✓ 100 XP

Create and run a training pipeline

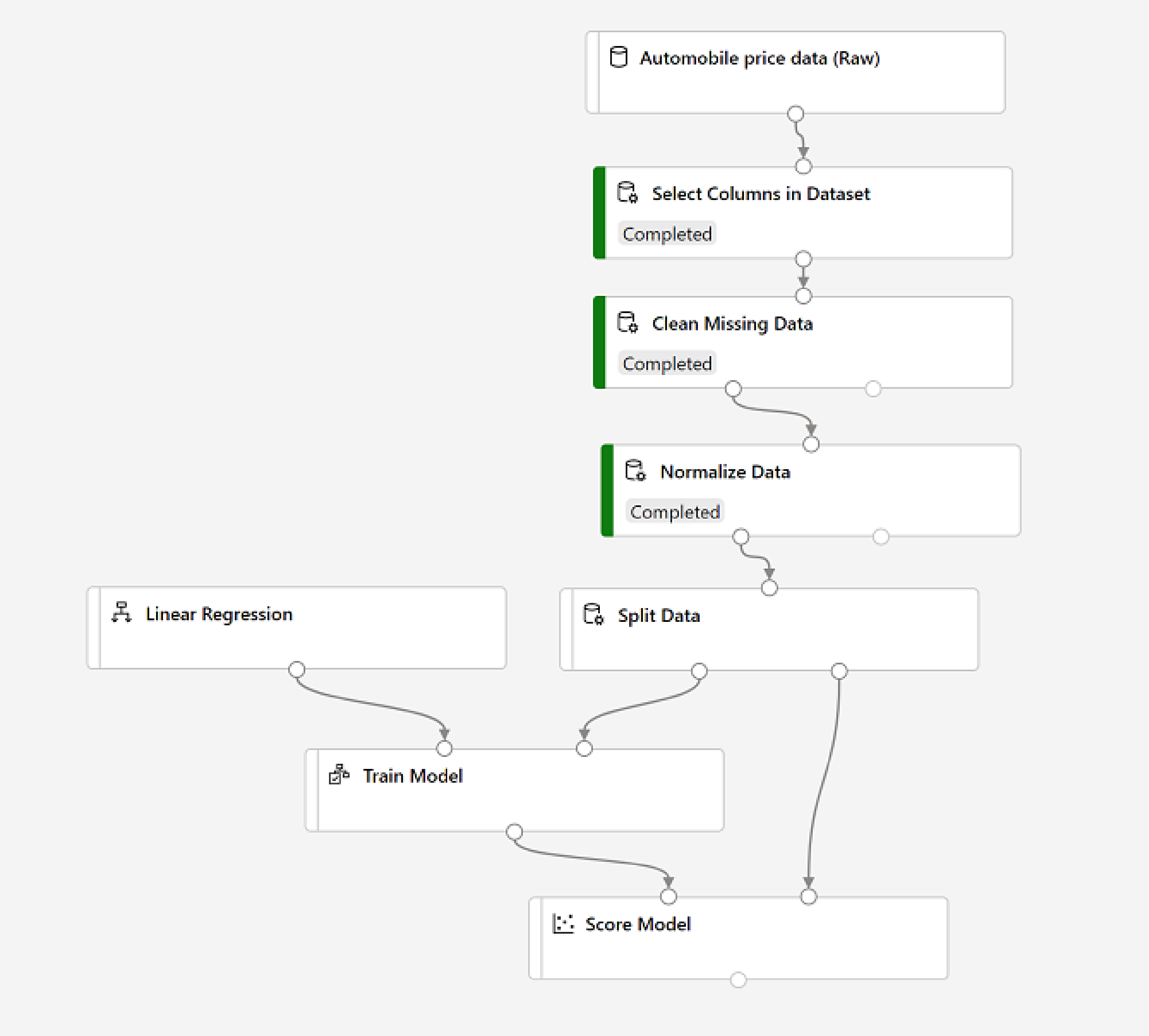
12 minutes

After you've used data transformations to prepare the data, you can use it to train a machine learning model.

Add training modules

It's common practice to train the model using a subset of the data, while holding back some data with which to test the trained model. This enables you to compare the labels that the model predicts with the actual known labels in the original dataset.

In this exercise, you're going to work through steps to extend the **Auto Price Training** pipeline as shown here:



Follow the steps below, using the image above for reference as you add and configure the required modules.

1. Open the **Auto Price Training** pipeline you created in the previous unit if it's not already open.

2. In the pane on the left, in the **Data Transformations** section, drag a **Split Data** module onto the canvas under the **Normalize Data** module. Then connect the *Transformed Dataset* (left) output of the **Normalize Data** module to the input of the **Split Data** module.

