Eastern Analytics, Inc

We Are Data Analytics People

EASTERN ANALYTICS
SYSTEMS, SOLUTIONS & SERVICES

+1 (781) 783-7610

https://eastern-analytics.us

PREDICTING THE FUTURE

COMBINING MICROSOFT POWER BI & AZURE ML FOR ACCURATE FORECASTING

January 11, 2023

Microsoft

EASTERN ANALYTICS
SYSTEMS, SOLUTIONS & SERVICES

About Us

Eastern Analytics' architects have been building platforms and helping customers unlock the true value of data for over 25 years.

We specialize in Microsoft Analytics, Azure AI/ML and Power BI.

What Sets Eastern Analytics Apart From the Rest?

1

We have extensive experience

in all aspects of business intelligence (BI) and Machine Learning (ML).

2

Our functional knowledge

allows us to understand your sources and requirements to build solutions that meet your needs .

3

Our technical knowledge

allows us to design systems that are robust, flexible, and secure - helping you maximize ROI for years to come.

Our Services

- Solution Architecture
- Azure AI & Machine Learning
- Dashboards & Visualizations
- Data Engineering
- Technology Advisory
- Staff Augmentation

About Us

Scott Pietroski

As Eastern Analytics' founding partner, Scott's focus is Solution Architecture, customer engagement and project delivery.

Scott.Pietroski@eastern-analytics.us

Kerrilee Pietroski

Kerrilee is Eastern Analytics' Director of Marketing & Communications, leading strategic marketing initiatives and corporate communications.

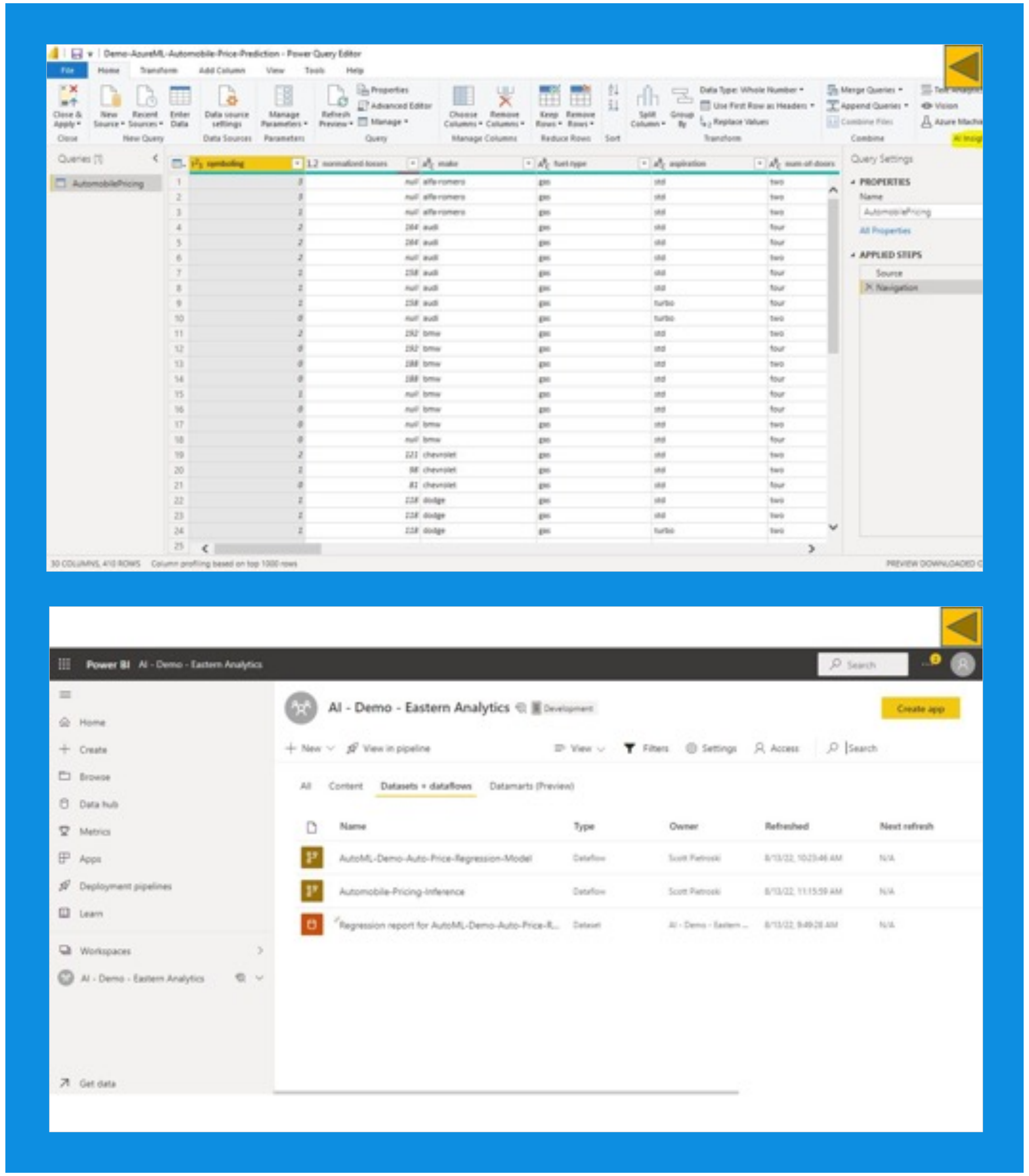
Kerrilee.Pietroski@eastern-analytics.us

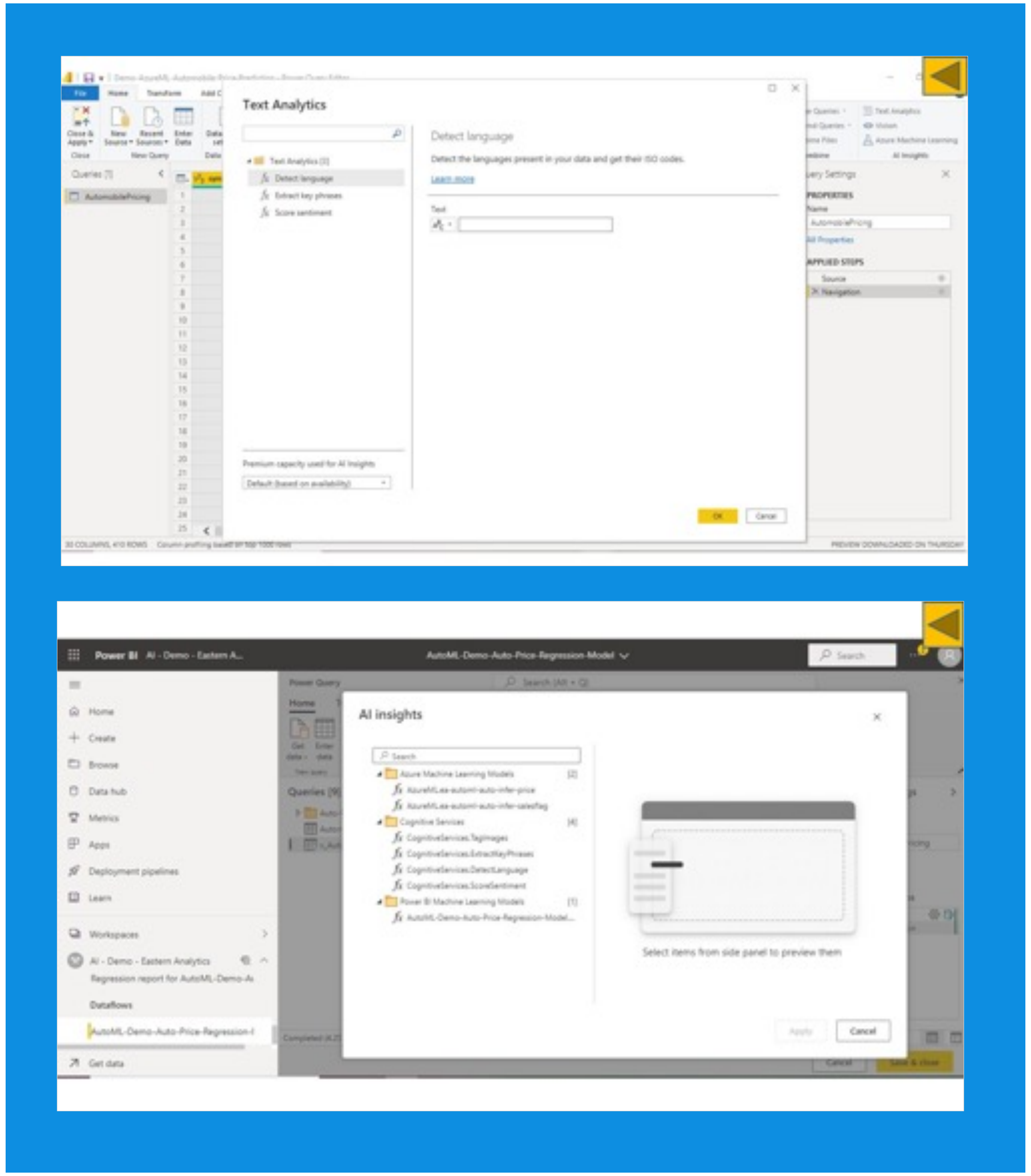
Today’s Presentation:

- Overview of Microsoft Power BI & Azure ML
- Azure ML– Predict automobile Prices – multiple regression using Auto ML
- Display simple use case while consuming the model in Power BI
- Azure ML – Predict Beer/Wine demand -time series forecast
- Consumption of the model in Power BI
- Considerations when designing a reliable forecasting model
- Q&A

Power BI Desktop & Service

- **Two flavors of PBI available**
  - **PBI Desktop** – Stand-alone application, development work stored locally
  - **PBI Service** – A web service similar to PBI Desktop + web-publishing and access control capabilities.
  - **AI/ML Integration** – Both the desktop and the web service allow consumption of Azure ML models.



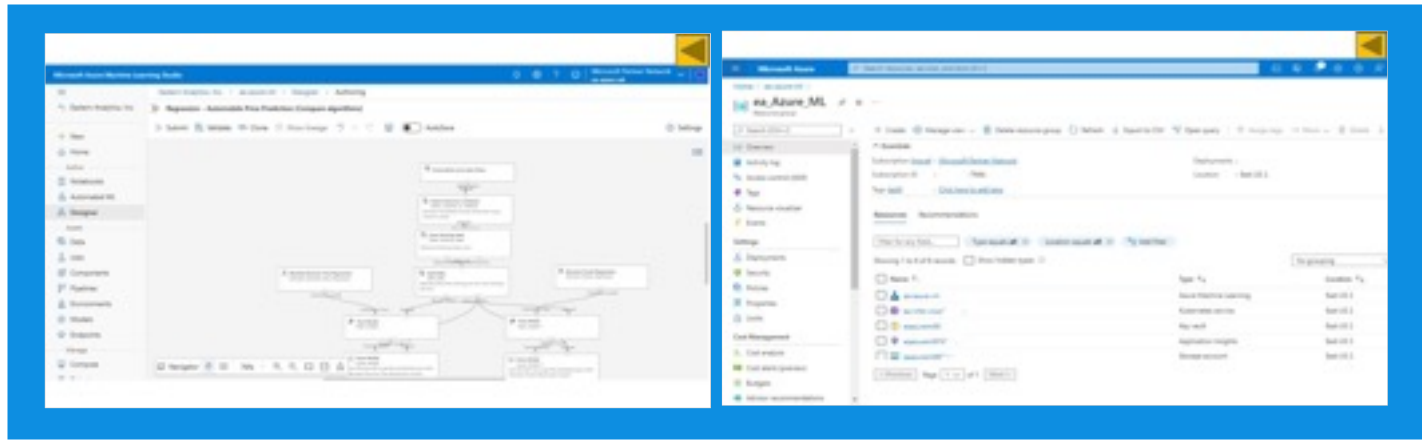


AI/ML Consumption in PBI

Things to Know – Using Power Query

- **Wizard Based –** System Automatically suggests column mappings based on target data types
- **Data Preparation** – Inference data goes thru the same data guardrail and preparation steps that were applied to the training set

Azure ML – You can consume/apply any ML model created on the Azure ML platform.



Azure ML – High Level

Functional

- A stand-alone environment for machine learning
- Seamless integration with Power BI
- Includes Auto ML functionality and an entire toolkit for building and deploying ML models
- It is an ML platform, designed for Enterprise level ML. GUI or code driven
- Provides a framework of common data science tools (Jupyter notebooks etc.)

Technical

- Data volume/size is unlimited
- All data is stored in your own ADLS storage account
- Access Control: Role Based Authorizations
- Model retraining orchestrated thru the Azure Data Factory

Example 1: Auto Sales Forecast – The Datasets

Training Data – Historical Sales

Features						
YearSold	ZipCode(3)	Make	Model	ModelYear	Milage	Price
2020	460	Subaru	Legacy	2001	91369	$2,150.00
2019	460	Subaru	Legacy	2005	193737	$1,180.00
2019	460	Subaru	Legacy	2007	174236	$3,250.00
2019	460	Subaru	Outback	2011	93517	$7,750.00
2019	460	Subaru	Tribeca	2007	140673	$3,530.00
2020	460	Honda	Odyssey	2005	214091	$790.00

Inference Set – We want to predict Price

	Features						
ID	ZipCode(3)	Make	Model	ModelYear	Milage	ListPrice	Price
1	460	Subaru	Legacy	2001	91369	1800	?
2	460	Subaru	Legacy	2005	193737	700	?
3	460	Subaru	Legacy	2007	174236	2500	?
4	460	Subaru	Outback	2011	93517	7700	?
5	460	Subaru	Tribeca	2007	140673	3500	?
6	460	Honda	Odyssey	2005	214091	500	?

Data Source: Kaggle – Ebay Used Car Sales. Data staged in Azure SQL Database

Example 1: Auto Sales Forecast – Multiple Linear Regression

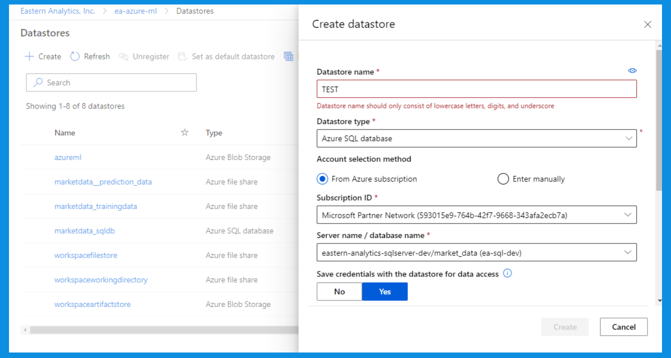
Azure ML

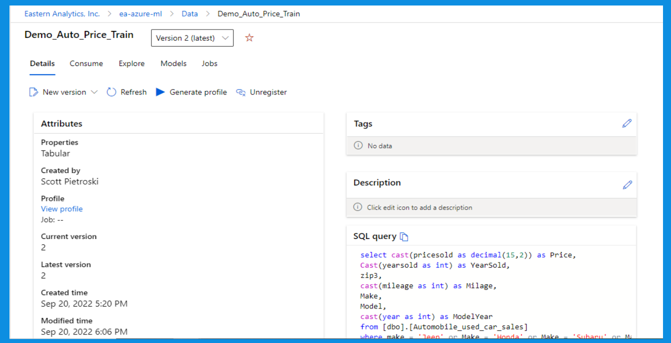
Auto ML: Supervised Machine Learning Problem

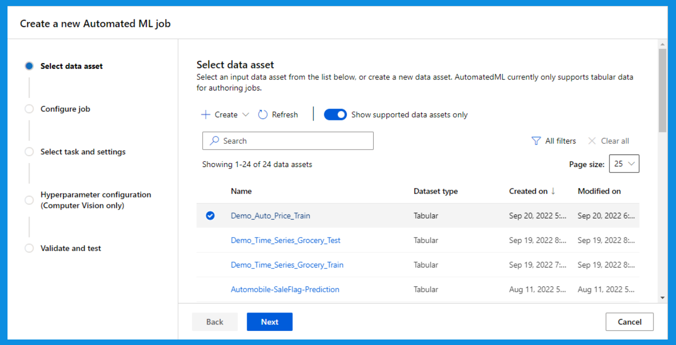
1. Connect Azure ML to a Data Store
2. Register a Data Asset (Training Set)
3. Create new Automated ML Job
4. Review job results
5. Publish a model

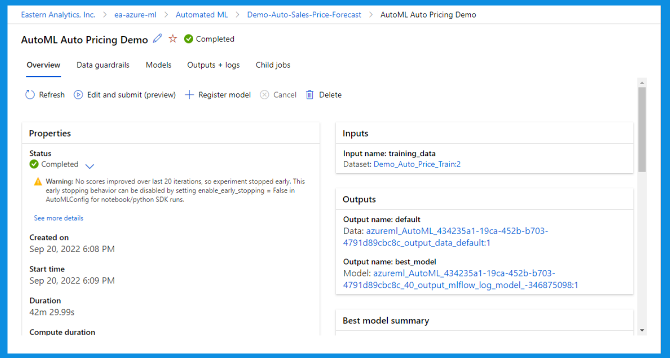
Data Source: Kaggle – Ebay Used Car Sales

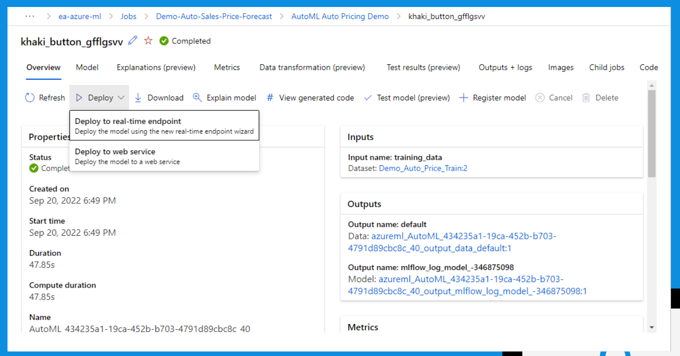
*Data pre-staged in Azure SQL Database

1


2


3


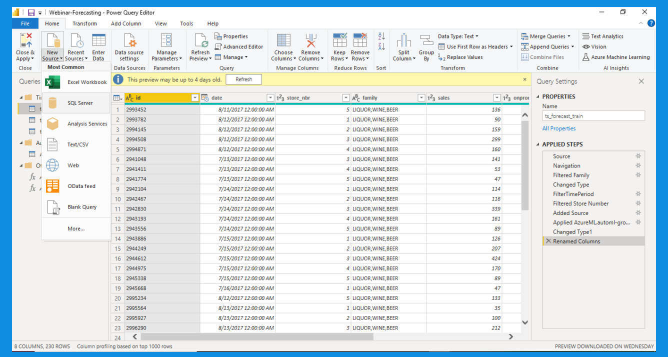
4


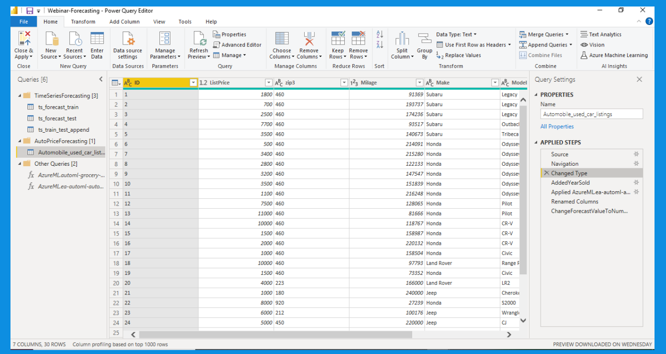
5


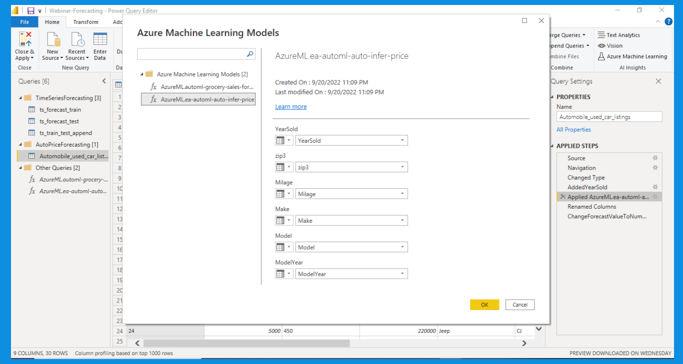
Example 1: Auto Sales Forecast – Power BI Consumption

