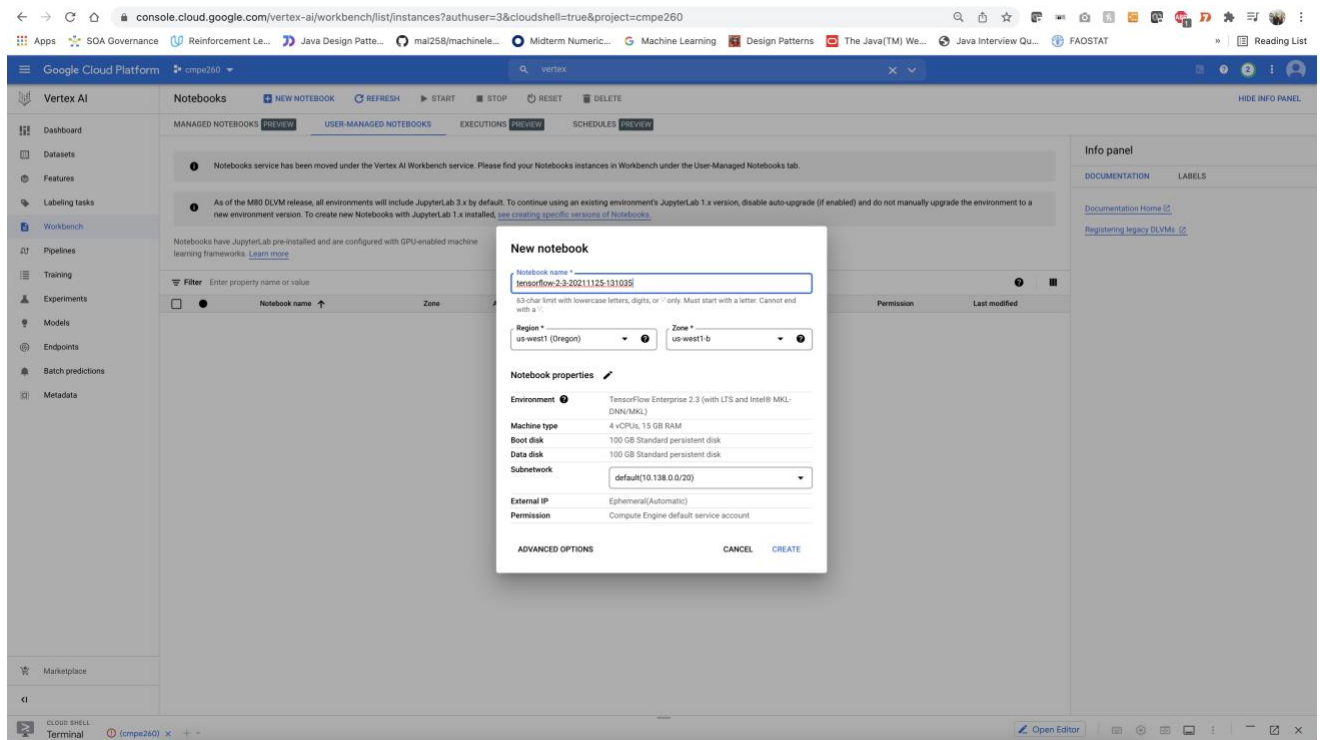


b) <https://codelabs.developers.google.com/vertex-automl-tabular#0>

Building a fraud detection model with AutoML

workbench notebook environment creation:



The screenshot displays the Google Cloud Platform Vertex AI console. The left sidebar shows navigation options like Dashboard, Datasets, Features, Labeling tasks, Workbench, Pipelines, Training, Experiments, Models, Endpoints, Batch predictions, Metadata, and Marketplace. The main area is titled "Train new model" and includes steps: Training method, Model details, Training options (selected), and Compute and pricing.