3. Select the **Split Data** module, and configure its settings as follows:

   - **Splitting mode**: Split Rows
   - **Fraction of rows in the first output dataset**: 0.7
   - **Random seed**: 123
   - **Stratified split**: False

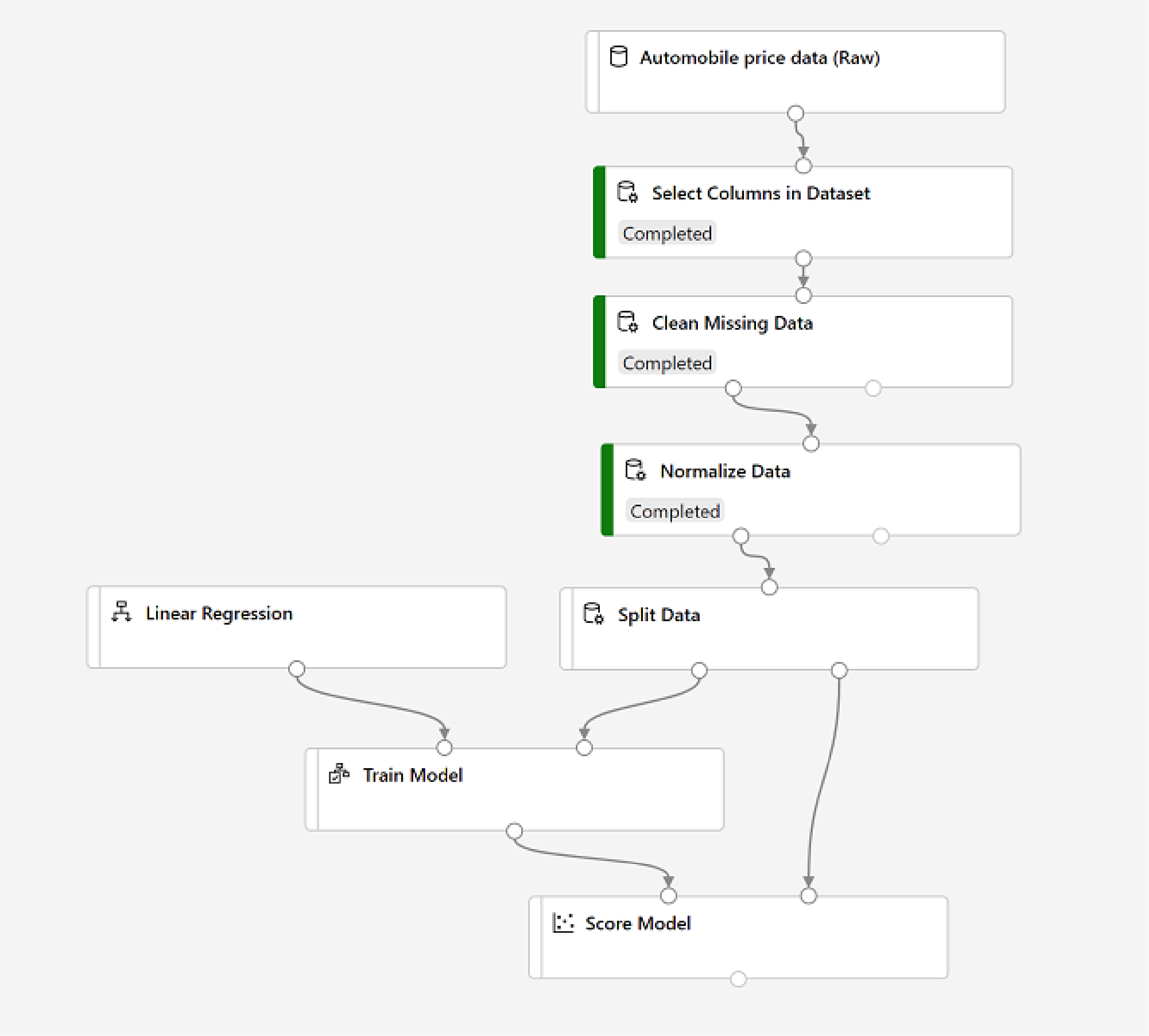
4. Expand the **Model Training** section in the pane on the left, and drag a **Train Model** module to the canvas, under the **Split Data** module. Then connect the *Result dataset1* (left) output of the **Split Data** module to the *Dataset* (right) input of the **Train Model** module.

5. The model we're training will predict the **price** value, so select the **Train Model** module and modify its settings to set the **Label column** to **price** (matching the case and spelling exactly!)

6. The **price** label the model will predict is a numeric value, so we need to train the model using a *regression* algorithm. Expand the **Machine Learning Algorithms** section, and under **Regression**, drag a **Linear Regression** module to the canvas, to the left of the **Split Data** module and above the **Train Model** module. Then connect its output to the **Untrained model** (left) input of the **Train Model** module.

> ⓘ Note
>
> There are multiple algorithms you can use to train a regression model. For help choosing one, take a look at the Machine Learning Algorithm Cheat Sheet for Azure Machine Learning designer .

7. To test the trained model, we need to use it to *score* the validation dataset we held back when we split the original data - in other words, predict labels for the features in the validation dataset. Expand the **Model Scoring & Evaluation** section and drag a **Score Model** module to the canvas, below the **Train Model** module. Then connect the output of the **Train Model** module to the **Trained model** (left) input of the **Score Model** module; and drag the **Results dataset2** (right) output of the **Split Data** module to the **Dataset** (right) input of the **Score Model** module.
8. Ensure your pipeline looks like this:



Run the training pipeline

Now you're ready to run the training pipeline and train the model.

1. Select **Submit**, and run the pipeline using the existing experiment named **mslearn-auto-training**.
2. Wait for the experiment run to complete. This may take 5 minutes or more.
3. When the experiment run has completed, select the **Score Model** module and in the settings pane, on the **Outputs + logs** tab, under **Data outputs** in the **Scored dataset** section, use the **Preview Data** icon to view the results.
4. Scroll to the right, and note that next to the **price** column (which contains the known true values of the label) there is a new column named **Scored labels**, which contains the predicted label values.
5. Close the **Score Model result visualization** window.

The model is predicting values for the **price** label, but how reliable are its predictions? To assess that, you need to evaluate the model.

Next unit: Evaluate a regression model

Continue >