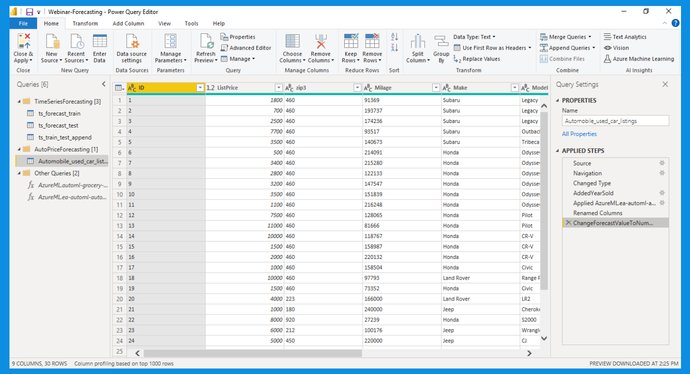
Power BI

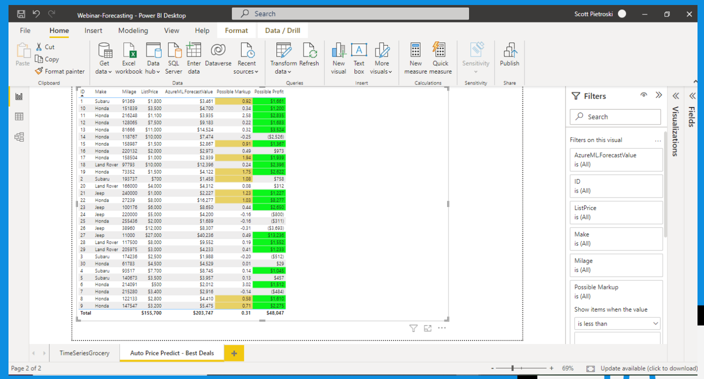
1. Connect Power BI to Inference Set
2. Power Query - type fields for alignment with ML Model
3. Power Query – assign ML model to data set
4. Power Query – assign proper types for reporting
5. Consume your data on a Power BI Reporting screen


1


2


3


4


5

Example 2: Time Series Forecast – The Datasets

Training Data – Historical Sales

Features				
date	store_nbr	family	OnPromotion	Sales
1/1/2013	1	LIQUOR,WINE,BEER	0	$0.00
1/2/2013	1	LIQUOR,WINE,BEER	0	$67.00
1/3/2013	1	LIQUOR,WINE,BEER	0	$66.00
1/4/2013	1	LIQUOR,WINE,BEER	0	$102.00
1/5/2013	1	LIQUOR,WINE,BEER	2	$159.00
1/6/2013	1	LIQUOR,WINE,BEER	3	$0.00
1/7/2013	1	LIQUOR,WINE,BEER	0	$109.00
1/8/2013	1	LIQUOR,WINE,BEER	0	$86.00
1/9/2013	1	LIQUOR,WINE,BEER	3	$104.00
1/10/2013	1	LIQUOR,WINE,BEER	0	$67.00

Testing Data – We want to predict future sales

Features				
date	store_nbr	family	OnPromotion	Sales
1/11/2013	1	LIQUOR,WINE,BEER	3	?
1/12/2013	1	LIQUOR,WINE,BEER	3	?
1/13/2013	1	LIQUOR,WINE,BEER	3	?
1/14/2013	1	LIQUOR,WINE,BEER	0	?
1/15/2013	1	LIQUOR,WINE,BEER	0	?
1/16/2013	1	LIQUOR,WINE,BEER	1	?
1/17/2013	1	LIQUOR,WINE,BEER	0	?
1/18/2013	1	LIQUOR,WINE,BEER	0	?
1/19/2013	1	LIQUOR,WINE,BEER	0	?
1/20/2013	1	LIQUOR,WINE,BEER	0	?

Additional Features?

date	type	locale	locale_name	description
1/1/2013	Holiday	National	Ecuador	Primer dia del ano
1/5/2013	Work Day	National	Ecuador	Recupero puente Nav
1/12/2013	Work Day	National	Ecuador	Recupero puente prir
2/11/2013	Holiday	National	Ecuador	Carnaval
2/12/2013	Holiday	National	Ecuador	Carnaval
3/2/2013	Holiday	Local	Manta	Fundacion de Manta

store_nbr	city	state	type	cluster
1	Quito	Pichincha	D	13
2	Quito	Pichincha	D	13
3	Quito	Pichincha	D	8
4	Quito	Pichincha	D	9

Data Source: Kaggle – Grocery Sales in Ecuador. Data staged in Azure SQL Database

Example 2: Time Series Forecast / Regression

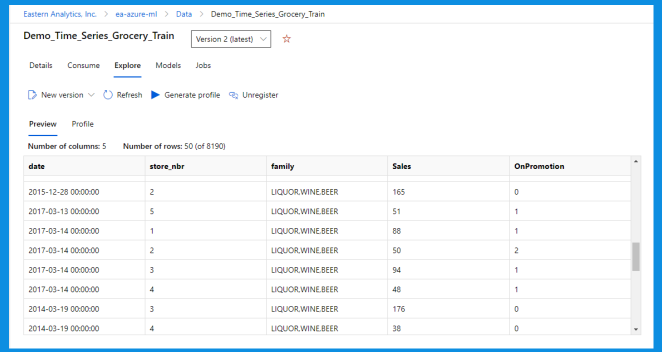
Azure ML

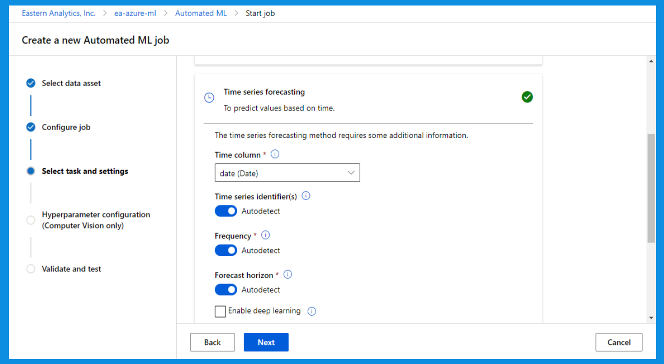
Auto ML: Supervised Machine Learning Problem

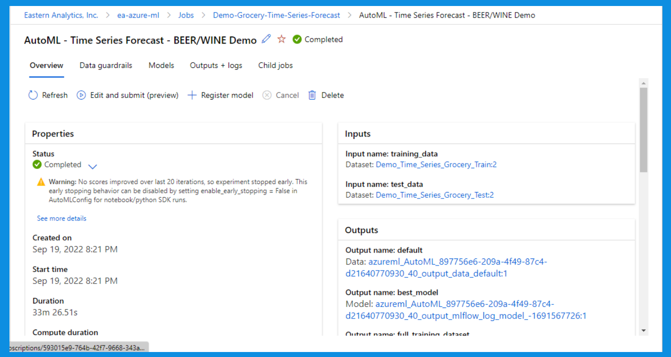
1. Create Data Assets– You want a training set and testing set. Testing set should occur later than training set
2. Create new Automated ML Job
3. Review job results
4. Publish a model

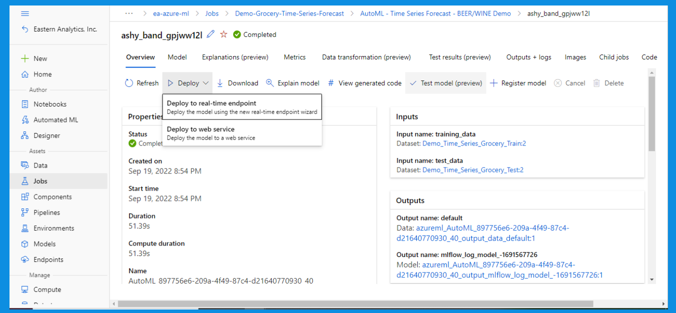
Data Source: Kaggle – Grocery Sales in Ecuador

*Data pre-staged in Azure SQL Database

1


2


3


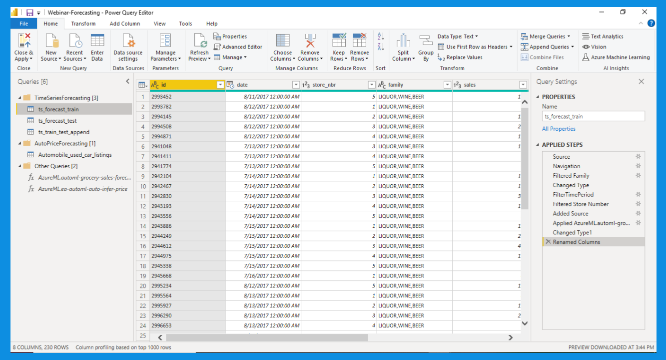
4


Example 2: Time Series Forecast – Power BI Consumption

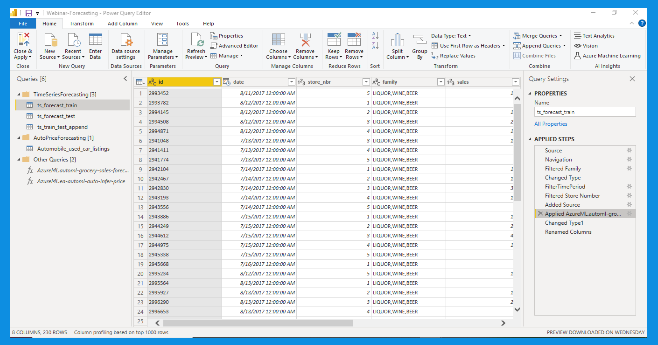
Power BI

1. Connect Power BI to Training and Inference Set
2. Power Query – prep your data for ML model consumption
3. Power Query – assign ML model to both data sets
4. Power Query – create append table to combine data
5. Present your data showing history + forecast values
6. Present your data showing history/actuals vs. history/forecast

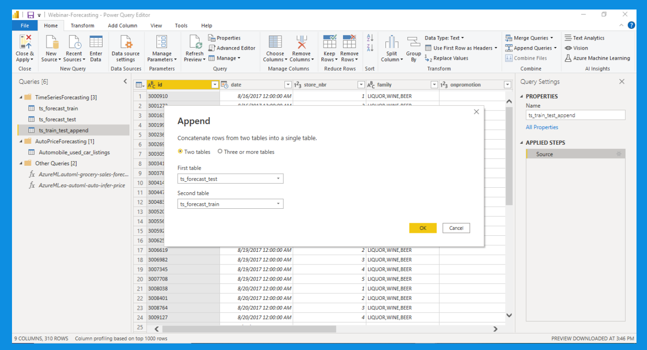
1



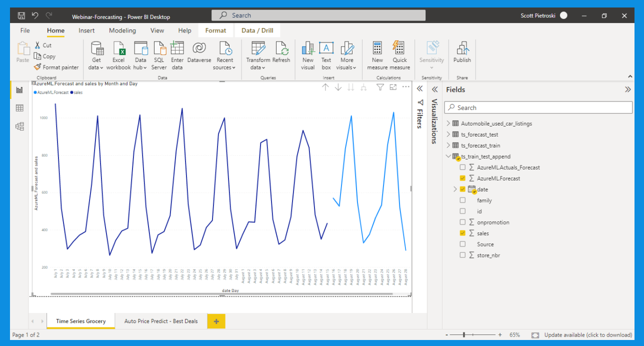
2



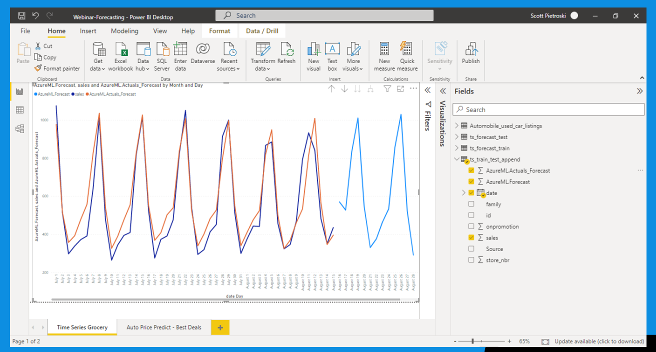
3

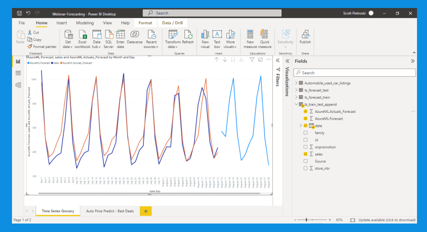


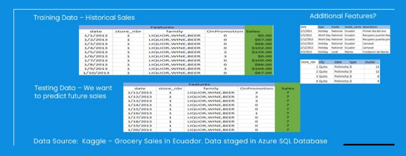
4



5







Creating Better Forecasts

ML Considerations

1. Can you add or engineer relevant features? Time/Product/Store/Geography/Others?
   *Azure ML automatically adds time features like year, week, month, day of week
2. Should you use a 'Rolling Window' / Sum / Moving Average function to smooth a forecast?
   *Auto ML does not do this automatically, it is available in the SDK
3. Can you remove any features that are not significant?
   *Auto ML does this as part of its 'Data guardrails'
4. Are you dealing with seasonality? Seasonality is a cyclical pattern over time.
5. Are there patterns that are predictable? Like the Super Bowl? Do these patterns apply across your entire data set?
6. Be careful not to train with features that not available at inference time. Ex. Sales Quantity
7. Consider risk when combining forecasts. Are you forecasting the weather and using it as a feature
8. Experiment, experiment, experiment

14

Q & A

Thank You

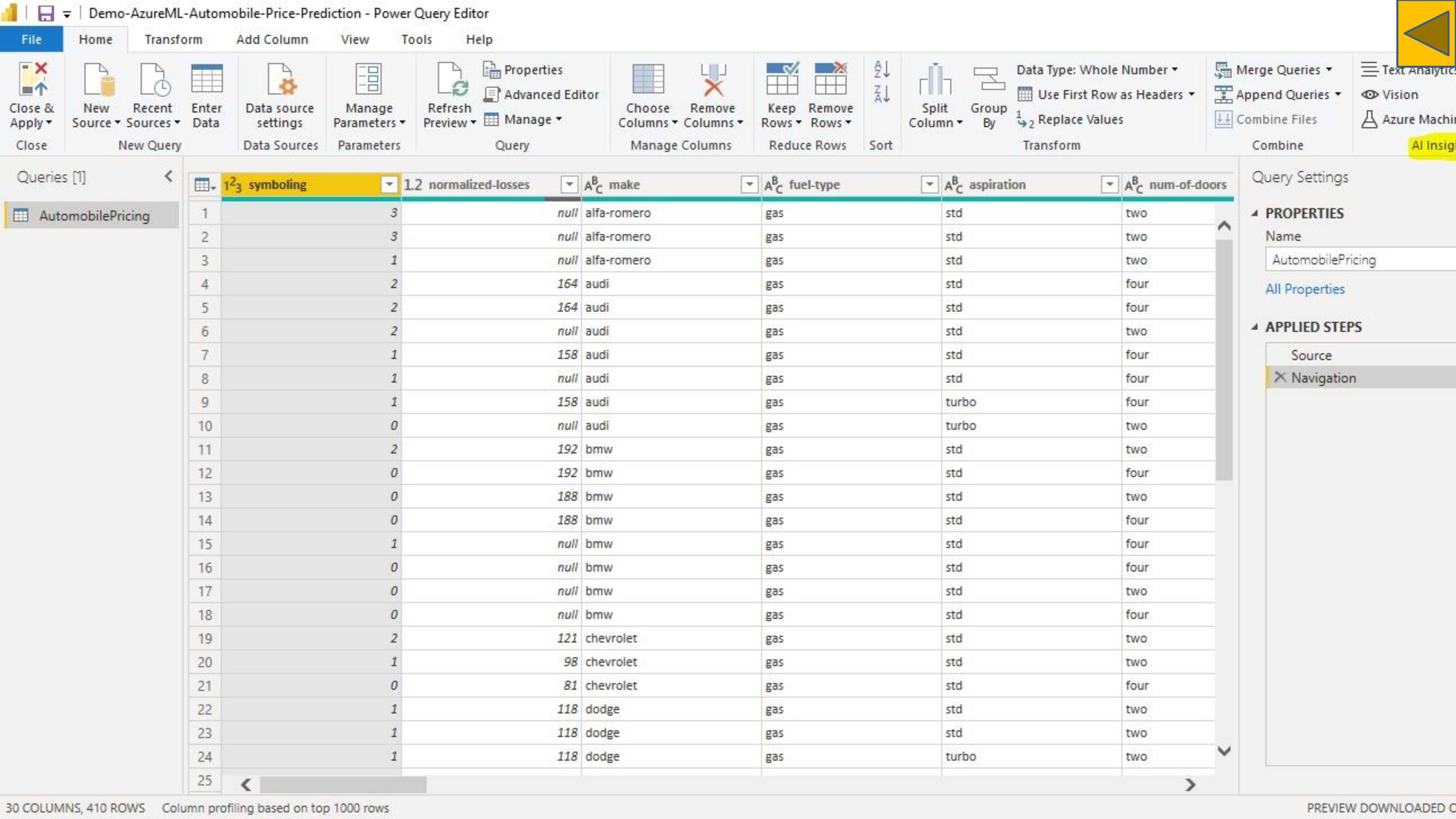
We Are Here to Help

Let us know how we can help take your company to the next level to gain the competitive advantage.

