

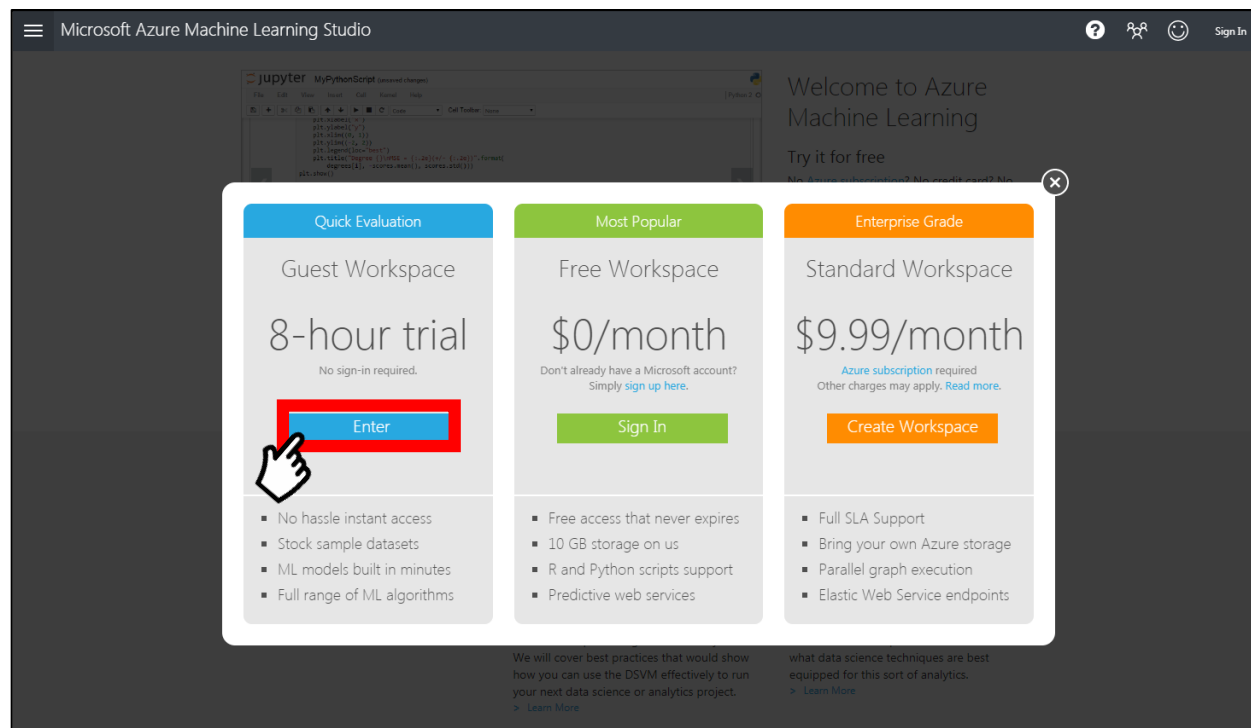
Machine Learning with Microsoft Azure ML Studio

