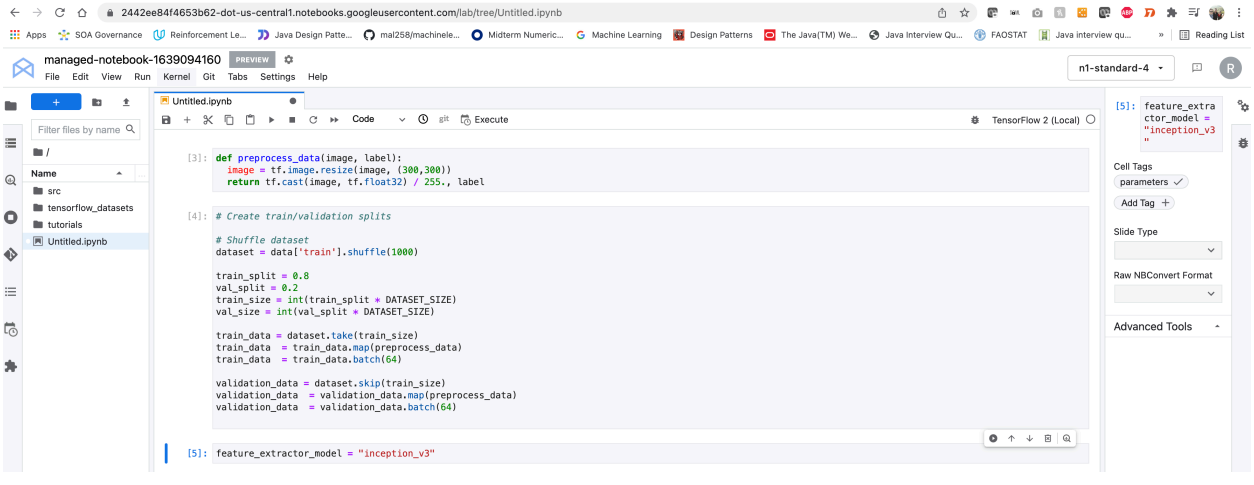


Write training code

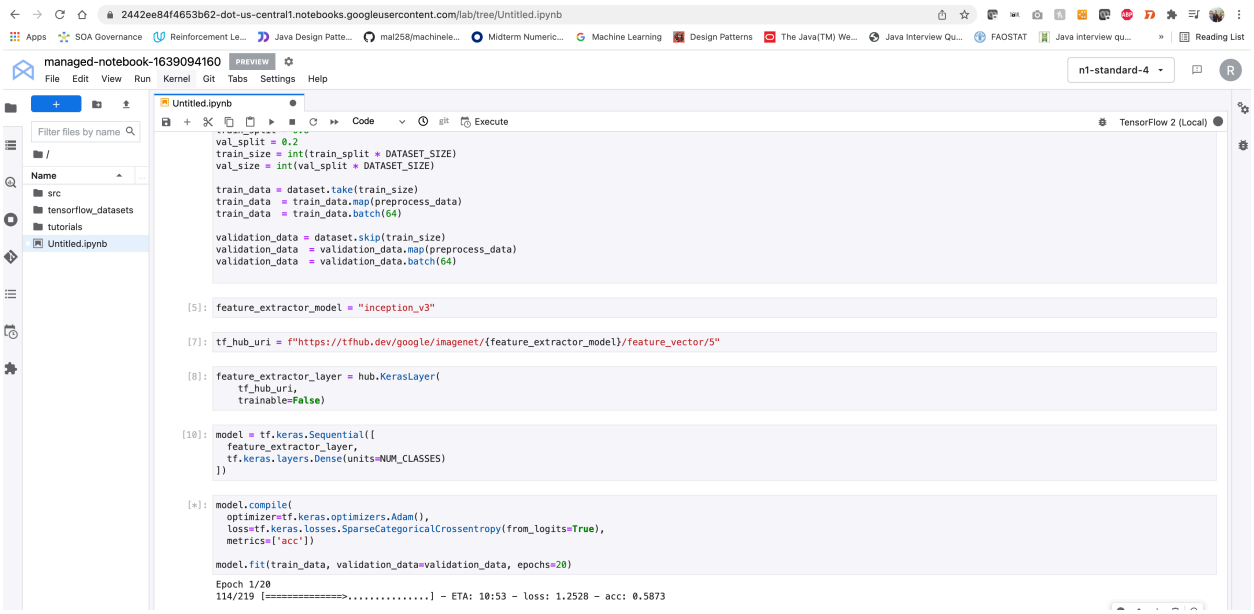
Step 1: Download and preprocess dataset



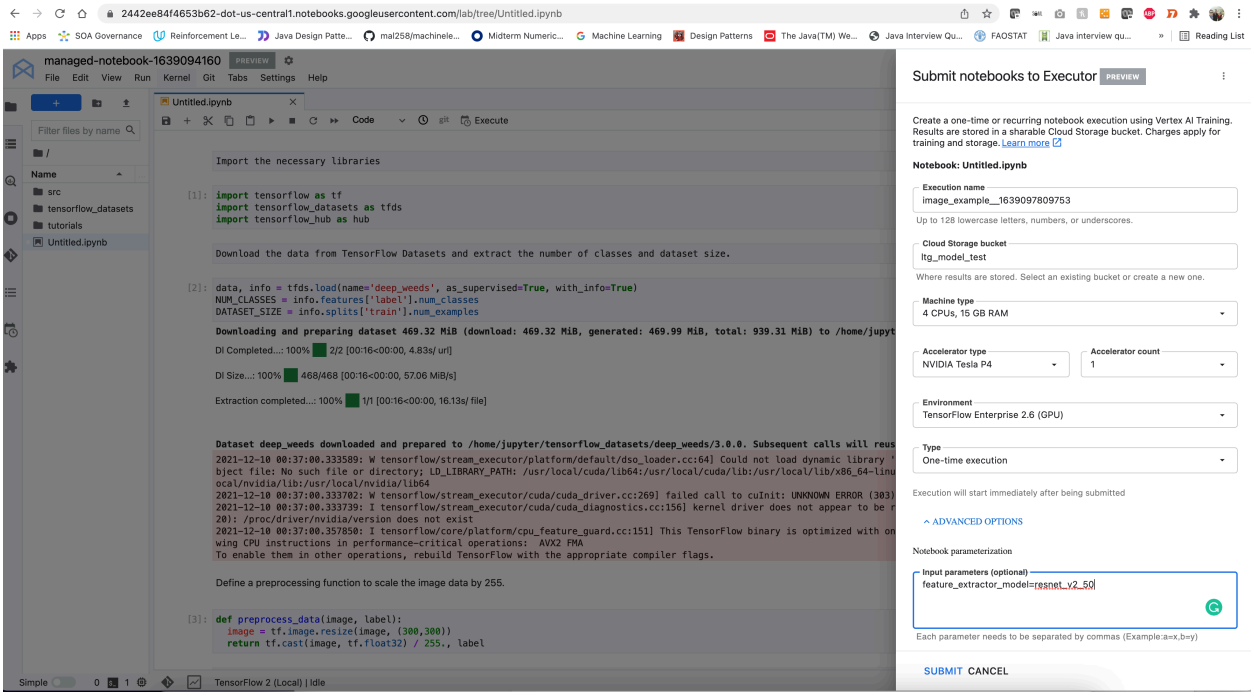
Step 2: Create model

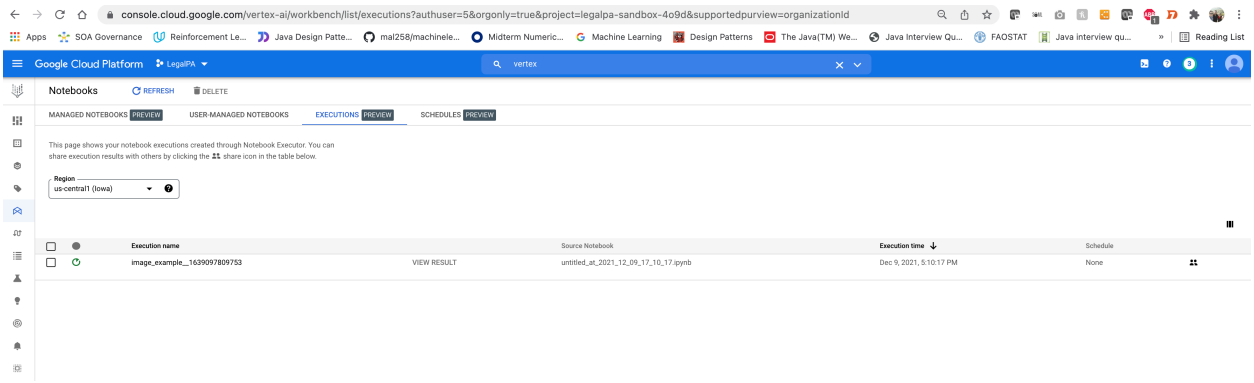


Model Compile and Fit



Execute notebook

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Google Cloud Platform
LegalPA
vertex
Notebooks
REFRESH
DELETE
MANAGED NOTEBOOKS PREVIEW
USER-MANAGED NOTEBOOKS
EXECUTIONS PREVIEW
SCHEDULES PREVIEW
This page shows your notebook executions created through Notebook Executor. You can share execution results with others by clicking the share icon in the table below.