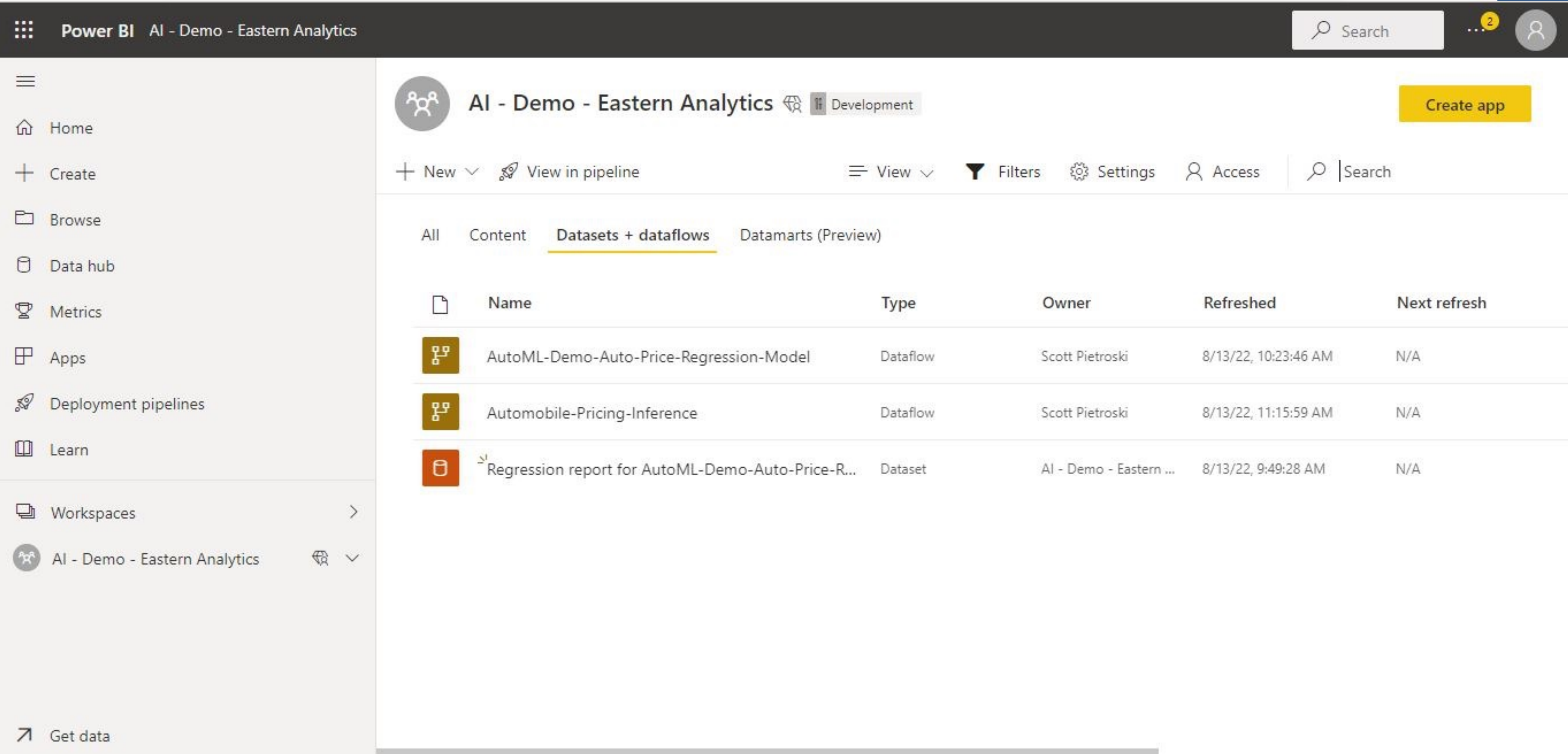
+1 (781) 783-7610

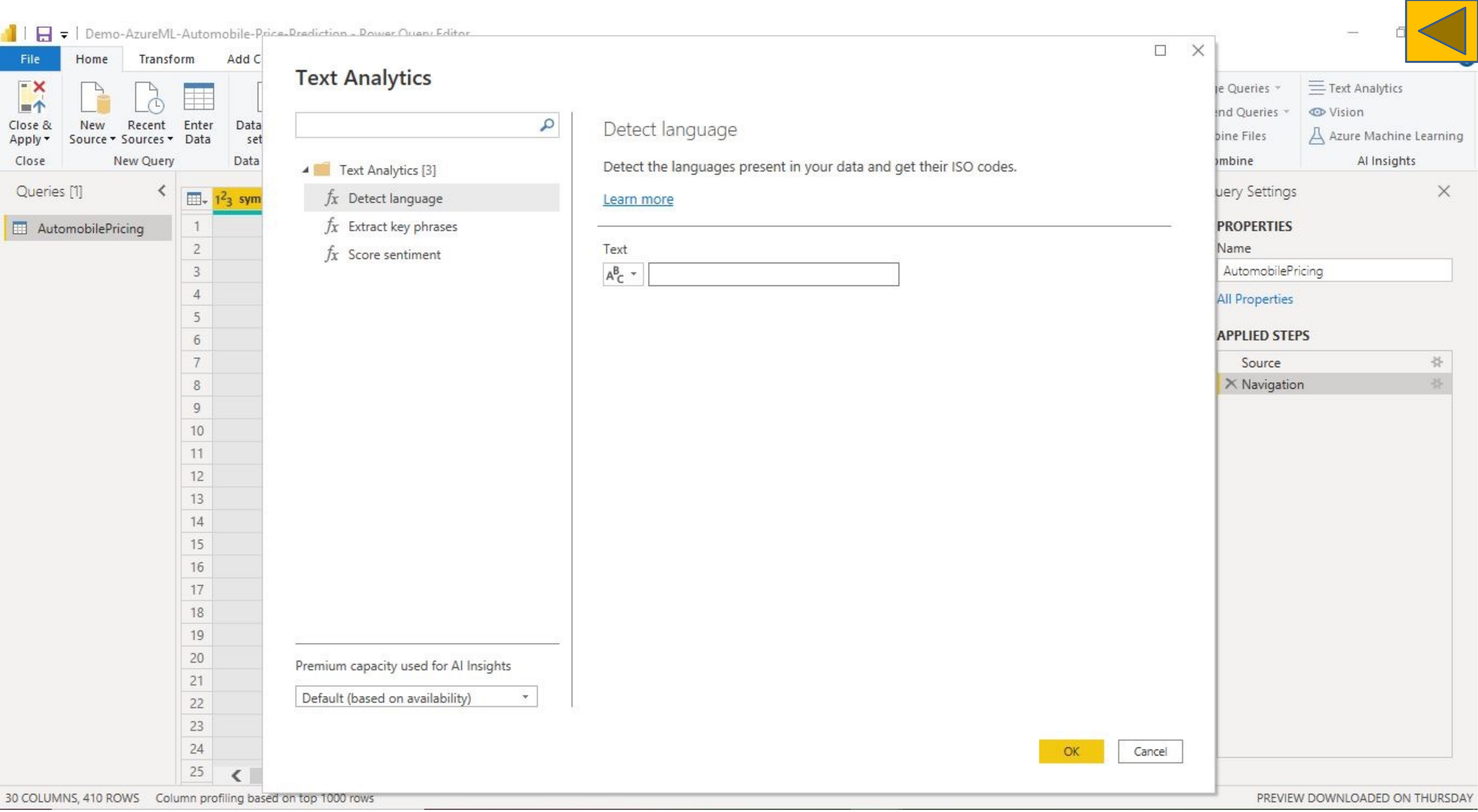
https://eastern-analytics.us

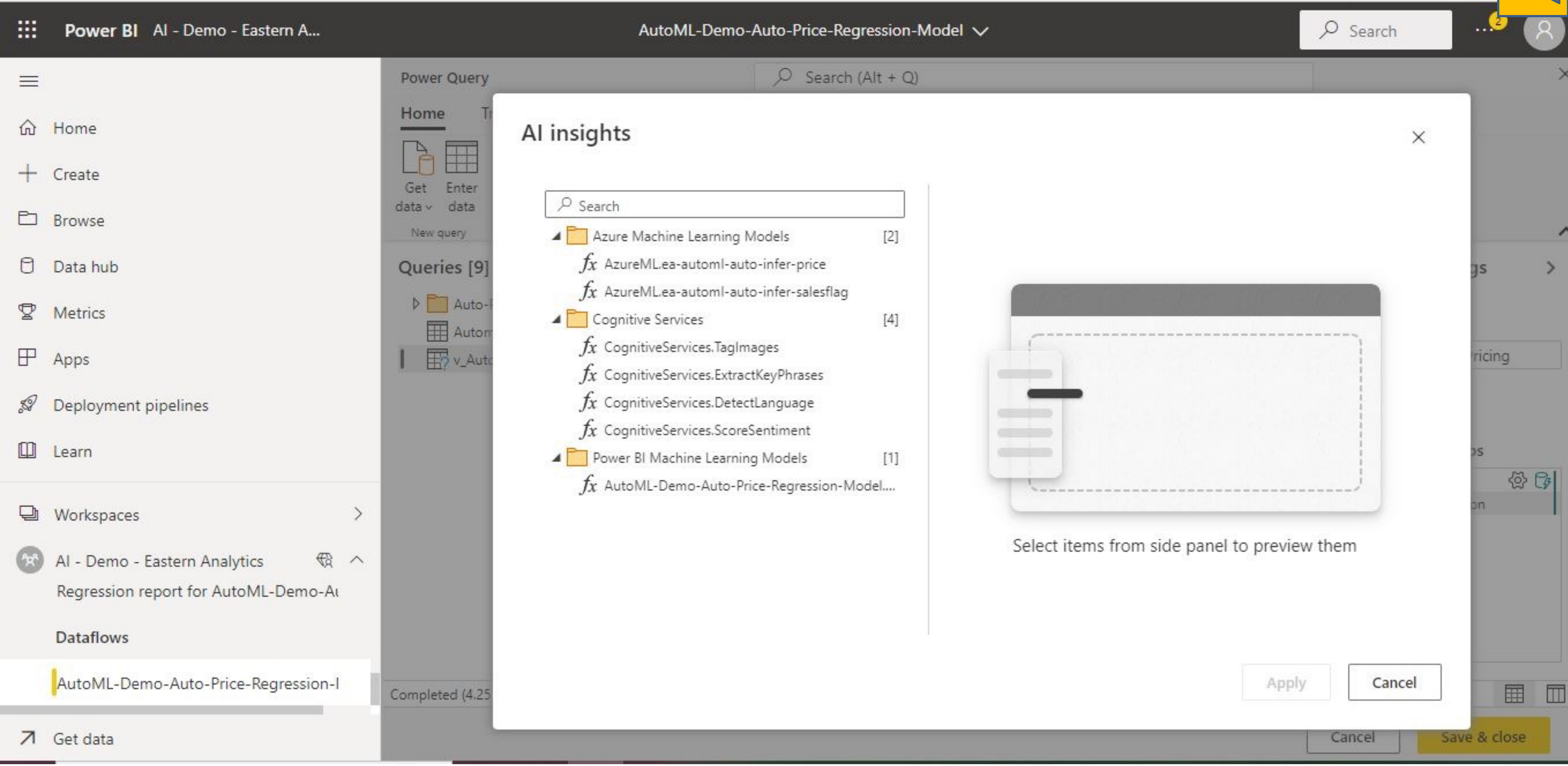
EASTERN ANALYTICS
SYSTEMS, SOLUTIONS & SERVICES

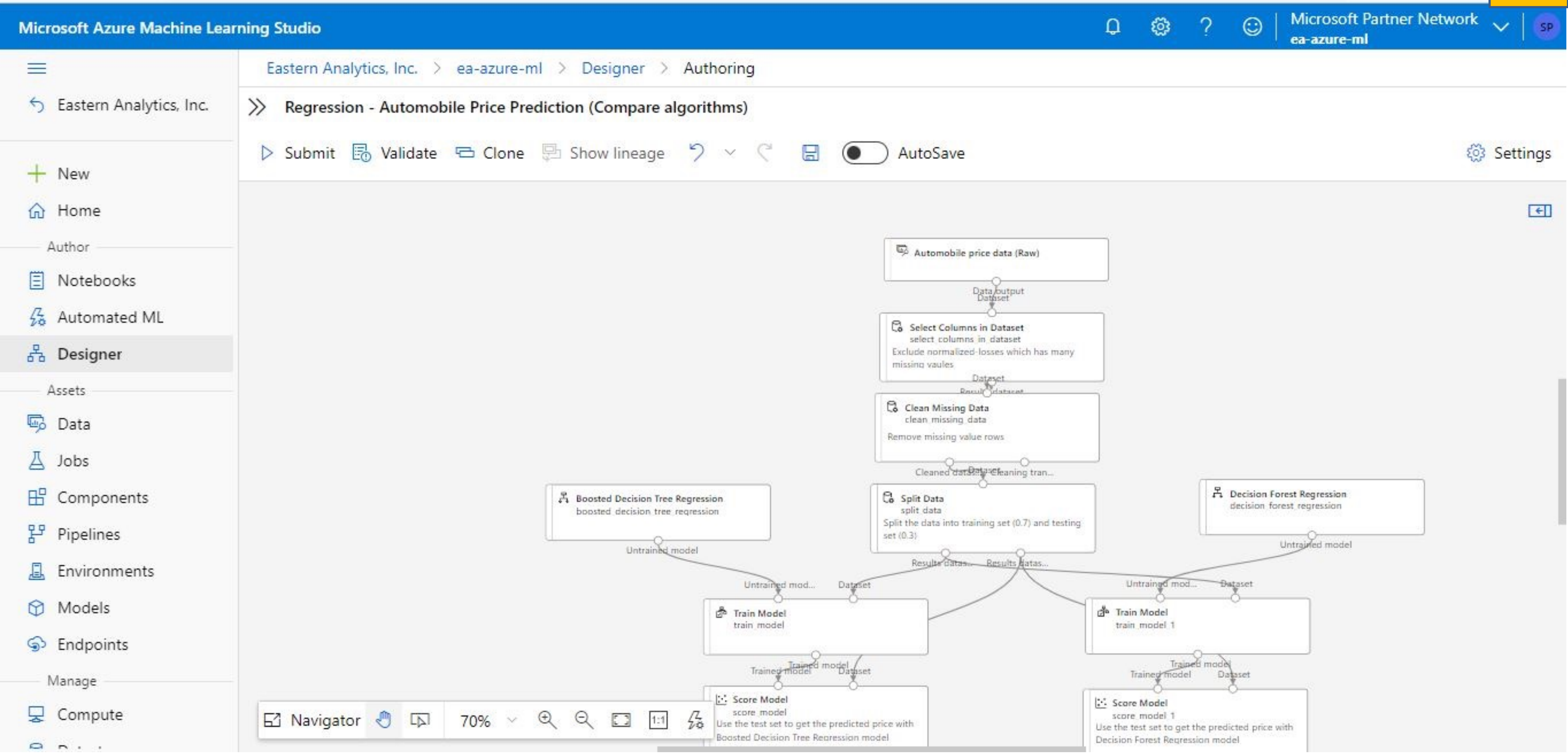


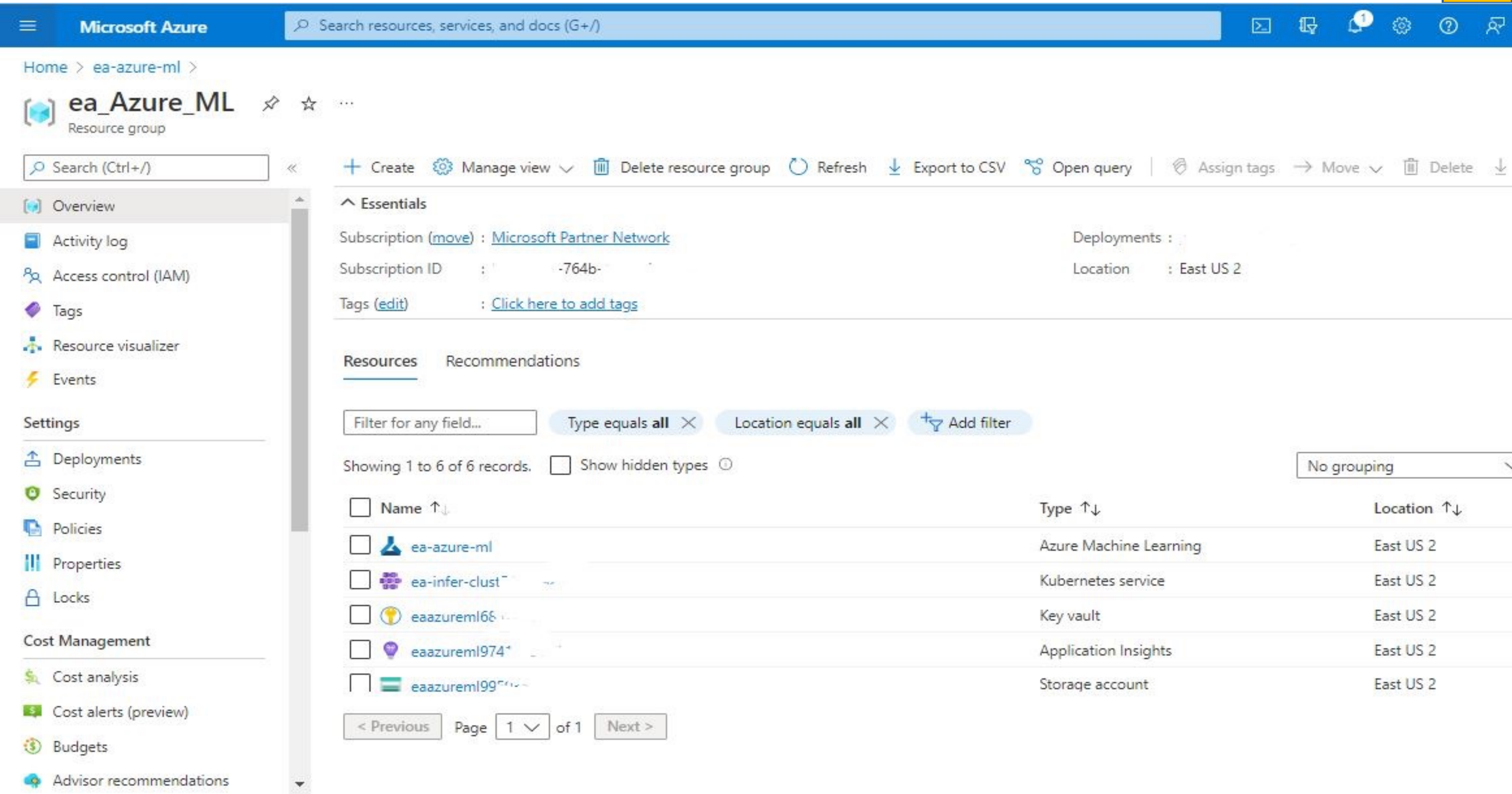
	symboling	normalized-losses	make	fuel-type	aspiration	num-of-doors
1	3	null	alfa-romero	gas	std	two
2	3	null	alfa-romero	gas	std	two
3	1	null	alfa-romero	gas	std	two
4	2	164	audi	gas	std	four
5	2	164	audi	gas	std	four
6	2	null	audi	gas	std	two
7	1	158	audi	gas	std	four
8	1	null	audi	gas	std	four
9	1	158	audi	gas	turbo	four
10	0	null	audi	gas	turbo	two
11	2	192	bmw	gas	std	two
12	0	192	bmw	gas	std	four
13	0	188	bmw	gas	std	two
14	0	188	bmw	gas	std	four
15	1	null	bmw	gas	std	four
16	0	null	bmw	gas	std	four
17	0	null	bmw	gas	std	two
18	0	null	bmw	gas	std	four
19	2	121	chevrolet	gas	std	two
20	1	98	chevrolet	gas	std	two
21	0	81	chevrolet	gas	std	four
22	1	118	dodge	gas	std	two
23	1	118	dodge	gas	std	two
24	1	118	dodge	gas	turbo	two
25						