Microsoft Student Partner

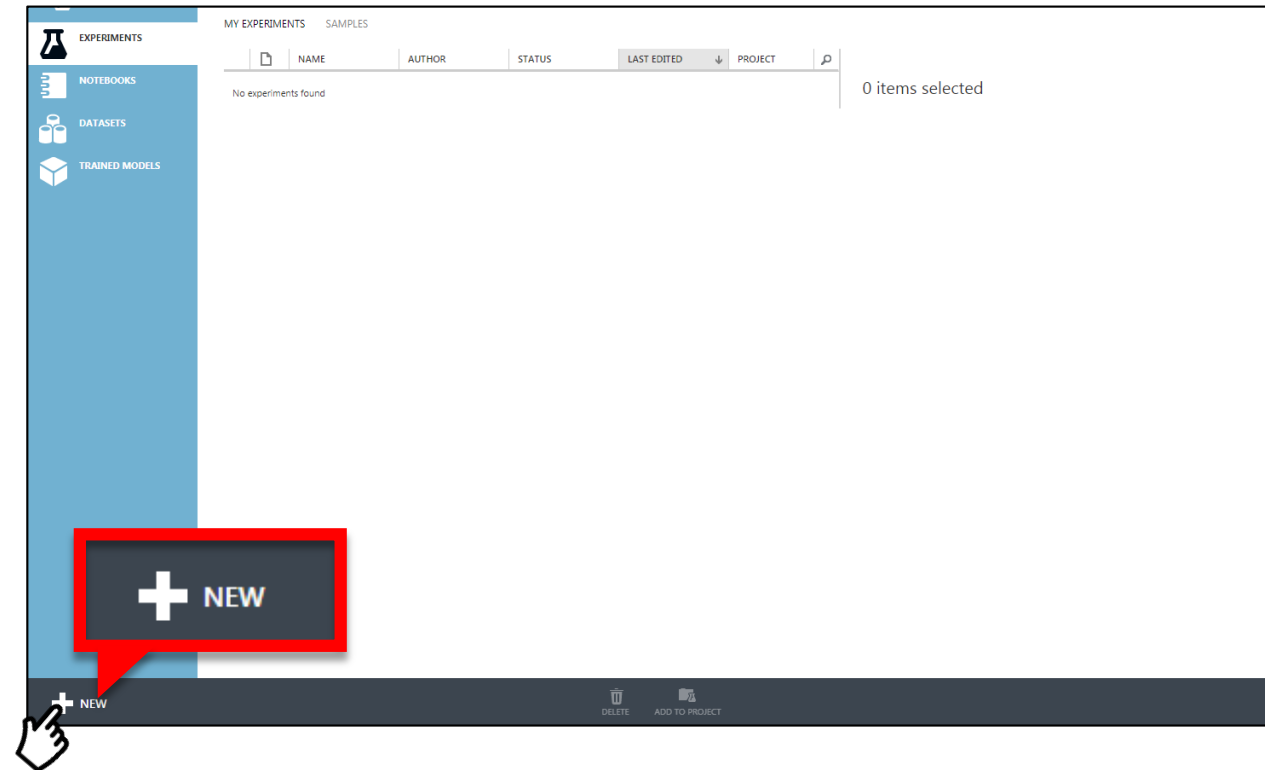
차주연

Start ML Studio

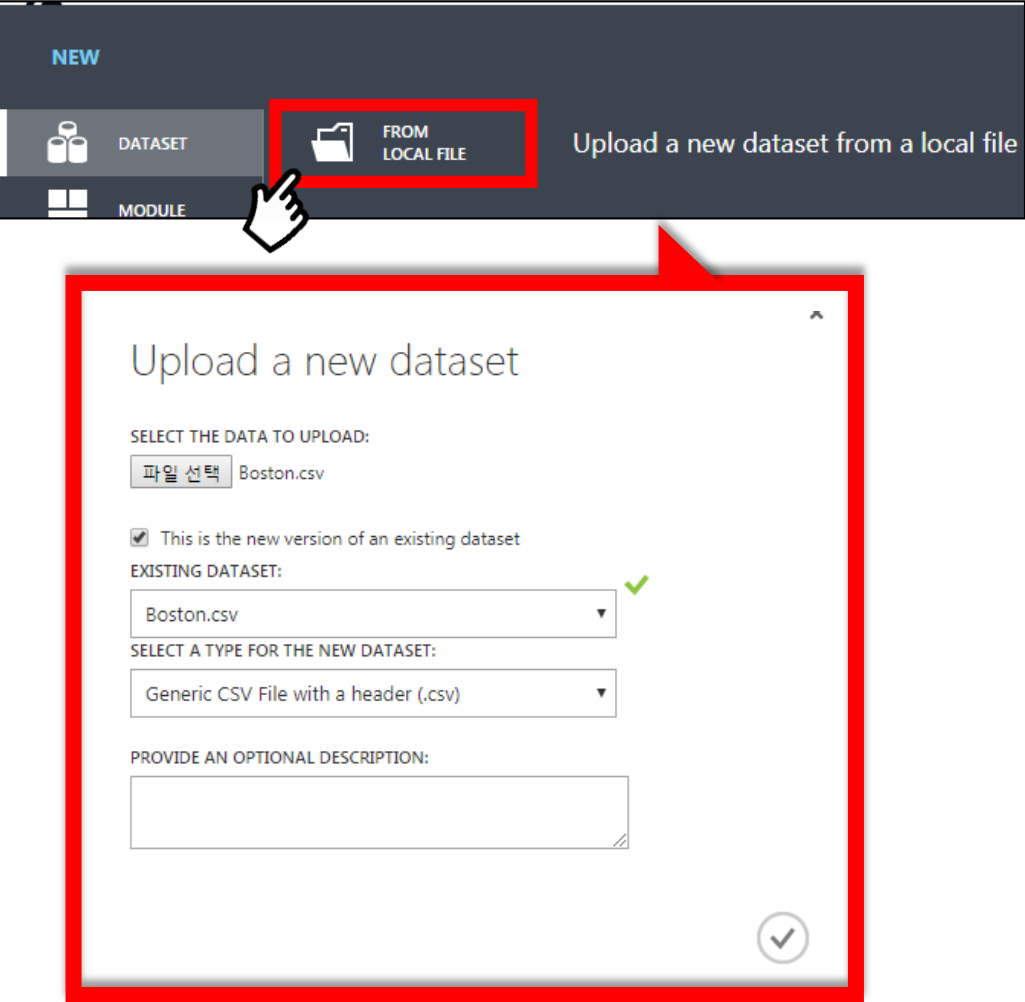
1. Start ML Studio Free trial →
<https://studio.azureml.net/?selectAccess=true&o=1>



