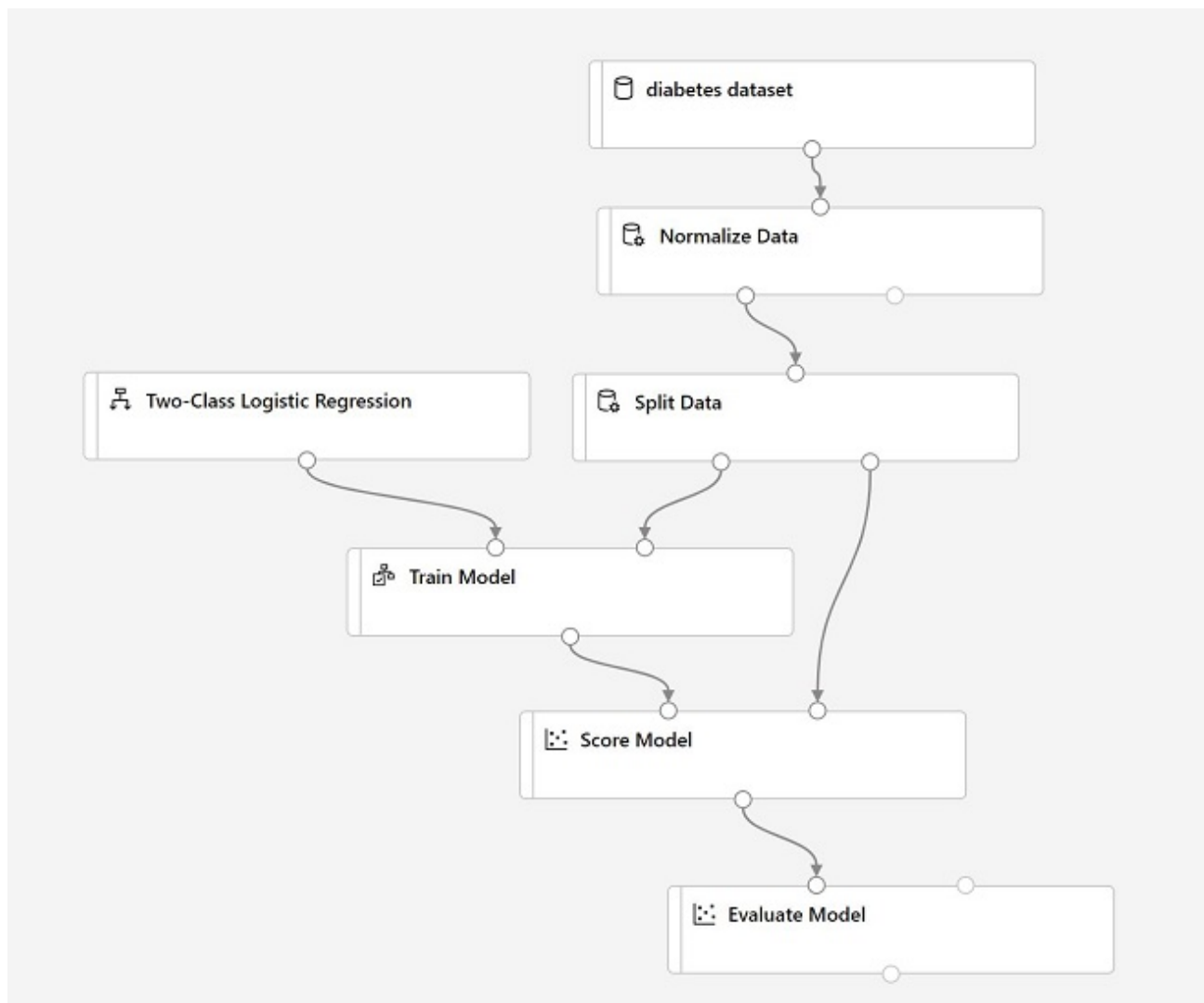


## Training Pipelines



Azure Machine Learning Designer includes modules for training, scoring, and evaluating machine learning models. The specific details vary depending on the kind of model you are implementing, but the general approach is the same:

1. Use an algorithm module to specify the type of model to be trained. Azure Machine Learning Designer supports a range of algorithms for both supervised learning (classification and regression), and unsupervised learning (clustering).
2. Train the model by fitting the algorithm to the training data. For supervised learning algorithms, you must use the **Train Model** module and specify the label to be predicted from the features in the training data. For unsupervised clustering, you must use the **Train Clustering Model** module.
3. For a supervised learning algorithm, you typically split the data into a training set and a validation set, so after training the model with the training set you can use a **Score Model** module to predict labels for the validation set and evaluate the model. For an unsupervised clustering model, this step may be replaced by using the **Assign Data to Clusters** module to cluster a validation dataset.

4. You can evaluate model performance by using the **Evaluate Model** module to view metrics generated by scoring the test data. The specific metrics and associated visualizations vary depending on the type of model - for example, a binary classification model produces metrics for *accuracy*, *precision*, and *recall* as well as a *Receiver Operator Characteristic* (ROC) chart; while a regression model produces metrics such as *Root Mean Squared Error* (RMSE) and *Coefficient of Determination* (usually referred to as  $R^2$ ).

The **Evaluate Model** module has two inputs, enabling you to train two models of the same type and evaluate them side-by-side to compare performance metrics.

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