Power BI
AI - Demo - Eastern Analytics
Search
Home
Create
Browse
Data hub
Metrics
Apps
Deployment pipelines
Learn
Workspaces
AI - Demo - Eastern Analytics
Get data
AI - Demo - Eastern Analytics
Development
Create app
New
View in pipeline
View
Filters
Settings
Access
Search
All
Content
Datasets + dataflows
Datamarts (Preview)
Name
Type
Owner
Refreshed
Next refresh
AutoML-Demo-Auto-Price-Regression-Model
Dataflow
Scott Pietroski
8/13/22, 10:23:46 AM
N/A
Automobile-Pricing-Inference
Dataflow
Scott Pietroski
8/13/22, 11:15:59 AM
N/A
Regression report for AutoML-Demo-Auto-Price-R...
Dataset
AI - Demo - Eastern ...
8/13/22, 9:49:28 AM
N/A


Demo-AzureML-Automobile-Price-Prediction - Power Query Editor
File
Home
Transform
Add C
Close & Apply
New Source
Recent Sources
Enter Data
Data set
Close
New Query
Data
Queries [1]
AutomobileMicing
Text Analytics
Text Analytics [3]
Detect language
Extract key phrases
Score sentiment
Detect language
Detect the languages present in your data and get their ISO codes.
Learn more
Text
Premium capacity used for AI Insights
Default (based on availability)
OK
Cancel
Text Analytics
Vision
Azure Machine Learning
AI Insights
Query Settings
PROPERTIES
Name
AutomobilePricing
All Properties
APPLIED STEPS
Source
Navigation
30 COLUMNS, 410 ROWS
Column profiling based on top 1000 rows
PREVIEW DOWNLOADED ON THURSDAY

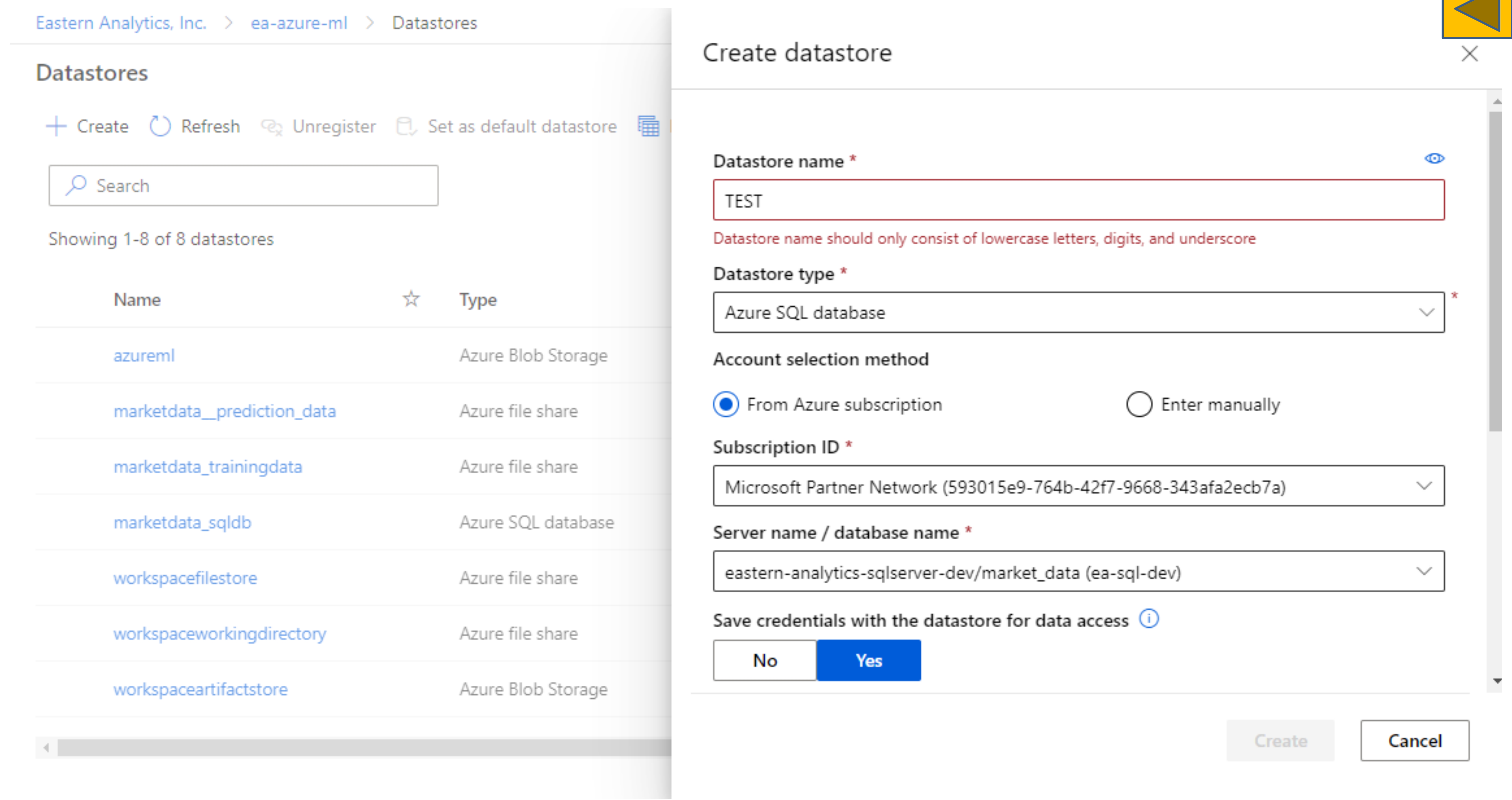

Power BI
AI - Demo - Eastern A...
AutoML-Demo-Auto-Price-Regression-Model
Search
Home
Create
Browse
Data hub
Metrics
Apps
Deployment pipelines
Learn
Workspaces
AI - Demo - Eastern Analytics
Regression report for AutoML-Demo-Au
Dataflows
AutoML-Demo-Auto-Price-Regression-I
Get data
Power Query
Search (Alt + Q)
Home
Get data
Enter data
New query
Queries [9]
Completed (4.25
AI insights
Search
Azure Machine Learning Models [2]
AzureML.ea-automl-auto-infer-price
AzureML.ea-automl-auto-infer-salesflag
Cognitive Services [4]
CognitiveServices.TagImages
CognitiveServices.ExtractKeyPhrases
CognitiveServices.DetectLanguage
CognitiveServices.ScoreSentiment
Power BI Machine Learning Models [1]
AutoML-Demo-Auto-Price-Regression-Model....
Select items from side panel to preview them
Apply
Cancel
Cancel
Save & close


Microsoft Azure Machine Learning Studio
Microsoft Partner Network
ea-azure-ml
Eastern Analytics, Inc. > ea-azure-ml > Designer > Authoring
Eastern Analytics, Inc.
Regression - Automobile Price Prediction (Compare algorithms)
Submit
Validate
Clone
Show lineage
AutoSave
Settings
New
Home
Author
Notebooks
Automated ML
Designer
Assets
Data
Jobs
Components
Pipelines
Environments
Models
Endpoints
Manage
Compute
Automobile price data (Raw)
Select Columns in Dataset
select columns in dataset
Exclude normalized-losses which has many missing vaules
Clean Missing Data
clean missing data
Remove missing value rows
Boosted Decision Tree Regression
boosted decision tree regression
Split Data
split data
Split the data into training set (0.7) and testing set (0.3)
Decision Forest Regression
decision forest regression
Untrained model
Dataset
Train Model
train model
Train Model
train model 1
Trained model
Score Model
score model
Use the test set to get the predicted price with Boosted Decision Tree Regression model
Score Model
score model 1
Use the test set to get the predicted price with Decision Forest Regression model
Navigator
70%


Microsoft Azure
Search resources, services, and docs (G+/)
Home > ea-azure-ml >
ea_Azure_ML
Resource group
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Resource visualizer
Events
Settings
Deployments
Security
Policies
Properties
Locks
Cost Management
Cost analysis
Cost alerts (preview)
Budgets
Advisor recommendations
+ Create
Manage view
Delete resource group
Refresh
Export to CSV
Open query
Assign tags
Move
Delete
Essentials
Subscription (move) : Microsoft Partner Network
Subscription ID :
Tags (edit) : Click here to add tags
Deployments :
Location : East US 2
Resources
Recommendations
Filter for any field...
Type equals all
Location equals all
Add filter
Showing 1 to 6 of 6 records.
Show hidden types
No grouping
Name
Type
Location
ea-azure-ml
Azure Machine Learning
East US 2
Kubernetes service
East US 2
Key vault
East US 2
Application Insights
East US 2
Storage account
East US 2
< Previous
Page
1
of 1
Next >

Features						
YearSold	ZipCode(3)	Make	Model	ModelYear	Milage	Price
2020	460	Subaru	Legacy	2001	91369	$2,150.00
2019	460	Subaru	Legacy	2005	193737	$1,180.00
2019	460	Subaru	Legacy	2007	174236	$3,250.00
2019	460	Subaru	Outback	2011	93517	$7,750.00
2019	460	Subaru	Tribeca	2007	140673	$3,530.00
2020	460	Honda	Odyssey	2005	214091	$790.00

	Features						
ID	ZipCode(3)	Make	Model	ModelYear	Milage	ListPrice	Price
1	460	Subaru	Legacy	2001	91369	1800	?
2	460	Subaru	Legacy	2005	193737	700	?
3	460	Subaru	Legacy	2007	174236	2500	?
4	460	Subaru	Outback	2011	93517	7700	?
5	460	Subaru	Tribeca	2007	140673	3500	?
6	460	Honda	Odyssey	2005	214091	500	?


Eastern Analytics, Inc. > ea-azure-ml > Datastores
Datastores
Create
Refresh
Unregister
Set as default datastore
Search
Showing 1-8 of 8 datastores
Name
Type
azureml
Azure Blob Storage
marketdata__prediction_data
Azure file share
marketdata_trainingdata
Azure file share
marketdata_sqldb
Azure SQL database
workspacefilestore
Azure file share
workspaceworkingdirectory
Azure file share
workspaceartifactstore
Azure Blob Storage
Create datastore
Datastore name *
TEST
Datastore name should only consist of lowercase letters, digits, and underscore
Datastore type *
Azure SQL database
Account selection method
From Azure subscription
Enter manually
Subscription ID *
Microsoft Partner Network (593015e9-764b-42f7-9668-343afa2ecb7a)
Server name / database name *
eastern-analytics-sqlserver-dev/market_data (ea-sql-dev)
Save credentials with the datastore for data access
No
Yes
Create
Cancel

Eastern Analytics, Inc. > ea-azure-ml > Data > Demo_Auto_Price_Train

Demo_Auto_Price_Train

Version 2 (latest)

Details Consume Explore Models Jobs

New version Refresh Generate profile Unregister

Attributes

Properties
Tabular

Created by
Scott Pietroski

Profile
View profile
Job: --

Current version
2

Latest version
2

Created time
Sep 20, 2022 5:20 PM

Modified time
Sep 20, 2022 6:06 PM

Tags

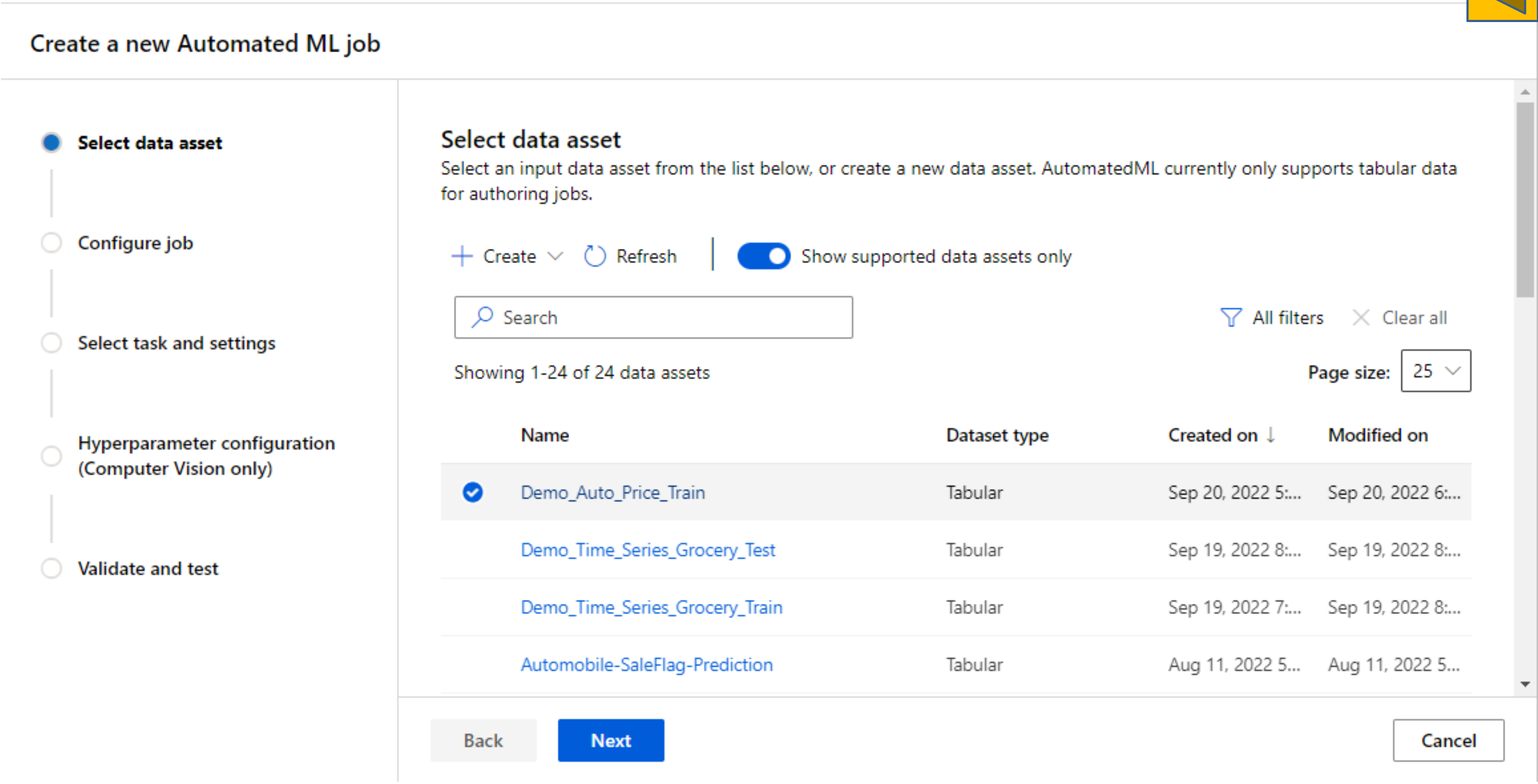
No data

Description

Click edit icon to add a description

SQL query

```
select cast(pricesold as decimal(15,2)) as Price,
Cast(yearsold as int) as YearSold,
zip3,
cast(mileage as int) as Milage,
Make,
Model,
cast(year as int) as ModelYear
from [dbo].[Automobile_used_car_sales]
where make = 'Jeep' or Make = 'Honda' or Make = 'Subaru' or M
```


Create a new Automated ML job
Select data asset
Configure job
Select task and settings
Hyperparameter configuration (Computer Vision only)
Validate and test
Select data asset
Select an input data asset from the list below, or create a new data asset. AutomatedML currently only supports tabular data for authoring jobs.
Create
Refresh
Show supported data assets only
Search
All filters
Clear all
Showing 1-24 of 24 data assets
Page size:
25
Name
Dataset type
Created on
Modified on
Demo_Auto_Price_Train
Tabular
Sep 20, 2022 5:...
Sep 20, 2022 6:...
Demo_Time_Series_Grocery_Test
Tabular
Sep 19, 2022 8:...
Sep 19, 2022 8:...
Demo_Time_Series_Grocery_Train
Tabular
Sep 19, 2022 7:...
Sep 19, 2022 8:...
Automobile-SaleFlag-Prediction
Tabular
Aug 11, 2022 5...
Aug 11, 2022 5...
Back
Next
Cancel

Eastern Analytics, Inc. > ea-azure-ml > Automated ML > Demo-Auto-Sales-Price-Forecast > AutoML Auto Pricing Demo

AutoML Auto Pricing Demo

Completed

Overview | Data guardrails | Models | Outputs + logs | Child jobs

Refresh | Edit and submit (preview) | Register model | Cancel | Delete

Properties

Status

Completed

Warning: No scores improved over last 20 iterations, so experiment stopped early. This early stopping behavior can be disabled by setting enable_early_stopping = False in AutoMLConfig for notebook/python SDK runs.