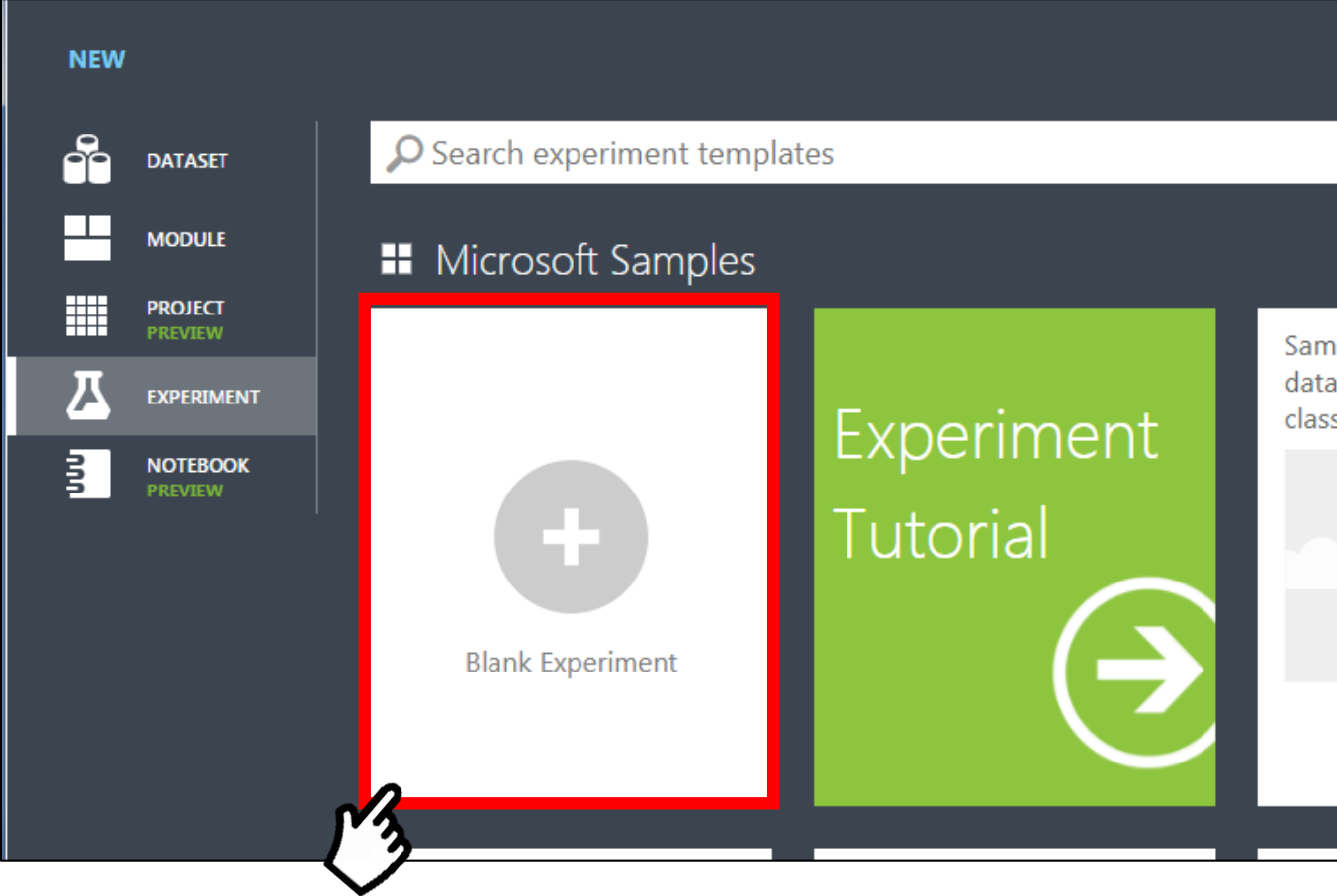
2. Click the NEW button



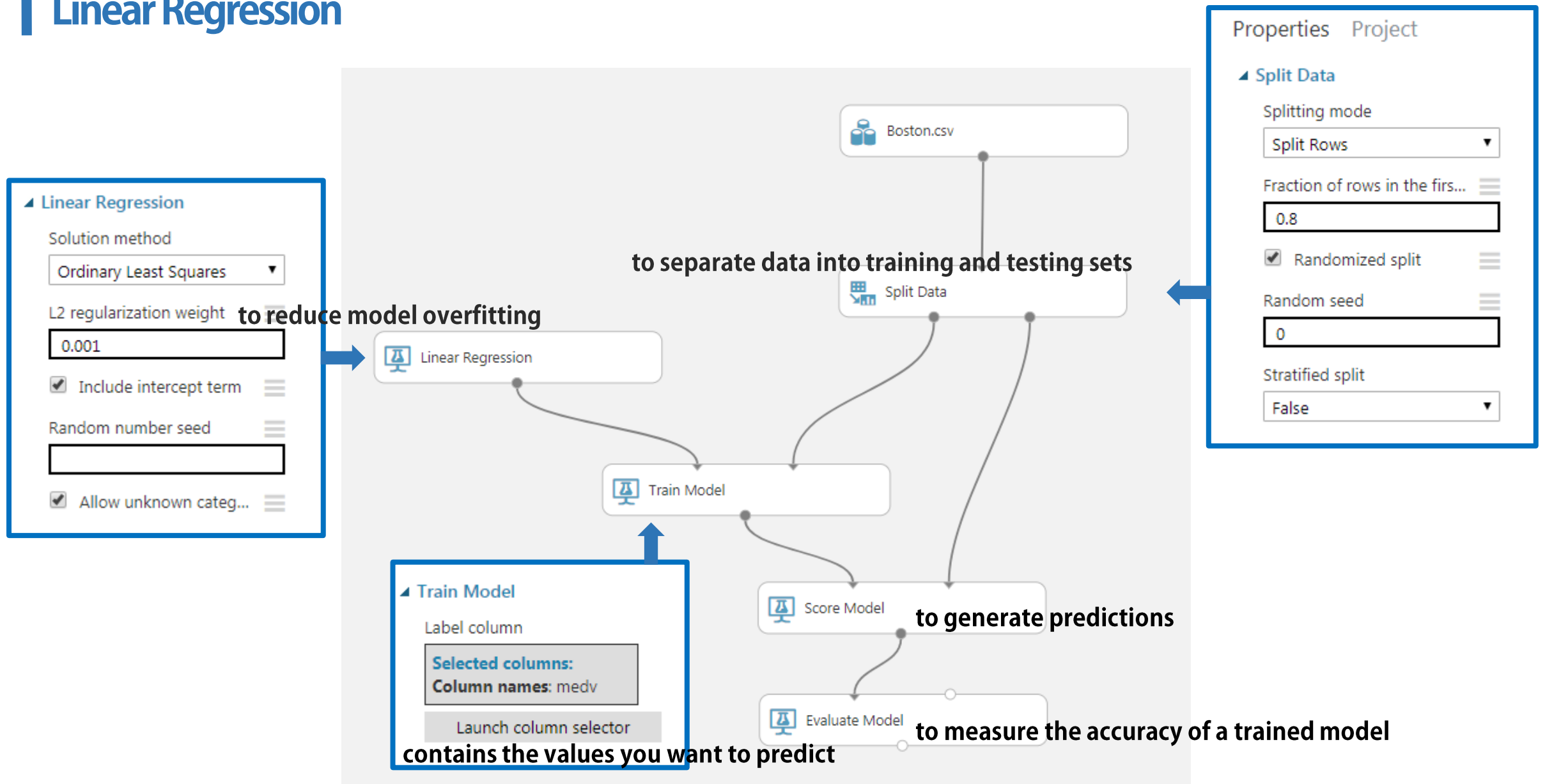
3. Upload a Boston dataset



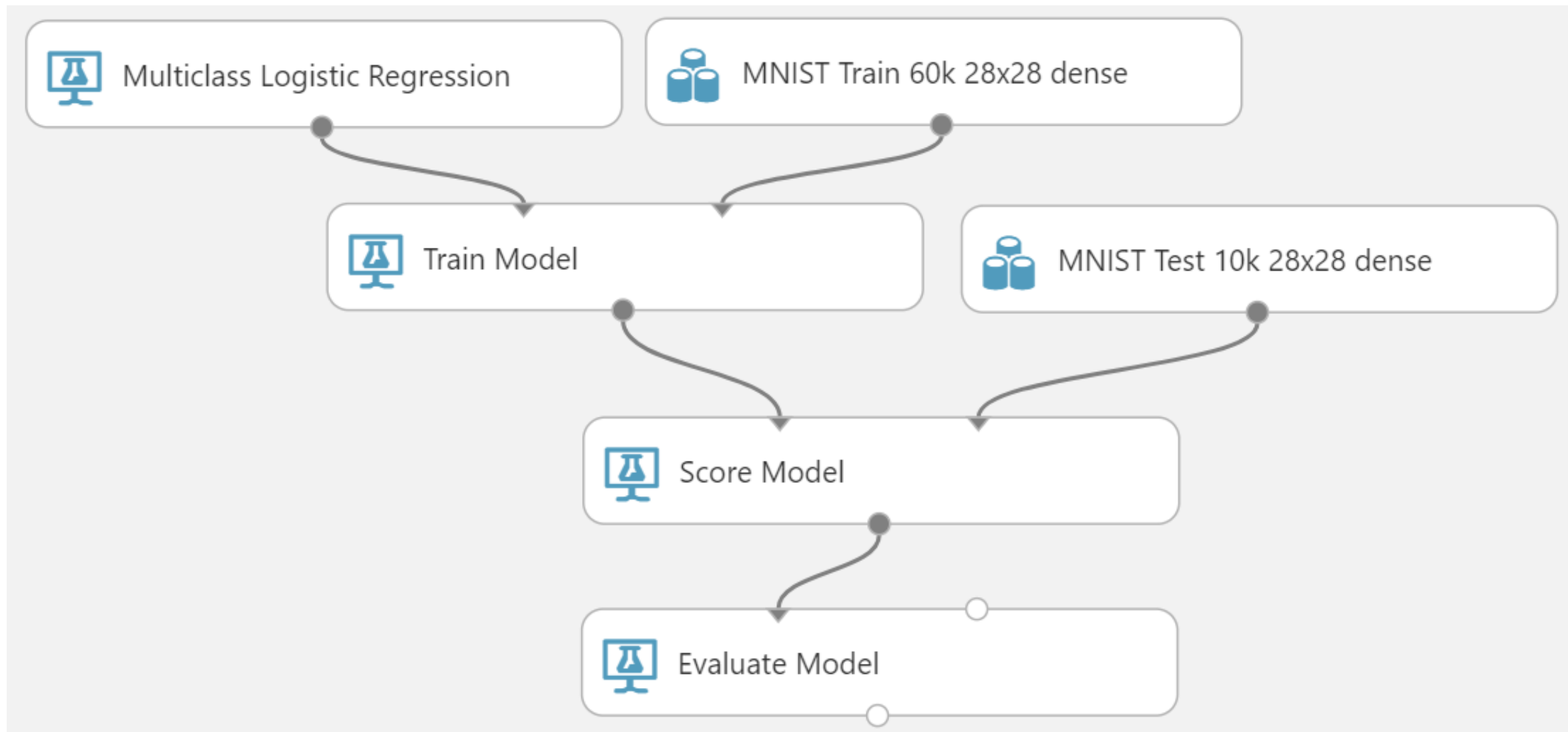
4. Make a Blank Experiment



Linear Regression

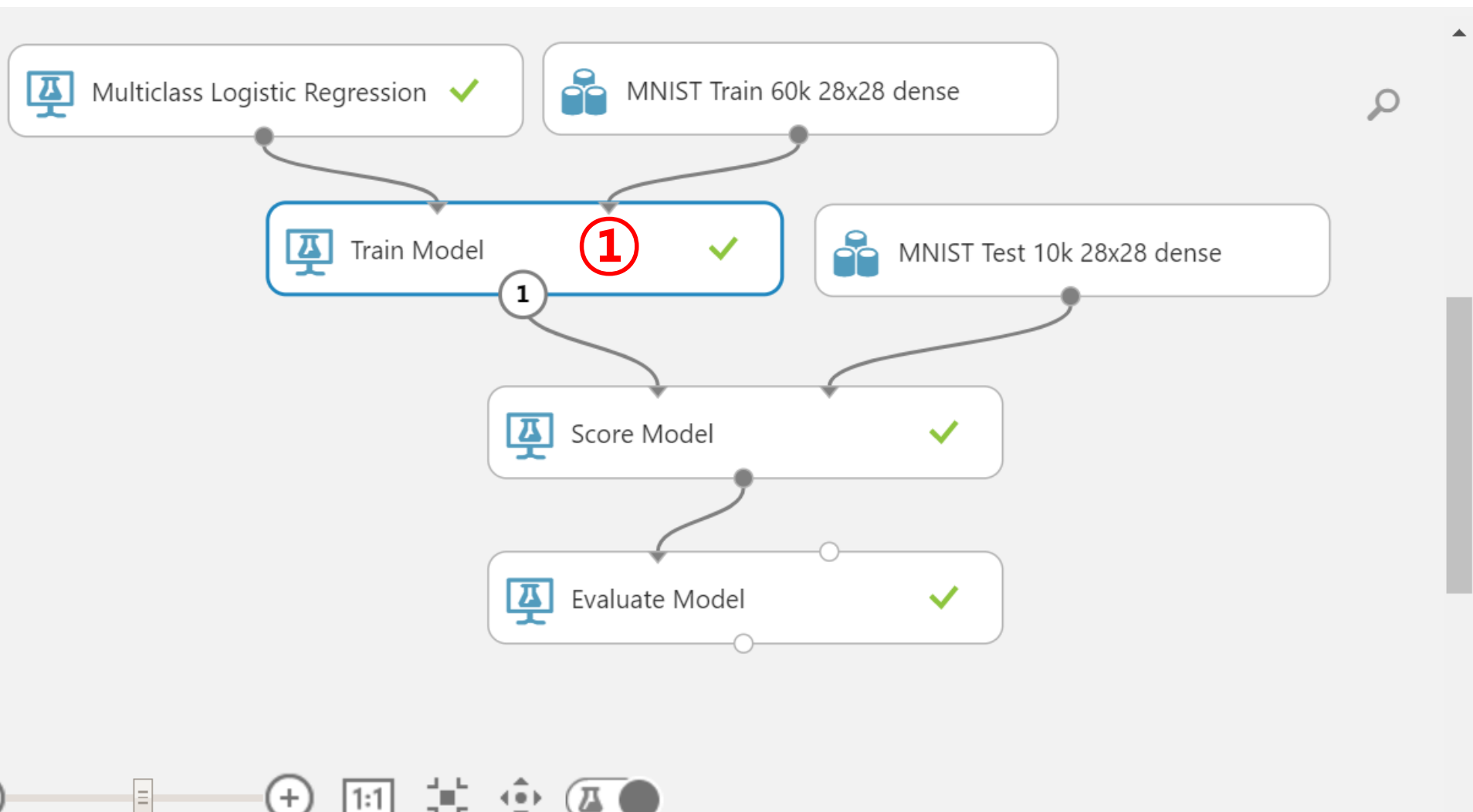


Logistic regression



Logistic regression

Train Model



Train Model

Label column

Selected columns:
Column names: Label

2

Launch column selector

START TIME	11/20/2...
END TIME	11/20/2...
ELAPSED TIME	0:00:00.0...
STATUS CODE	Finished
STATUS DETAILS	Task output was present in

Quick Help

Train a previously created classification or regression model
([more help...](#))

Logistic regression

Train Model

Select a single column

BY NAME

WITH RULES

AVAILABLE COLUMNS

All Types ▼ search columns 🔍

1

Label

f0

f1

f2

f3

f4

f5

f6

f7

f8

f9

f10

f11

f12

f13

...

785 columns available

SELECTED COLUMNS

All Types ▼ search columns 🔍

2

>

<

0 columns selected

3

✓

Logistic regression

Train Model

Select a single column

BY NAME

WITH RULES

AVAILABLE COLUMNS

All Types ▼ search columns 🔍

1

Label

f0

f1

f2

f3

f4

f5

f6

f7

f8

f9

f10

f11

f12

f13

...

