

Screenshots of MLOPS assignment

Screenshot of mlflow ui

Screenshot of all the experiments

mlflow 1.26.1 Experiments Models GitHub Docs

Experiments + < Lead_scoring_model_experimentation Share

Search Experiments

Default Lead_scoring_model... Lead_scoring_mlflow...

Track machine learning training runs in experiments. Learn more

Experiment ID: 1

Description Edit

Refresh Compare Delete Download CSV Start Time All time

Columns Only show differences metrics.rmse < 1 and params.model = "tree" Search Filter Clear

Showing 53 matching runs

	Start Time	Duration	Run Name	User	Source	Version	Models	Metrics
	17 minutes ago		Session Initi...	root	ipykernel...	-	-	AUC Accuracy
	35 minutes ago		Session Initi...	root	ipykernel...	-	-	- -
	39 minutes ago		Session Initi...	root	ipykernel...	-	-	- -
	1 day ago		Session Initi...	root	ipykernel...	-	-	- -
	4 days ago		Session Initi...	root	ipykernel...	-	-	- -

Screenshot of mlflow ui after dropping features

screenshot of all the experiments

mlflow 1.26.1 Experiments Models GitHub Docs

Experiments + < Lead_scoring_mlflow_production Share

Search Experiments

Default Lead_scoring_mlflow...

Track machine learning training runs in experiments. Learn more

Experiment ID: 1

Description Edit

Refresh Compare Delete Download CSV Start Time All time

Columns Only show differences metrics.rmse < 1 and params.model = "tree" Search Filter Clear

Showing 1 matching run

	Start Time	Duration	Run Name	User	Source	Version	Models	Metrics
	28 seconds ago	5.0s	run_LightGB	root	airflow	-	LightGBM/1	auc 0.71

screenshot of one experiments with all the artifacts visible

mlflow1.26.1

ExperimentsModels

GitHubDocs

Lead_scoring_mlflow_production>run_LightGB

run_LightGB

Date: 2023-01-17 18:50:54

Source: airflow

User: root

Duration: 4.3s

Status: FINISHED

Lifecycle Stage: active

DescriptionEdit

Parameters (20)

Metrics (13)

Tags

Artifacts

models

MLmodel

conda.yaml

model.pkl

python_env.yaml

requirements.txt

Full Path: /home/Assignment/mlruns/1/a0f7cbd73c7f4653be777b2d3bfebd6c/artifacts/models

LightGBM, v5Registered on 2023/01/17

MLflow Model

The code snippets below demonstrate how to make predictions using the logged model. This model is also registered to the model registry.

Model schema

Input and output schema for your model. Learn more

Name	Type
logged_model	str

Make Predictions

Predict on a Spark DataFrame:

```
import mlflow
logged_model = 'runs:/a0f7cbd73c7f4653be777b2d3bfebd6c/model1s'
```

notebooks.jarvislabs.ai:10961/#/

Metrics

- Parameters (20)
- Metrics (13)

Name	Value
False Negative	853
Precision	0.707
Precision_0	0.737
Precision_1	0.683
Recall	0.71
Recall_0	0.641
Recall_1	0.773
True Negative	2395
f1 score	0.705
f1_0	0.686

Artifacts

Tags

Artifacts

models

MLmodel

conda.yaml

model.pkl

python_env.yaml

requirements.txt

Full Path:/home/Assignment/mlruns/1/a0f7cbd73c7f4653be777b2d3bfebd6c/artifacts/models/MLmodel

Size: 434B

artifact_path: models

flavors:

python_function:

env: conda.yaml

loader_module: mlflow.sklearn

model_path: model.pkl

python_version: 3.8.12

sklearn:

