Slides That are used as screenshots in the github/statmike/vertex-ai-mlops repository

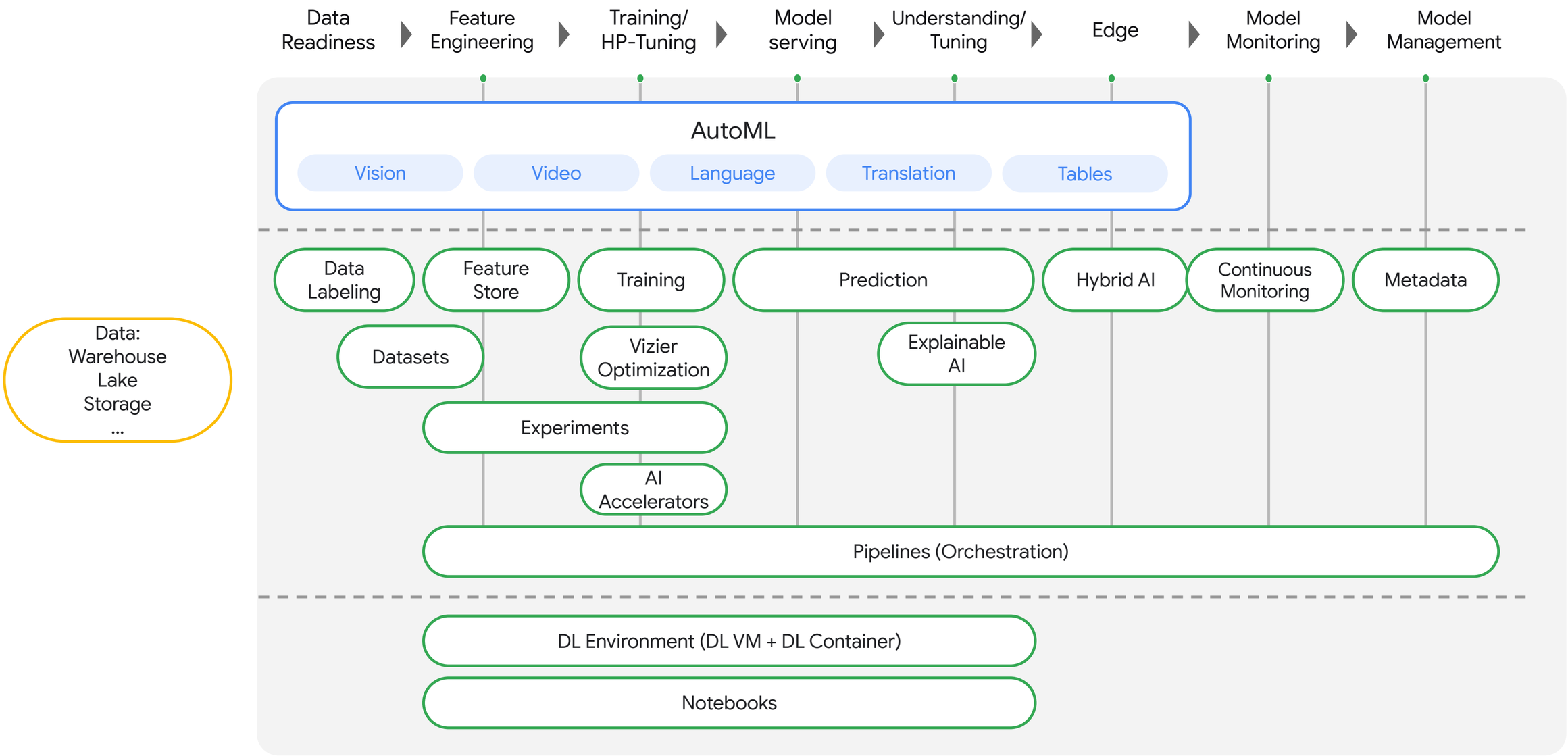
Notes:

- Do not insert new slides or reorder without updating the notebooks. The slides are exported to numbered .png files that are referenced in the notebooks

Process

- Save as PDF
- Copy to github/statmike/vertex-ai-mlops/architectures/slides
- Convert PDF to PNG images
    - Use Notebook: /architectures/Create Images.ipynb
    - OUTPUT:
        - To /architectures/slides

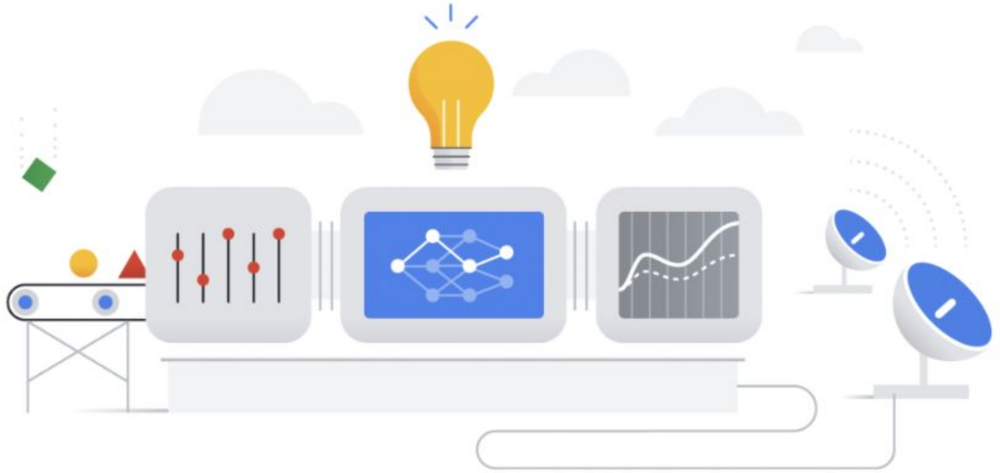
Vertex AI Overview



Dashboard

Get started with Vertex AI

Vertex AI empowers machine learning developers, data scientists, and data engineers to take their projects from ideation to deployment, quickly and cost-effectively. Learn more



Region
us-central1 (Iowa)

Recent datasets

02c_digits_20210919213805	16 hours ago
02b_digits_20210919205707	20 hours ago
02a	4 days ago
02b_digits_20210916141540	4 days ago
02c_digits_20210916004500	5 days ago

+ CREATE DATASET

Recent models

05f_digits_20210920145828	1 hour ago
05e_digits_20210920125450	3 hours ago
02c_digits_20210919213805 Average precision: 1	12 hours ago
02b_digits_20210919205707 Average precision: 1	19 hours ago
05c_digits_20210919214125-model	19 hours ago

+ TRAIN NEW MODEL

Get predictions

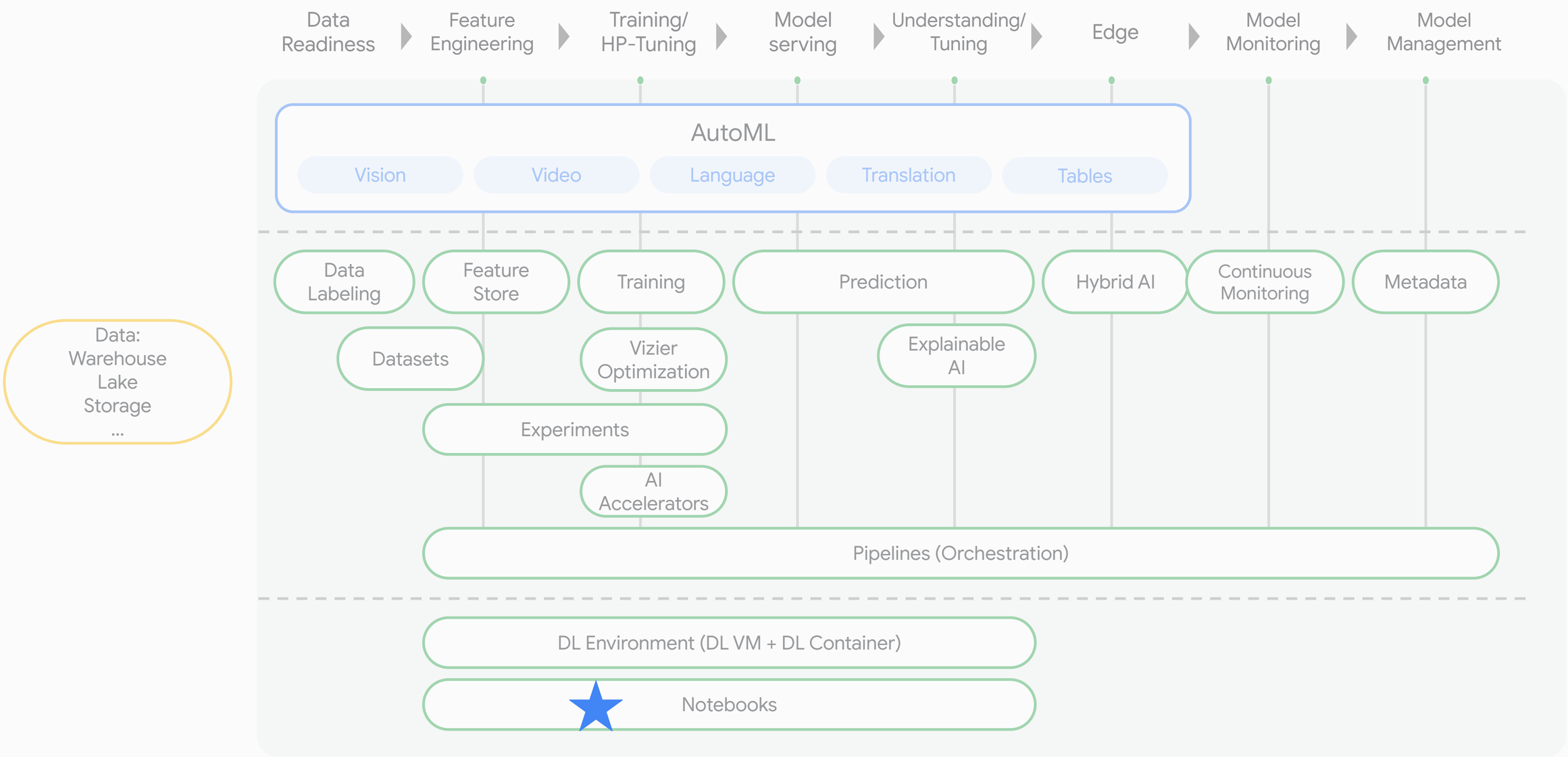
After you train a model, you can use it to get predictions, either online as an endpoint or through batch requests

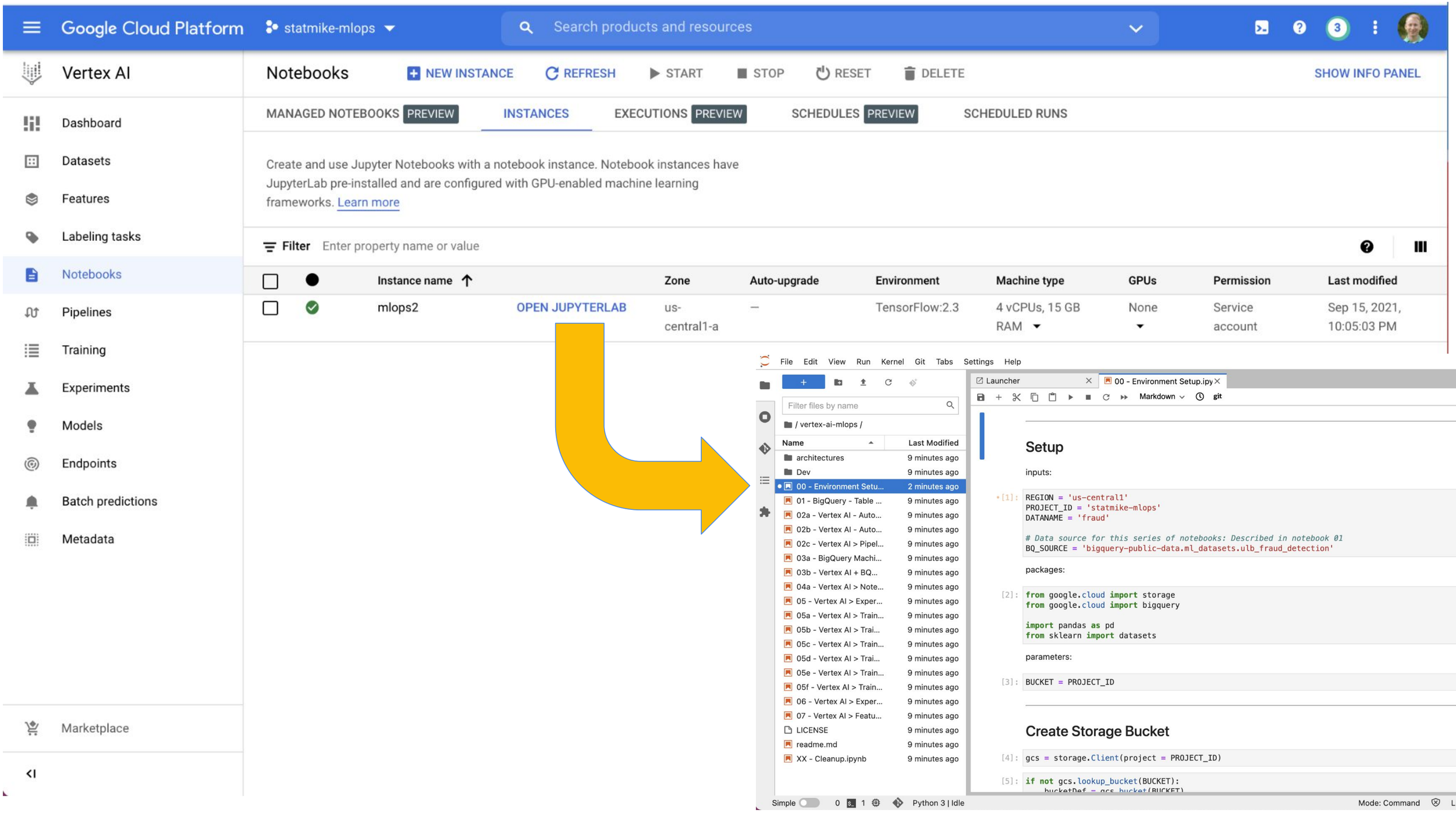
+ CREATE BATCH PREDICTION

Show debug panel

Notebook: 00

Vertex AI Overview




Google Cloud Platform
statmike-mlops
Search products and resources
Vertex AI
Notebooks
NEW INSTANCE
REFRESH
START
STOP
RESET
DELETE
SHOW INFO PANEL
Dashboard
Datasets
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Marketplace
MANAGED NOTEBOOKS PREVIEW
INSTANCES
EXECUTIONS PREVIEW
SCHEDULES PREVIEW
SCHEDULED RUNS
Create and use Jupyter Notebooks with a notebook instance. Notebook instances have JupyterLab pre-installed and are configured with GPU-enabled machine learning frameworks. Learn more
Filter
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Zone
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Environment
Machine type
GPUs
Permission
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OPEN JUPYTERLAB
us-central1-a
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TensorFlow:2.3
4 vCPUs, 15 GB RAM
None
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File Edit View Run Kernel Git Tabs Settings Help
Launcher
00 - Environment Setup.ipy
Markdown
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Dev 9 minutes ago
00 - Environment Setu... 2 minutes ago
01 - BigQuery - Table ... 9 minutes ago
02a - Vertex AI - Auto... 9 minutes ago
02b - Vertex AI - Auto... 9 minutes ago
02c - Vertex AI > Pipel... 9 minutes ago
03a - BigQuery Machi... 9 minutes ago
03b - Vertex AI + BQ... 9 minutes ago
04a - Vertex AI > Note... 9 minutes ago
05 - Vertex AI > Exper... 9 minutes ago
05a - Vertex AI > Train... 9 minutes ago
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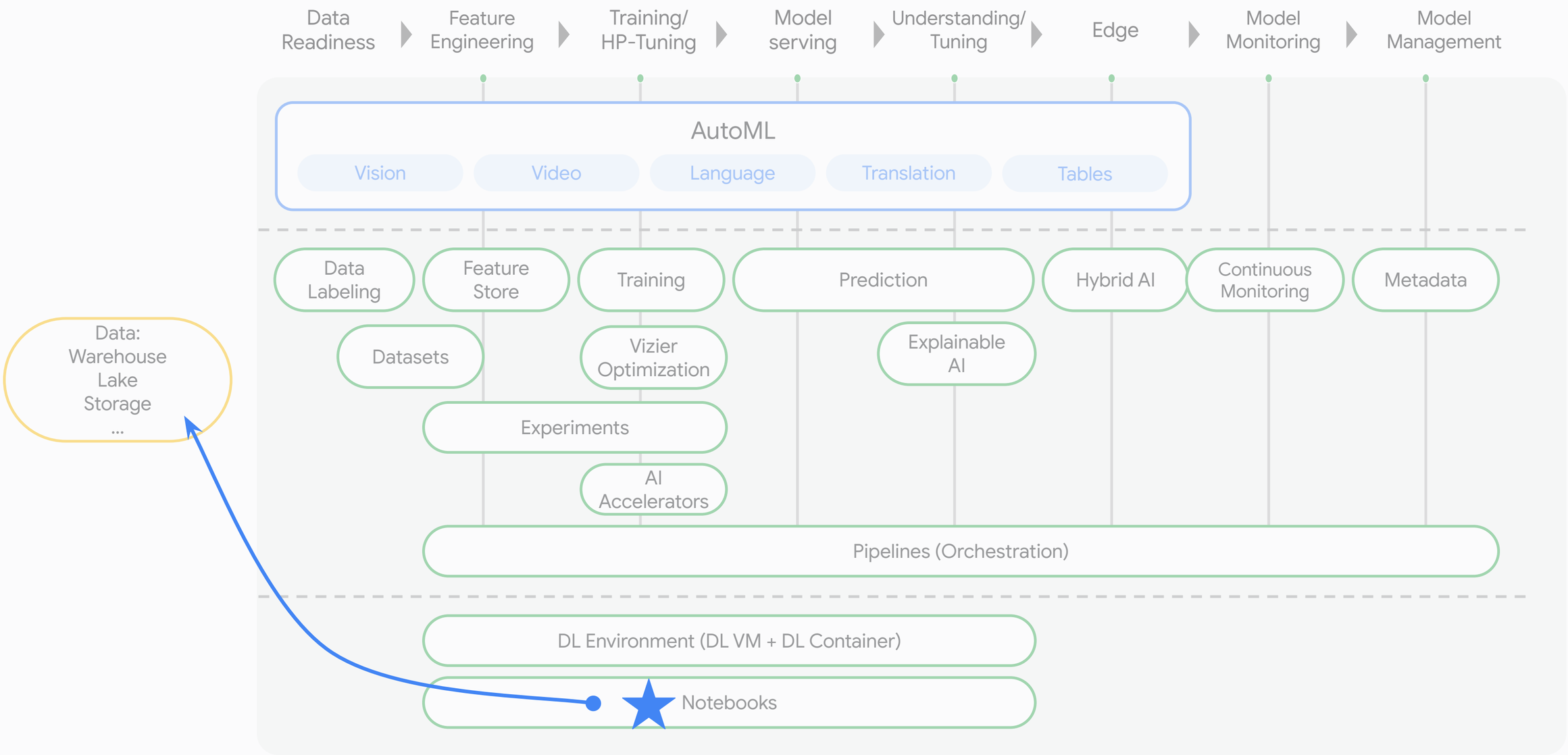
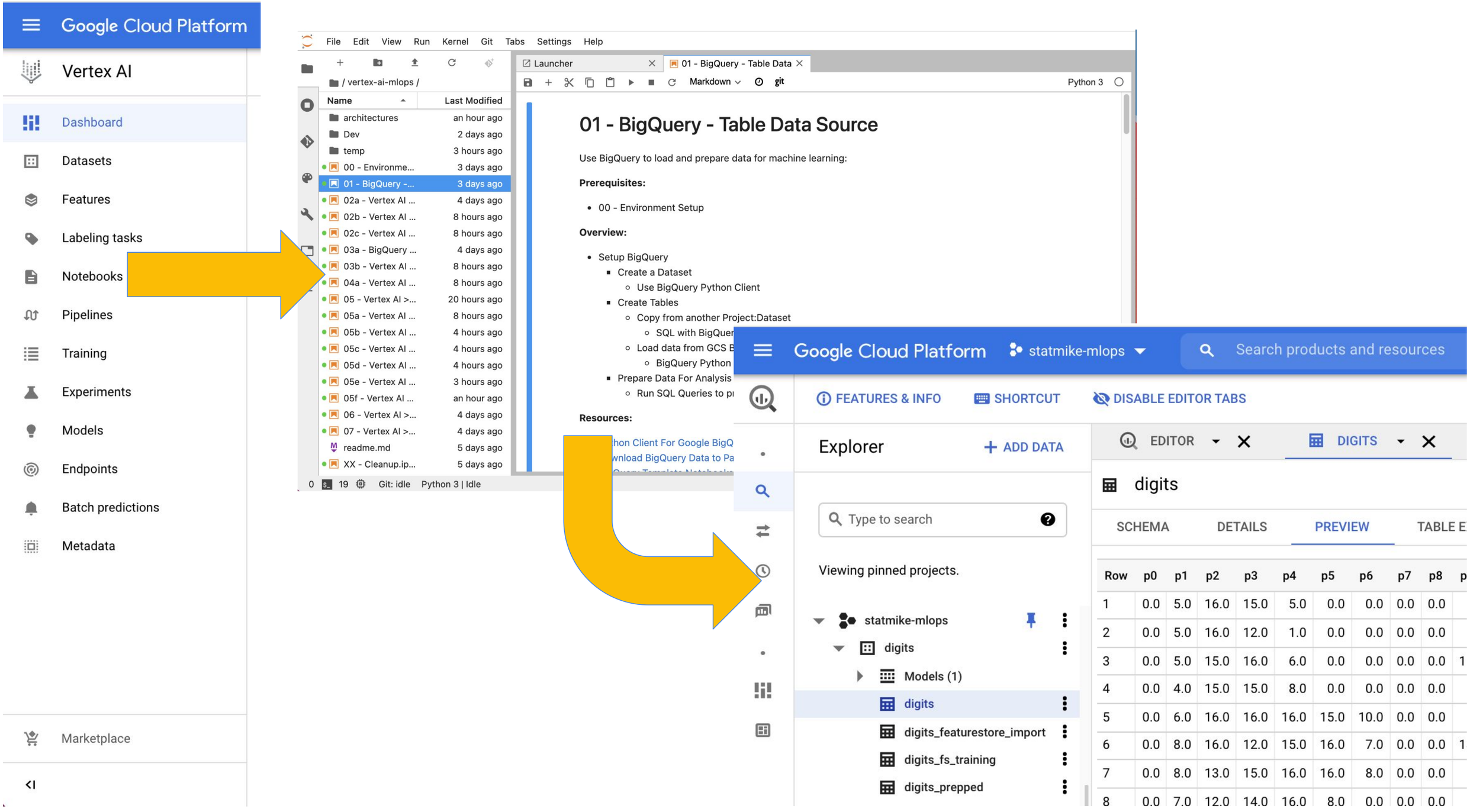
05f - Vertex AI > Train... 9 minutes ago
06 - Vertex AI > Exper... 9 minutes ago
07 - Vertex AI > Featu... 9 minutes ago
LICENSE 9 minutes ago
readme.md 9 minutes ago
XX - Cleanup.ipynb 9 minutes ago
Setup
inputs:
[1]:
REGION = 'us-central1'
PROJECT_ID = 'statmike-mlops'
DATANAME = 'fraud'
# Data source for this series of notebooks: Described in notebook 01
BQ_SOURCE = 'bigquery-public-data.ml_datasets.ulb_fraud_detection'
packages:
[2]:
from google.cloud import storage
from google.cloud import bigquery
import pandas as pd
from sklearn import datasets
parameters:
[3]:
BUCKET = PROJECT_ID
Create Storage Bucket
[4]:
gcs = storage.Client(project = PROJECT_ID)
[5]:
if not gcs.lookup_bucket(BUCKET):
Simple
Python 3 | Idle
Mode: Command