See more details

Created on

Sep 20, 2022 6:08 PM

Start time

Sep 20, 2022 6:09 PM

Duration

42m 29.99s

Compute duration

Inputs

Input name: training_data

Dataset: Demo_Auto_Price_Train:2

Outputs

Output name: default

Data: azureml_AutoML_434235a1-19ca-452b-b703-4791d89cbc8c_output_data_default:1

Output name: best_model

Model: azureml_AutoML_434235a1-19ca-452b-b703-4791d89cbc8c_40_output_mlflow_log_model_-346875098:1

Best model summary

··· > ea-azure-ml > Jobs > Demo-Auto-Sales-Price-Forecast > AutoML Auto Pricing Demo > khaki_button_gfflgsvv

khaki_button_gfflgsvv

Completed

Overview | Model | Explanations (preview) | Metrics | Data transformation (preview) | Test results (preview) | Outputs + logs | Images | Child jobs | Code

Refresh | Deploy | Download | Explain model | # View generated code | Test model (preview) | + Register model | Cancel | Delete

Deploy to real-time endpoint
Deploy the model using the new real-time endpoint wizard

Deploy to web service
Deploy the model to a web service

Properties

Status
Complet

Created on
Sep 20, 2022 6:49 PM

Start time
Sep 20, 2022 6:49 PM

Duration
47.85s

Compute duration
47.85s

Name
AutoML_434235a1-19ca-452b-b703-4791d89cbc8c_40

Inputs

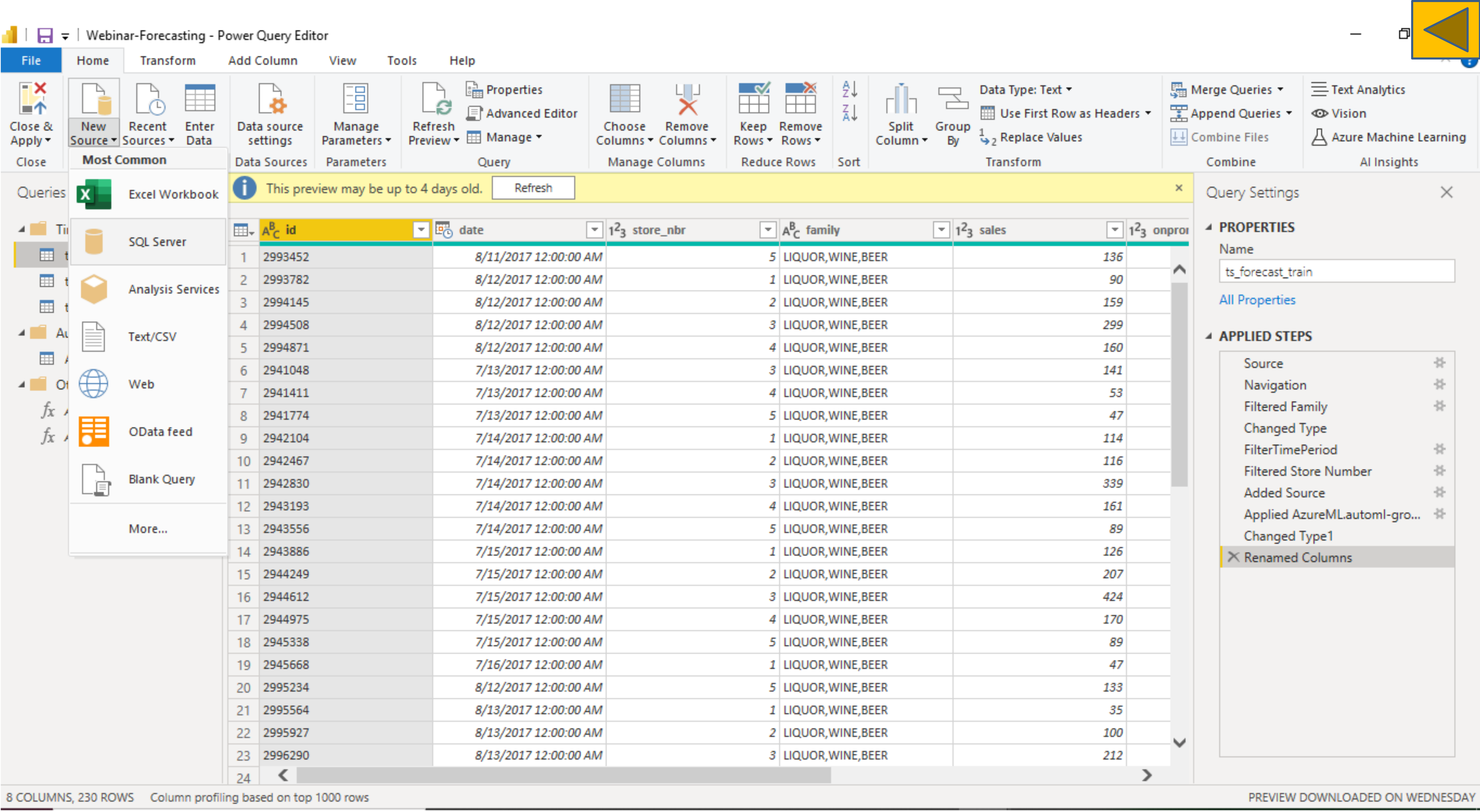
Input name: training_data
Dataset: Demo_Auto_Price_Train:2

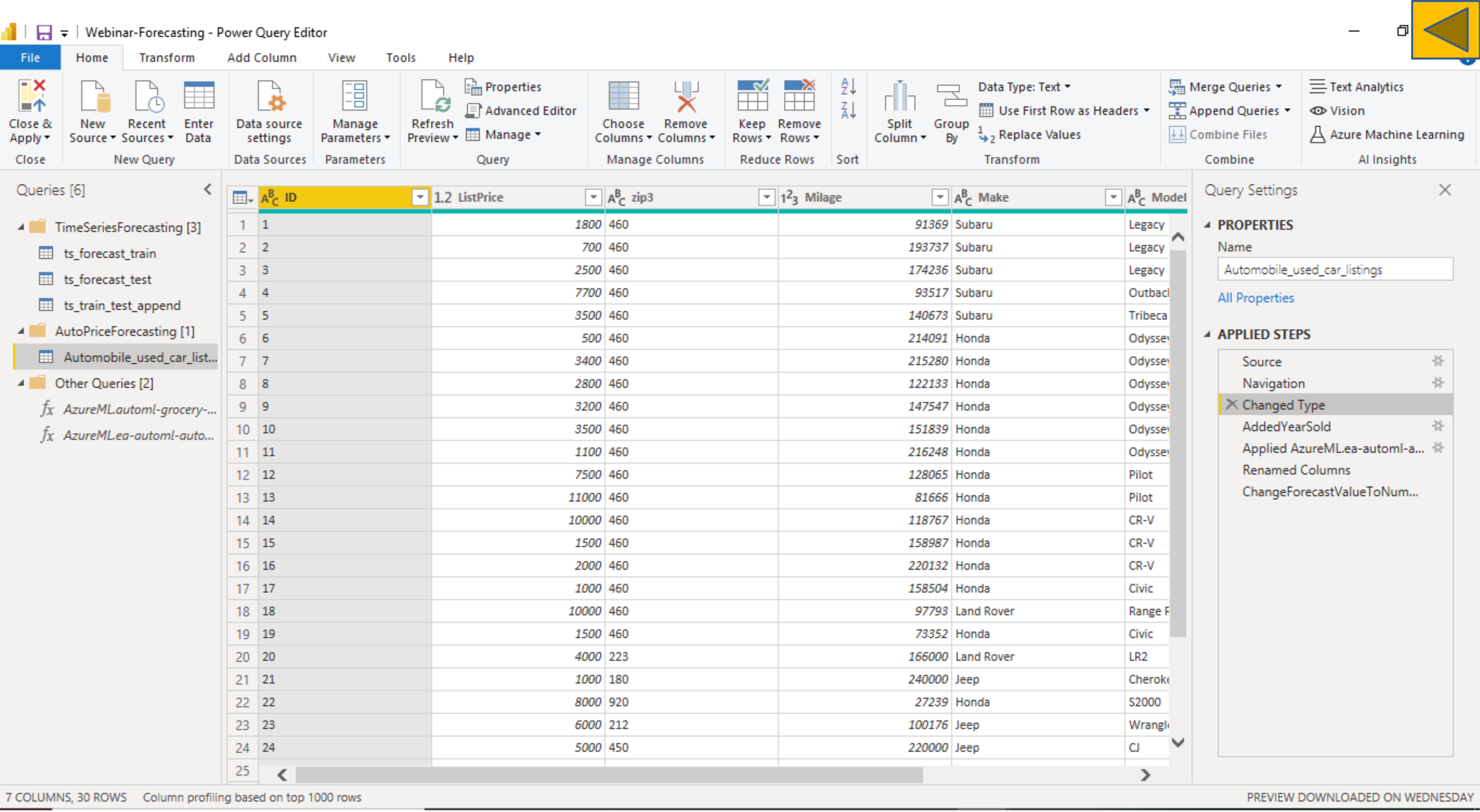
Outputs

Output name: default
Data: azureml_AutoML_434235a1-19ca-452b-b703-4791d89cbc8c_40_output_data_default:1

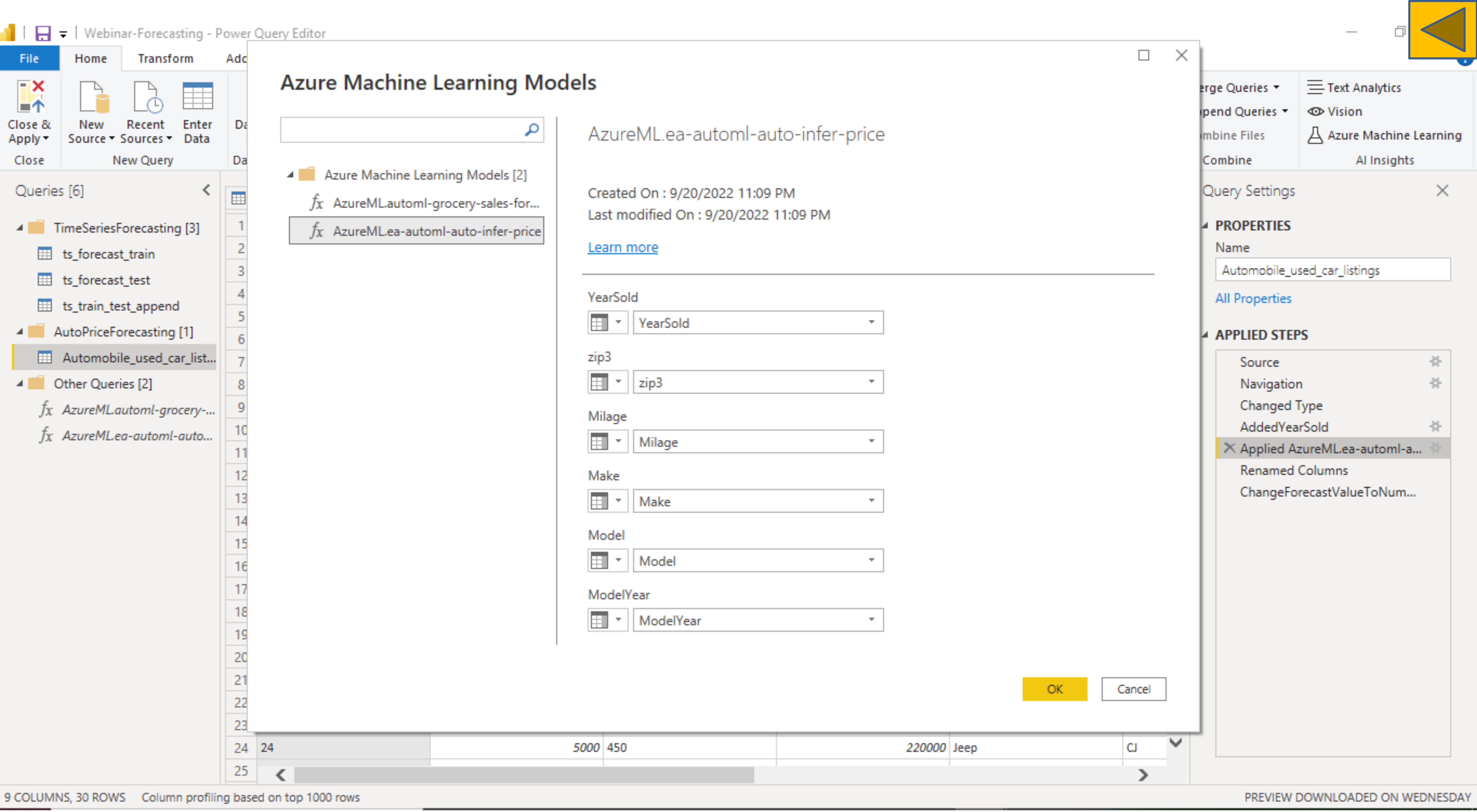
Output name: mlflow_log_model_-346875098
Model: azureml_AutoML_434235a1-19ca-452b-b703-4791d89cbc8c_40_output_mlflow_log_model_-346875098:1

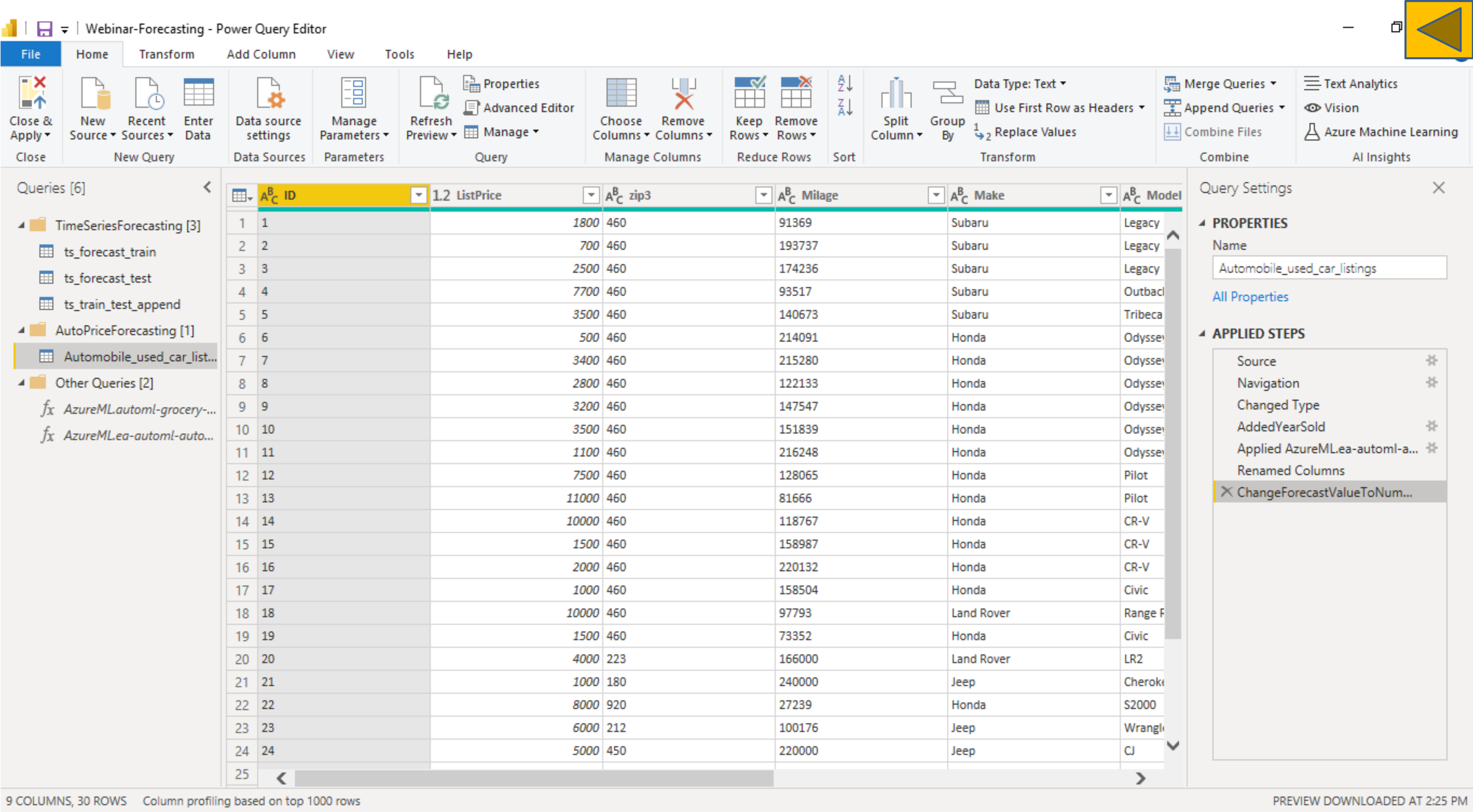
Metrics


Webinar-Forecasting - Power Query Editor
File
Home
Transform
Add Column
View
Tools
Help
Close & Apply
New Source
Recent Sources
Enter Data
Data source settings
Manage Parameters
Refresh Preview
Properties
Advanced Editor
Manage
Choose Columns
Remove Columns
Keep Rows
Remove Rows
Split Column
Group By
Data Type: Text
Use First Row as Headers
Replace Values
Merge Queries
Append Queries
Combine Files
Text Analytics
Vision
Azure Machine Learning
Close
Data Sources
Parameters
Query
Manage Columns
Reduce Rows
Sort
Transform
Combine
AI Insights
Most Common
Excel Workbook
SQL Server
Analysis Services
Text/CSV
Web
OData feed
Blank Query
More...
Queries
This preview may be up to 4 days old.
Refresh
id
date
store_nbr
family
sales
1 2993452 8/11/2017 12:00:00 AM 5 LIQUOR,WINE,BEER 136
2 2993782 8/12/2017 12:00:00 AM 1 LIQUOR,WINE,BEER 90
3 2994145 8/12/2017 12:00:00 AM 2 LIQUOR,WINE,BEER 159
4 2994508 8/12/2017 12:00:00 AM 3 LIQUOR,WINE,BEER 299
5 2994871 8/12/2017 12:00:00 AM 4 LIQUOR,WINE,BEER 160
6 2941048 7/13/2017 12:00:00 AM 3 LIQUOR,WINE,BEER 141
7 2941411 7/13/2017 12:00:00 AM 4 LIQUOR,WINE,BEER 53
8 2941774 7/13/2017 12:00:00 AM 5 LIQUOR,WINE,BEER 47
9 2942104 7/14/2017 12:00:00 AM 1 LIQUOR,WINE,BEER 114
10 2942467 7/14/2017 12:00:00 AM 2 LIQUOR,WINE,BEER 116
11 2942830 7/14/2017 12:00:00 AM 3 LIQUOR,WINE,BEER 339
12 2943193 7/14/2017 12:00:00 AM 4 LIQUOR,WINE,BEER 161
13 2943556 7/14/2017 12:00:00 AM 5 LIQUOR,WINE,BEER 89
14 2943886 7/15/2017 12:00:00 AM 1 LIQUOR,WINE,BEER 126
15 2944249 7/15/2017 12:00:00 AM 2 LIQUOR,WINE,BEER 207
16 2944612 7/15/2017 12:00:00 AM 3 LIQUOR,WINE,BEER 424
17 2944975 7/15/2017 12:00:00 AM 4 LIQUOR,WINE,BEER 170
18 2945338 7/15/2017 12:00:00 AM 5 LIQUOR,WINE,BEER 89
19 2945668 7/16/2017 12:00:00 AM 1 LIQUOR,WINE,BEER 47
20 2995234 8/12/2017 12:00:00 AM 5 LIQUOR,WINE,BEER 133
21 2995564 8/13/2017 12:00:00 AM 1 LIQUOR,WINE,BEER 35
22 2995927 8/13/2017 12:00:00 AM 2 LIQUOR,WINE,BEER 100
23 2996290 8/13/2017 12:00:00 AM 3 LIQUOR,WINE,BEER 212
Query Settings
PROPERTIES
Name
ts_forecast_train
All Properties
APPLIED STEPS
Source
Navigation
Filtered Family
Changed Type
FilterTimePeriod
Filtered Store Number
Added Source
Applied AzureML.automl-gro...
Changed Type1
Renamed Columns
8 COLUMNS, 230 ROWS
Column profiling based on top 1000 rows
PREVIEW DOWNLOADED ON WEDNESDAY