code: null

pickled_model: model.pkl

serialization_format: cloudpickle

sklearn_version: 0.23.2

mlflow_version: 1.26.1

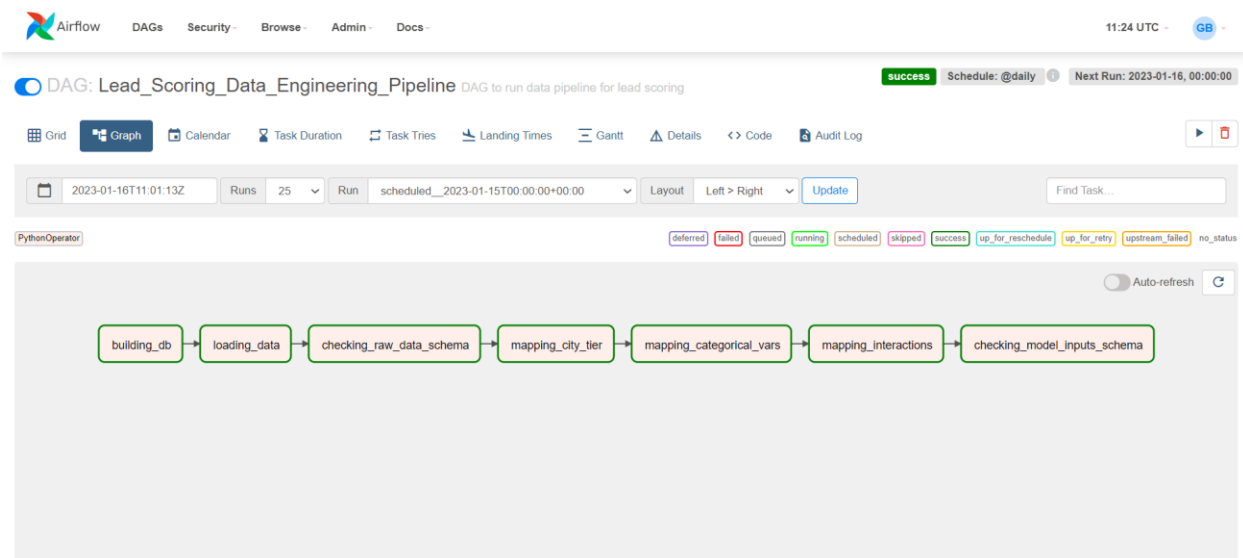
model_uuid: 15d5fd99730f4407adf13631aafa9846

run_id: a0f7cbd73c7f4653be777b2d3bfebd6c

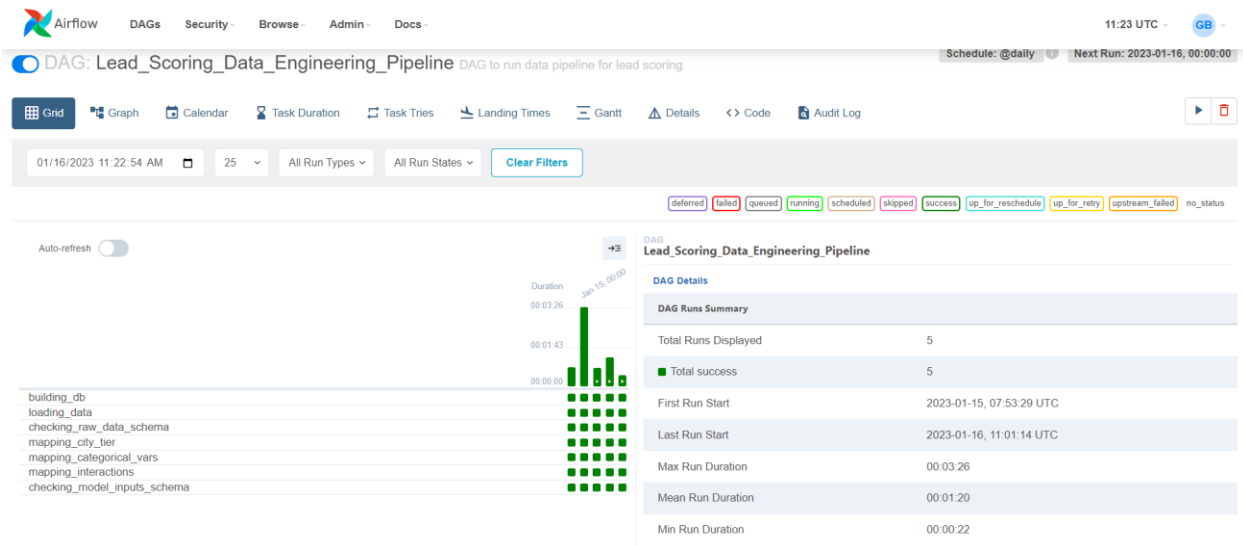
utc_time_created: '2023-01-17 13:20:54.468201'

Create an airflow dag python file for data pipeline

Screenshot of sucessful execution Airflow DAG in graph



Screenshot of Airflow UI grid



Training pipeline

screenshot of experiments with all the artifacts visible

The screenshot shows the mlflow Experiments page for the experiment 'Lead_scoring_mlflow_production'. The interface includes a search bar, a list of runs, and a table of metrics. The runs are sorted by start time, showing three runs: 'run_LightGB' (4.3s), 'run_LightGB' (4.1s), and 'run_LightGB' (5.0s). The table includes columns for Start Time, Duration, Run Name, User, Source, Version, Models, Metrics (False Negative, Precision, Precision_0), and Parameters (boosting_type, class_weight).