START TRAINING CANCEL

Feature name	Feature type	Feature scale	Feature importance	Feature interaction	Feature correlation
V21	Automatic	FLOAT	NULLABLE	-	-
V22	Automatic	FLOAT	NULLABLE	-	-
V23	Automatic	FLOAT	NULLABLE	-	-
V24	Automatic	FLOAT	NULLABLE	-	-
V25	Automatic	FLOAT	NULLABLE	-	-
V26	Automatic	FLOAT	NULLABLE	-	-
V27	Automatic	FLOAT	NULLABLE	-	-
V28	Automatic	FLOAT	NULLABLE	-	-
V3	Automatic	FLOAT	NULLABLE	-	-
V4	Automatic	FLOAT	NULLABLE	-	-
V5	Automatic	FLOAT	NULLABLE	-	-
V6	Automatic	FLOAT	NULLABLE	-	-
V7	Automatic	FLOAT	NULLABLE	-	-
V8	Automatic	FLOAT	NULLABLE	-	-
V9	Automatic	FLOAT	NULLABLE	-	-

Rows per page: 50 | 1 - 31 of 31

Total 31 feature columns are included in the training

Weight column

Select a column

Optimization objective

- ☐ AUC ROC
Distinguish between classes
- ☐ Log loss
Keeps prediction probabilities as accurate as possible
- ☒ AUC PRC
Maximize precision-recall for the less common class

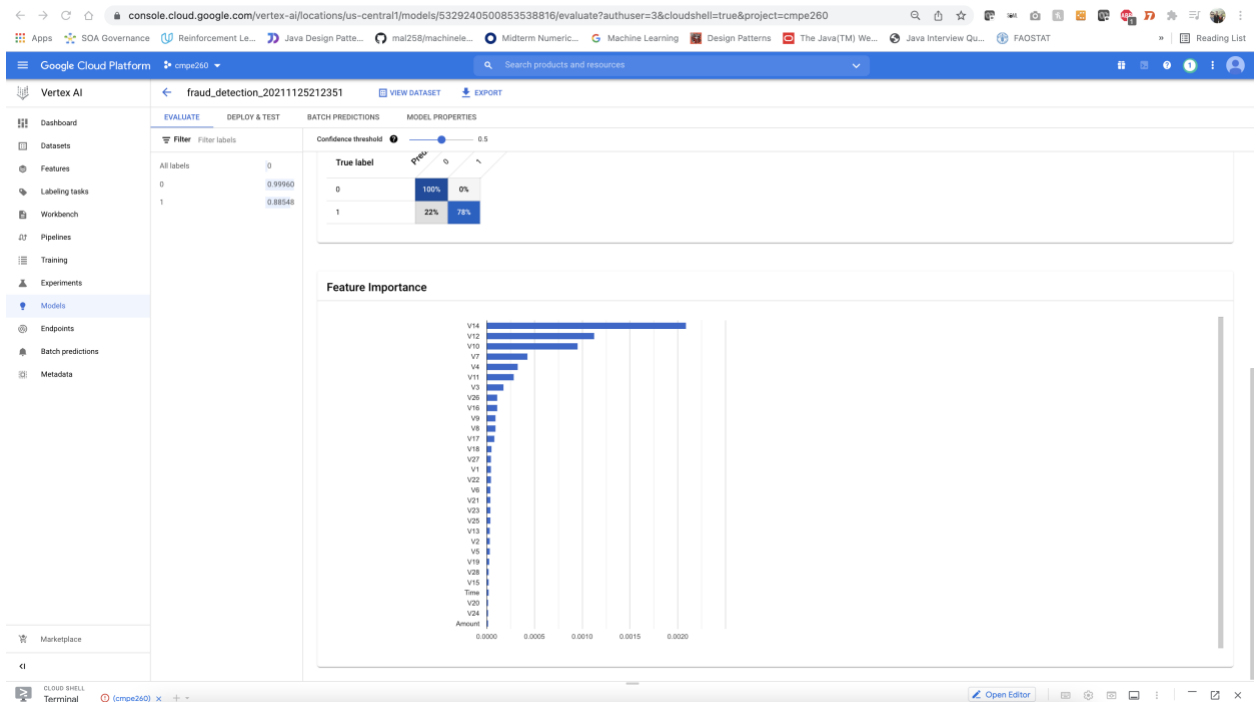
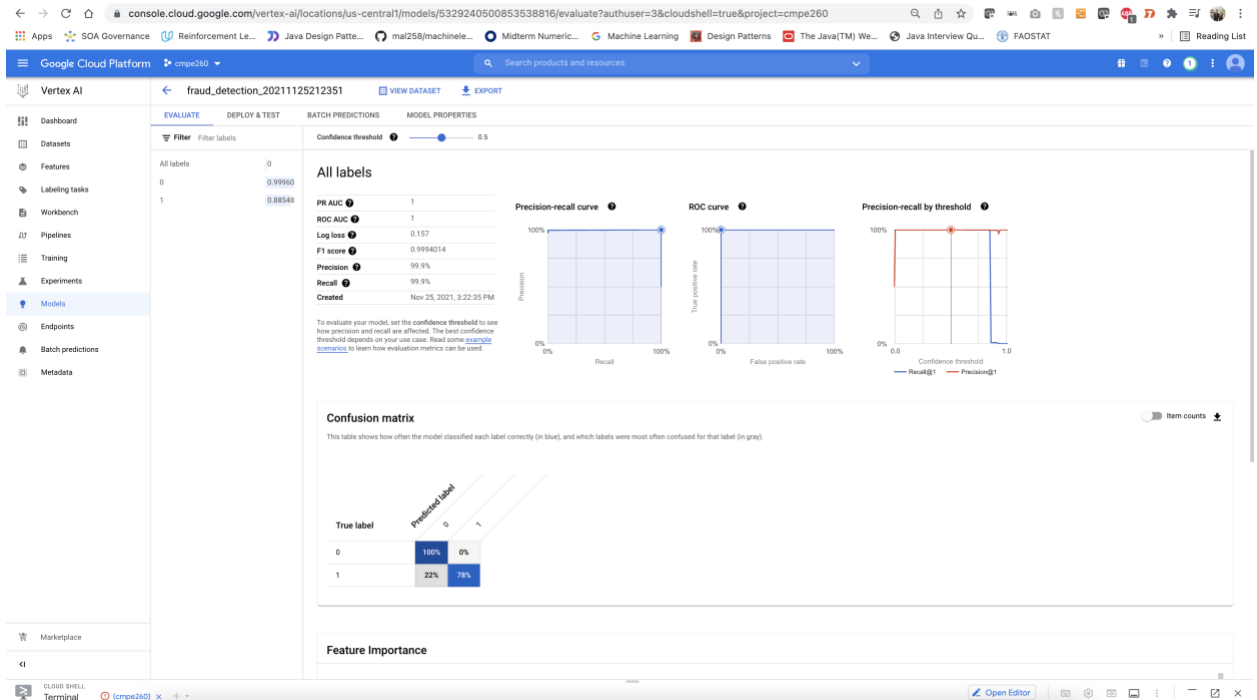
☐ Precision At recall