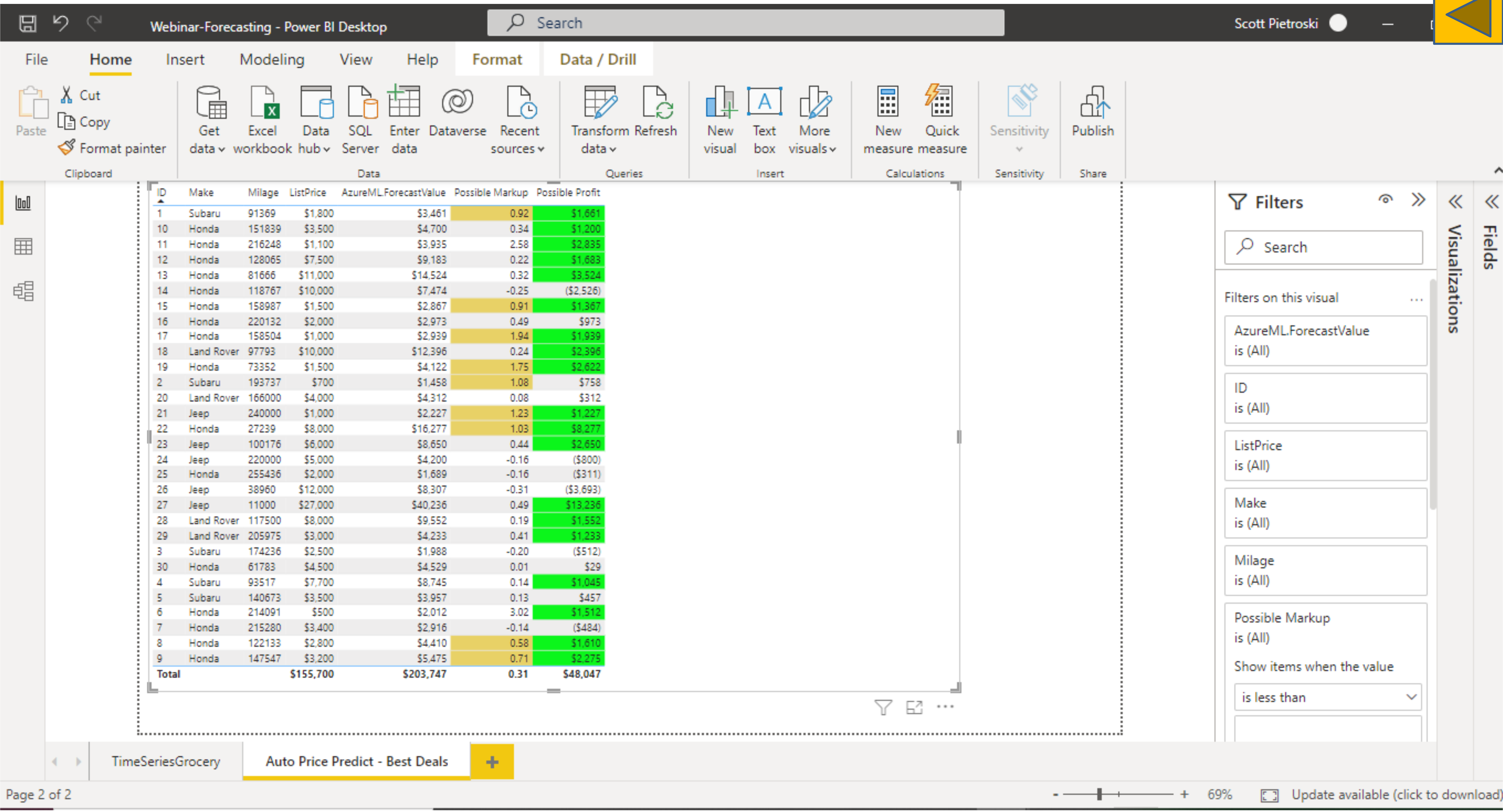


	ID	ListPrice	zip3	Milage	Make	Model
1	1	1800	460	91369	Subaru	Legacy
2	2	700	460	193737	Subaru	Legacy
3	3	2500	460	174236	Subaru	Legacy
4	4	7700	460	93517	Subaru	Outbacl
5	5	3500	460	140673	Subaru	Tribeca
6	6	500	460	214091	Honda	Odyssey
7	7	3400	460	215280	Honda	Odyssey
8	8	2800	460	122133	Honda	Odyssey
9	9	3200	460	147547	Honda	Odyssey
10	10	3500	460	151839	Honda	Odyssey
11	11	1100	460	216248	Honda	Odyssey
12	12	7500	460	128065	Honda	Pilot
13	13	11000	460	81666	Honda	Pilot
14	14	10000	460	118767	Honda	CR-V
15	15	1500	460	158987	Honda	CR-V
16	16	2000	460	220132	Honda	CR-V
17	17	1000	460	158504	Honda	Civic
18	18	10000	460	97793	Land Rover	Range F
19	19	1500	460	73352	Honda	Civic
20	20	4000	223	166000	Land Rover	LR2
21	21	1000	180	240000	Jeep	Cheroke
22	22	8000	920	27239	Honda	S2000
23	23	6000	212	100176	Jeep	Wrangl
24	24	5000	450	220000	Jeep	CJ
25						


Webinar-Forecasting - Power Query Editor
File
Home
Transform
Close & Apply
New Source
Recent Sources
Enter Data
Close
New Query
Queries [6]
TimeSeriesForecasting [3]
ts_forecast_train
ts_forecast_test
ts_train_test_append
AutoPriceForecasting [1]
Automobile_used_car_list...
Other Queries [2]
AzureML.automl-grocery-...
AzureML.ea-automl-auto...
Azure Machine Learning Models
Azure Machine Learning Models [2]
AzureML.automl-grocery-sales-for...
AzureML.ea-automl-auto-infer-price
AzureML.ea-automl-auto-infer-price
Created On : 9/20/2022 11:09 PM
Last modified On : 9/20/2022 11:09 PM
Learn more
YearSold
YearSold
zip3
zip3
Milage
Milage
Make
Make
Model
Model
ModelYear
ModelYear
OK
Cancel
Text Analytics
Vision
Azure Machine Learning
AI Insights
Combine
Query Settings
PROPERTIES
Name
Automobile_used_car_listings
All Properties
APPLIED STEPS
Source
Navigation
Changed Type
AddedYearSold
Applied AzureML.ea-automl-a...
Renamed Columns
ChangeForecastValueToNum...
24 5000 450 220000 Jeep CJ
9 COLUMNS, 30 ROWS
Column profiling based on top 1000 rows
PREVIEW DOWNLOADED ON WEDNESDAY



	ID	ListPrice	zip3	Milage	Make	Model
1	1	1800	460	91369	Subaru	Legacy
2	2	700	460	193737	Subaru	Legacy
3	3	2500	460	174236	Subaru	Legacy
4	4	7700	460	93517	Subaru	Outbacl
5	5	3500	460	140673	Subaru	Tribeca
6	6	500	460	214091	Honda	Odyssey
7	7	3400	460	215280	Honda	Odyssey
8	8	2800	460	122133	Honda	Odyssey
9	9	3200	460	147547	Honda	Odyssey
10	10	3500	460	151839	Honda	Odyssey
11	11	1100	460	216248	Honda	Odyssey
12	12	7500	460	128065	Honda	Pilot
13	13	11000	460	81666	Honda	Pilot
14	14	10000	460	118767	Honda	CR-V
15	15	1500	460	158987	Honda	CR-V
16	16	2000	460	220132	Honda	CR-V
17	17	1000	460	158504	Honda	Civic
18	18	10000	460	97793	Land Rover	Range F
19	19	1500	460	73352	Honda	Civic
20	20	4000	223	166000	Land Rover	LR2
21	21	1000	180	240000	Jeep	Cheroke
22	22	8000	920	27239	Honda	S2000
23	23	6000	212	100176	Jeep	Wrangl
24	24	5000	450	220000	Jeep	CJ
25						



ID	Make	Milage	ListPrice	AzureML.ForecastValue	Possible Markup	Possible Profit
1	Subaru	91369	$1,800	$3,461	0.92	$1,661
10	Honda	151839	$3,500	$4,700	0.34	$1,200
11	Honda	216248	$1,100	$3,935	2.58	$2,835
12	Honda	128065	$7,500	$9,183	0.22	$1,683
13	Honda	81666	$11,000	$14,524	0.32	$3,524
14	Honda	118767	$10,000	$7,474	-0.25	($2,526)
15	Honda	158987	$1,500	$2,867	0.91	$1,367
16	Honda	220132	$2,000	$2,973	0.49	$973
17	Honda	158504	$1,000	$2,939	1.94	$1,939
18	Land Rover	97793	$10,000	$12,396	0.24	$2,396
19	Honda	73352	$1,500	$4,122	1.75	$2,622
2	Subaru	193737	$700	$1,458	1.08	$758
20	Land Rover	166000	$4,000	$4,312	0.08	$312
21	Jeep	240000	$1,000	$2,227	1.23	$1,227
22	Honda	27239	$8,000	$16,277	1.03	$8,277
23	Jeep	100176	$6,000	$8,650	0.44	$2,650
24	Jeep	220000	$5,000	$4,200	-0.16	($800)
25	Honda	255436	$2,000	$1,689	-0.16	($311)
26	Jeep	38960	$12,000	$8,307	-0.31	($3,693)
27	Jeep	11000	$27,000	$40,236	0.49	$13,236
28	Land Rover	117500	$8,000	$9,552	0.19	$1,552
29	Land Rover	205975	$3,000	$4,233	0.41	$1,233
3	Subaru	174236	$2,500	$1,988	-0.20	($512)
30	Honda	61783	$4,500	$4,529	0.01	$29
4	Subaru	93517	$7,700	$8,745	0.14	$1,045
5	Subaru	140673	$3,500	$3,957	0.13	$457
6	Honda	214091	$500	$2,012	3.02	$1,512
7	Honda	215280	$3,400	$2,916	-0.14	($484)
8	Honda	122133	$2,800	$4,410	0.58	$1,610
9	Honda	147547	$3,200	$5,475	0.71	$2,275
Total			**$155,700**	**$203,747**	**0.31**	**$48,047**

Features				
date	store_nbr	family	OnPromotion	Sales
1/1/2013	1	LIQUOR,WINE,BEER	0	$0.00
1/2/2013	1	LIQUOR,WINE,BEER	0	$67.00
1/3/2013	1	LIQUOR,WINE,BEER	0	$66.00
1/4/2013	1	LIQUOR,WINE,BEER	0	$102.00
1/5/2013	1	LIQUOR,WINE,BEER	2	$159.00
1/6/2013	1	LIQUOR,WINE,BEER	3	$0.00
1/7/2013	1	LIQUOR,WINE,BEER	0	$109.00
1/8/2013	1	LIQUOR,WINE,BEER	0	$86.00
1/9/2013	1	LIQUOR,WINE,BEER	3	$104.00
1/10/2013	1	LIQUOR,WINE,BEER	0	$67.00

Features				
date	store_nbr	family	OnPromotion	Sale
1/11/2013	1	LIQUOR,WINE,BEER	3	?
1/12/2013	1	LIQUOR,WINE,BEER	3	?
1/13/2013	1	LIQUOR,WINE,BEER	3	?
1/14/2013	1	LIQUOR,WINE,BEER	0	?
1/15/2013	1	LIQUOR,WINE,BEER	0	?
1/16/2013	1	LIQUOR,WINE,BEER	1	?
1/17/2013	1	LIQUOR,WINE,BEER	0	?
1/18/2013	1	LIQUOR,WINE,BEER	0	?
1/19/2013	1	LIQUOR,WINE,BEER	0	?
1/20/2013	1	LIQUOR,WINE,BEER	0	?

date	type	locale	locale_name	description
1/1/2013	Holiday	National	Ecuador	Primer dia del ano
1/5/2013	Work Day	National	Ecuador	Recupero puente Nav
1/12/2013	Work Day	National	Ecuador	Recupero puente prir
2/11/2013	Holiday	National	Ecuador	Carnaval
2/12/2013	Holiday	National	Ecuador	Carnaval
3/2/2013	Holiday	Local	Manta	Fundacion de Manta

store_nbr	city	state	type	cluster
1	Quito	Pichincha	D	13
2	Quito	Pichincha	D	13
3	Quito	Pichincha	D	8
4	Quito	Pichincha	D	9

Eastern Analytics, Inc. > ea-azure-ml > Data > Demo_Time_Series_Grocery_Train

Demo_Time_Series_Grocery_Train

Version 2 (latest)

Details   Consume   **Explore**   Models   Jobs

New version   Refresh   Generate profile   Unregister

Preview   Profile

Number of columns: 5   **Number of rows:** 50 (of 8190)

date	store_nbr	family	Sales	OnPromotion
2015-12-28 00:00:00	2	LIQUOR,WINE,BEER	165	0
2017-03-13 00:00:00	5	LIQUOR,WINE,BEER	51	1
2017-03-14 00:00:00	1	LIQUOR,WINE,BEER	88	1
2017-03-14 00:00:00	2	LIQUOR,WINE,BEER	50	2
2017-03-14 00:00:00	3	LIQUOR,WINE,BEER	94	1
2017-03-14 00:00:00	4	LIQUOR,WINE,BEER	48	1
2014-03-19 00:00:00	3	LIQUOR,WINE,BEER	176	0
2014-03-19 00:00:00	4	LIQUOR,WINE,BEER	38	0

Create a new Automated ML job

- Select data asset
- Configure job
- **Select task and settings**
- Hyperparameter configuration (Computer Vision only)
- Validate and test

Time series forecasting

To predict values based on time.

The time series forecasting method requires some additional information.

Time column *

date (Date)

Time series identifier(s)

Autodetect

Frequency *

Autodetect

Forecast horizon *

Autodetect

Enable deep learning

Back | Next | Cancel

Eastern Analytics, Inc. > ea-azure-ml > Jobs > Demo-Grocery-Time-Series-Forecast > AutoML - Time Series Forecast - BEER/WINE Demo

AutoML - Time Series Forecast - BEER/WINE Demo

Completed

Overview | Data guardrails | Models | Outputs + logs | Child jobs

Refresh | Edit and submit (preview) | Register model | Cancel | Delete

Properties

Status

Completed

Warning: No scores improved over last 20 iterations, so experiment stopped early. This early stopping behavior can be disabled by setting enable_early_stopping = False in AutoMLConfig for notebook/python SDK runs.

See more details

Created on

Sep 19, 2022 8:21 PM

Start time

Sep 19, 2022 8:21 PM

Duration

33m 26.51s

Compute duration

Inputs

Input name: training_data

Dataset: Demo_Time_Series_Grocery_Train:2

Input name: test_data

Dataset: Demo_Time_Series_Grocery_Test:2

Outputs

Output name: default

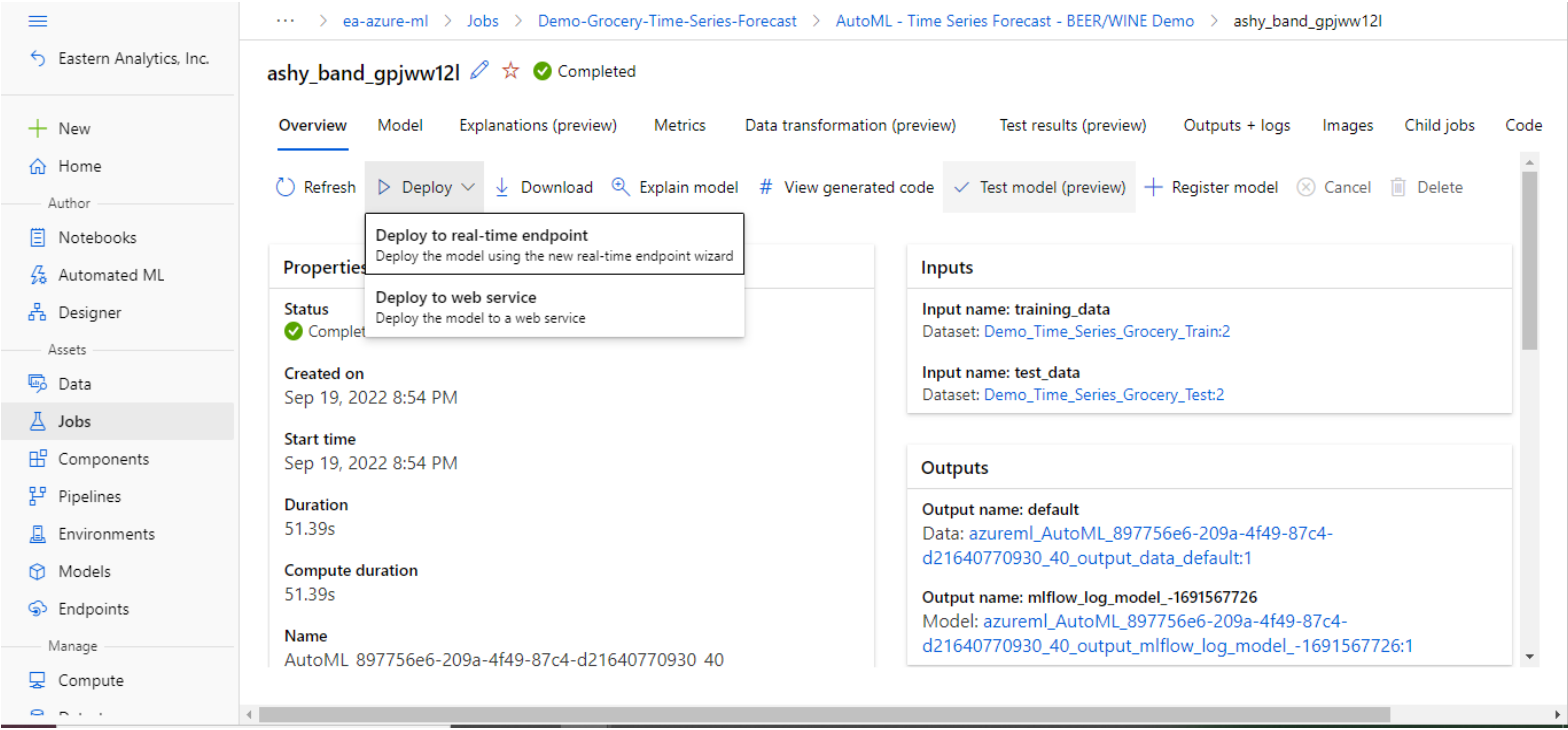
Data: azureml_AutoML_897756e6-209a-4f49-87c4-d21640770930_40_output_data_default:1