Start Time	Duration	Run Name	User	Source	Version	Models	False Negative	Precision	Precision_0	boosting_type	class_weight
2 minutes ago	4.3s	run_LightGB	root	airflow	-	LightGBM/5	853	0.707	0.737	gbdt	None
1 hour ago	4.1s	run_LightGB	root	airflow	-	LightGBM/2	-	-	-	gbdt	None
1 day ago	5.0s	run_LightGB	root	airflow	-	LightGBM/1	-	-	-	gbdt	None

The screenshot shows the mlflow Models page for the model 'run_LightGB'. The interface includes a search bar, a list of models, and a table of metrics. The model is 'run_LightGB' (4.3s), created on 2023-01-17 18:50:54, with a status of 'FINISHED'. The table includes columns for Name, Type, and Make Predictions. The model is registered to the model registry.

Name	Type	Make Predictions
run_LightGB	LightGBM	Predict on a Spark DataFrame:

mlflow1.26.1

ExperimentsModels

GitHubDocs

Registered Models > LightGBM

LightGBM

Created Time: 2023-01-16 17:35:33Last Modified: 2023-01-17 18:54:40

Description

Edit

Tags

Versions

AllActive 1

Compare

<input type="checkbox"/>	Version	Registered at	Created by	Stage	Description
<input type="checkbox"/>	<input checked="" type="checkbox"/> Version 5	2023-01-17 18:50:58		Production	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Version 4	2023-01-17 18:49:32		None	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Version 3	2023-01-17 18:49:19		None	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Version 2	2023-01-17 17:42:25		Archived	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Version 1	2023-01-16 17:35:33		Archived	

<

1

>

screenshot of model registry with model name and stage as 'production'

mlflow1.26.1

ExperimentsModels

GitHubDocs

Registered Models > LightGBM > Version 5

Version 5

Registered At: 2023-01-17 18:50:58Stage: ProductionLast Modified: 2023-01-17 18:54:40