Region
us-central1 (Iowa)
Execution name
Source Notebook
Execution time
Schedule
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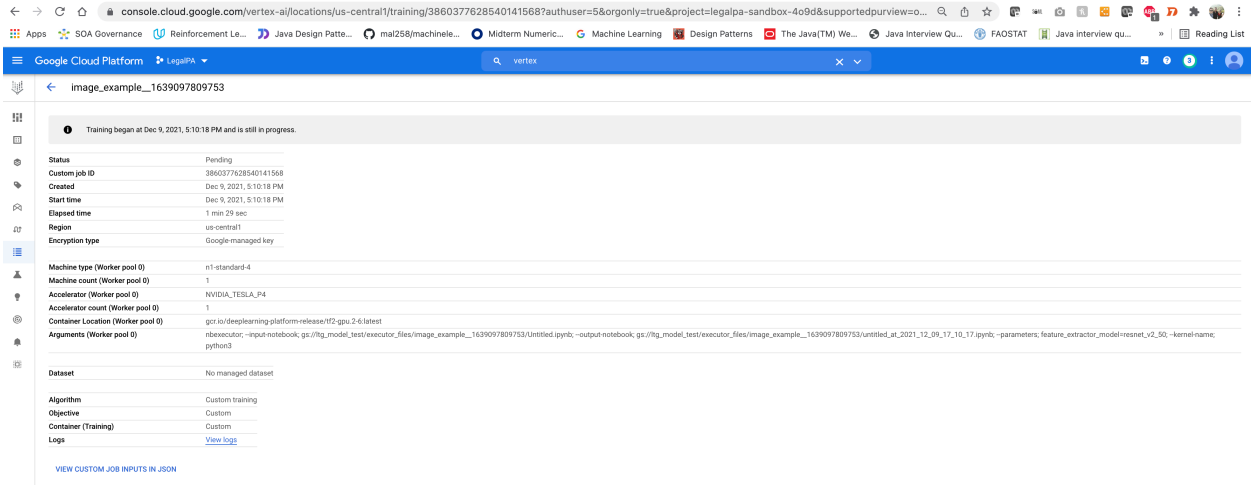
VIEW RESULT
untitled_at_2021_12_09_17_10_17.ipynb
Dec 9, 2021, 5:10:17 PM
None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LegalPA
vertex
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Machine count (Worker pool 0) 1
Accelerator (Worker pool 0) NVIDIA_TESLA_P4
Accelerator count (Worker pool 0) 1
Container Location (Worker pool 0) gcr.io/deeplearning-platform-release/tf2-gpu.2-6:latest