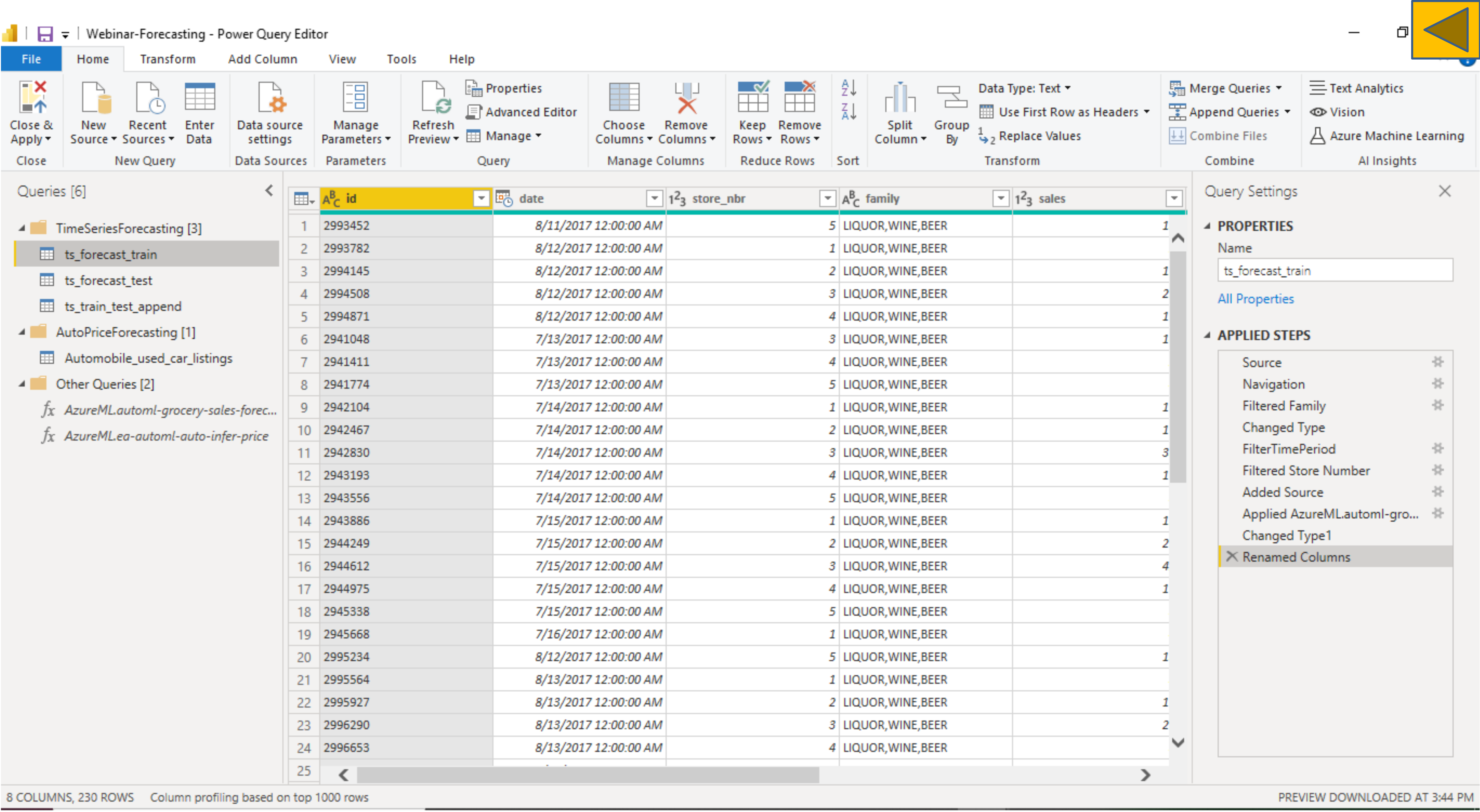
Output name: best_model

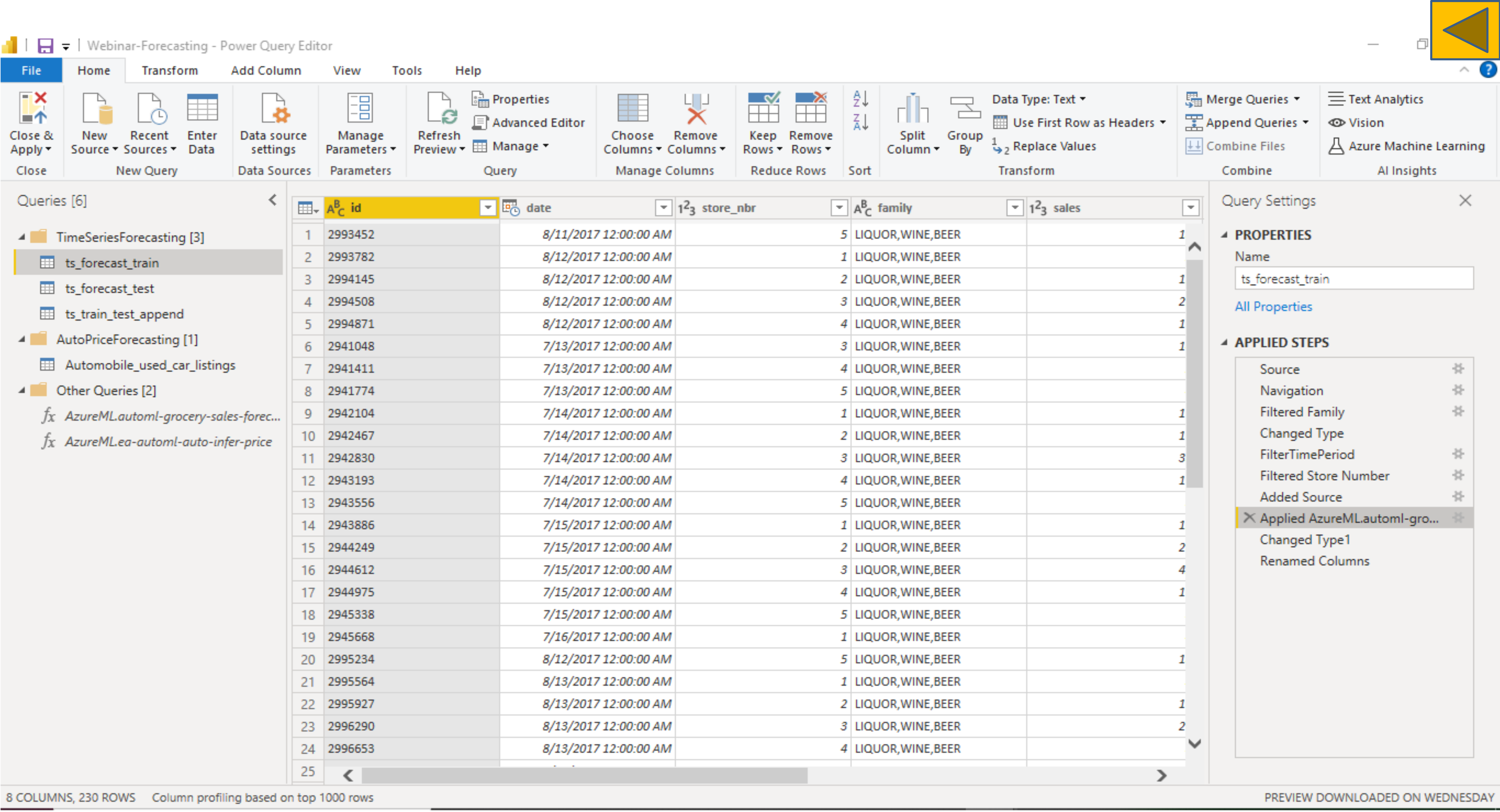
Model: azureml_AutoML_897756e6-209a-4f49-87c4-d21640770930_40_output_mlflow_log_model_-1691567726:1

Output name: full_training_dataset

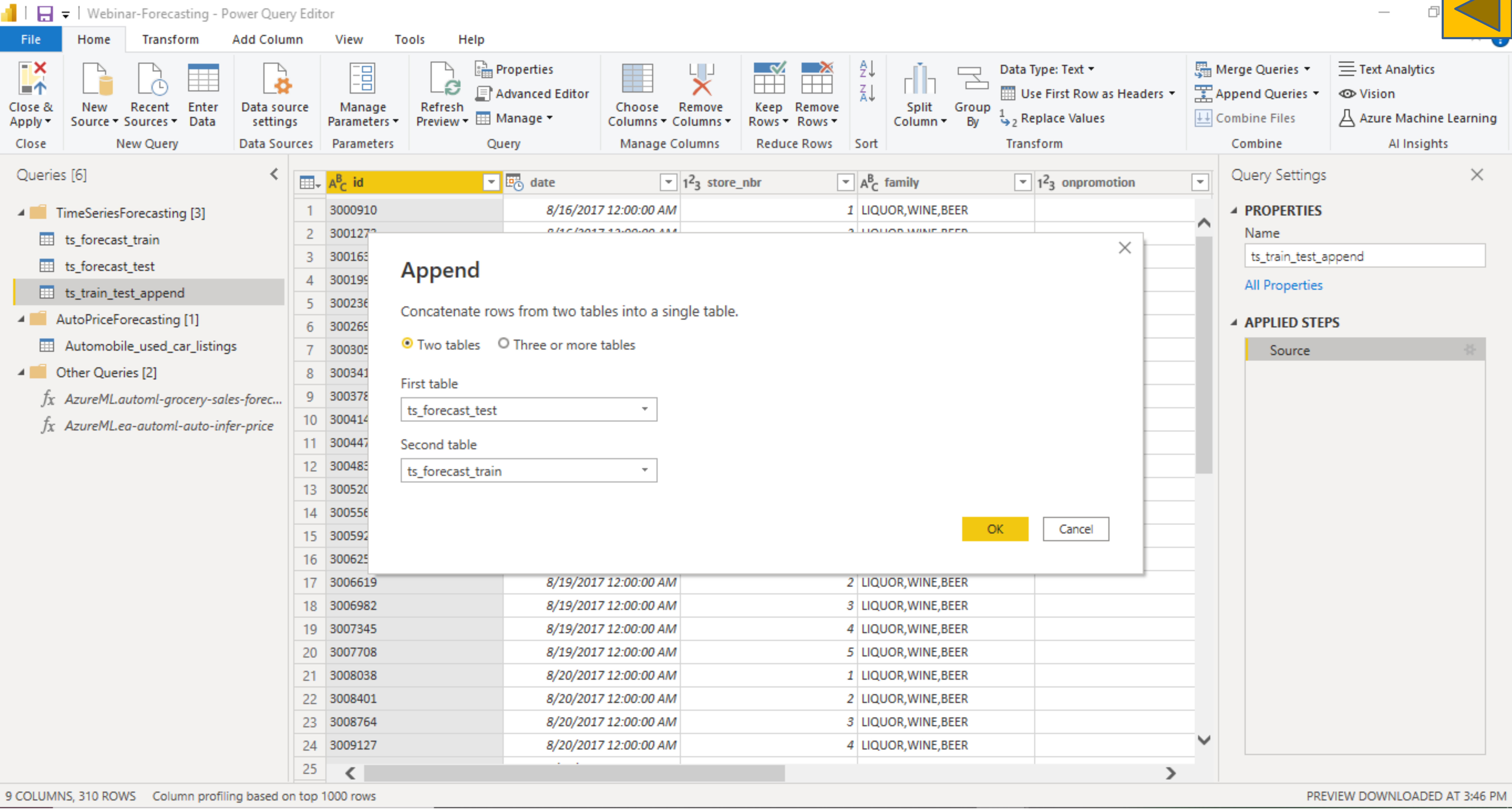
oscriptions/593015e9-764b-42f7-9668-343a...

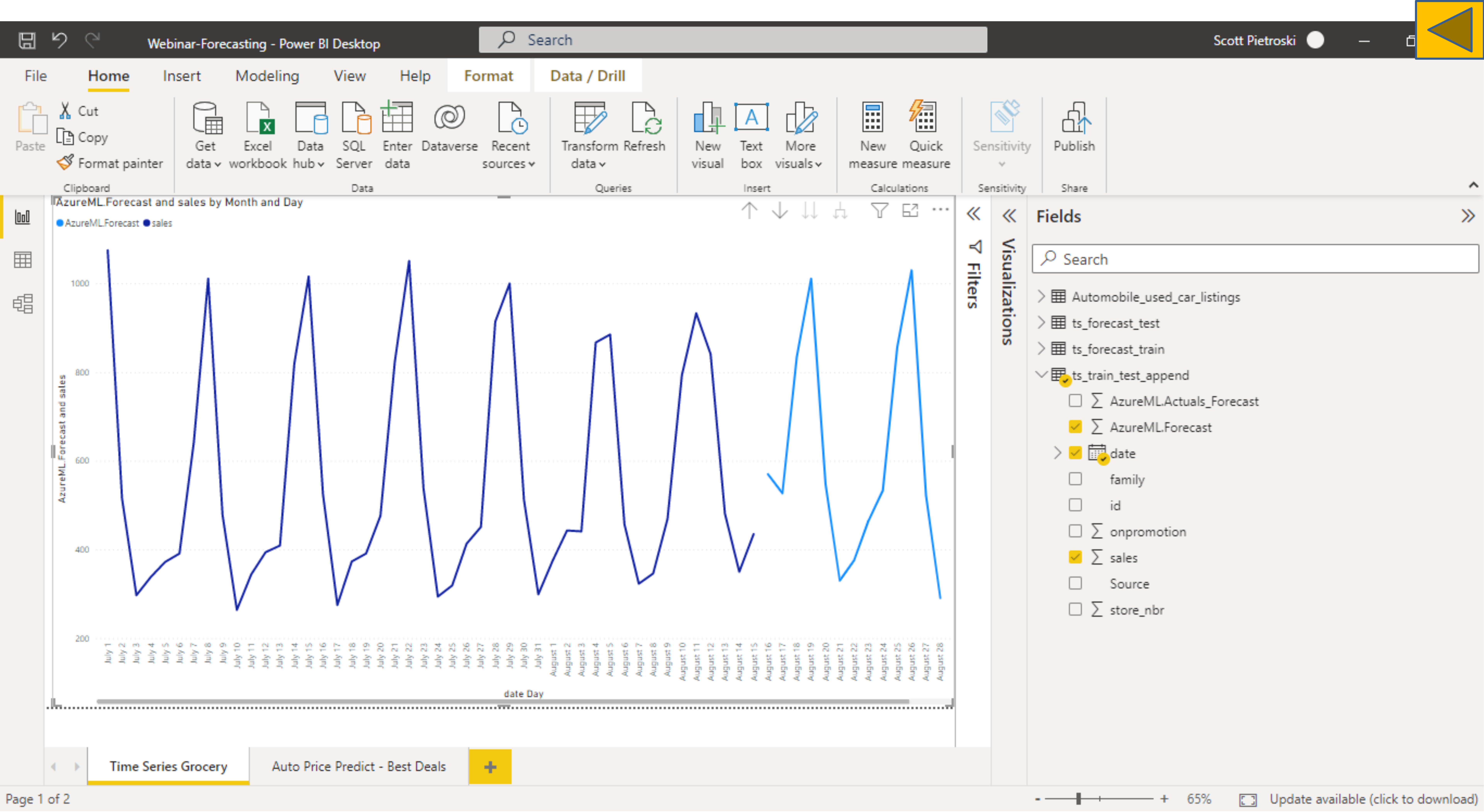

Eastern Analytics, Inc.
New
Home
Author
Notebooks
Automated ML
Designer
Assets
Data
Jobs
Components
Pipelines
Environments
Models
Endpoints
Manage
Compute
ea-azure-ml > Jobs > Demo-Grocery-Time-Series-Forecast > AutoML - Time Series Forecast - BEER/WINE Demo > ashy_band_gpjww12l
ashy_band_gpjww12l
Completed
Overview
Model
Explanations (preview)
Metrics
Data transformation (preview)
Test results (preview)
Outputs + logs
Images
Child jobs
Code
Refresh
Deploy
Download
Explain model
View generated code
Test model (preview)
Register model
Cancel
Delete
Deploy to real-time endpoint
Deploy the model using the new real-time endpoint wizard
Deploy to web service
Deploy the model to a web service
Properties
Status
Complet
Created on
Sep 19, 2022 8:54 PM
Start time
Sep 19, 2022 8:54 PM
Duration
51.39s
Compute duration
51.39s
Name
AutoML_897756e6-209a-4f49-87c4-d21640770930_40
Inputs
Input name: training_data
Dataset: Demo_Time_Series_Grocery_Train:2
Input name: test_data
Dataset: Demo_Time_Series_Grocery_Test:2
Outputs
Output name: default
Data: azureml_AutoML_897756e6-209a-4f49-87c4-d21640770930_40_output_data_default:1
Output name: mlflow_log_model_-1691567726
Model: azureml_AutoML_897756e6-209a-4f49-87c4-d21640770930_40_output_mlflow_log_model_-1691567726:1