Notebook: 01

Vertex AI Overview




Google Cloud Platform
Vertex AI
Dashboard
Datasets
Features
Labeling tasks
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Pipelines
Training
Experiments
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Batch predictions
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readme.md 5 days ago
XX - Cleanup.ip... 5 days ago
0 19 Git: idle Python 3 | Idle
Launcher
01 - BigQuery - Table Data
Markdown
git
Python 3
01 - BigQuery - Table Data Source
Use BigQuery to load and prepare data for machine learning:
Prerequisites:
00 - Environment Setup
Overview:
Setup BigQuery
Create a Dataset
Use BigQuery Python Client
Create Tables
Copy from another Project:Dataset
Load data from GCS
BigQuery Python
Prepare Data For Analysis
Run SQL Queries to
Resources:
Google Cloud Platform
statmike-mlops
Search products and resources
FEATURES & INFO
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DISABLE EDITOR TABS
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DETAILS
PREVIEW
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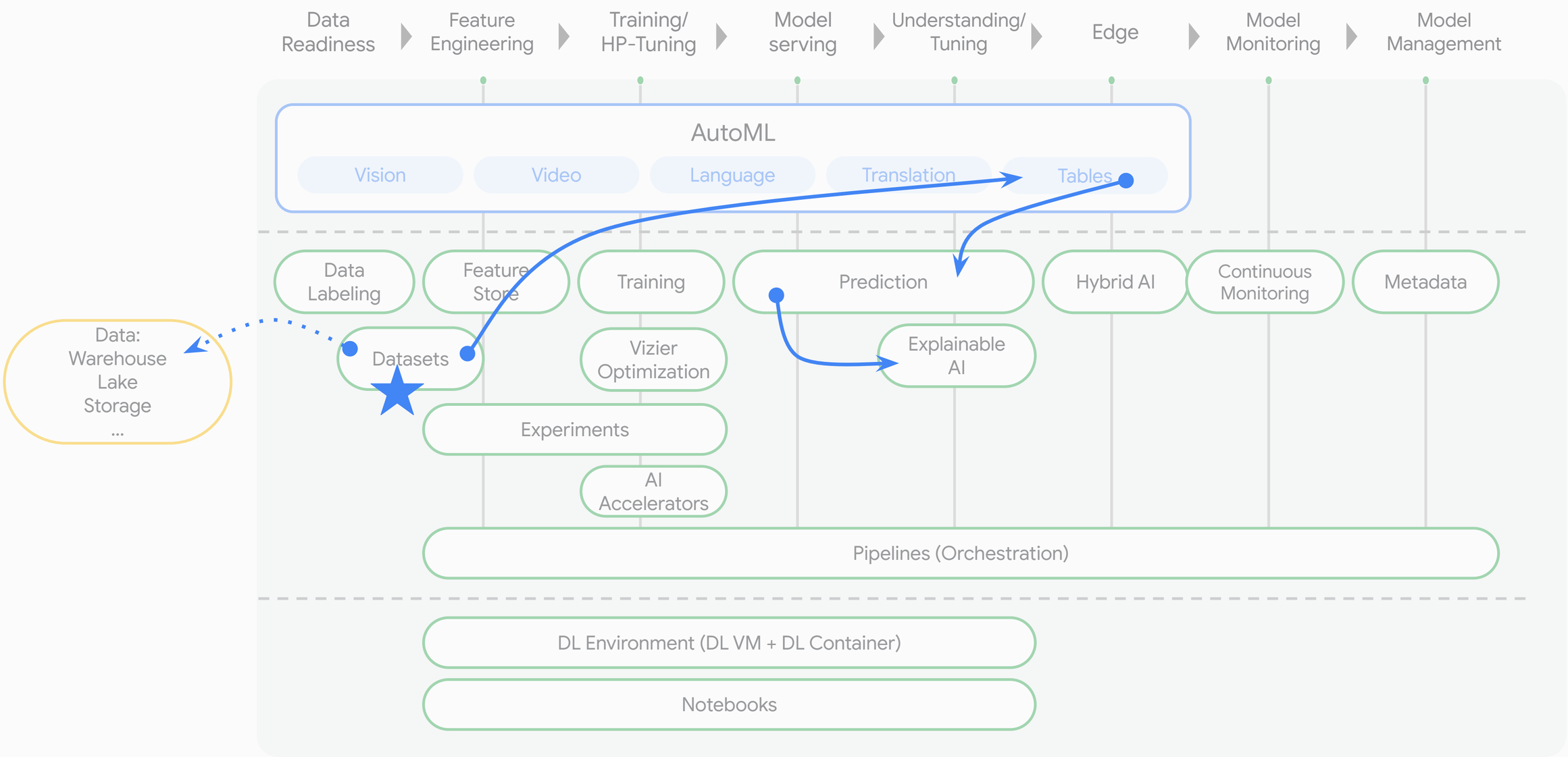
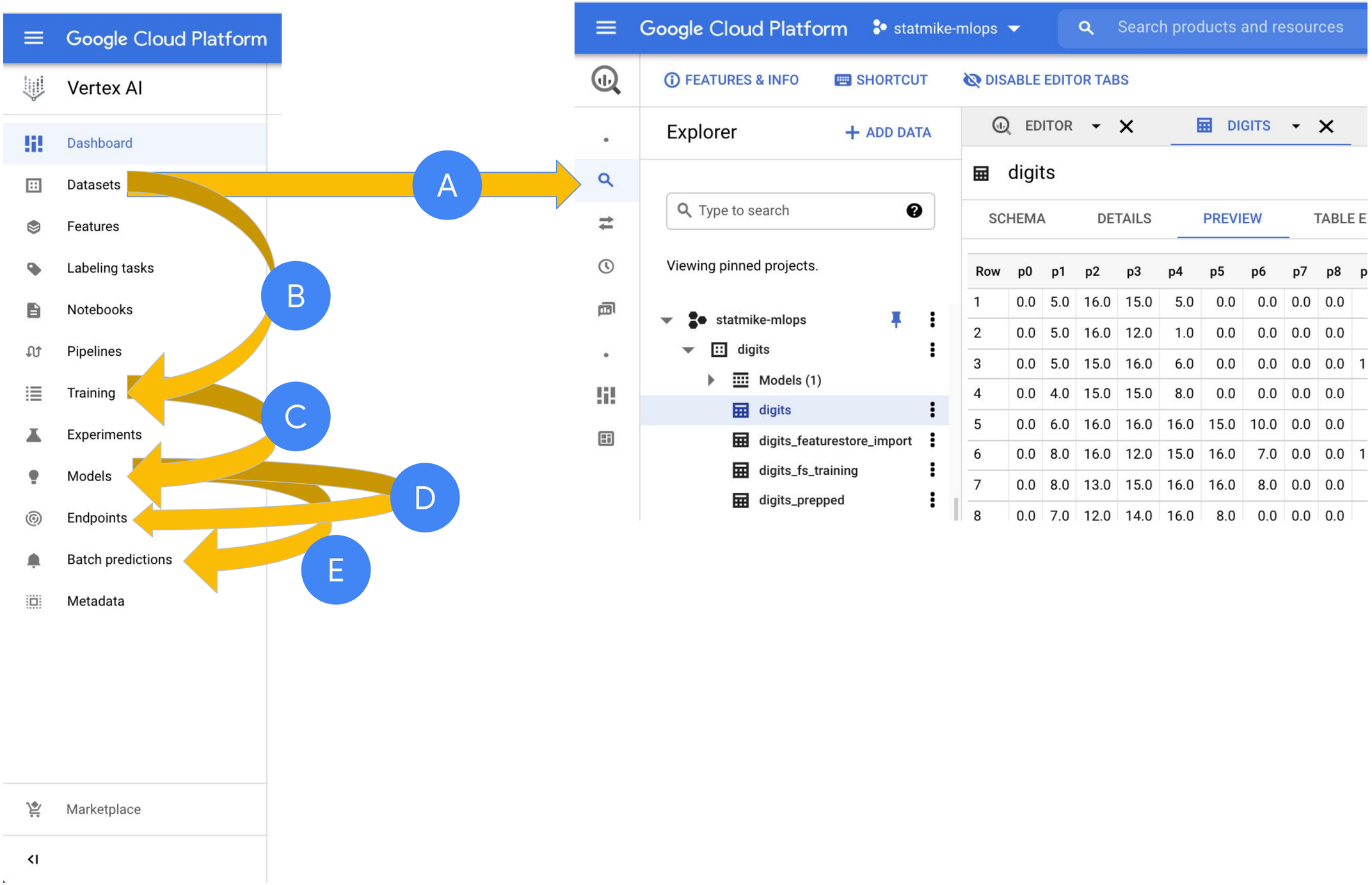
4 0.0 4.0 15.0 15.0 8.0 0.0 0.0 0.0 0.0
5 0.0 6.0 16.0 16.0 16.0 15.0 10.0 0.0 0.0
6 0.0 8.0 16.0 12.0 15.0 16.0 7.0 0.0 0.0 1
7 0.0 8.0 13.0 15.0 16.0 16.0 8.0 0.0 0.0
8 0.0 7.0 12.0 14.0 16.0 8.0 0.0 0.0 0.0

Notebook: 02a

Vertex AI Overview




Google Cloud Platform
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DISABLE EDITOR TABS
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digits_fs_training
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SCHEMA
DETAILS
PREVIEW
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2 0.0 5.0 16.0 12.0 1.0 0.0 0.0 0.0 0.0
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4 0.0 4.0 15.0 15.0 8.0 0.0 0.0 0.0 0.0
5 0.0 6.0 16.0 16.0 16.0 15.0 10.0 0.0 0.0
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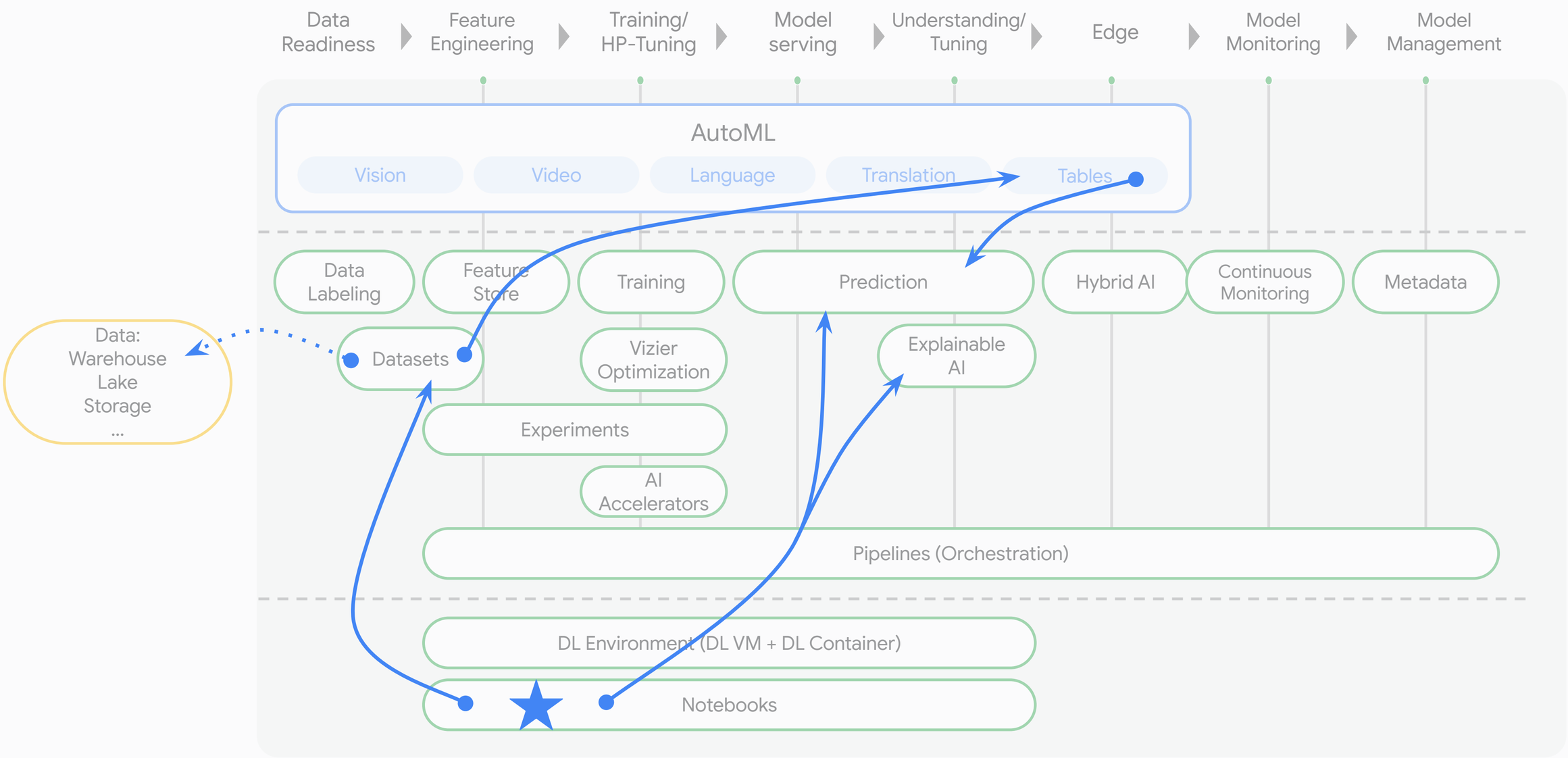
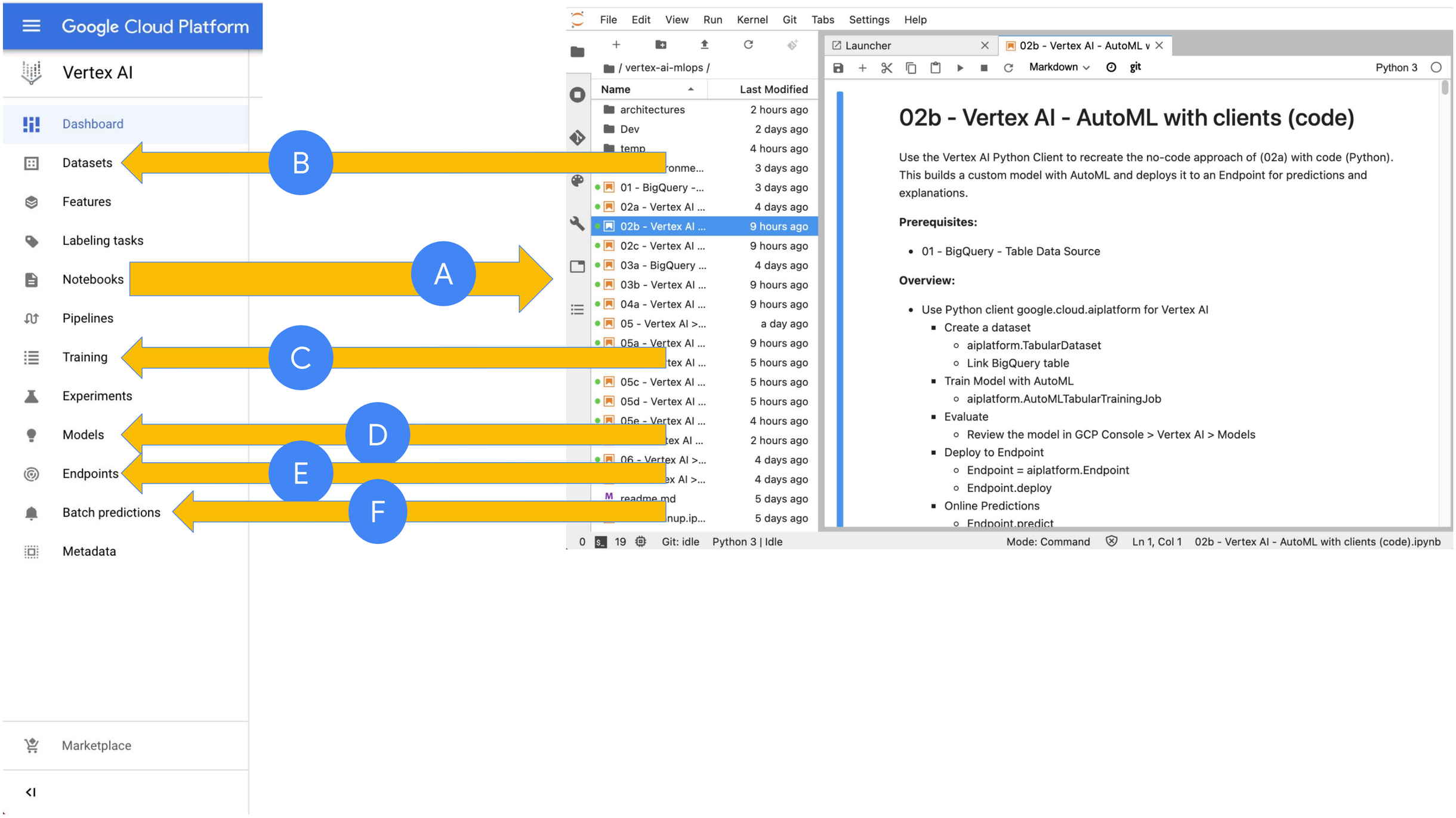
8 0.0 7.0 12.0 14.0 16.0 8.0 0.0 0.0 0.0

