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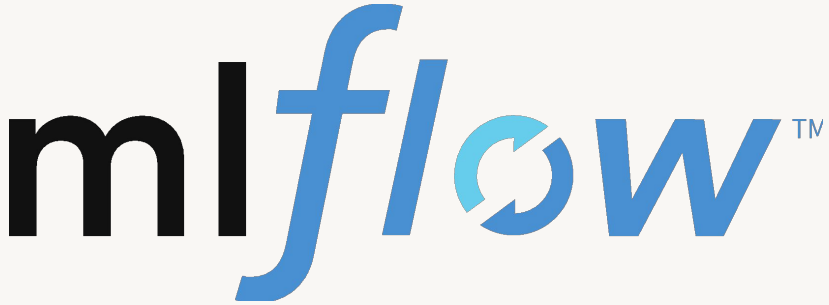
Managing the model lifecycle with Databricks ML

MLflow and the model lifecycle

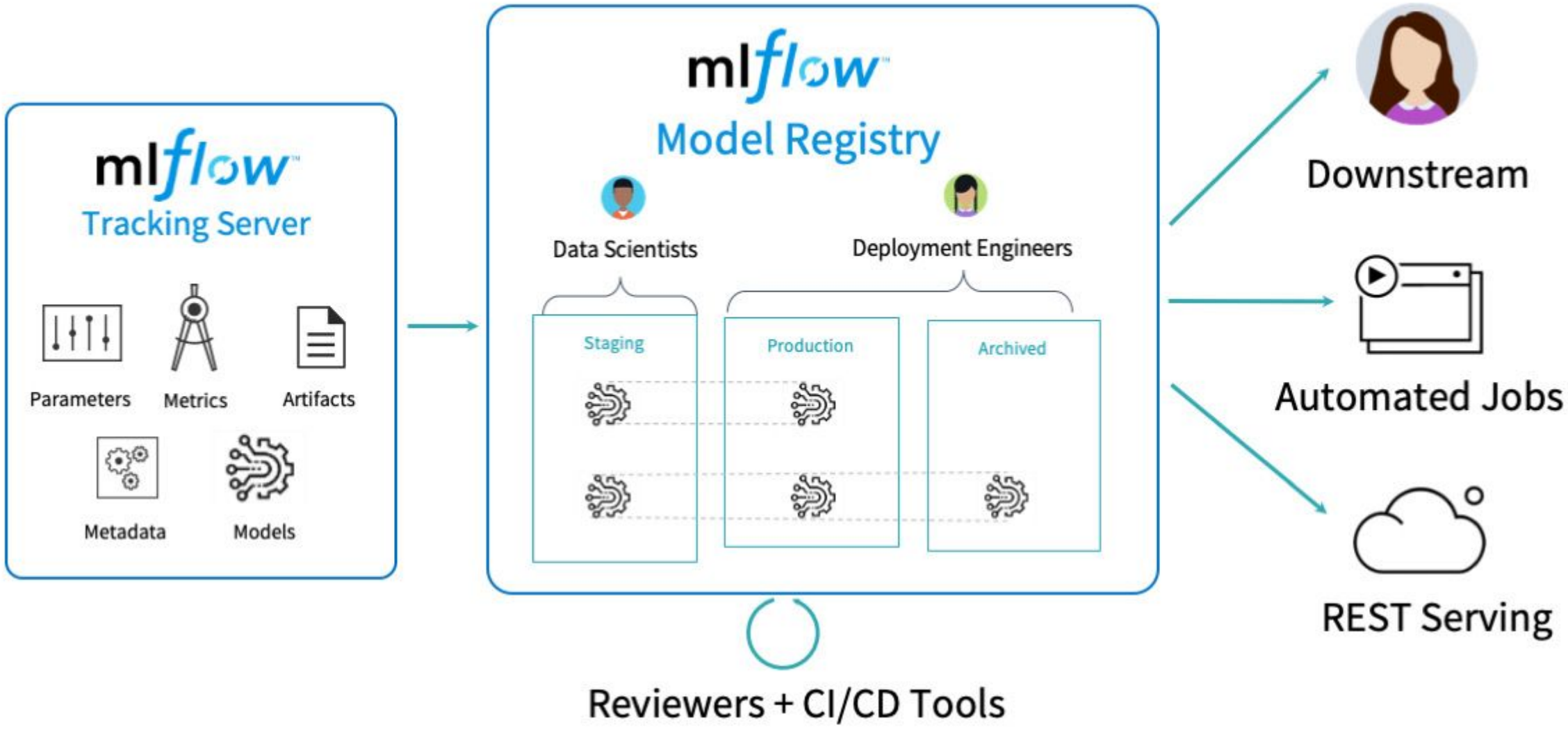
Learning objectives

- Describe the purpose of MLflow.
- Describe how MLflow supports Machine Learning initiatives.

What is MLflow?



An open-source platform for managing the end-to-end machine learning lifecycle.



MLflow Tracking and Autologging

MLflow Models

MLflow Model

The code snippets below demonstrate how to make predictions using the logged model. You can also register it to the model registry to version control and deploy as a REST endpoint for real time serving.

Model schema