785 columns available

SELECTED COLUMNS

All Types ▼ search columns 🔍

2

>

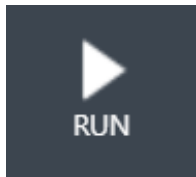
<

0 columns selected

3

✓

Logistic regression 결과 확인

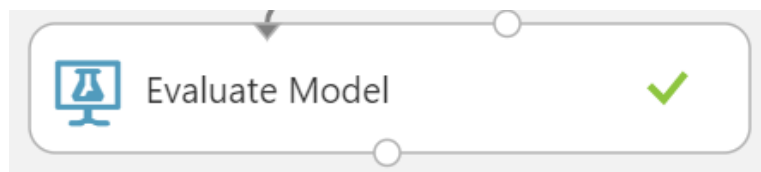


버튼을 누른 후

Finished running ✓

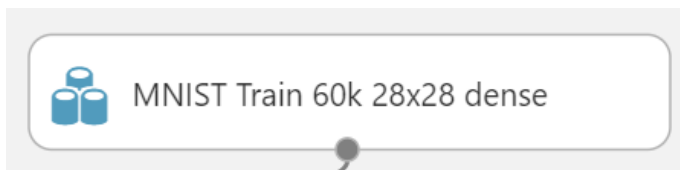
이 뜰 때까지 대기

결과 확인



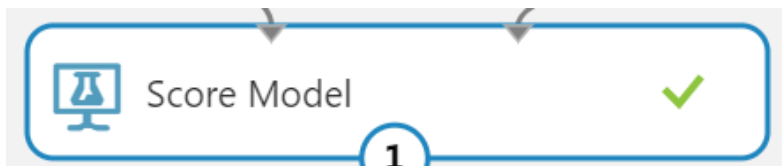
오른쪽 버튼 클릭>Evaluation results>Visualize

참고) MNIST data 확인



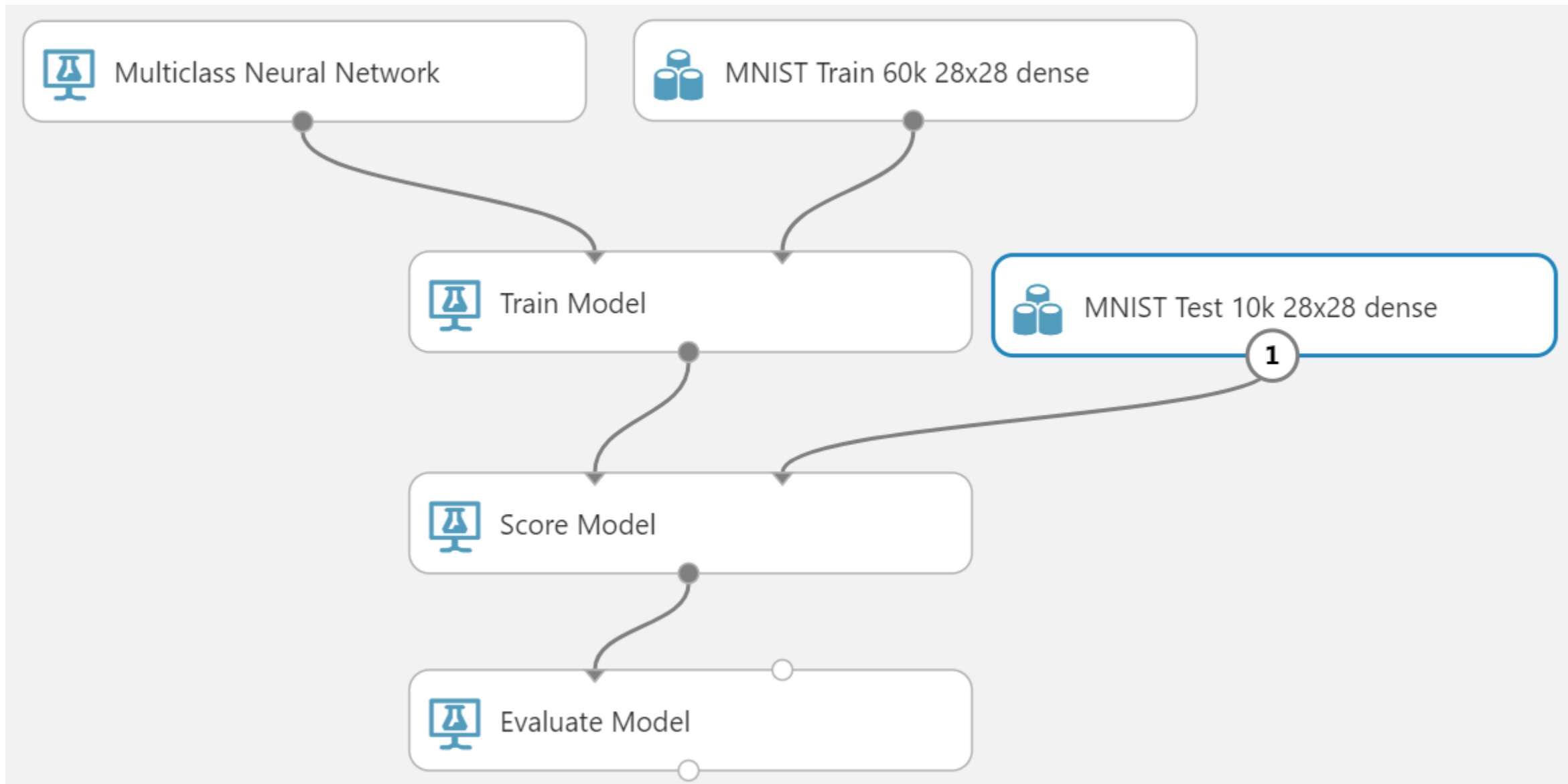
오른쪽 버튼 클릭>dataset>Visualize

참고) f0~f783을 통해 Label을 예측한 결과를 확인



오른쪽 버튼 클릭>Scored dataset>Visualize

Neural Network(1 hidden layer)



Neural Network(1 hidden layer)

Neural Network 설정

Draft saved at 오전 10:26:41

1 Multiclass Neural Network

MNIST Train 60k 28x28 dense

Train Model

Score Model

Multiclass Neural Network

Create trainer mode

Single Parameter

2 Hidden layer specification

Custom definition script

Neural network def...

1

Quick Help

Creates a multiclass classification model using a neural network algorithm
[\(more help...\)](#)

Neural Network(1 hidden layer)

Neural Network 설정

Properties Project

▴ Multiclass Neural Network

Create trainer mode

Single Parameter ▼

Hidden layer specification

Custom definition script ▼

Neural network definition



```
1 input Picture [28,28];  
2 hidden H [100] from Picture all;  
3 output Result [10] softmax from H all;
```

Neural Network(1 hidden layer)

Train Model

Select a single column

BY NAME

WITH RULES

AVAILABLE COLUMNS

All Types

search columns

Label

f0

f1

f2

f3

f4

f5

f6

f7

f8

f9

f10

f11

f12

f13

...