Notebook: 02b

Vertex AI Overview




Google Cloud Platform
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Launcher
02b - Vertex AI - AutoML
Markdown
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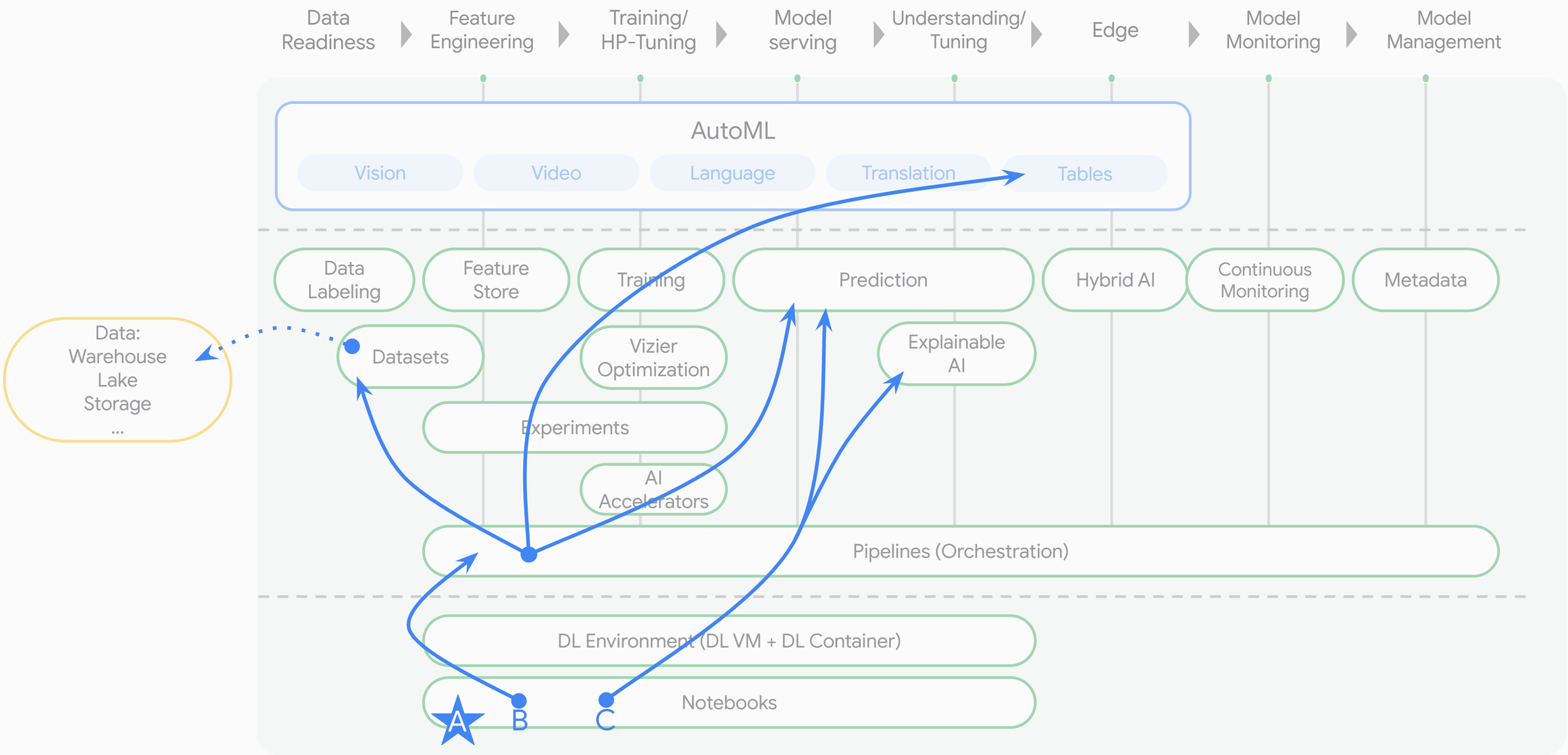
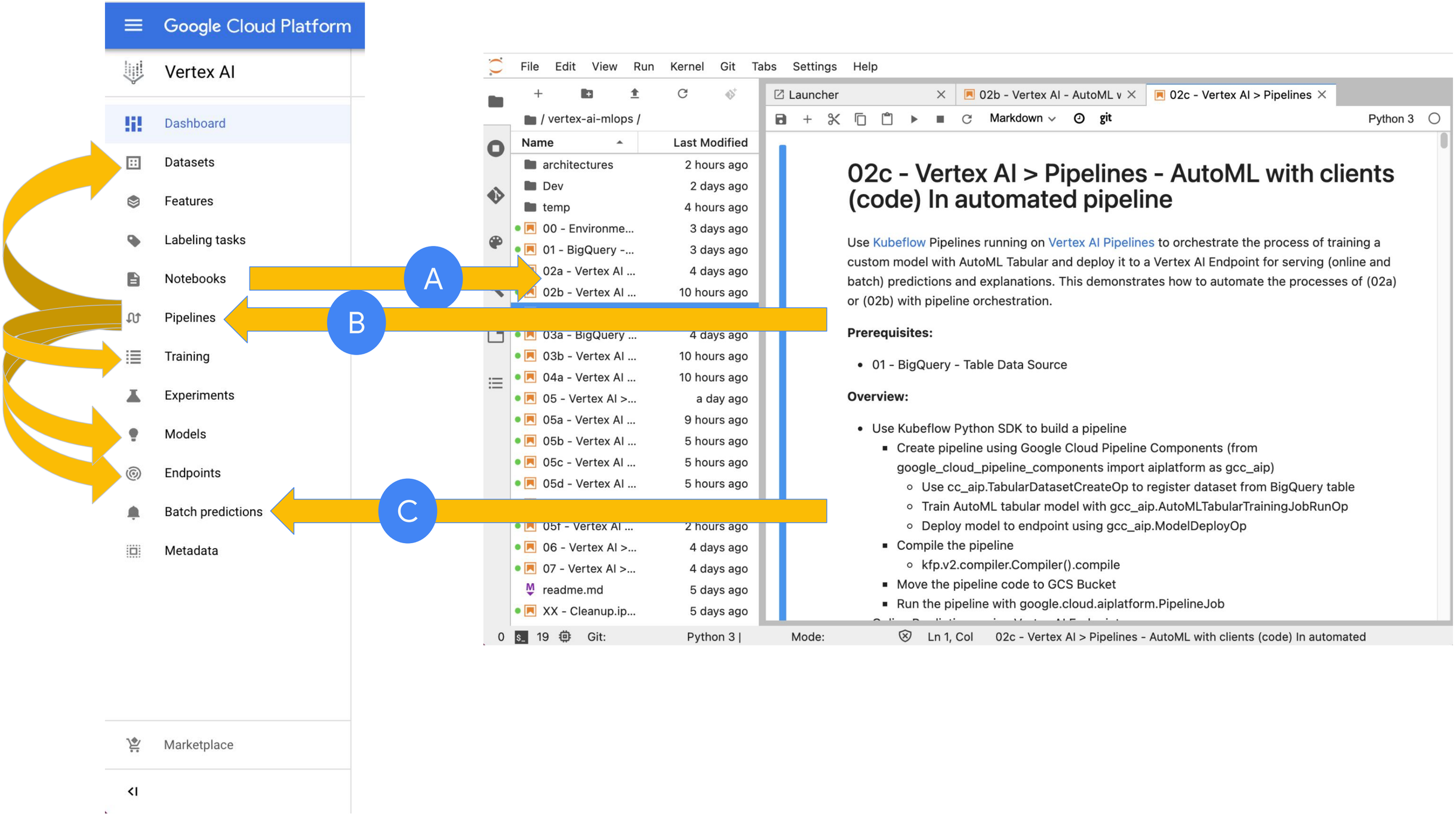
Python 3
02b - Vertex AI - AutoML with clients (code)
Use the Vertex AI Python Client to recreate the no-code approach of (02a) with code (Python). This builds a custom model with AutoML and deploys it to an Endpoint for predictions and explanations.
Prerequisites:
01 - BigQuery - Table Data Source
Overview:
Use Python client google.cloud.aiplatform for Vertex AI
Create a dataset
aiplatform.TabularDataset
Link BigQuery table
Train Model with AutoML
aiplatform.AutoMLTabularTrainingJob
Evaluate
Review the model in GCP Console > Vertex AI > Models
Deploy to Endpoint
Endpoint = aiplatform.Endpoint
Endpoint.deploy
Online Predictions
Endpoint.predict
0 19 Git: idle Python 3 | Idle
Mode: Command Ln 1, Col 1 02b - Vertex AI - AutoML with clients (code).ipynb

Notebook: 02c

Vertex AI Overview




Google Cloud Platform
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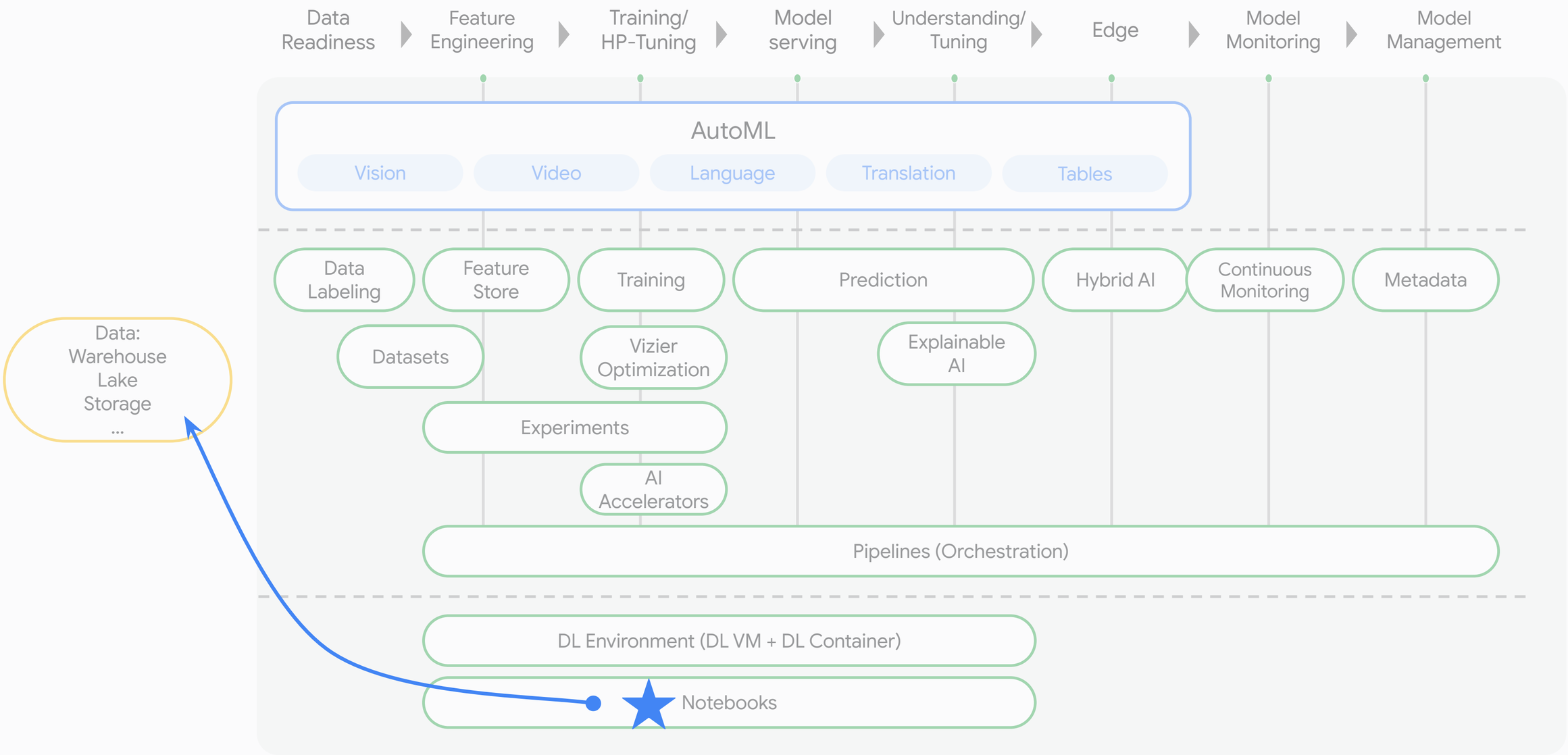
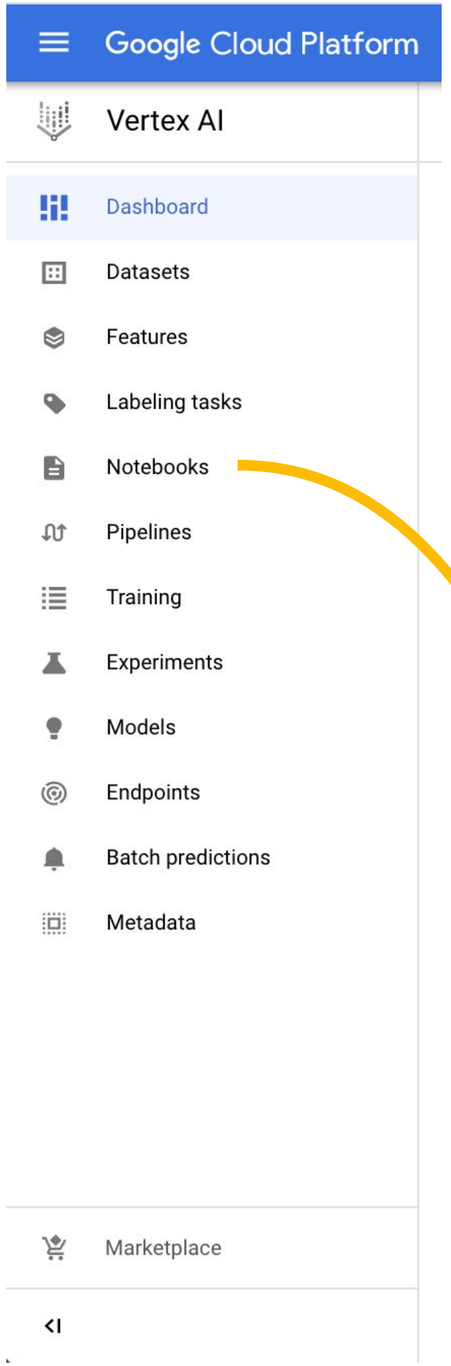
Launcher
02b - Vertex AI - AutoML v
02c - Vertex AI > Pipelines
Markdown
git
Python 3
02c - Vertex AI > Pipelines - AutoML with clients (code) In automated pipeline
Use Kubeflow Pipelines running on Vertex AI Pipelines to orchestrate the process of training a custom model with AutoML Tabular and deploy it to a Vertex AI Endpoint for serving (online and batch) predictions and explanations. This demonstrates how to automate the processes of (02a) or (02b) with pipeline orchestration.
Prerequisites:
01 - BigQuery - Table Data Source
Overview:
Use Kubeflow Python SDK to build a pipeline
Create pipeline using Google Cloud Pipeline Components (from google_cloud_pipeline_components import aiplatform as gcc_aip)
Use cc_aip.TabularDatasetCreateOp to register dataset from BigQuery table
Train AutoML tabular model with gcc_aip.AutoMLTabularTrainingJobRunOp
Deploy model to endpoint using gcc_aip.ModelDeployOp
Compile the pipeline
kfp.v2.compiler.Compiler().compile
Move the pipeline code to GCS Bucket
Run the pipeline with google.cloud.aiplatform.PipelineJob
0 19 Git: Python 3 | Mode: Ln 1, Col 02c - Vertex AI > Pipelines - AutoML with clients (code) In automated