Input and output schema for your model. Learn more

Name	Type
Inputs (56)	
state_AK	double
state_AL	double
state_AR	double
state_AZ	double
state_CA	double
Outputs (1)	
-	Tensor (dtype: float64, shape:

Make Predictions

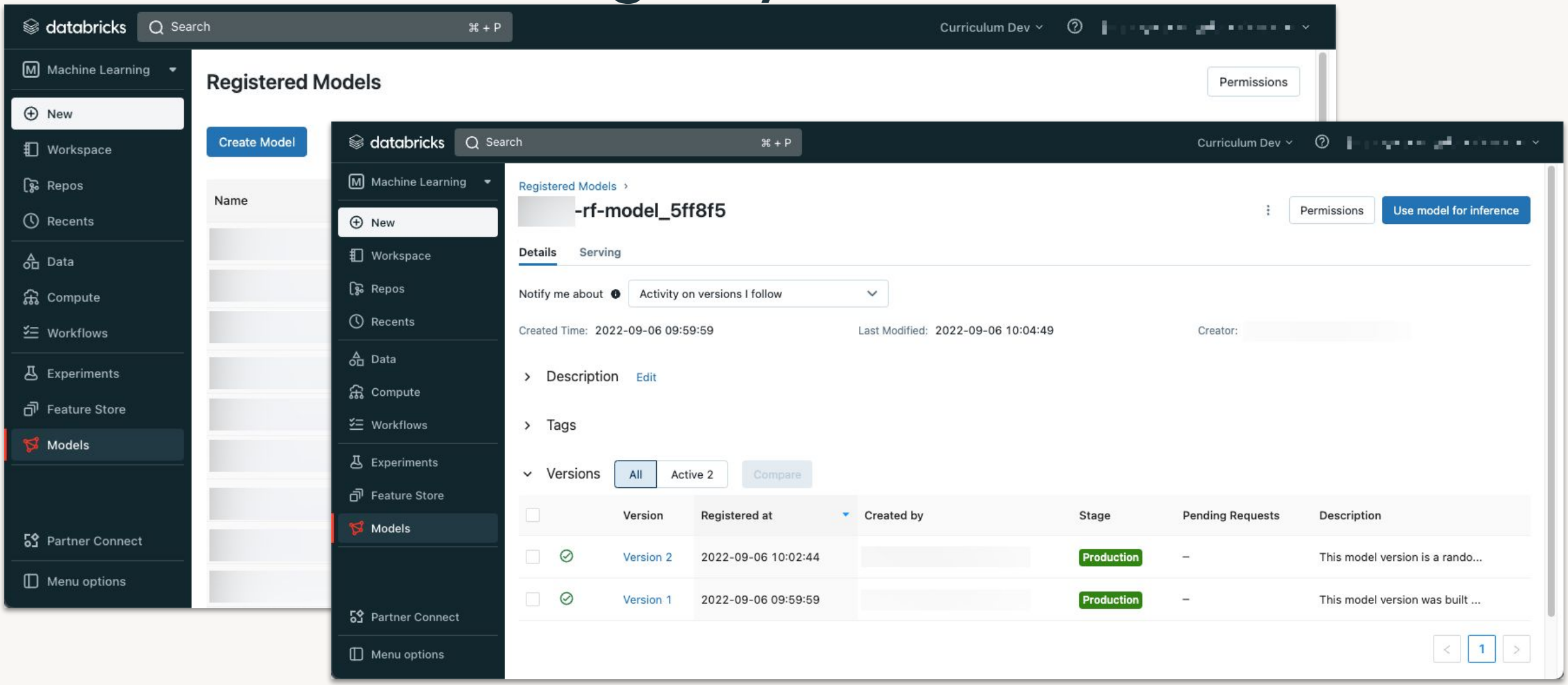
Predict on a Spark DataFrame:

```
import mlflow
from pyspark.sql.functions import struct, col
logged_model = 'runs:/8ccea8bc64504eb29bc0786b9d230d6e/model'

# Load model as a Spark UDF. Override result_type if the model does not return double value
s.
loaded_model = mlflow.pyfunc.spark_udf(spark, model_uri=logged_model, result_type='double')

# Predict on a Spark DataFrame.
df.withColumn('predictions', loaded_model(struct(*map(col, df.columns))))
```