785 columns available

SELECTED COLUMNS

All Types

search columns

>

<

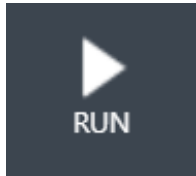
0 columns selected

3

✓

Neural Network(1 hidden layer)

결과 확인

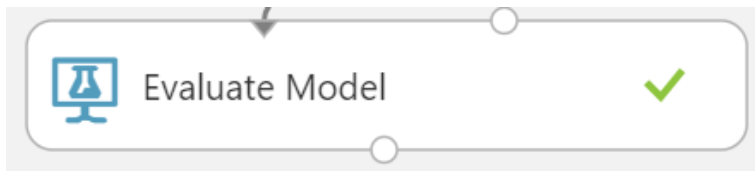


버튼을 누른 후

Finished running ✓

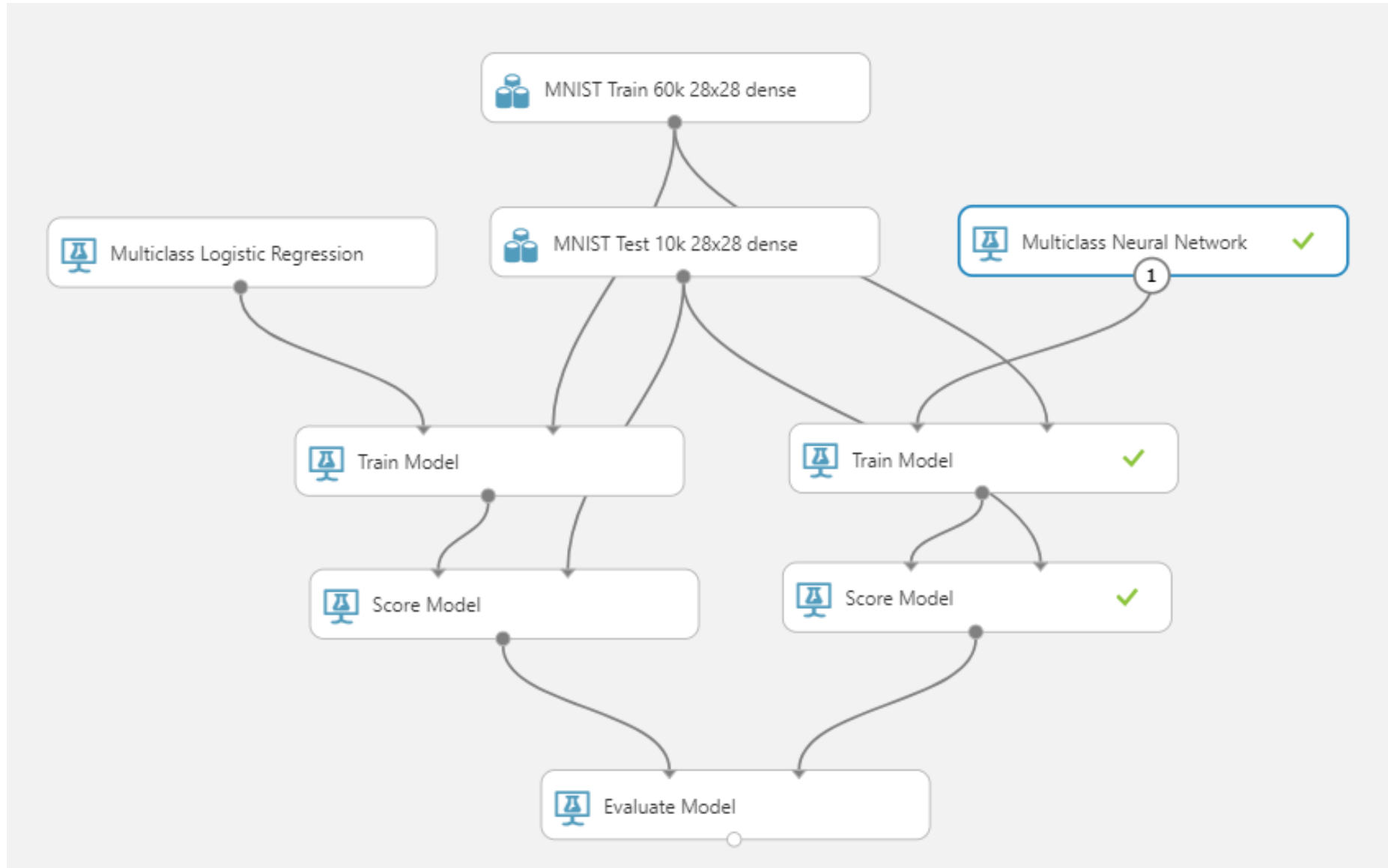
이 뜰 때까지 대기

결과 확인

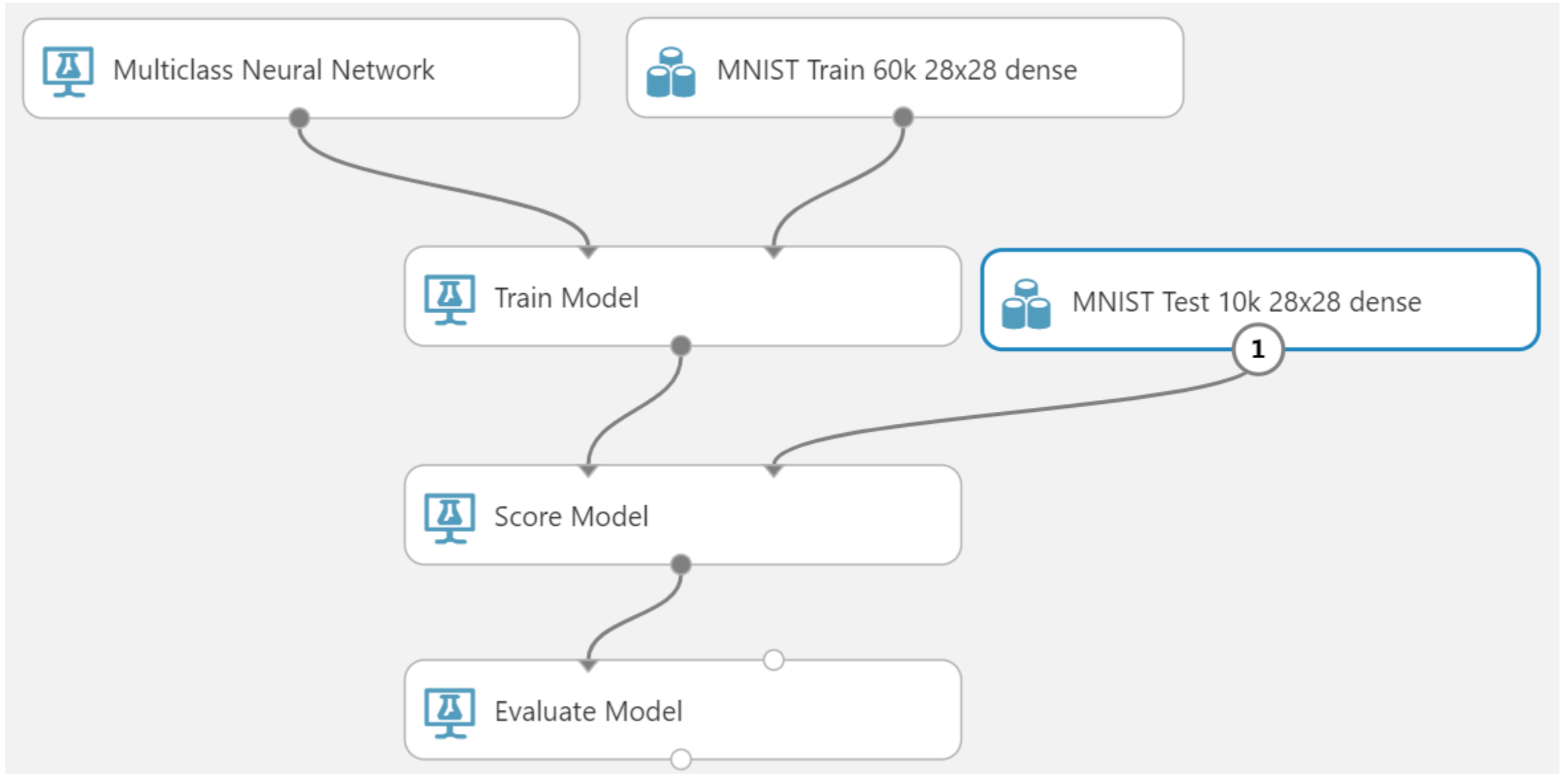


오른쪽 버튼 클릭>Evaluation results>Visualize

Logistic Regression vs Neural Network(1 hidden layer)



Neural Network(2 hidden layers)



Neural Network(2 hidden layers)

Neural Network 설정

Draft saved at 오전 10:26:41

1 Multiclass Neural Network

MNIST Train 60k 28x28 dense

Train Model

Score Model

Multiclass Neural Network

Create trainer mode

Single Parameter

2 Hidden layer specification

Custom definition script

Neural network def...

1

Quick Help

Creates a multiclass classification model using a neural network algorithm
[\(more help...\)](#)