Notebook: 03a

Vertex AI Overview




Google Cloud Platform
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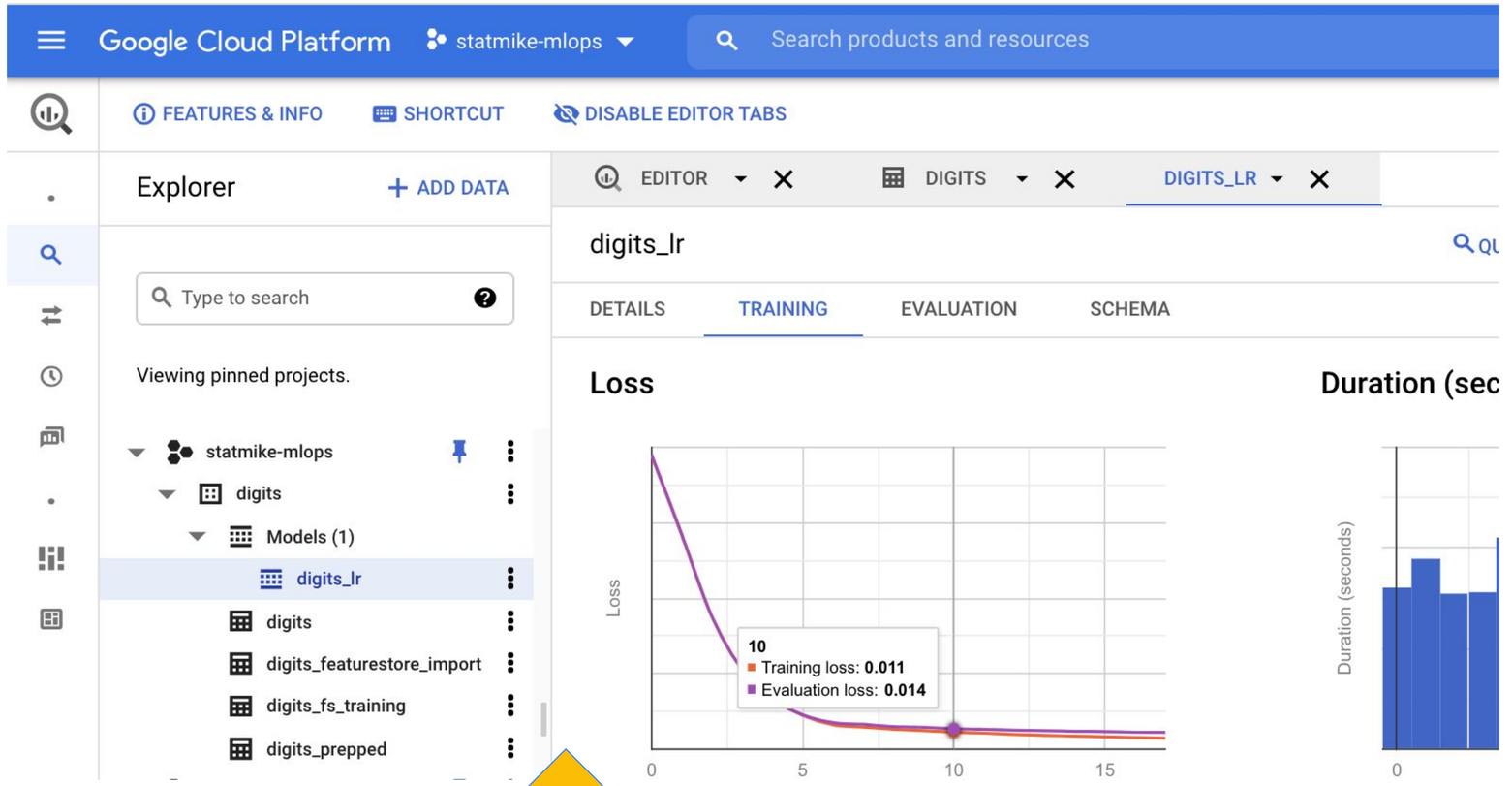
Google Cloud Platform
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TRAINING
EVALUATION
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Evaluation loss: 0.014
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15
Duration (seconds)
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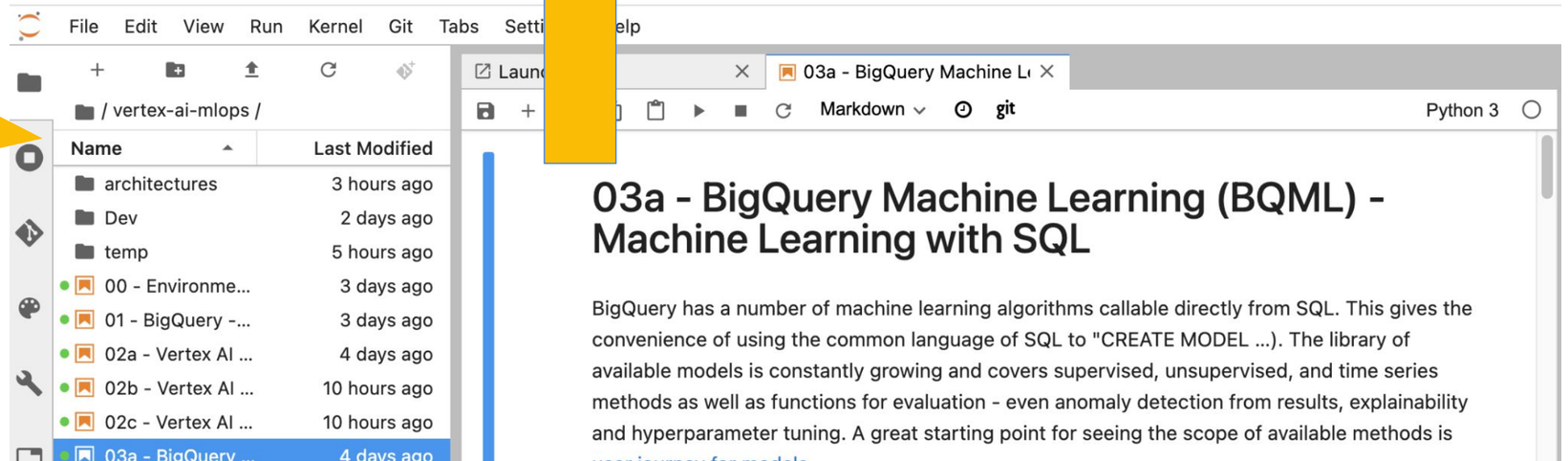
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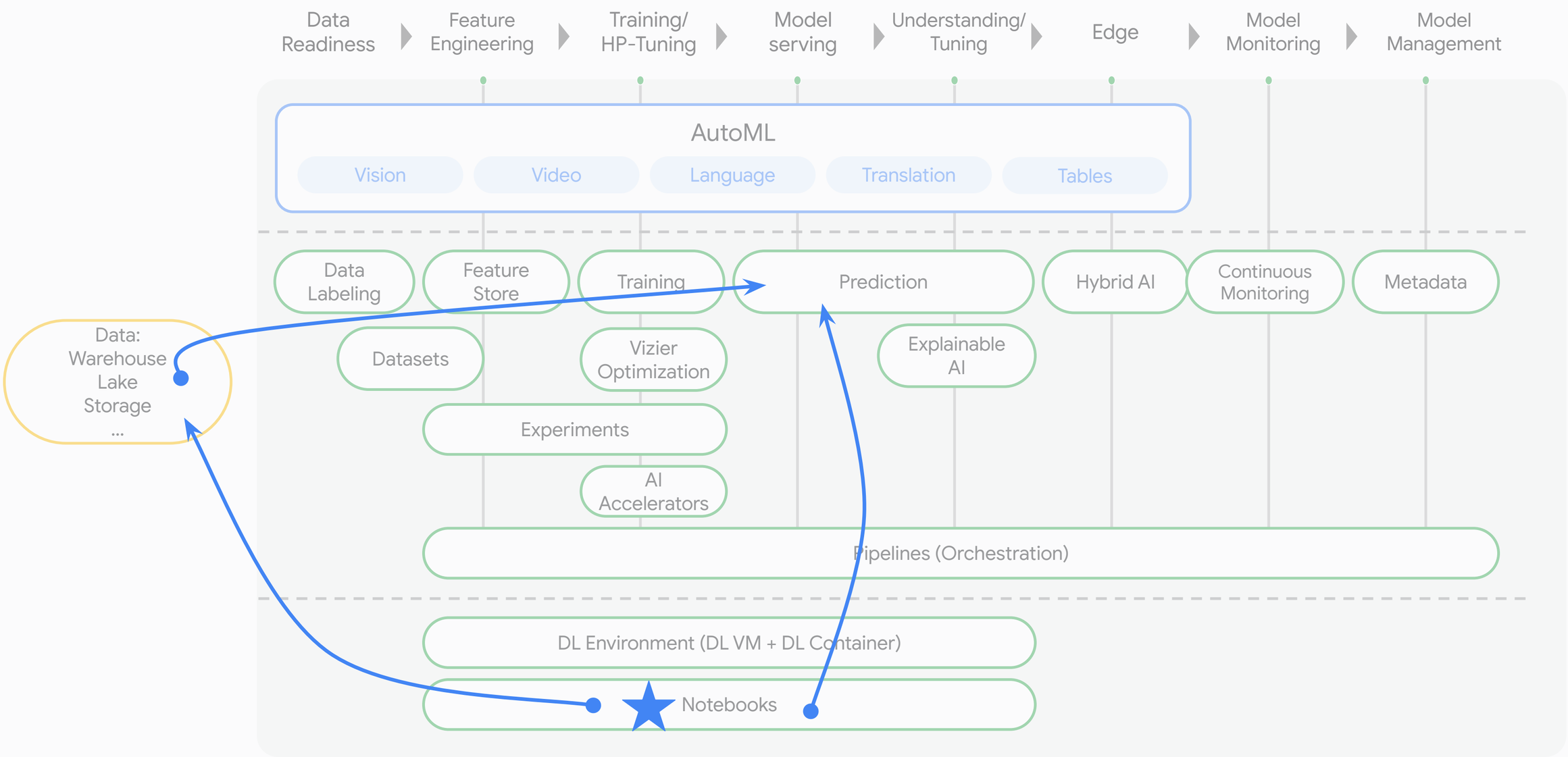
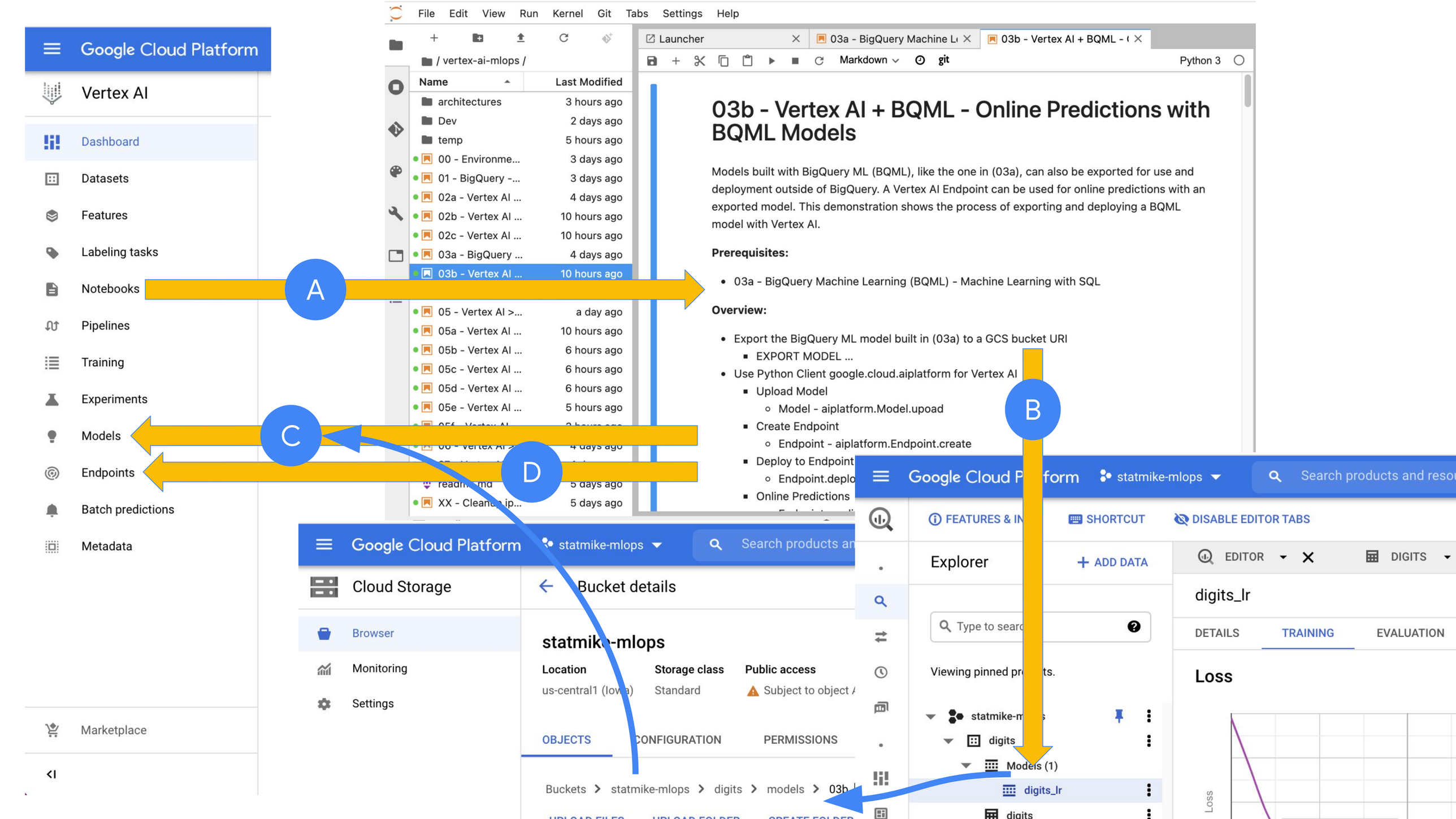
03a - BigQuery ...
4 days ago
03a - BigQuery Machine L
Markdown
git
Python 3
03a - BigQuery Machine Learning (BQML) - Machine Learning with SQL
BigQuery has a number of machine learning algorithms callable directly from SQL. This gives the convenience of using the common language of SQL to "CREATE MODEL ...). The library of available models is constantly growing and covers supervised, unsupervised, and time series methods as well as functions for evaluation - even anomaly detection from results, explainability and hyperparameter tuning. A great starting point for seeing the scope of available methods is

Notebook: 03b

Vertex AI Overview




Google Cloud Platform
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02c - Vertex AI ... 10 hours ago
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05e - Vertex AI ... 5 hours ago
Launcher
03a - BigQuery Machine L
03b - Vertex AI + BQML -
Markdown
git
Python 3
03b - Vertex AI + BQML - Online Predictions with BQML Models
Models built with BigQuery ML (BQML), like the one in (03a), can also be exported for use and deployment outside of BigQuery. A Vertex AI Endpoint can be used for online predictions with an exported model. This demonstration shows the process of exporting and deploying a BQML model with Vertex AI.
Prerequisites:
03a - BigQuery Machine Learning (BQML) - Machine Learning with SQL
Overview:
Export the BigQuery ML model built in (03a) to a GCS bucket URI
EXPORT MODEL ...
Use Python Client google.cloud.aiplatform for Vertex AI
Upload Model
Model - aiplatform.Model.upoad
Create Endpoint
Endpoint - aiplatform.Endpoint.create
Deploy to Endpoint
Online Predictions
A
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C
D
Google Cloud Platform
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Search products and resources
Cloud Storage
Browser
Monitoring
Settings
Bucket details
statmike-mlops
Location
Storage class
Public access
us-central1 (Iowa)
Standard
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PERMISSIONS
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digits
Models (1)
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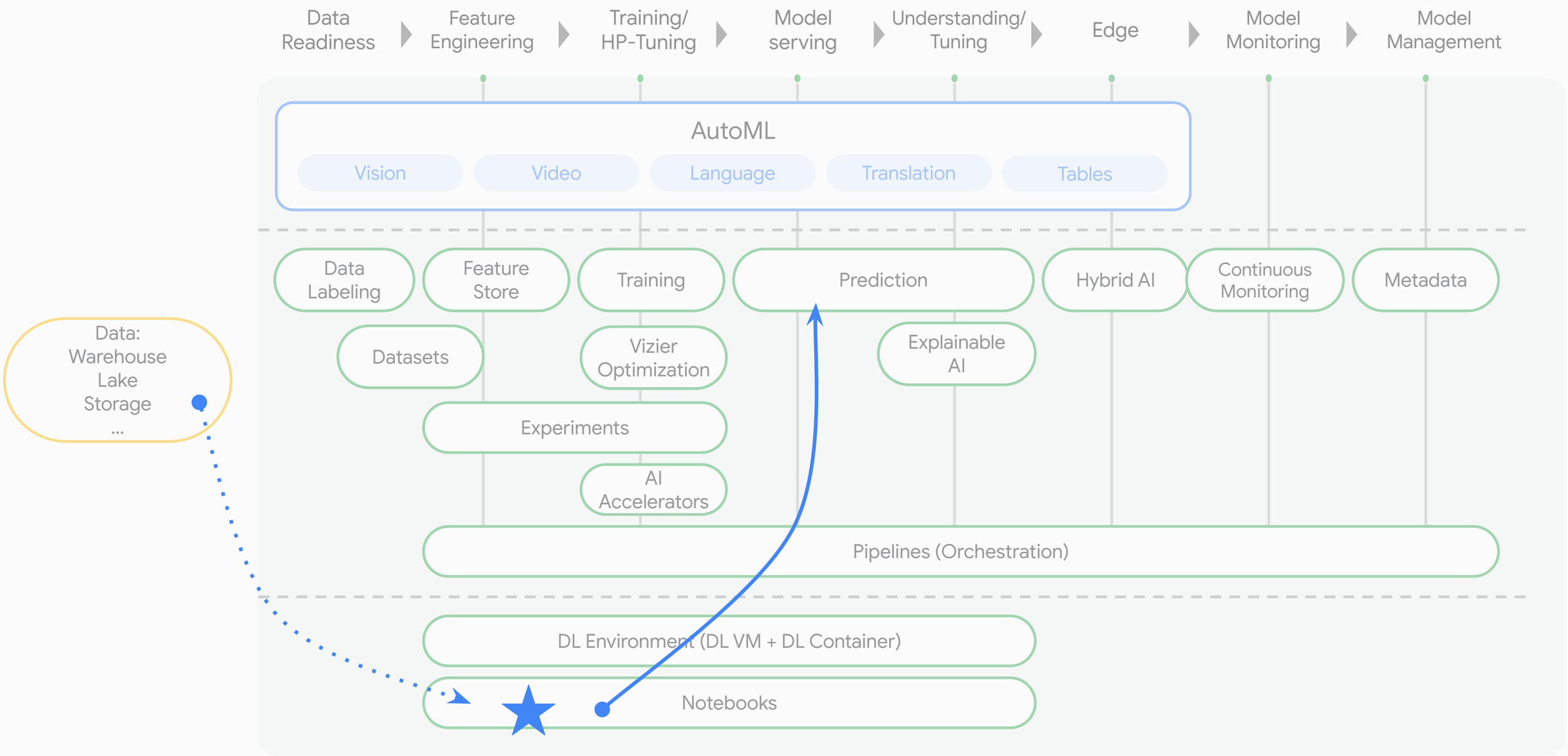
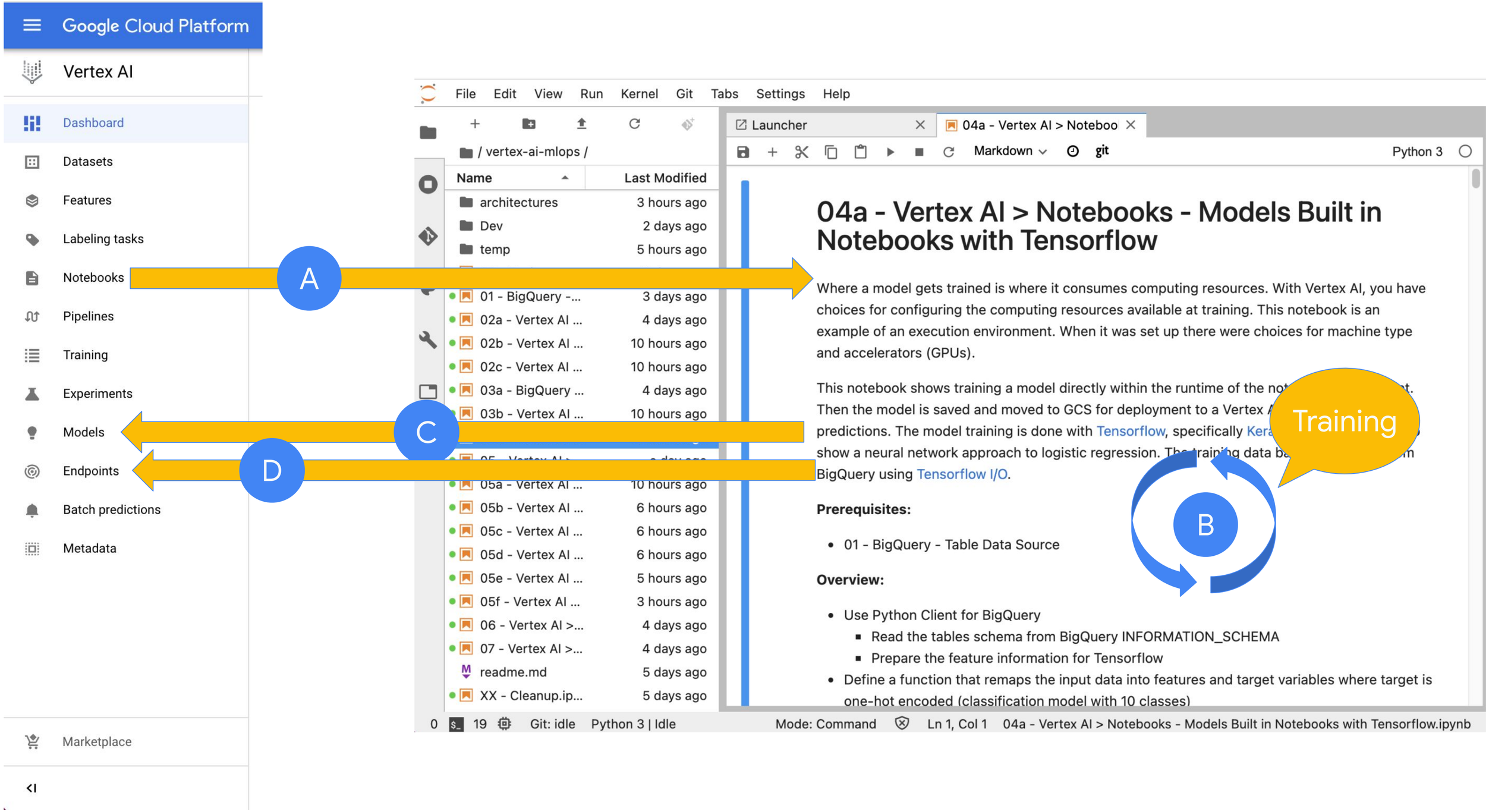
Notebook: 04a