Source Run: run_LightGBM

Description

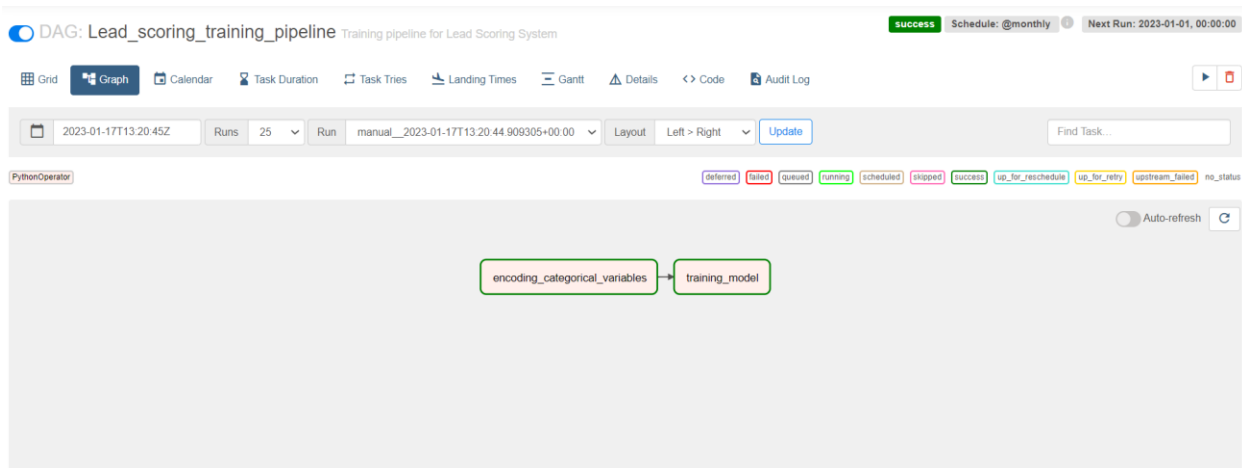
Edit

Tags

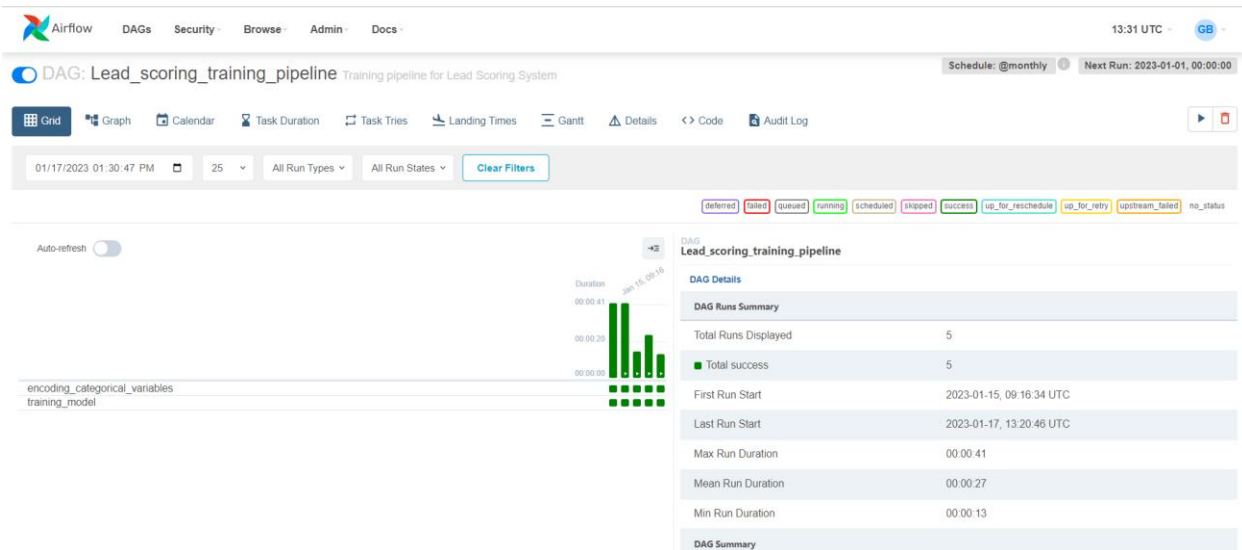
Schema

Name	Type
------	------

Successful execution Airflow DAG in graph

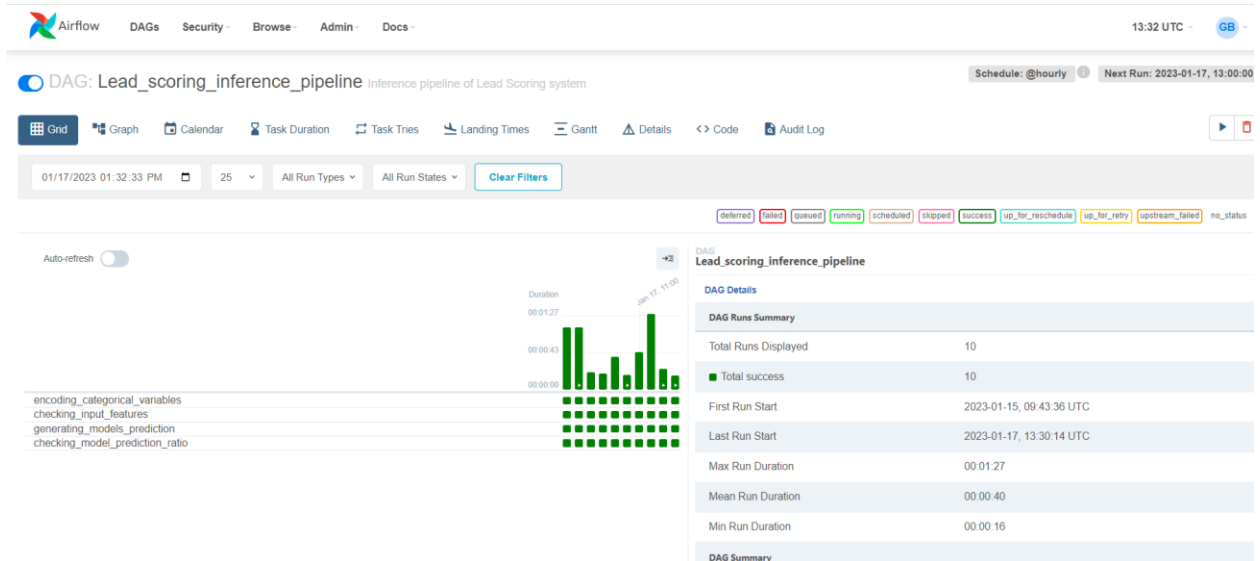


Screenshot of Airflow UI grid

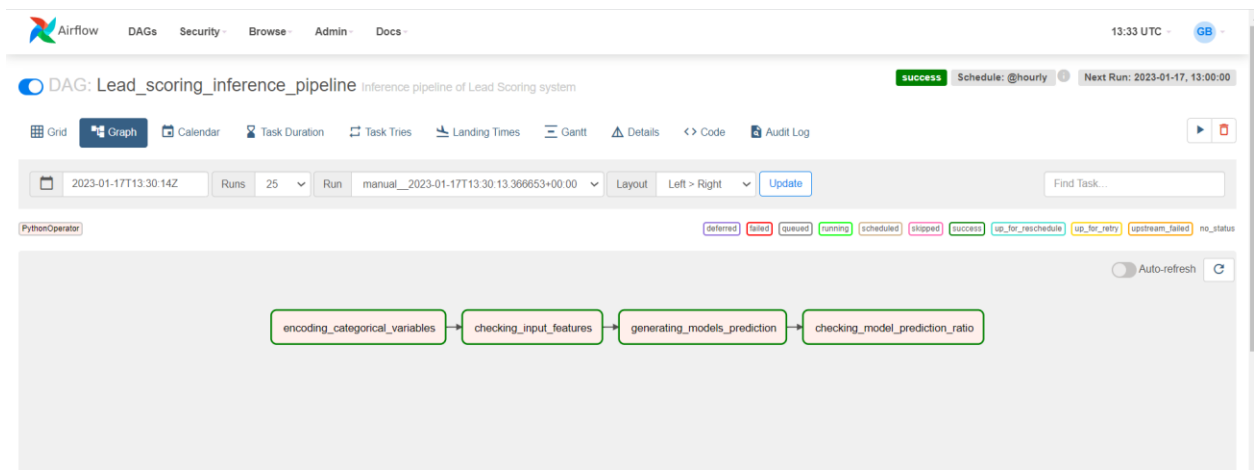



Create an airflow dag python file for inference pipeline

Screenshot of Airflow UI grid



Screenshot of sucessful execution Airflow DAG in graph




Airflow
DAGs
Security
Browse
Admin
Docs
12:21 UTC
GB

Do not use **SQLite** as metadata DB in production – it should only be used for dev/testing. We recommend using Postgres or MySQL. [Click here](#) for more information.

Do not use **SequentialExecutor** in production. [Click here](#) for more information.

DAGs

All 35
Active 3
Paused 32

DAG	Owner	Runs	Schedule	Last Run	Next Run	Recent Tasks
<input checked="" type="checkbox"/> Lead_Scoring_Data_Engineering_Pipeline	airflow	<div><div>7</div></div>	@daily	2023-01-17, 12:19:25	2023-01-17, 00:00:00	<div><div>7</div></div>