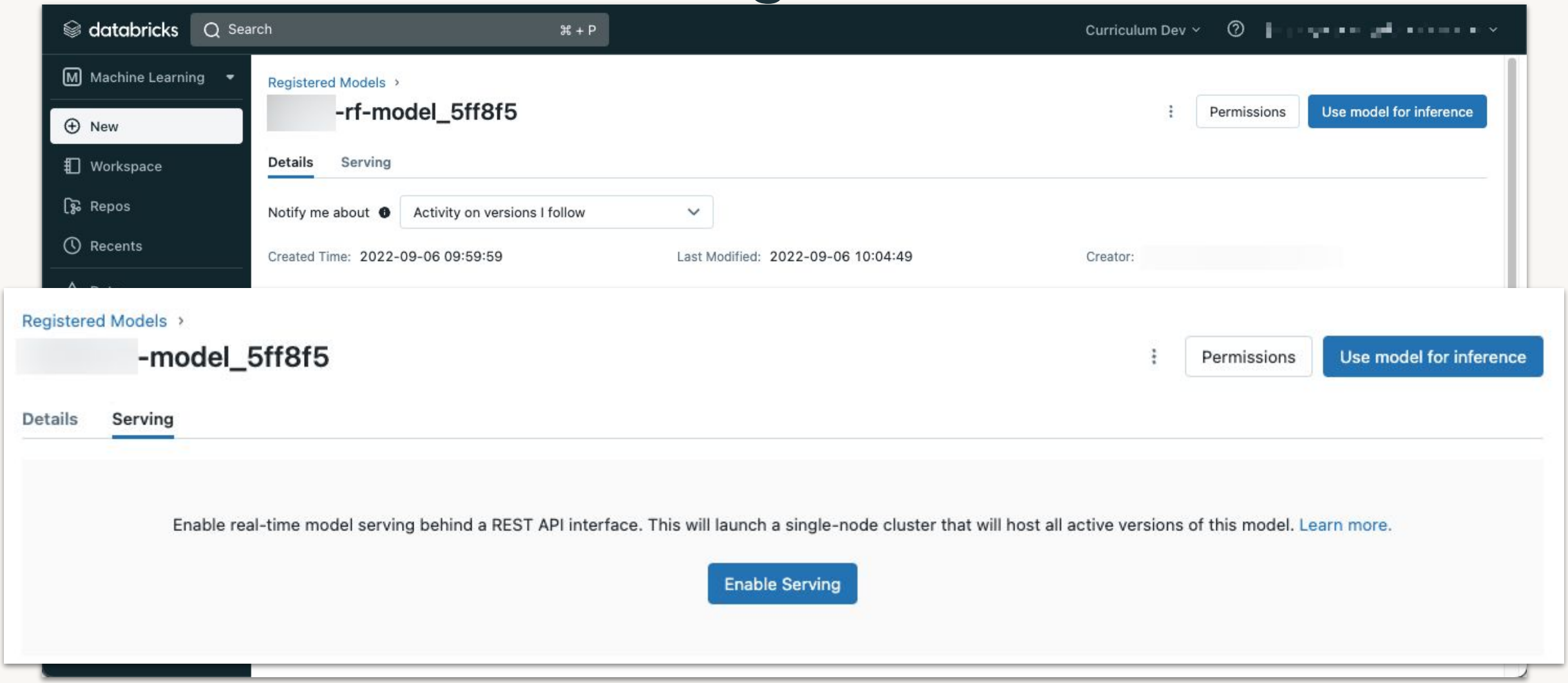
Predict on a Pandas DataFrame:

```
import mlflow
logged_model = 'runs:/8ccea8bc64504eb29bc0786b9d230d6e/model'

# Load model as a PyFuncModel.
loaded_model = mlflow.pyfunc.load_model(logged_model)

# Predict on a Pandas DataFrame.
import pandas as pd
loaded_model.predict(pd.DataFrame(data))
```