Vertex AI Overview




Google Cloud Platform
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03a - BigQuery ... 4 days ago
03b - Vertex AI ... 10 hours ago
05a - Vertex AI ... 10 hours ago
05b - Vertex AI ... 6 hours ago
05c - Vertex AI ... 6 hours ago
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readme.md 5 days ago
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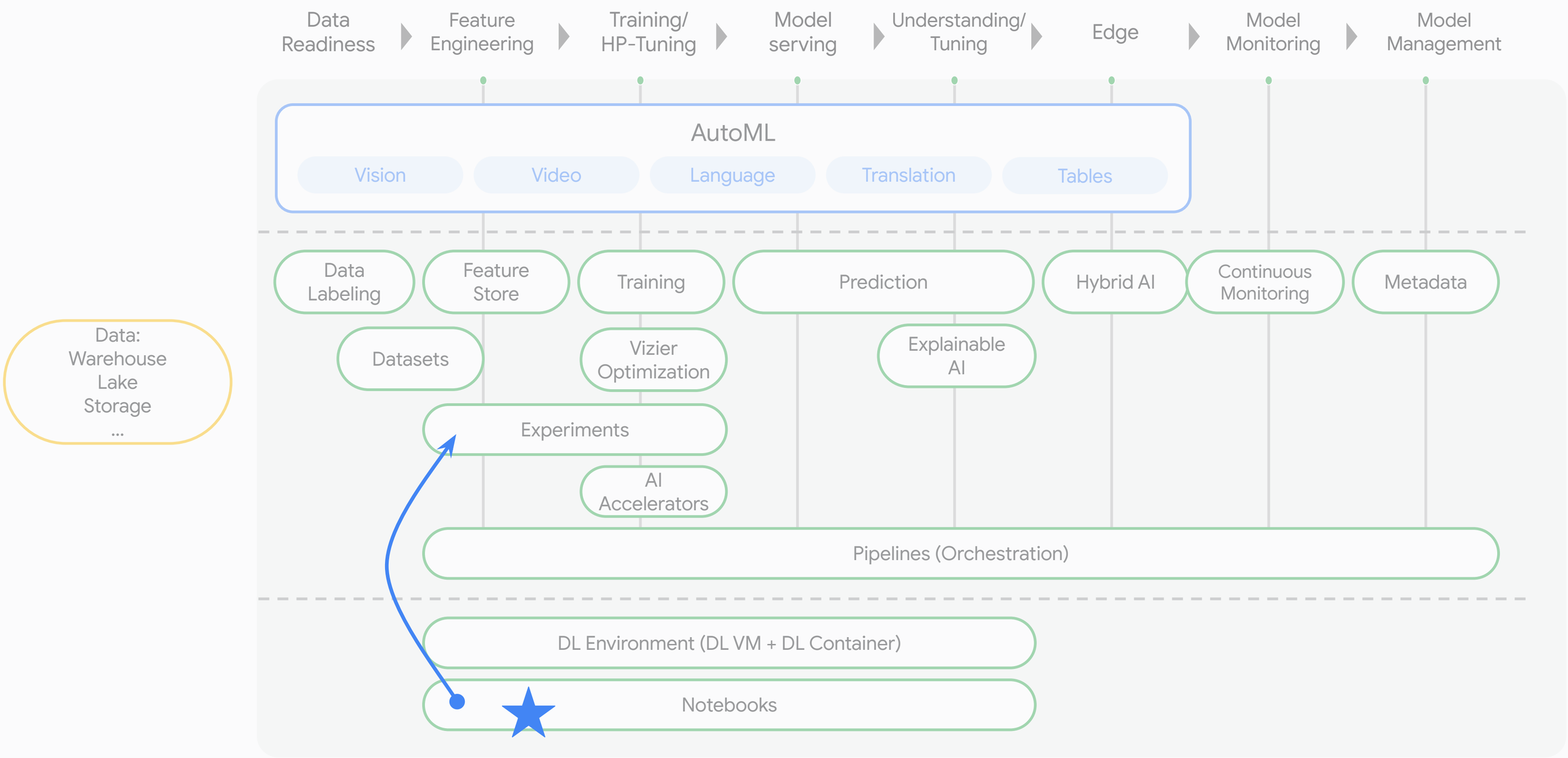
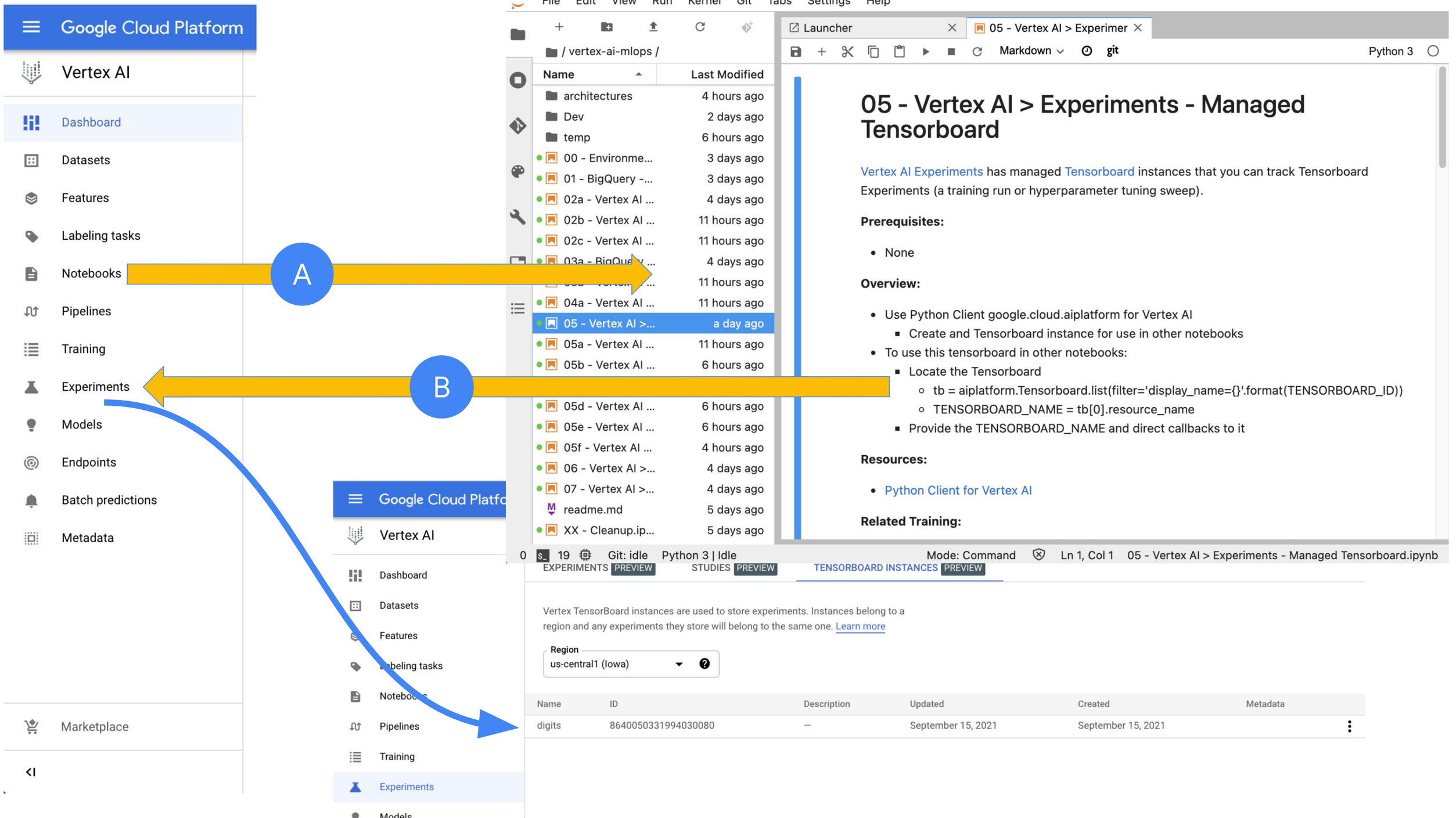
Launcher
04a - Vertex AI > Noteboo
Markdown
git
Python 3
04a - Vertex AI > Notebooks - Models Built in Notebooks with Tensorflow
Where a model gets trained is where it consumes computing resources. With Vertex AI, you have choices for configuring the computing resources available at training. This notebook is an example of an execution environment. When it was set up there were choices for machine type and accelerators (GPUs).
This notebook shows training a model directly within the runtime of the not
Then the model is saved and moved to GCS for deployment to a Vertex A
predictions. The model training is done with Tensorflow, specifically Kera
show a neural network approach to logistic regression. The training data ba
BigQuery using Tensorflow I/O.
Prerequisites:
01 - BigQuery - Table Data Source
Overview:
Use Python Client for BigQuery
Read the tables schema from BigQuery INFORMATION_SCHEMA
Prepare the feature information for Tensorflow
Define a function that remaps the input data into features and target variables where target is one-hot encoded (classification model with 10 classes)
Training
B
0 19 Git: idle Python 3 | Idle
Mode: Command Ln 1, Col 1 04a - Vertex AI > Notebooks - Models Built in Notebooks with Tensorflow.ipynb

Notebook: 05

Vertex AI Overview

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01 - BigQuery -... 3 days ago
02a - Vertex AI ... 4 days ago
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02c - Vertex AI ... 11 hours ago
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05d - Vertex AI ... 6 hours ago
05e - Vertex AI ... 6 hours ago
05f - Vertex AI ... 4 hours ago
06 - Vertex AI >... 4 days ago
07 - Vertex AI >... 4 days ago
readme.md 5 days ago
XX - Cleanup.ip... 5 days ago
Launcher
05 - Vertex AI > Experimer
Markdown
git
Python 3
05 - Vertex AI > Experiments - Managed Tensorboard
Vertex AI Experiments has managed Tensorboard instances that you can track Tensorboard Experiments (a training run or hyperparameter tuning sweep).
Prerequisites:
None
Overview:
Use Python Client google.cloud.aiplatform for Vertex AI
Create and Tensorboard instance for use in other notebooks
To use this tensorboard in other notebooks:
Locate the Tensorboard
tb = aiplatform.Tensorboard.list(filter='display_name={}'.format(TENSORBOARD_ID))
TENSORBOARD_NAME = tb[0].resource_name
Provide the TENSORBOARD_NAME and direct callbacks to it
Resources:
Python Client for Vertex AI
Related Training:
0 19 Git: idle Python 3 | Idle Mode: Command Ln 1, Col 1 05 - Vertex AI > Experiments - Managed Tensorboard.ipynb
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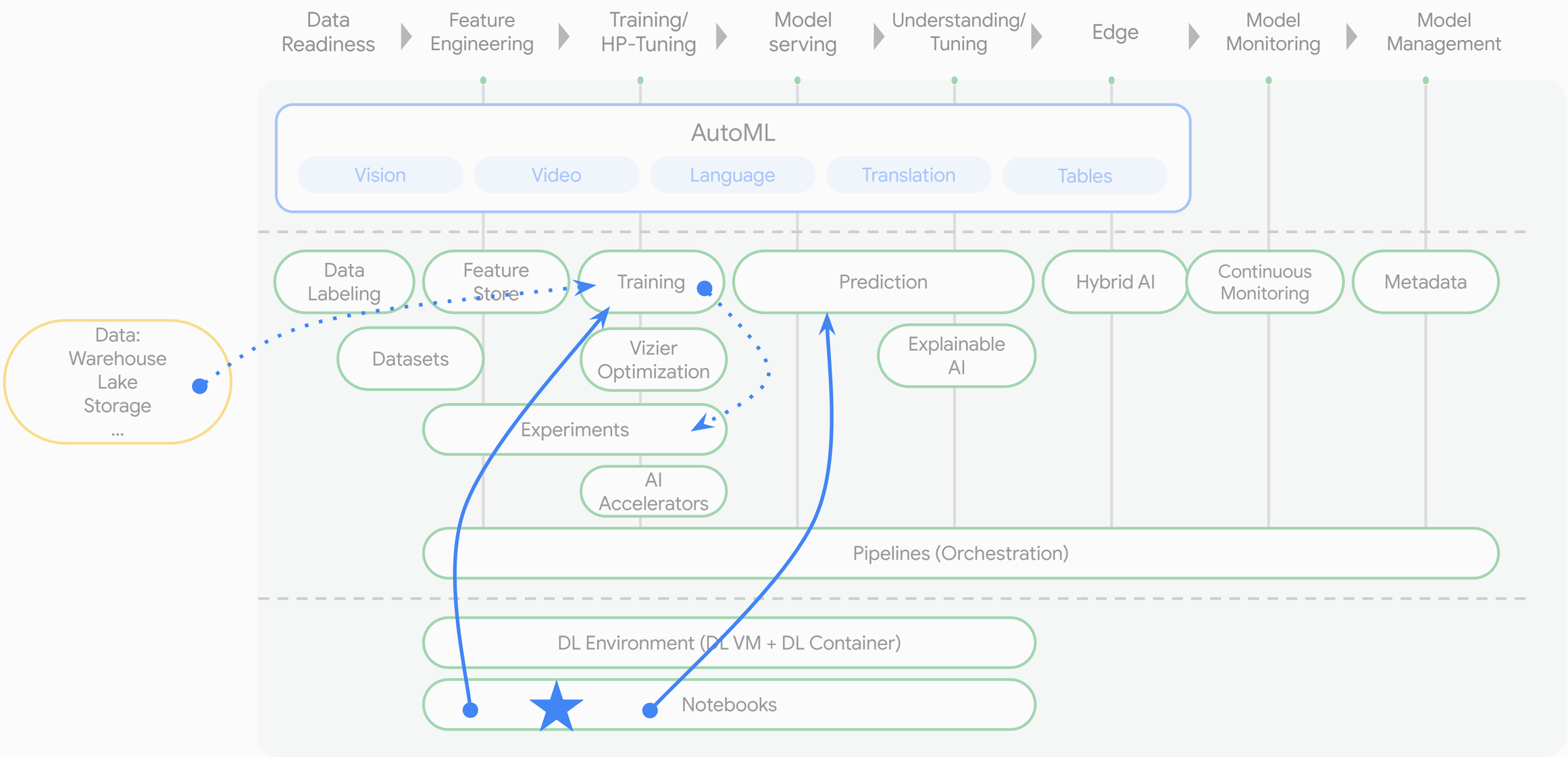
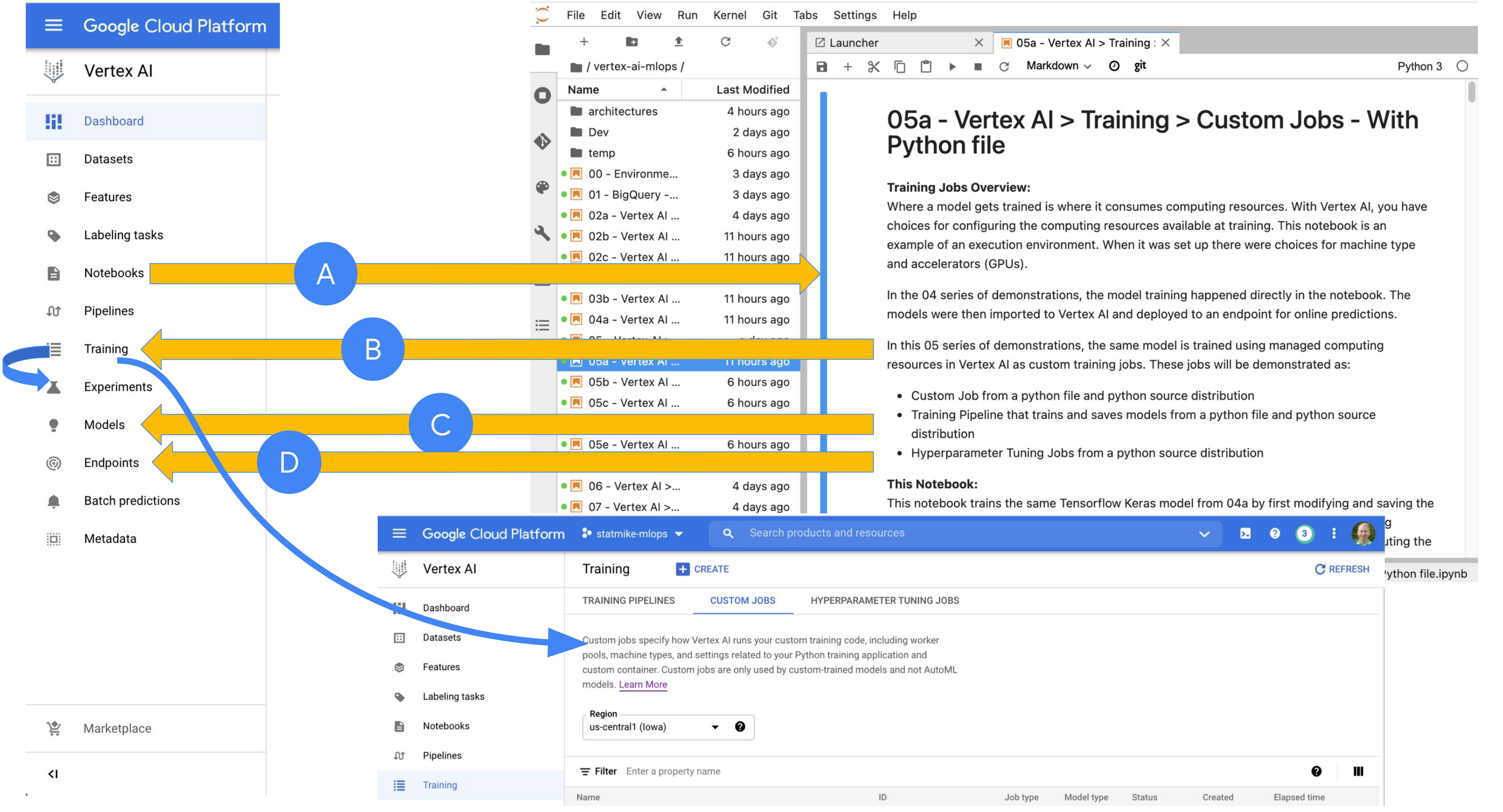
EXPERIMENTS PREVIEW
STUDIES PREVIEW
TENSORBOARD INSTANCES PREVIEW
Vertex TensorBoard instances are used to store experiments. Instances belong to a region and any experiments they store will belong to the same one. Learn more
Region
us-central1 (Iowa)
Name ID Description Updated Created Metadata
digits 8640050331994030080 – September 15, 2021 September 15, 2021