<input checked="" type="checkbox"/> Lead_scoring_inference_pipeline	airflow	<div><div>8</div></div>	@hourly	2023-01-17, 12:19:35	2023-01-17, 12:00:00	<div><div>4</div></div>
<input checked="" type="checkbox"/> Lead_scoring_training_pipeline	airflow	<div><div>1</div></div>	@monthly	2023-01-17, 12:11:51	2023-01-01, 00:00:00	<div><div>2</div></div>
<input type="checkbox"/> example_bash_operator	airflow	<div><div></div></div>	0 0 * * *		2023-01-16, 00:00:00	<div><div></div></div>

PyTest

```
root@1cb34673b987:~/Assignment/01_data_pipeline/scripts/unit_test# pytest
===== test session starts =====
platform linux -- Python 3.8.12, pytest-6.2.5, py-1.11.0, pluggy-1.0.0
rootdir: /home/Assignment/01_data_pipeline/scripts/unit_test
plugins: anyio-3.6.1, cov-3.0.0, pythonpath-0.7.4, hypothesis-4.50.8
collected 4 items

test_with_pytest.py .... [100%]

===== 4 passed in 0.64s =====
root@1cb34673b987:~/Assignment/01_data_pipeline/scripts/unit_test#
root@1cb34673b987:~/Assignment/01_data_pipeline/scripts/unit_test#
```