Neural Network(2 hidden layers)

Neural Network 설정

Properties Project

▲ Multiclass Neural Network

Create trainer mode

Single Parameter ▼

Hidden layer specification

Custom definition script ▼

Neural network definition

```
1 input Picture [28,28];  
2 hidden H1 [200] from Picture all;  
3 hidden H2 [200] from H1 all;  
4 output Result [10] softmax from H2 all;
```

Neural Network(1 hidden layer)

Train Model

Select a single column

BY NAME

WITH RULES

AVAILABLE COLUMNS

All Types

search columns

Label

f0

f1

f2

f3

f4

f5

f6

f7

f8

f9

f10

f11

f12

f13

...

785 columns available

SELECTED COLUMNS

All Types

search columns

>

<

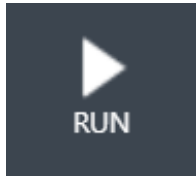
0 columns selected

3

✓

Neural Network(1 hidden layer)

결과 확인

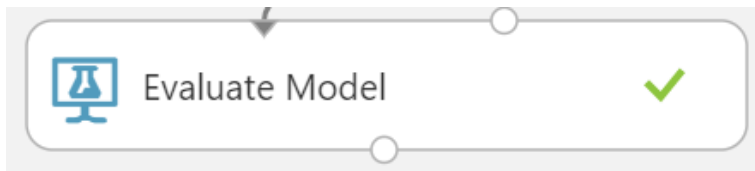


버튼을 누른 후

Finished running ✓

이 뜰 때까지 대기

결과 확인



오른쪽 버튼 클릭>Evaluation results>Visualize

감사합니다😊