MLflow Model Registry



MLflow Model Serving



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Use Model Registry to manage the model lifecycle

Learning objectives

- Use Model Registry to manage the model lifecycle.

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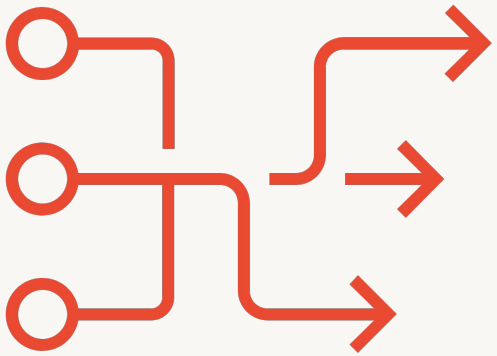
Deploy a model for batch inference

Learning objectives

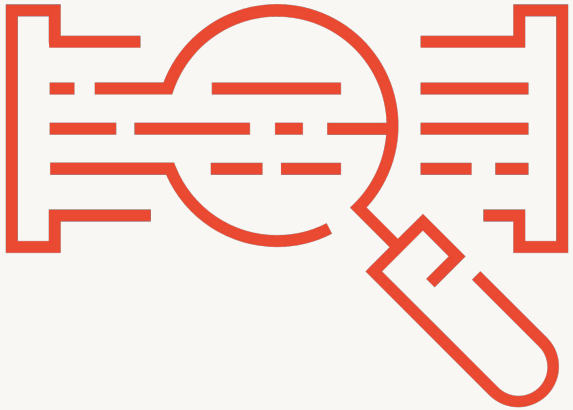
- Use a registered model and feature table to perform batch inference.

Deploying Models to Production

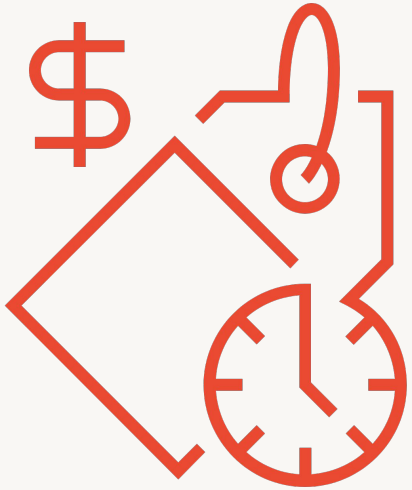
Batch



Streaming



Real-time serving



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Automatic Model Retraining

Learning objectives

- Schedule a model refresh using Databricks Workflows and AutoML.