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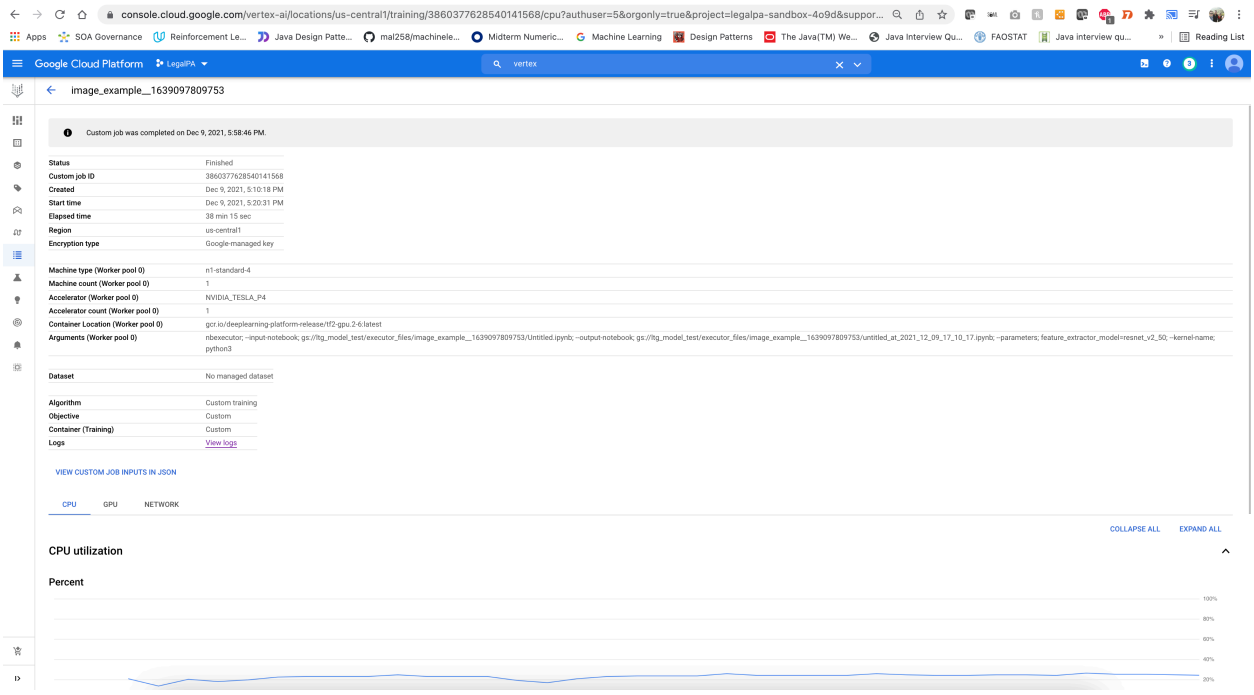
Dataset No managed dataset
Algorithm Custom training
Objective Custom
Container (Training) Custom
Logs View logs
VIEW CUSTOM JOB INPUTS IN JSON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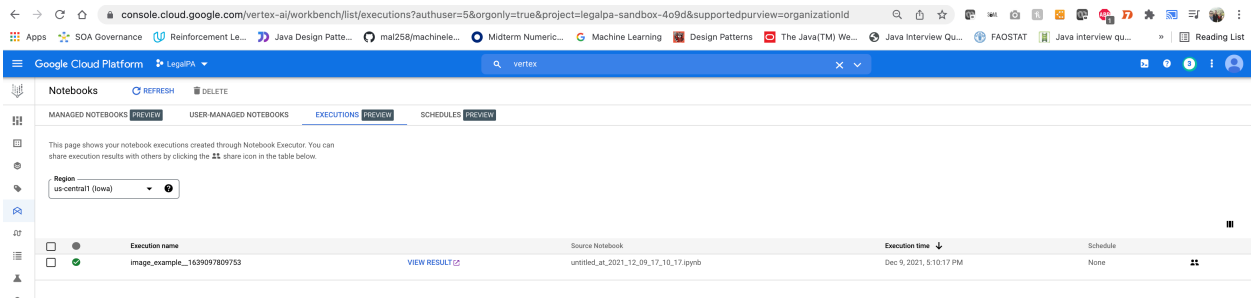
Machine type (Worker pool 0) n1-standard-4
Machine count (Worker pool 0) 1
Accelerator (Worker pool 0) NVIDIA_TESLA_P4
Accelerator count (Worker pool 0) 1
Container Location (Worker pool 0) gcr.io/deeplearning-platform-release/tf2-gpu.2-6:latest
Arguments (Worker pool 0) nbexecutor; --input-notebook; gs://ltg_model_test/executor_files/image_example__1639097809753/Untitled.ipynb; --output-notebook; gs://ltg_model_test/executor_files/image_example__1639097809753/untitled_at_2021_12_09_17_10_17.ipynb; --parameters; feature_extractor_model=resnet_v2_50; --kernel-name; python3
Dataset No managed dataset
Algorithm Custom training
Objective Custom
Container (Training) Custom
Logs View logs
VIEW CUSTOM JOB INPUTS IN JSON
CPU
GPU
NETWORK
COLLAPSE ALL
EXPAND ALL
CPU utilization
Percent
100%
80%
60%
40%
20%



Clean Up

Delete the Execution and notebook