☐ Recall At precision

[SHOW LESS](#)

[CONTINUE](#)

Modal evaluation and metrics



Deploying model and end point testing

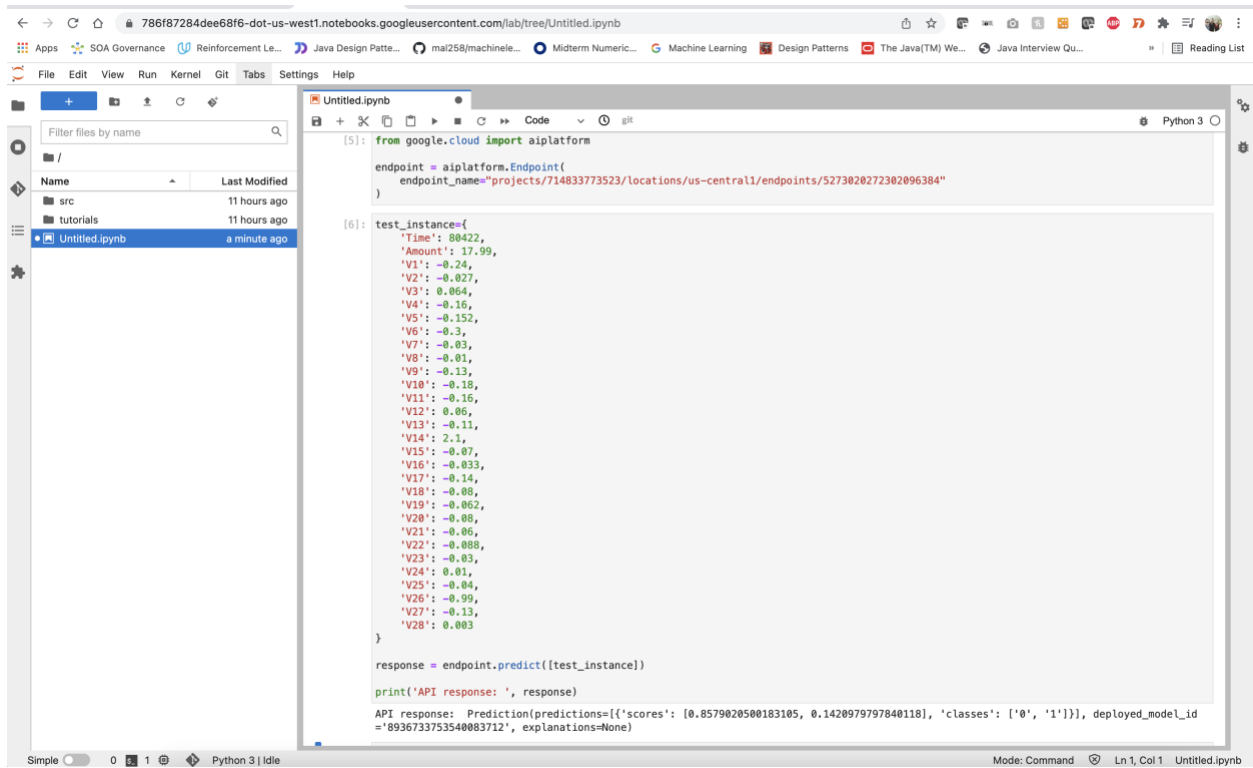
The screenshot displays the Google Cloud Platform (GCP) Vertex AI console interface. The main panel shows the 'fraud_detection_20211125212351' model in the 'DEPLOY & TEST' tab. A 'Container' deployment option is highlighted, indicating the model is exported as a TF Saved Model to run on a Docker container. Below this, a 'Deploy your model' section explains that endpoints are machine learning models made available for online prediction requests. A 'DEPLOY TO ENDPOINT' button is visible. A table below shows no active endpoints for this model.