Notebook: 05a

Vertex AI Overview




Google Cloud Platform
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05b - Vertex AI ... 6 hours ago
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05e - Vertex AI ... 6 hours ago
06 - Vertex AI >... 4 days ago
07 - Vertex AI >... 4 days ago
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05a - Vertex AI > Training :
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Python 3
05a - Vertex AI > Training > Custom Jobs - With Python file
Training Jobs Overview:
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Custom Job from a python file and python source distribution
Training Pipeline that trains and saves models from a python file and python source distribution
Hyperparameter Tuning Jobs from a python source distribution
This Notebook:
This notebook trains the same Tensorflow Keras model from 04a by first modifying and saving the
uting the
ython file.ipynb
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statmike-mlops
Search products and resources
Vertex AI
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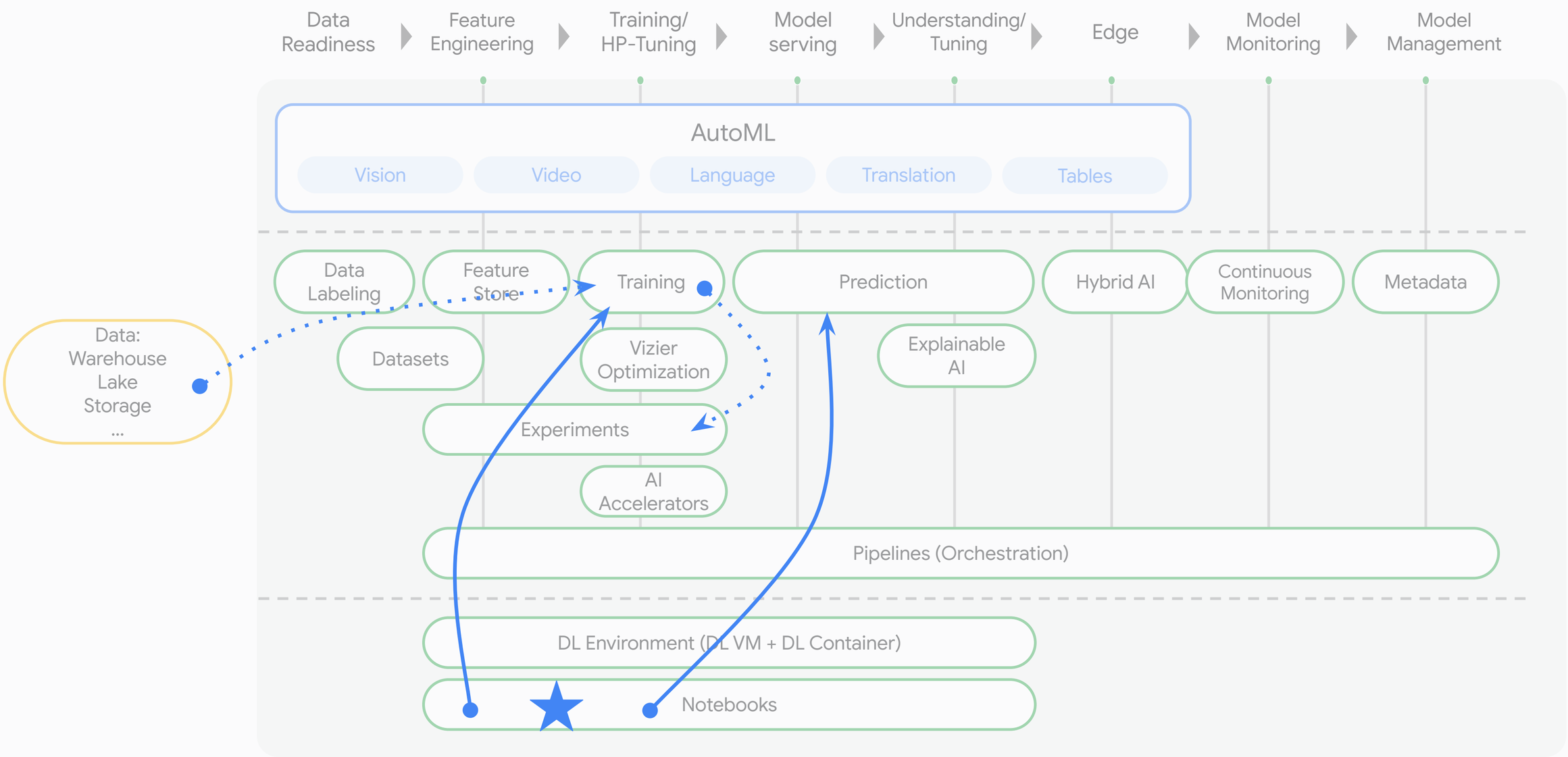
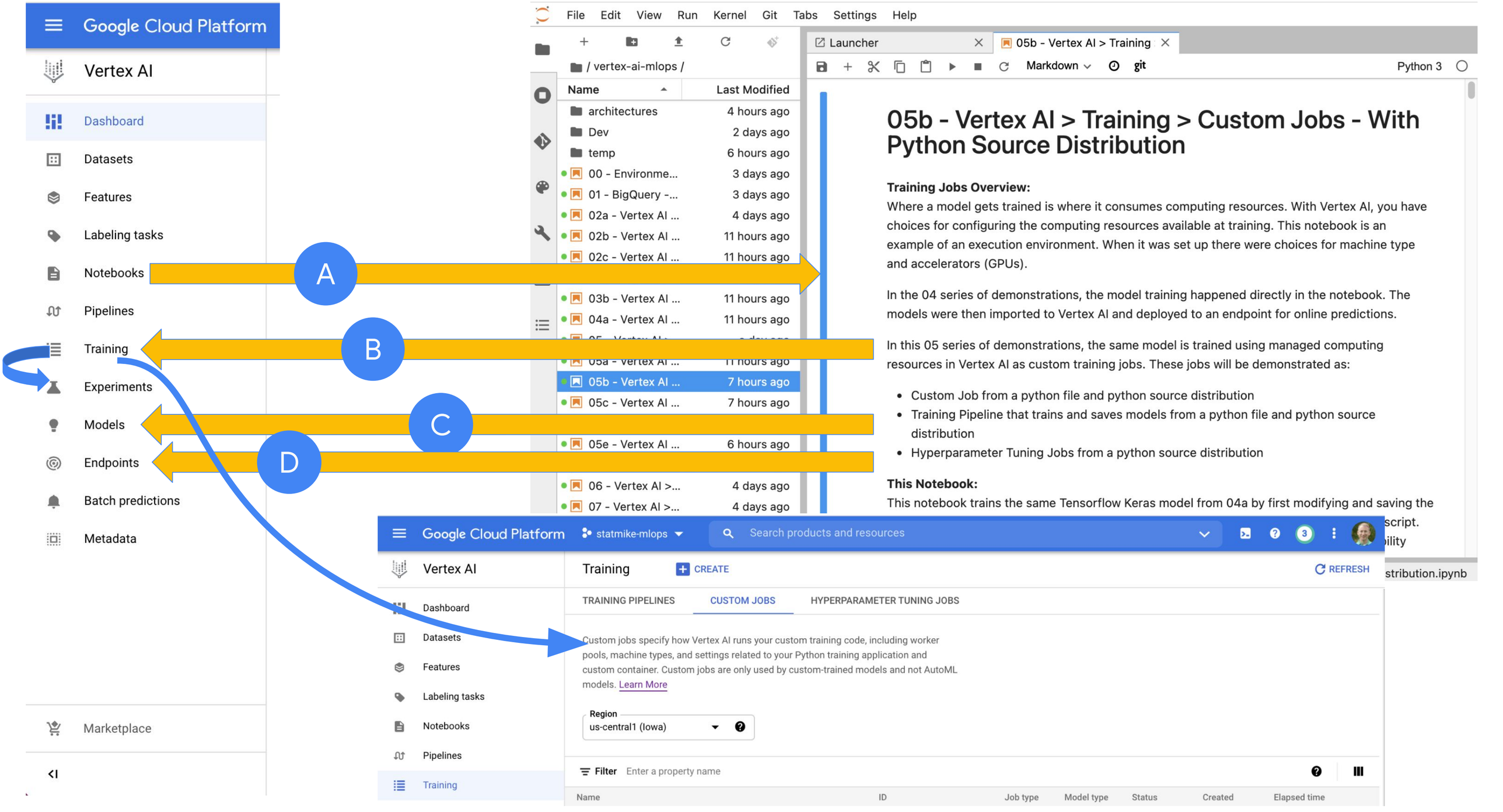
HYPERPARAMETER TUNING JOBS
Custom jobs specify how Vertex AI runs your custom training code, including worker pools, machine types, and settings related to your Python training application and custom container. Custom jobs are only used by custom-trained models and not AutoML models. Learn More
Region
us-central1 (Iowa)
Filter
Enter a property name
Name
ID
Job type
Model type
Status
Created
Elapsed time

Notebook: 05b

Vertex AI Overview




Google Cloud Platform
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02b - Vertex AI ... 11 hours ago
02c - Vertex AI ... 11 hours ago
03b - Vertex AI ... 11 hours ago
04a - Vertex AI ... 11 hours ago
05b - Vertex AI ... 7 hours ago
05c - Vertex AI ... 7 hours ago
05e - Vertex AI ... 6 hours ago
06 - Vertex AI >... 4 days ago
07 - Vertex AI >... 4 days ago
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05b - Vertex AI > Training
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Python 3
05b - Vertex AI > Training > Custom Jobs - With Python Source Distribution
Training Jobs Overview:
Where a model gets trained is where it consumes computing resources. With Vertex AI, you have choices for configuring the computing resources available at training. This notebook is an example of an execution environment. When it was set up there were choices for machine type and accelerators (GPUs).
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statmike-mlops
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HYPERPARAMETER TUNING JOBS
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Region
us-central1 (Iowa)
Filter
Enter a property name
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Job type
Model type
Status
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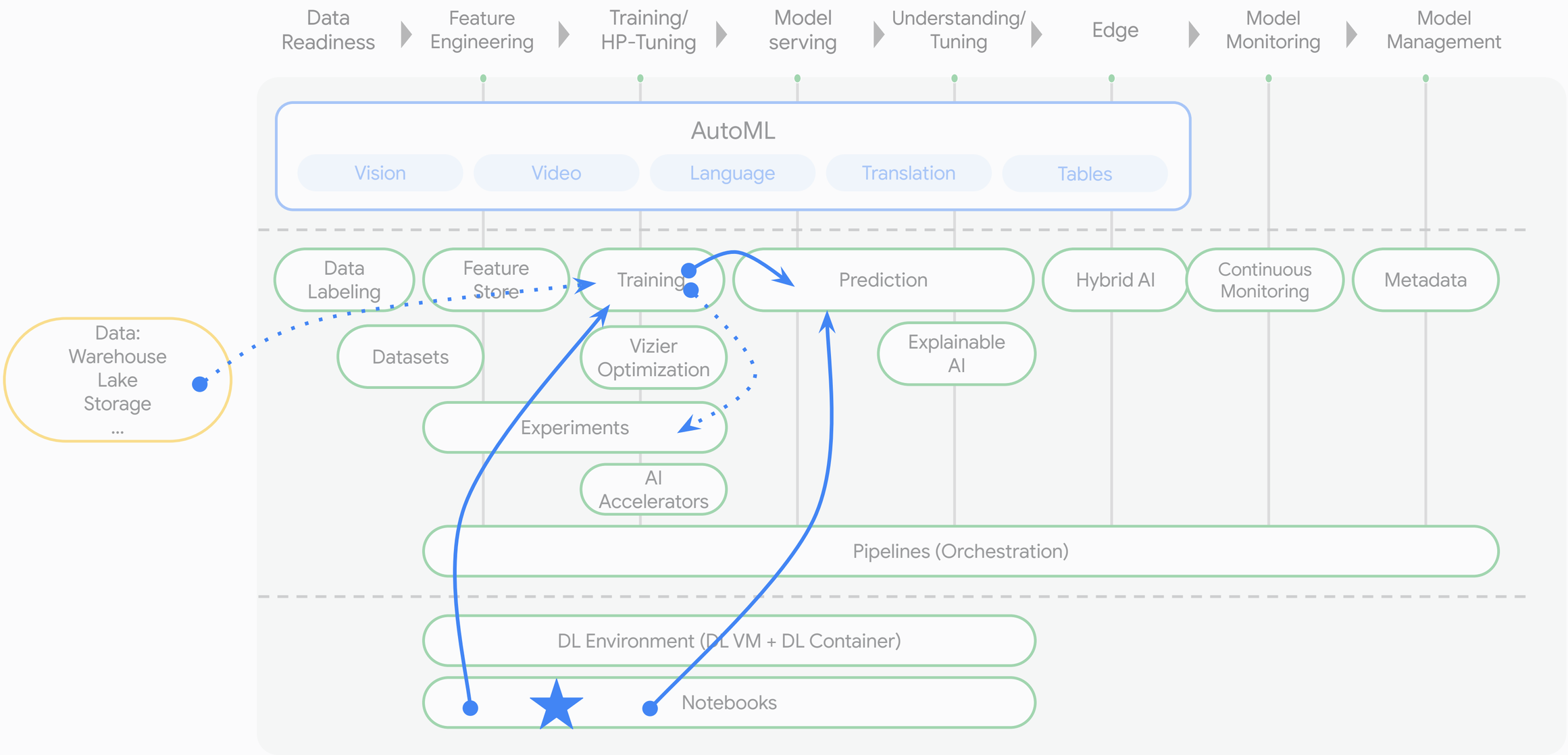
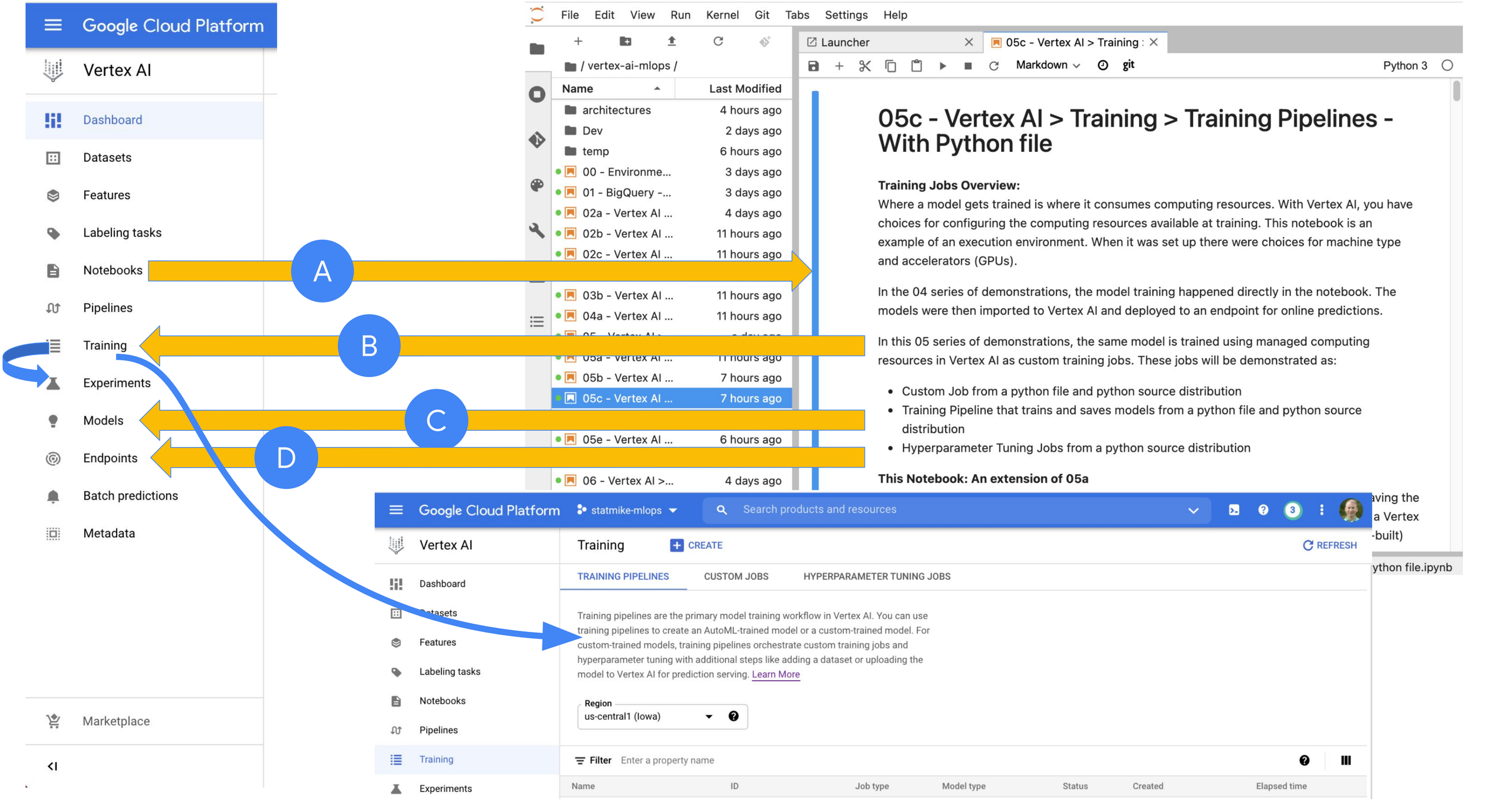
Elapsed time

Notebook: 05c

Vertex AI Overview




Google Cloud Platform
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03b - Vertex AI ... 11 hours ago
04a - Vertex AI ... 11 hours ago
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05c - Vertex AI ... 7 hours ago
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06 - Vertex AI >... 4 days ago
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05c - Vertex AI > Training :
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05c - Vertex AI > Training > Training Pipelines - With Python file
Training Jobs Overview:
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This Notebook: An extension of 05a
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Training pipelines are the primary model training workflow in Vertex AI. 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 Vertex AI for prediction serving. Learn More
Region
us-central1 (Iowa)
Filter
Enter a property name
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Job type
Model type
Status
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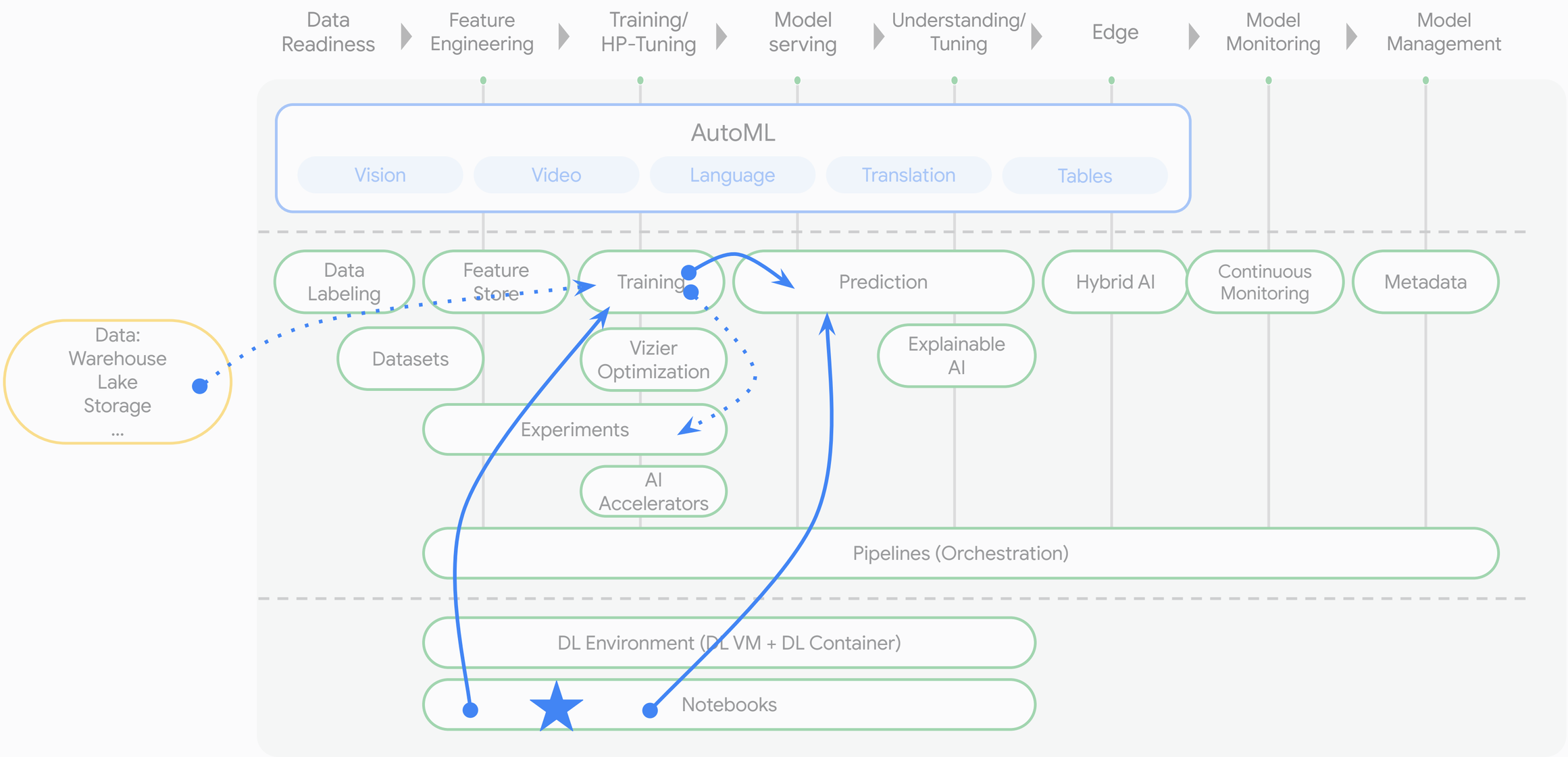
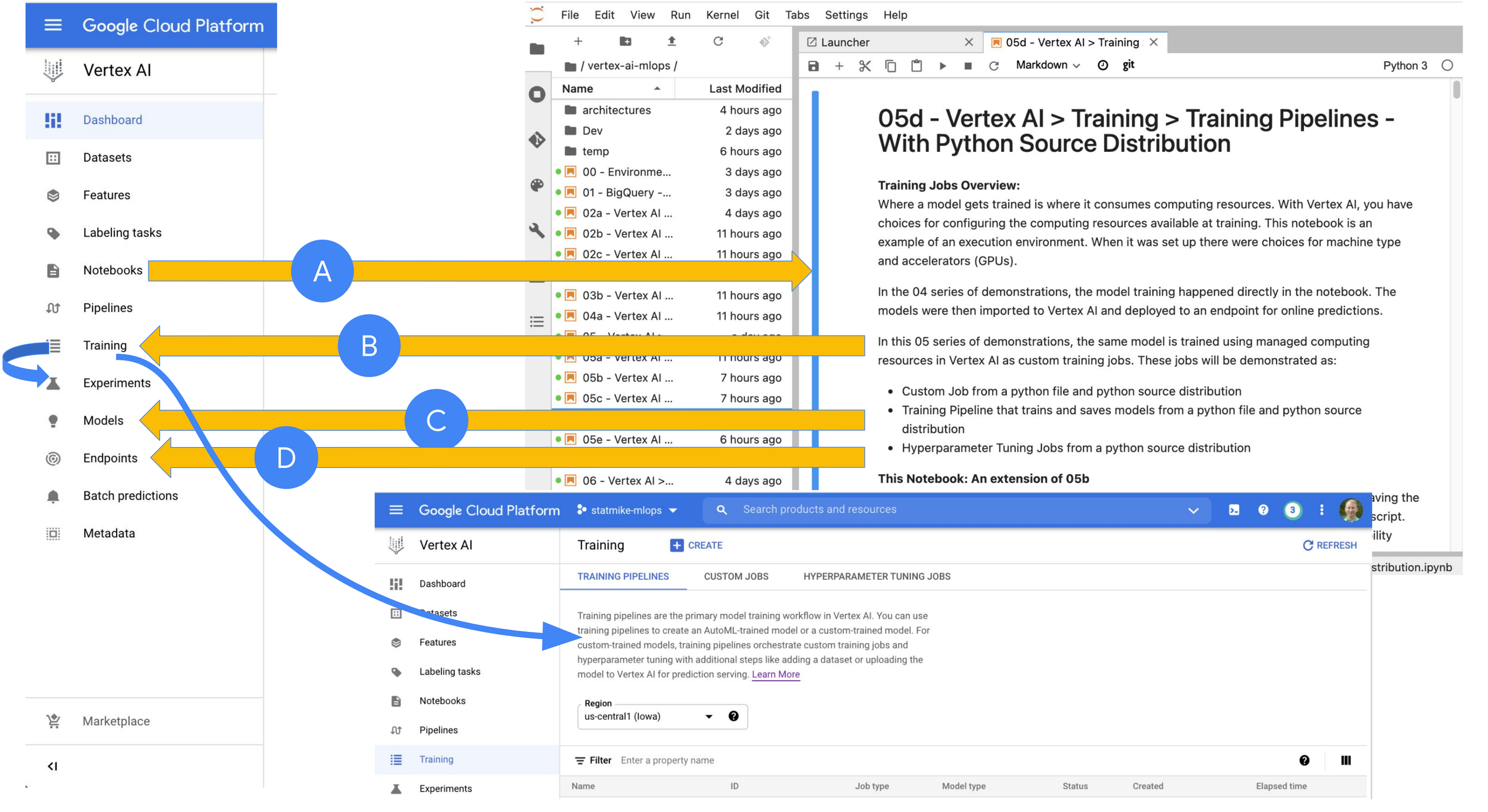
Elapsed time