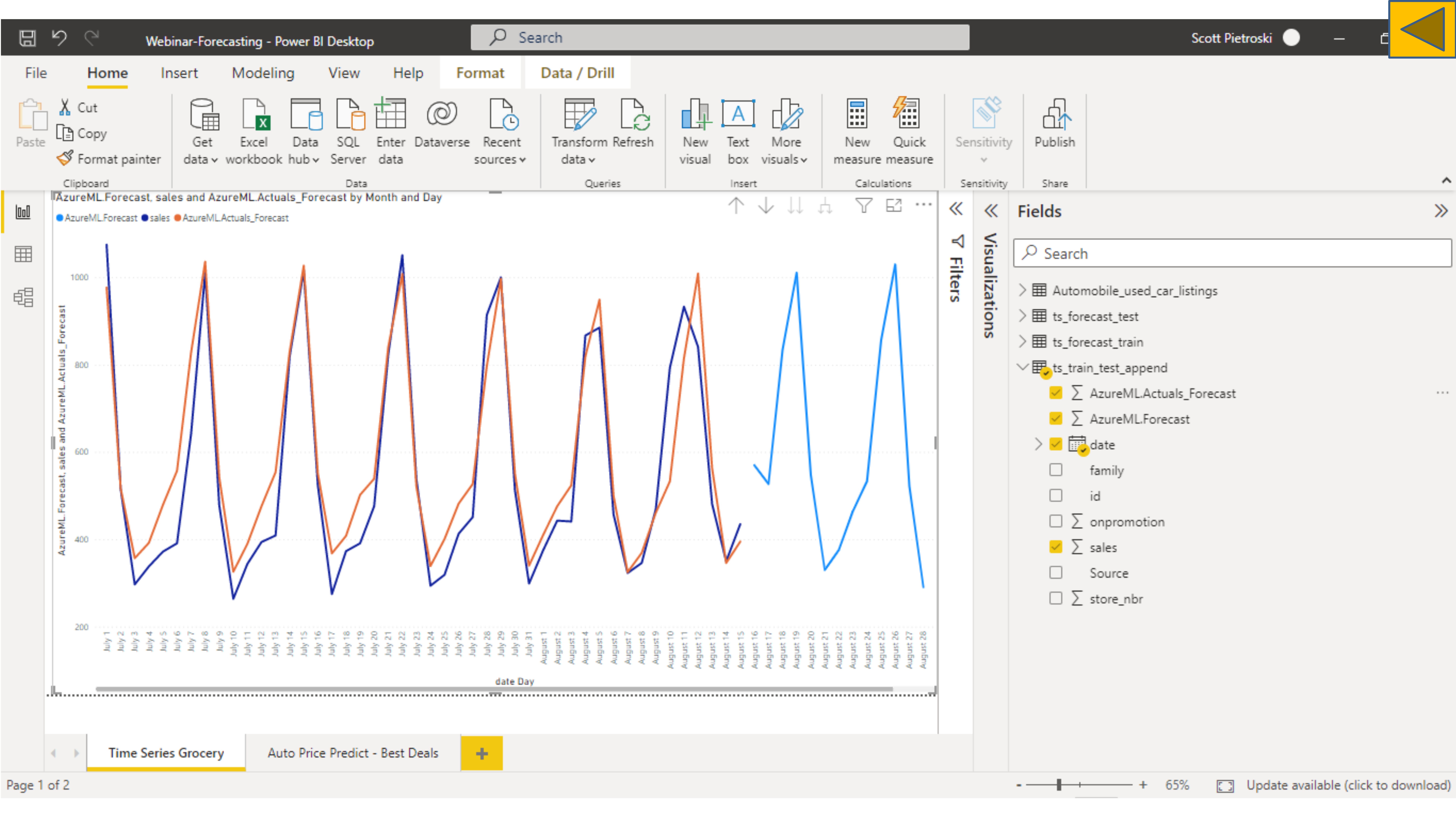

Webinar-Forecasting - Power Query Editor
File
Home
Transform
Add Column
View
Tools
Help
Close & Apply
Close
New Source
Recent Sources
Enter Data
New Query
Data source settings
Data Sources
Manage Parameters
Parameters
Refresh Preview
Properties
Advanced Editor
Manage
Query
Choose Columns
Remove Columns
Manage Columns
Keep Rows
Remove Rows
Reduce Rows
Sort
Split Column
Group By
Data Type: Text
Use First Row as Headers
Replace Values
Transform
Merge Queries
Append Queries
Combine Files
Combine
Text Analytics
Vision
Azure Machine Learning
AI Insights
Queries [6]
TimeSeriesForecasting [3]
ts_forecast_train
ts_forecast_test
ts_train_test_append
AutoPriceForecasting [1]
Automobile_used_car_listings
Other Queries [2]
AzureML.automl-grocery-sales-forec...
AzureML.ea-automl-auto-infer-price
id
date
store_nbr
family
sales
1 2993452 8/11/2017 12:00:00 AM 5 LIQUOR,WINE,BEER 1
2 2993782 8/12/2017 12:00:00 AM 1 LIQUOR,WINE,BEER
3 2994145 8/12/2017 12:00:00 AM 2 LIQUOR,WINE,BEER 1
4 2994508 8/12/2017 12:00:00 AM 3 LIQUOR,WINE,BEER 2
5 2994871 8/12/2017 12:00:00 AM 4 LIQUOR,WINE,BEER 1
6 2941048 7/13/2017 12:00:00 AM 3 LIQUOR,WINE,BEER 1
7 2941411 7/13/2017 12:00:00 AM 4 LIQUOR,WINE,BEER
8 2941774 7/13/2017 12:00:00 AM 5 LIQUOR,WINE,BEER
9 2942104 7/14/2017 12:00:00 AM 1 LIQUOR,WINE,BEER 1
10 2942467 7/14/2017 12:00:00 AM 2 LIQUOR,WINE,BEER 1
11 2942830 7/14/2017 12:00:00 AM 3 LIQUOR,WINE,BEER 3
12 2943193 7/14/2017 12:00:00 AM 4 LIQUOR,WINE,BEER 1
13 2943556 7/14/2017 12:00:00 AM 5 LIQUOR,WINE,BEER
14 2943886 7/15/2017 12:00:00 AM 1 LIQUOR,WINE,BEER 1
15 2944249 7/15/2017 12:00:00 AM 2 LIQUOR,WINE,BEER 2
16 2944612 7/15/2017 12:00:00 AM 3 LIQUOR,WINE,BEER 4
17 2944975 7/15/2017 12:00:00 AM 4 LIQUOR,WINE,BEER 1
18 2945338 7/15/2017 12:00:00 AM 5 LIQUOR,WINE,BEER
19 2945668 7/16/2017 12:00:00 AM 1 LIQUOR,WINE,BEER
20 2995234 8/12/2017 12:00:00 AM 5 LIQUOR,WINE,BEER 1
21 2995564 8/13/2017 12:00:00 AM 1 LIQUOR,WINE,BEER
22 2995927 8/13/2017 12:00:00 AM 2 LIQUOR,WINE,BEER 1
23 2996290 8/13/2017 12:00:00 AM 3 LIQUOR,WINE,BEER 2
24 2996653 8/13/2017 12:00:00 AM 4 LIQUOR,WINE,BEER
25
Query Settings
PROPERTIES
Name
ts_forecast_train
All Properties
APPLIED STEPS
Source
Navigation
Filtered Family
Changed Type
FilterTimePeriod
Filtered Store Number
Added Source
Applied AzureML.automl-gro...
Changed Type1
Renamed Columns
8 COLUMNS, 230 ROWS
Column profiling based on top 1000 rows
PREVIEW DOWNLOADED AT 3:44 PM

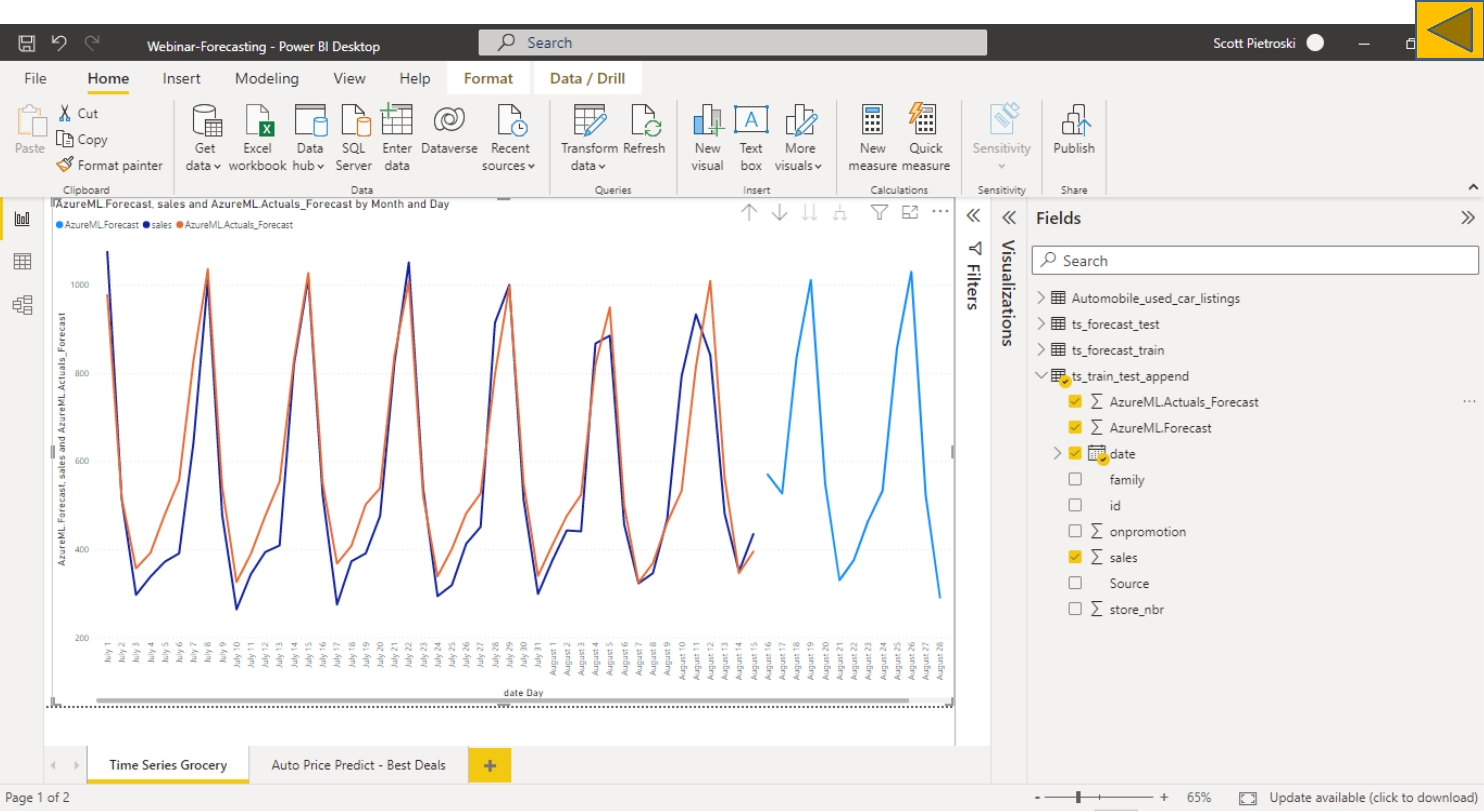


	id	date	store_nbr	family	sales
1	2993452	8/11/2017 12:00:00 AM	5	LIQUOR,WINE,BEER	1
2	2993782	8/12/2017 12:00:00 AM	1	LIQUOR,WINE,BEER	
3	2994145	8/12/2017 12:00:00 AM	2	LIQUOR,WINE,BEER	1
4	2994508	8/12/2017 12:00:00 AM	3	LIQUOR,WINE,BEER	2
5	2994871	8/12/2017 12:00:00 AM	4	LIQUOR,WINE,BEER	1
6	2941048	7/13/2017 12:00:00 AM	3	LIQUOR,WINE,BEER	1
7	2941411	7/13/2017 12:00:00 AM	4	LIQUOR,WINE,BEER	
8	2941774	7/13/2017 12:00:00 AM	5	LIQUOR,WINE,BEER	
9	2942104	7/14/2017 12:00:00 AM	1	LIQUOR,WINE,BEER	1
10	2942467	7/14/2017 12:00:00 AM	2	LIQUOR,WINE,BEER	1
11	2942830	7/14/2017 12:00:00 AM	3	LIQUOR,WINE,BEER	3
12	2943193	7/14/2017 12:00:00 AM	4	LIQUOR,WINE,BEER	1
13	2943556	7/14/2017 12:00:00 AM	5	LIQUOR,WINE,BEER	
14	2943886	7/15/2017 12:00:00 AM	1	LIQUOR,WINE,BEER	1
15	2944249	7/15/2017 12:00:00 AM	2	LIQUOR,WINE,BEER	2
16	2944612	7/15/2017 12:00:00 AM	3	LIQUOR,WINE,BEER	4
17	2944975	7/15/2017 12:00:00 AM	4	LIQUOR,WINE,BEER	1
18	2945338	7/15/2017 12:00:00 AM	5	LIQUOR,WINE,BEER	
19	2945668	7/16/2017 12:00:00 AM	1	LIQUOR,WINE,BEER	
20	2995234	8/12/2017 12:00:00 AM	5	LIQUOR,WINE,BEER	1
21	2995564	8/13/2017 12:00:00 AM	1	LIQUOR,WINE,BEER	
22	2995927	8/13/2017 12:00:00 AM	2	LIQUOR,WINE,BEER	1
23	2996290	8/13/2017 12:00:00 AM	3	LIQUOR,WINE,BEER	2
24	2996653	8/13/2017 12:00:00 AM	4	LIQUOR,WINE,BEER	
25					


Webinar-Forecasting - Power Query Editor
File
Home
Transform
Add Column
View
Tools
Help
Close & Apply
New Source
Recent Sources
Enter Data
Data source settings
Manage Parameters
Refresh Preview
Properties
Advanced Editor
Manage
Choose Columns
Remove Columns
Keep Rows
Remove Rows
Split Column
Group By
Data Type: Text
Use First Row as Headers
Replace Values
Merge Queries
Append Queries
Combine Files
Text Analytics
Vision
Azure Machine Learning
Close
New Query
Data Sources
Parameters
Query
Manage Columns
Reduce Rows
Sort
Transform
Combine
AI Insights
Queries [6]
TimeSeriesForecasting [3]
ts_forecast_train
ts_forecast_test
ts_train_test_append
AutoPriceForecasting [1]
Automobile_used_car_listings
Other Queries [2]
AzureML.automl-grocery-sales-forec...
AzureML.ea-automl-auto-infer-price
id
date
store_nbr
family
onpromotion
3000910
8/16/2017 12:00:00 AM
1
LIQUOR,WINE,BEER
Append
Concatenate rows from two tables into a single table.
Two tables
Three or more tables
First table
ts_forecast_test
Second table
ts_forecast_train
OK
Cancel
3006619
8/19/2017 12:00:00 AM
2
LIQUOR,WINE,BEER
3006982
8/19/2017 12:00:00 AM
3
LIQUOR,WINE,BEER
3007345
8/19/2017 12:00:00 AM
4
LIQUOR,WINE,BEER
3007708
8/19/2017 12:00:00 AM
5
LIQUOR,WINE,BEER
3008038
8/20/2017 12:00:00 AM
1
LIQUOR,WINE,BEER
3008401
8/20/2017 12:00:00 AM
2
LIQUOR,WINE,BEER
3008764
8/20/2017 12:00:00 AM
3
LIQUOR,WINE,BEER
3009127
8/20/2017 12:00:00 AM
4
LIQUOR,WINE,BEER
Query Settings
PROPERTIES
Name
ts_train_test_append
All Properties
APPLIED STEPS
Source
9 COLUMNS, 310 ROWS
Column profiling based on top 1000 rows
PREVIEW DOWNLOADED AT 3:46 PM


Webinar-Forecasting - Power BI Desktop
Search
Scott Pietroski
File
Home
Insert
Modeling
View
Help
Format
Data / Drill
Paste
Cut
Copy
Format painter
Clipboard
Get data
Excel workbook
Data hub
SQL Server
Enter data
Dataverse
Recent sources
Data
Transform data
Refresh
Queries
New visual
Text box
More visuals
Insert
New measure
Quick measure
Calculations
Sensitivity
Sensitivity
Publish
Share
AzureML.Forecast and sales by Month and Day
AzureML.Forecast
sales
AzureML.Forecast and sales
1000
800
600
400
200
date Day
Filters
Visualizations
Fields
Search
Automobile_used_car_listings
ts_forecast_test
ts_forecast_train
ts_train_test_append
AzureML.Actuals_Forecast
AzureML.Forecast
date
family
id
onpromotion
sales
Source
store_nbr
Time Series Grocery
Auto Price Predict - Best Deals
Page 1 of 2
65%
Update available (click to download)


Webinar-Forecasting - Power BI Desktop
Search
Scott Pietroski
File
Home
Insert
Modeling
View
Help
Format
Data / Drill
Paste
Cut
Copy
Format painter
Clipboard
Get data
Excel workbook
Data hub
SQL Server
Enter data
Dataverse
Recent sources
Data
Transform data
Refresh
Queries
New visual
Text box
More visuals
Insert
New measure
Quick measure
Calculations
Sensitivity
Sensitivity
Publish
Share
AzureML.Forecast, sales and AzureML.Actuals_Forecast by Month and Day
AzureML.Forecast
sales
AzureML.Actuals_Forecast
AzureML.Forecast, sales and AzureML.Actuals_Forecast
1000
800
600
400
200
date Day
Filters
Visualizations
Fields
Search
Automobile_used_car_listings
ts_forecast_test
ts_forecast_train
ts_train_test_append
AzureML.Actuals_Forecast
AzureML.Forecast
date
family
id
onpromotion
sales
Source
store_nbr
Time Series Grocery
Auto Price Predict - Best Deals
Page 1 of 2
65%
Update available (click to download)


Webinar-Forecasting - Power BI Desktop
Search
Scott Pietroski
File
Home
Insert
Modeling
View
Help
Format
Data / Drill
Paste
Cut
Copy
Format painter
Clipboard
Get data
Excel workbook
Data hub
SQL Server
Enter data
Dataverse
Recent sources
Data
Transform data
Refresh
Queries
New visual
Text box
More visuals
Insert
New measure
Quick measure
Calculations
Sensitivity
Sensitivity
Publish
Share
AzureML.Forecast, sales and AzureML.Actuals_Forecast by Month and Day
AzureML.Forecast
sales
AzureML.Actuals_Forecast
AzureML.Forecast, sales and AzureML.Actuals_Forecast
1000
800
600
400
200
date Day
Filters
Visualizations
Fields
Search
Automobile_used_car_listings
ts_forecast_test
ts_forecast_train
ts_train_test_append
AzureML.Actuals_Forecast
AzureML.Forecast
date
family
id
onpromotion
sales
Source
store_nbr
Time Series Grocery
Auto Price Predict - Best Deals
Page 1 of 2
65%
Update available (click to download)

Training Data – Historical Sales

Features				Sales
date	store_nbr	family	OnPromotion	Sales
1/1/2013	1	LIQUOR,WINE,BEER	0	$0.00
1/2/2013	1	LIQUOR,WINE,BEER	0	$67.00
1/3/2013	1	LIQUOR,WINE,BEER	0	$66.00
1/4/2013	1	LIQUOR,WINE,BEER	0	$102.00
1/5/2013	1	LIQUOR,WINE,BEER	2	$159.00
1/6/2013	1	LIQUOR,WINE,BEER	3	$0.00
1/7/2013	1	LIQUOR,WINE,BEER	0	$109.00
1/8/2013	1	LIQUOR,WINE,BEER	0	$86.00
1/9/2013	1	LIQUOR,WINE,BEER	3	$104.00
1/10/2013	1	LIQUOR,WINE,BEER	0	$67.00

Additional Features?

date	type	locale	locale_name	description
1/1/2013	Holiday	National	Ecuador	Primer dia del ano
1/5/2013	Work Day	National	Ecuador	Recupero puente Na
1/12/2013	Work Day	National	Ecuador	Recupero puente pri
2/11/2013	Holiday	National	Ecuador	Carnaval
2/12/2013	Holiday	National	Ecuador	Carnaval
3/2/2013	Holiday	Local	Manta	Fundacion de Manta

store_nbr	city	state	type	cluster
1	Quito	Pichincha	D	13
2	Quito	Pichincha	D	13
3	Quito	Pichincha	D	8
4	Quito	Pichincha	D	9

Testing Data – We want to predict future sales

Features				Sales
date	store_nbr	family	OnPromotion	Sales
1/11/2013	1	LIQUOR,WINE,BEER	3	?
1/12/2013	1	LIQUOR,WINE,BEER	3	?
1/13/2013	1	LIQUOR,WINE,BEER	3	?
1/14/2013	1	LIQUOR,WINE,BEER	0	?
1/15/2013	1	LIQUOR,WINE,BEER	0	?
1/16/2013	1	LIQUOR,WINE,BEER	1	?
1/17/2013	1	LIQUOR,WINE,BEER	0	?
1/18/2013	1	LIQUOR,WINE,BEER	0	?
1/19/2013	1	LIQUOR,WINE,BEER	0	?
1/20/2013	1	LIQUOR,WINE,BEER	0	?

Data Source: Kaggle – Grocery Sales in Ecuador. Data staged in Azure SQL Database