The right sidebar contains the 'Deploy to endpoint' configuration panel, which is currently on the 'Model settings' tab. This panel includes the following sections:

- Define your endpoint:** Includes 'Model settings' and 'Model monitoring' tabs. 'DEPLOY' and 'CANCEL' buttons are at the bottom.
- Model settings:** Shows the model name 'fraud_detection_20211125212351' and a traffic split of 100%.
- Compute resources:** Explains autoscaling and scaling options. It includes a 'Minimum number of compute nodes' field set to 1 and an optional 'Maximum number of compute nodes' field.
- ADVANCED SCALING OPTIONS:** Features a 'Machine type' dropdown menu currently set to 'n1-standard-8, 8 vCPUs, 30 GiB memory'.
- Logging:** Includes checkboxes for 'Enable access logging for this endpoint' (checked) and 'Disable container logging for this endpoint'.
- Explainability options:** Includes a checkbox for 'Enable feature attributions for this model'.

The bottom of the console shows a 'Terminal' window with the 'CLOUD SHELL' icon and the project ID 'cmpe260'.

Model predictions with the Vertex AI API



The screenshot displays a Google Colab notebook titled "Untitled.ipynb". The left sidebar shows a file explorer with a tree view containing a folder named "src" and a file named "Untitled.ipynb". The main area of the notebook contains the following Python code:

```
[5]: from google.cloud import aiplatform

endpoint = aiplatform.Endpoint(
    endpoint_name="projects/714833773523/locations/us-central1/endpoints/5273020272302096384"
)

[6]: test_instance={
    'Time': 80422,
    'Amount': 17.99,
    'V1': -0.24,
    'V2': -0.027,
    'V3': 0.064,
    'V4': -0.16,
    'V5': -0.152,
    'V6': -0.3,
    'V7': -0.03,
    'V8': -0.01,
    'V9': -0.13,
    'V10': -0.18,
    'V11': -0.16,
    'V12': 0.06,
    'V13': -0.11,
    'V14': 2.1,
    'V15': -0.07,
    'V16': -0.033,
    'V17': -0.14,
    'V18': -0.08,
    'V19': -0.062,
    'V20': -0.08,
    'V21': -0.06,
    'V22': -0.088,
    'V23': -0.03,
    'V24': 0.01,
    'V25': -0.04,
    'V26': -0.99,
    'V27': -0.13,
    'V28': 0.003
}

response = endpoint.predict([test_instance])
print('API response: ', response)
```

The output of the code is displayed below the code cell:

```
API response: Prediction(predictions=[{'scores': [0.8579020500183185, 0.1420979797840118], 'classes': ['0', '1']}], deployed_model_id='8936733753540083712', explanations=None)
```

The bottom status bar of the Colab interface shows "Simple" mode, "Python 3 | idle", and "Mode: Command".