Notebook: 05d

Vertex AI Overview

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02c - Vertex AI ... 11 hours ago
03b - Vertex AI ... 11 hours ago
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05c - Vertex AI ... 7 hours ago
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Model type
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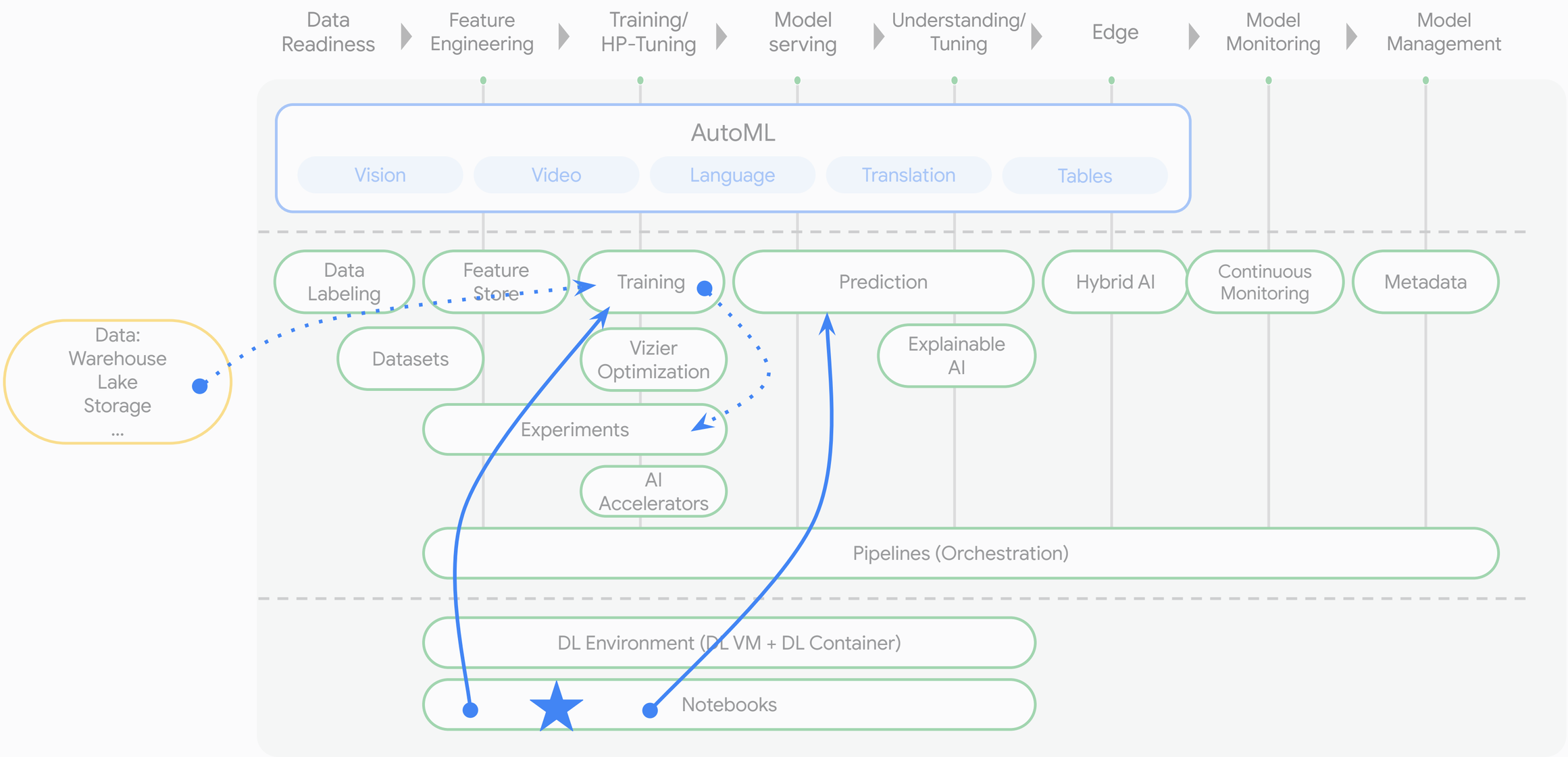
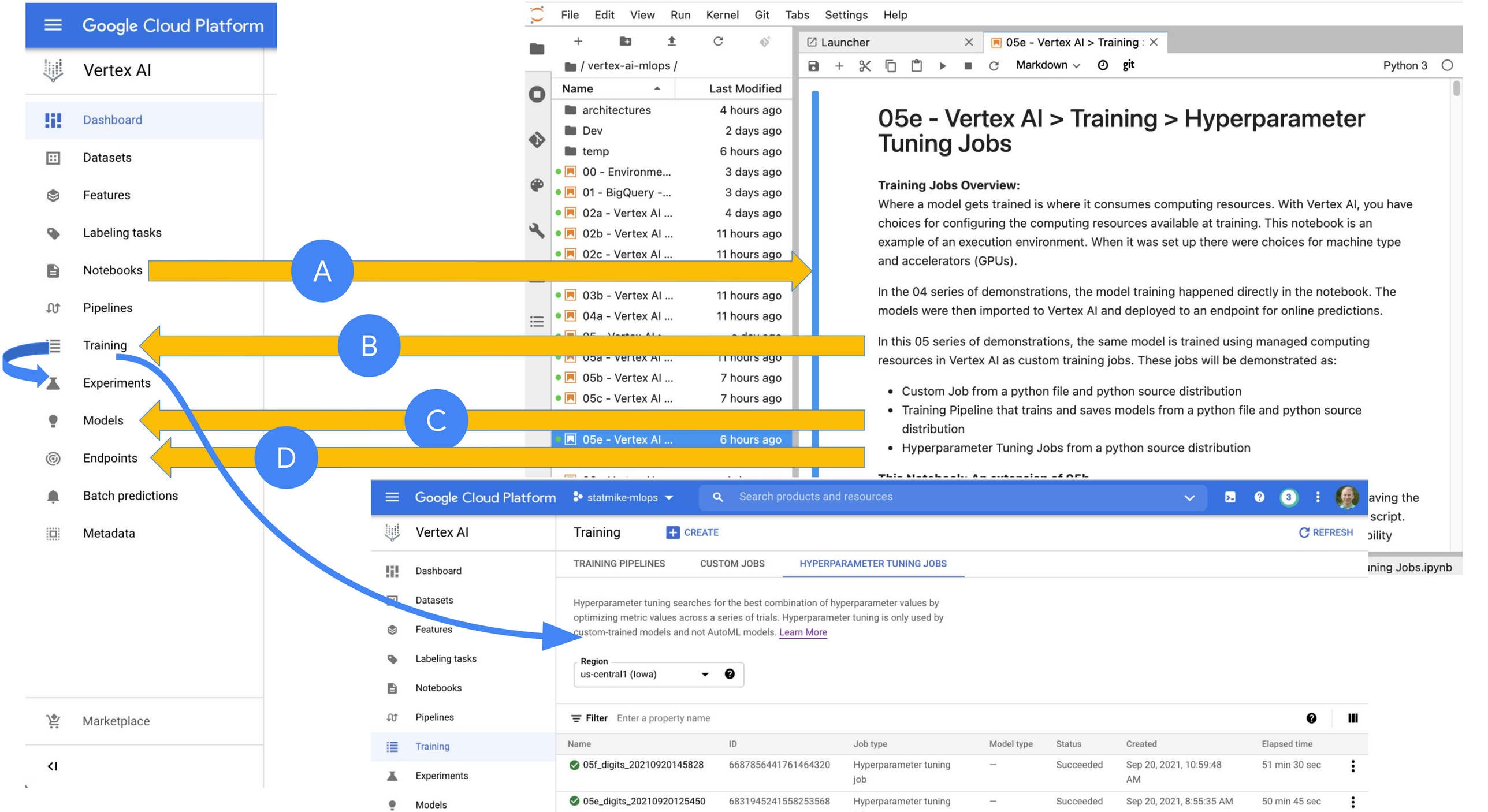
Elapsed time

Notebook: 05e

Vertex AI Overview

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03b - Vertex AI ... 11 hours ago
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Hyperparameter tuning searches for the best combination of hyperparameter values by optimizing metric values across a series of trials. Hyperparameter tuning is only used by custom-trained models and not AutoML models. Learn More
Region
us-central1 (Iowa)
Filter
Enter a property name
Name
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Job type
Model type
Status
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Elapsed time
05f_digits_20210920145828
6687856441761464320
Hyperparameter tuning job
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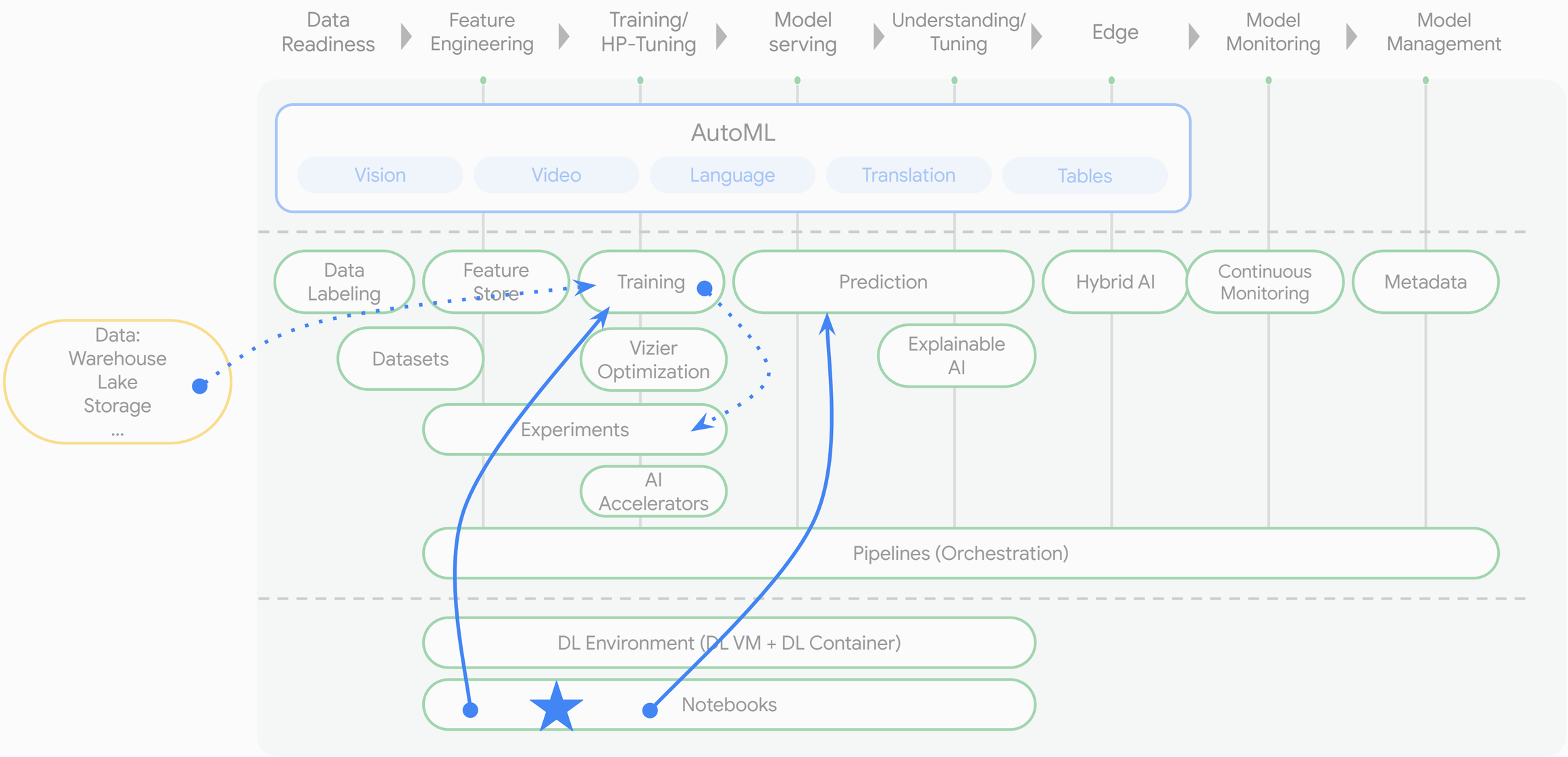
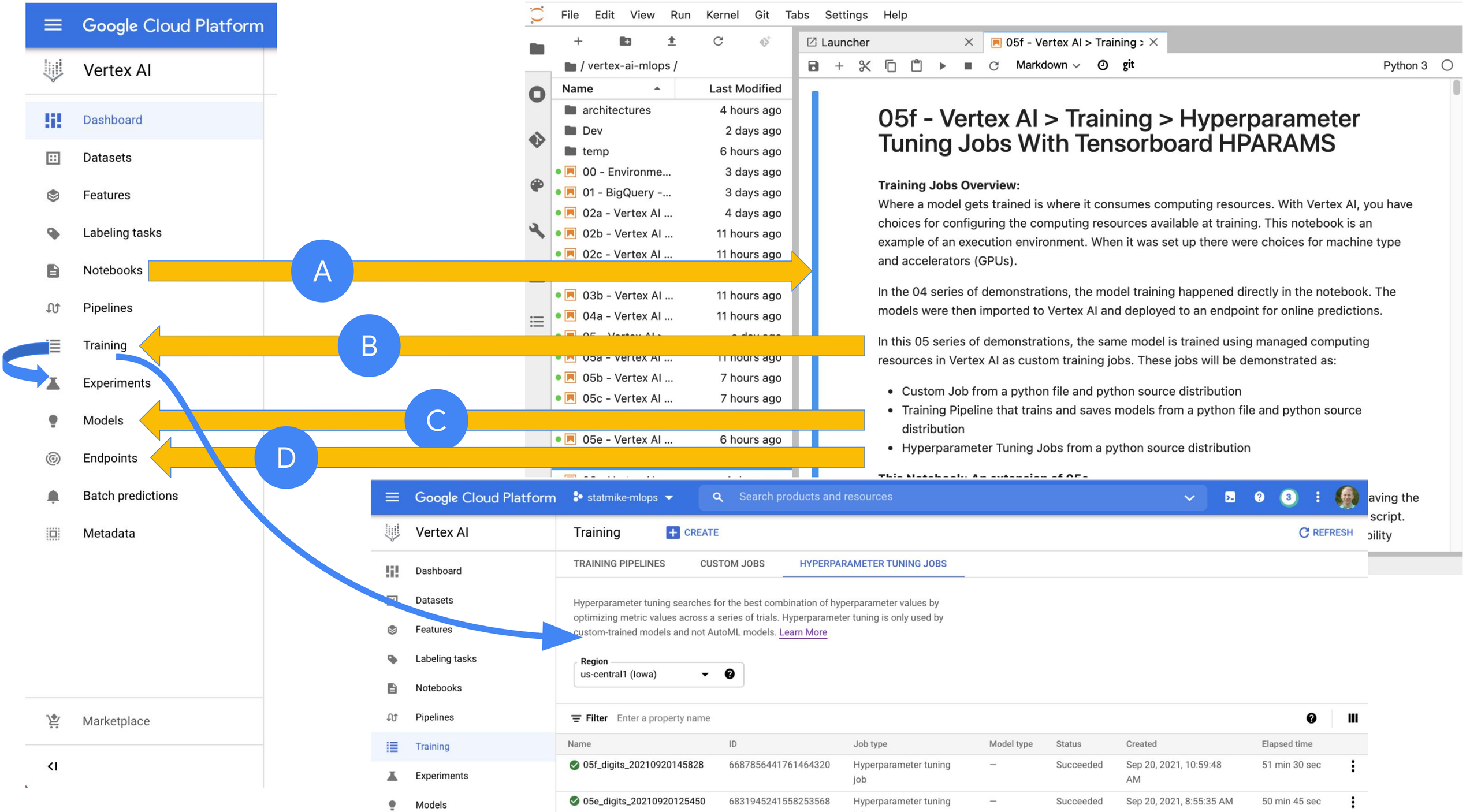
Succeeded
Sep 20, 2021, 10:59:48 AM
51 min 30 sec
05e_digits_20210920125450
6831945241558253568
Hyperparameter tuning
—
Succeeded
Sep 20, 2021, 8:55:35 AM
50 min 45 sec

Notebook: 05f

Vertex AI Overview

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02c - Vertex AI ... 11 hours ago
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Training Jobs Overview:
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CUSTOM JOBS
HYPERPARAMETER TUNING JOBS
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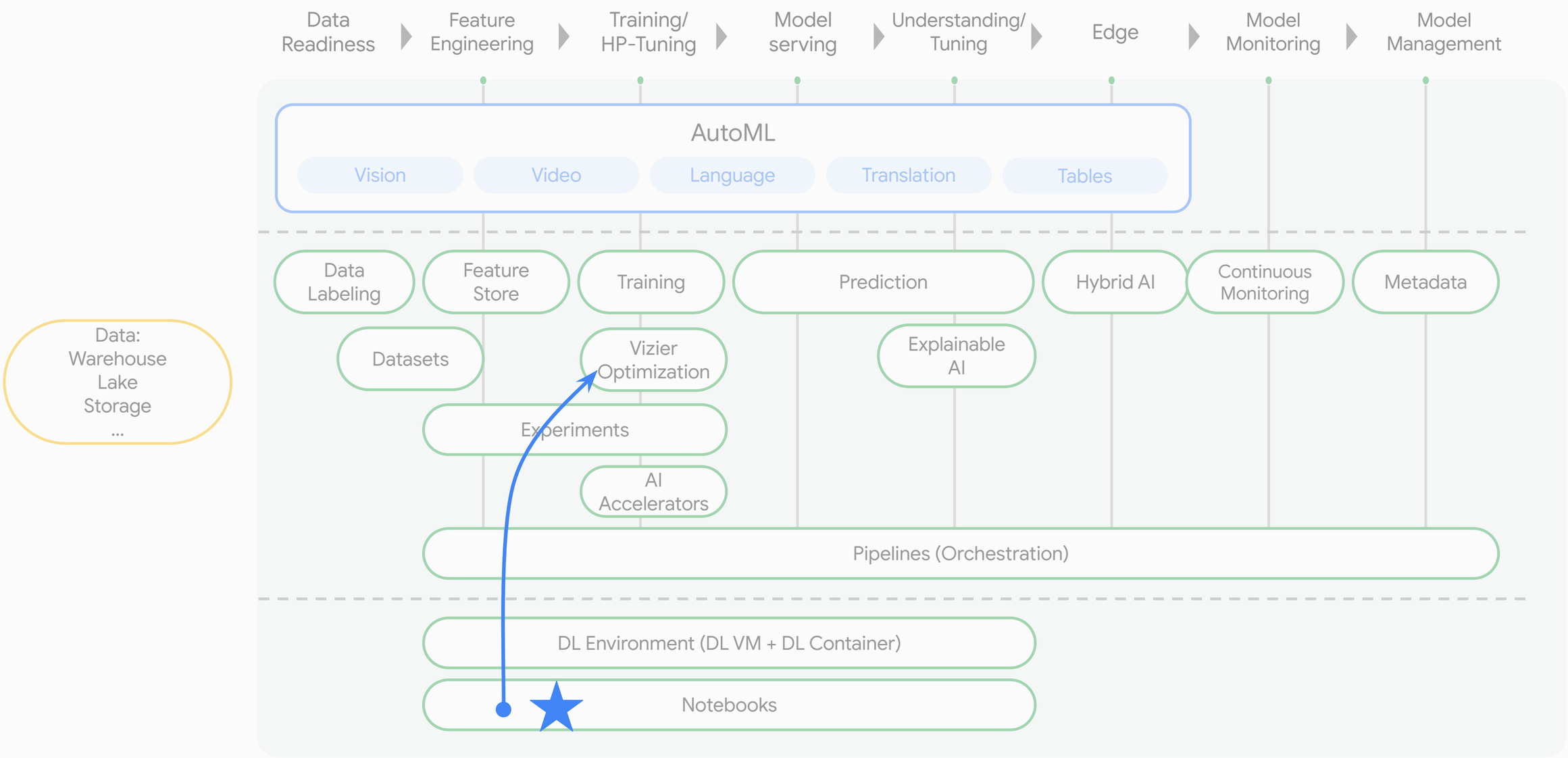
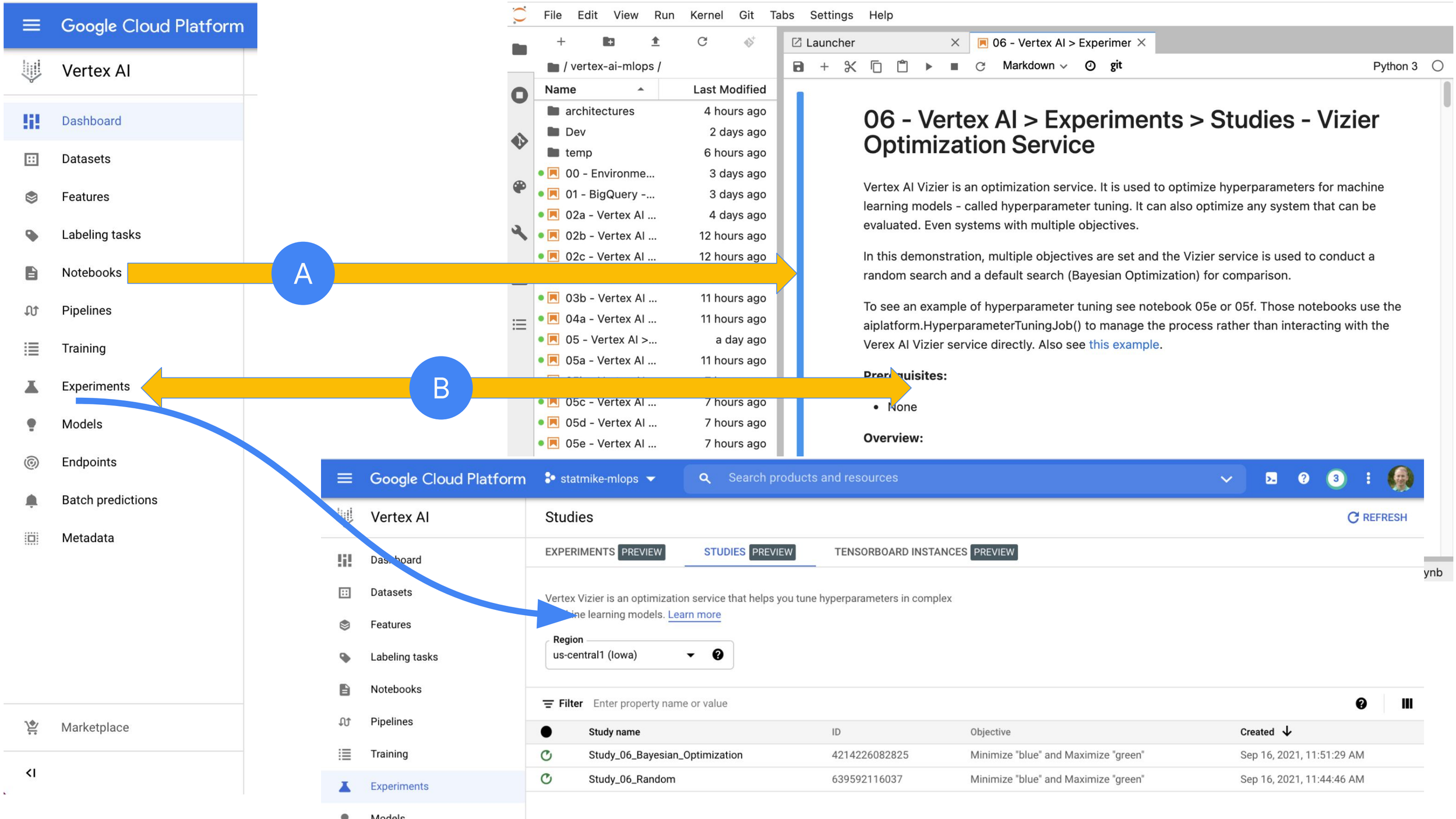
Region
us-central1 (Iowa)
Filter
Enter a property name
Name
ID
Job type
Model type
Status
Created
Elapsed time
05f_digits_20210920145828
6687856441761464320
Hyperparameter tuning job
—
Succeeded
Sep 20, 2021, 10:59:48 AM
51 min 30 sec
05e_digits_20210920125450
6831945241558253568
Hyperparameter tuning
—
Succeeded
Sep 20, 2021, 8:55:35 AM
50 min 45 sec

Notebook: 06

Vertex AI Overview




Google Cloud Platform
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Dev 2 days ago
temp 6 hours ago
00 - Environme... 3 days ago
01 - BigQuery -... 3 days ago
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02b - Vertex AI ... 12 hours ago
02c - Vertex AI ... 12 hours ago
03b - Vertex AI ... 11 hours ago
04a - Vertex AI ... 11 hours ago
05 - Vertex AI >... a day ago
05a - Vertex AI ... 11 hours ago
05c - Vertex AI ... 7 hours ago
05d - Vertex AI ... 7 hours ago
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git
Python 3
06 - Vertex AI > Experiments > Studies - Vizier Optimization Service
Vertex AI Vizier is an optimization service. It is used to optimize hyperparameters for machine learning models - called hyperparameter tuning. It can also optimize any system that can be evaluated. Even systems with multiple objectives.
In this demonstration, multiple objectives are set and the Vizier service is used to conduct a random search and a default search (Bayesian Optimization) for comparison.
To see an example of hyperparameter tuning see notebook 05e or 05f. Those notebooks use the aiplatform.HyperparameterTuningJob() to manage the process rather than interacting with the Verex AI Vizier service directly. Also see this example.
Prerequisites:
None
Overview:
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Search products and resources
Vertex AI
Studies
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STUDIES PREVIEW
TENSORBOARD INSTANCES PREVIEW
Vertex Vizier is an optimization service that helps you tune hyperparameters in complex
learning models. Learn more
Region
us-central1 (Iowa)
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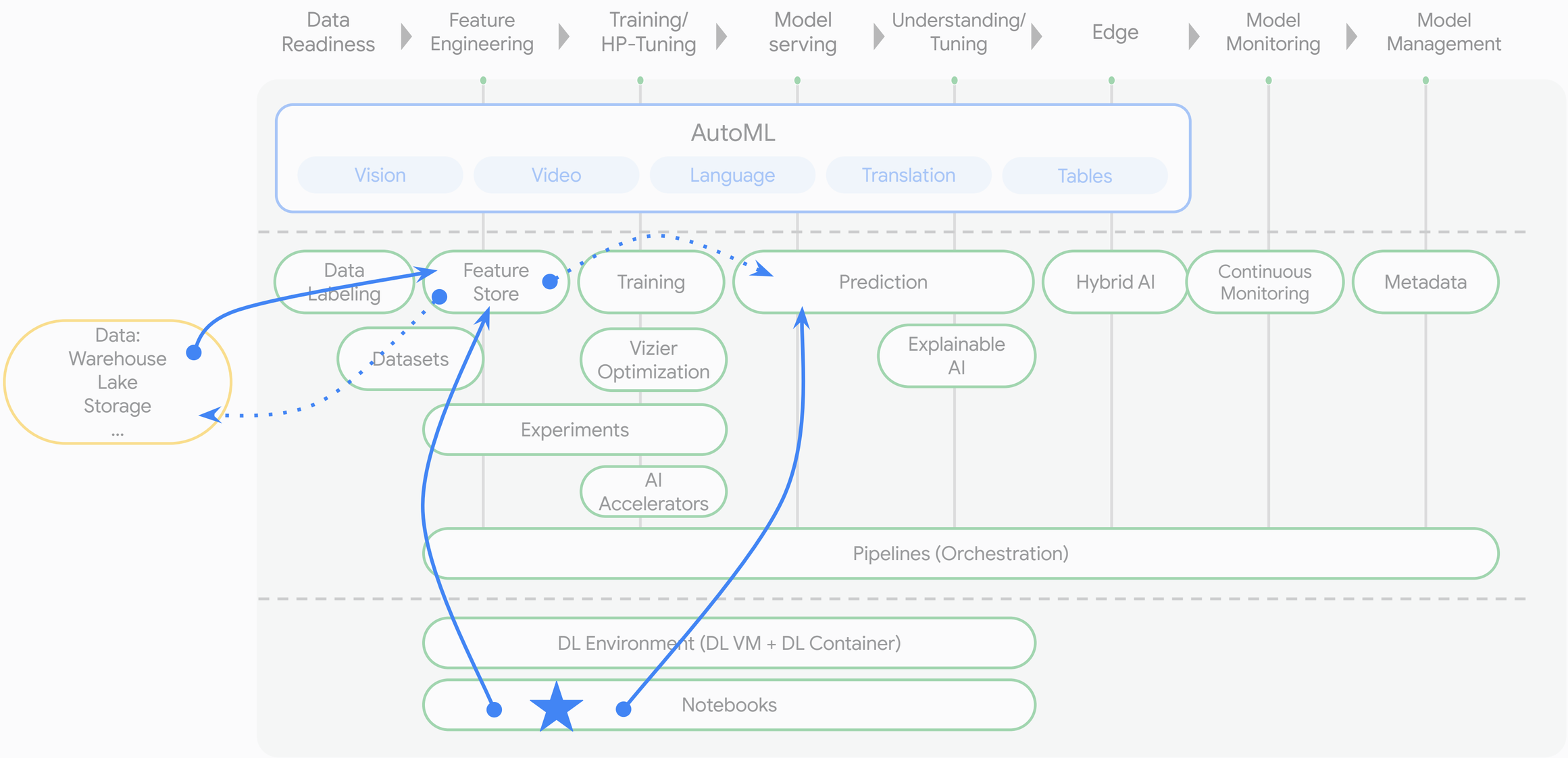
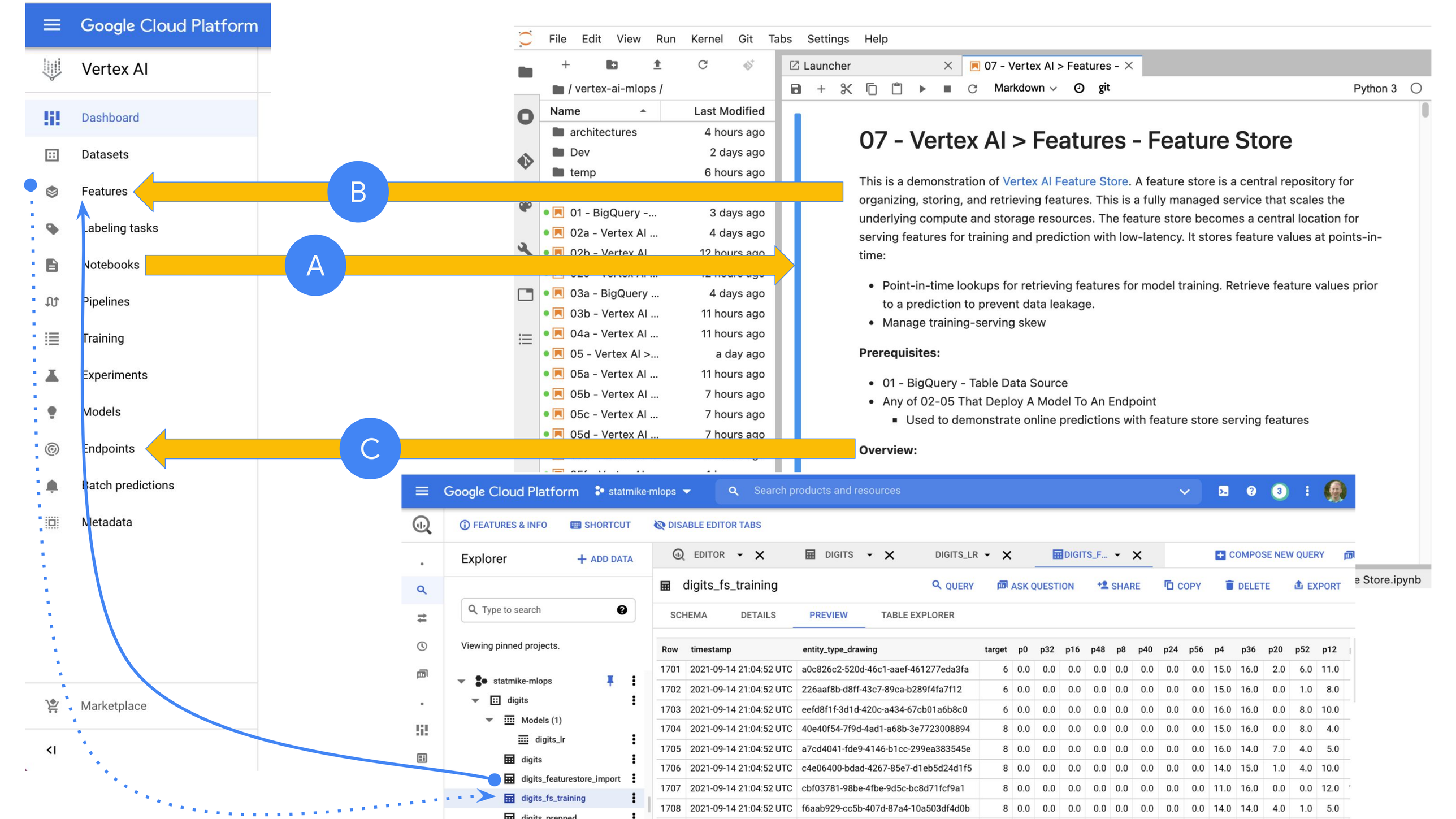
Enter property name or value
Study name
ID
Objective
Created
Study_06_Bayesian_Optimization
4214226082825
Minimize "blue" and Maximize "green"
Sep 16, 2021, 11:51:29 AM
Study_06_Random
639592116037
Minimize "blue" and Maximize "green"
Sep 16, 2021, 11:44:46 AM

Notebook: 07

Vertex AI Overview




Google Cloud Platform
Vertex AI
Dashboard
Datasets
Features
Labeling tasks
Notebooks
Pipelines
Training
Experiments
Models
Endpoints
Batch predictions
Metadata
Marketplace
B
A
C
File Edit View Run Kernel Git Tabs Settings Help
/ vertex-ai-mlops /
Name
Last Modified
architectures 4 hours ago
Dev 2 days ago
temp 6 hours ago
01 - BigQuery -... 3 days ago
02a - Vertex AI ... 4 days ago
03a - BigQuery ... 4 days ago
03b - Vertex AI ... 11 hours ago
04a - Vertex AI ... 11 hours ago
05 - Vertex AI >... a day ago
05a - Vertex AI ... 11 hours ago
05b - Vertex AI ... 7 hours ago
05c - Vertex AI ... 7 hours ago
05d - Vertex AI ... 7 hours ago
Launcher
07 - Vertex AI > Features -
Markdown
git
Python 3
07 - Vertex AI > Features - Feature Store
This is a demonstration of Vertex AI Feature Store. A feature store is a central repository for organizing, storing, and retrieving features. This is a fully managed service that scales the underlying compute and storage resources. The feature store becomes a central location for serving features for training and prediction with low-latency. It stores feature values at points-in-time:
Point-in-time lookups for retrieving features for model training. Retrieve feature values prior to a prediction to prevent data leakage.
Manage training-serving skew
Prerequisites:
01 - BigQuery - Table Data Source
Any of 02-05 That Deploy A Model To An Endpoint
Used to demonstrate online predictions with feature store serving features
Overview:
Store.ipynb
Google Cloud Platform
statmike-mlops
Search products and resources
FEATURES & INFO
SHORTCUT
DISABLE EDITOR TABS
Explorer
ADD DATA
Type to search
Viewing pinned projects.
statmike-mlops
digits
Models (1)
digits_lr
digits
digits_featurestore_import
digits_fs_training
EDITOR
DIGITS
DIGITS_LR
DIGITS_F...
COMPOSE NEW QUERY
digits_fs_training
QUERY
ASK QUESTION
SHARE
COPY
DELETE
EXPORT
SCHEMA
DETAILS
PREVIEW
TABLE EXPLORER
Row timestamp entity_type_drawing target p0 p32 p16 p48 p8 p40 p24 p56 p4 p36 p20 p52 p12
1701 2021-09-14 21:04:52 UTC a0c826c2-520d-46c1-aaef-461277eda3fa 6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 15.0 16.0 2.0 6.0 11.0
1702 2021-09-14 21:04:52 UTC 226aaf8b-d8ff-43c7-89ca-b289f4fa7f12 6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 15.0 16.0 0.0 1.0 8.0
1703 2021-09-14 21:04:52 UTC eefd8f1f-3d1d-420c-a434-67cb01a6b8c0 6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 16.0 16.0 0.0 8.0 10.0
1704 2021-09-14 21:04:52 UTC 40e40f54-7f9d-4ad1-a68b-3e7723008894 8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 15.0 16.0 0.0 8.0 4.0
1705 2021-09-14 21:04:52 UTC a7cd4041-fde9-4146-b1cc-299ea383545e 8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 16.0 14.0 7.0 4.0 5.0
1706 2021-09-14 21:04:52 UTC c4e06400-bdad-4267-85e7-d1eb5d24d1f5 8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 14.0 15.0 1.0 4.0 10.0
1707 2021-09-14 21:04:52 UTC cbf03781-98be-4fbe-9d5c-bc8d71fcf9a1 8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 11.0 16.0 0.0 0.0 12.0
1708 2021-09-14 21:04:52 UTC f6aab929-cc5b-407d-87a4-10a503df4d0b 8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 14.0 14.0 4.0 1.0 5.0