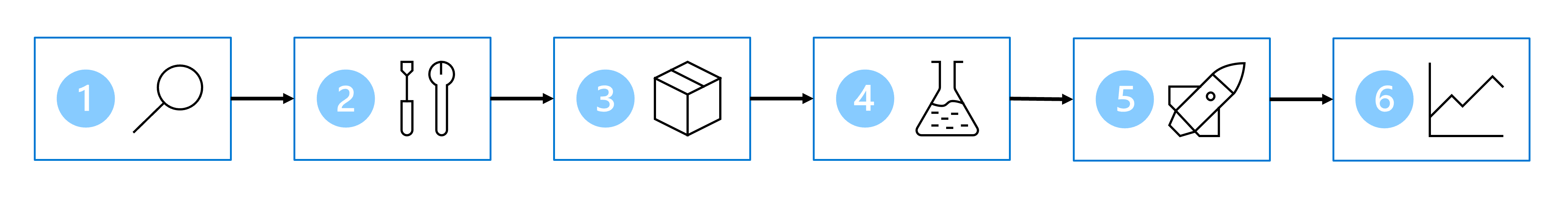
Module 3: Get started w/ ML in Azure

# ML Framework

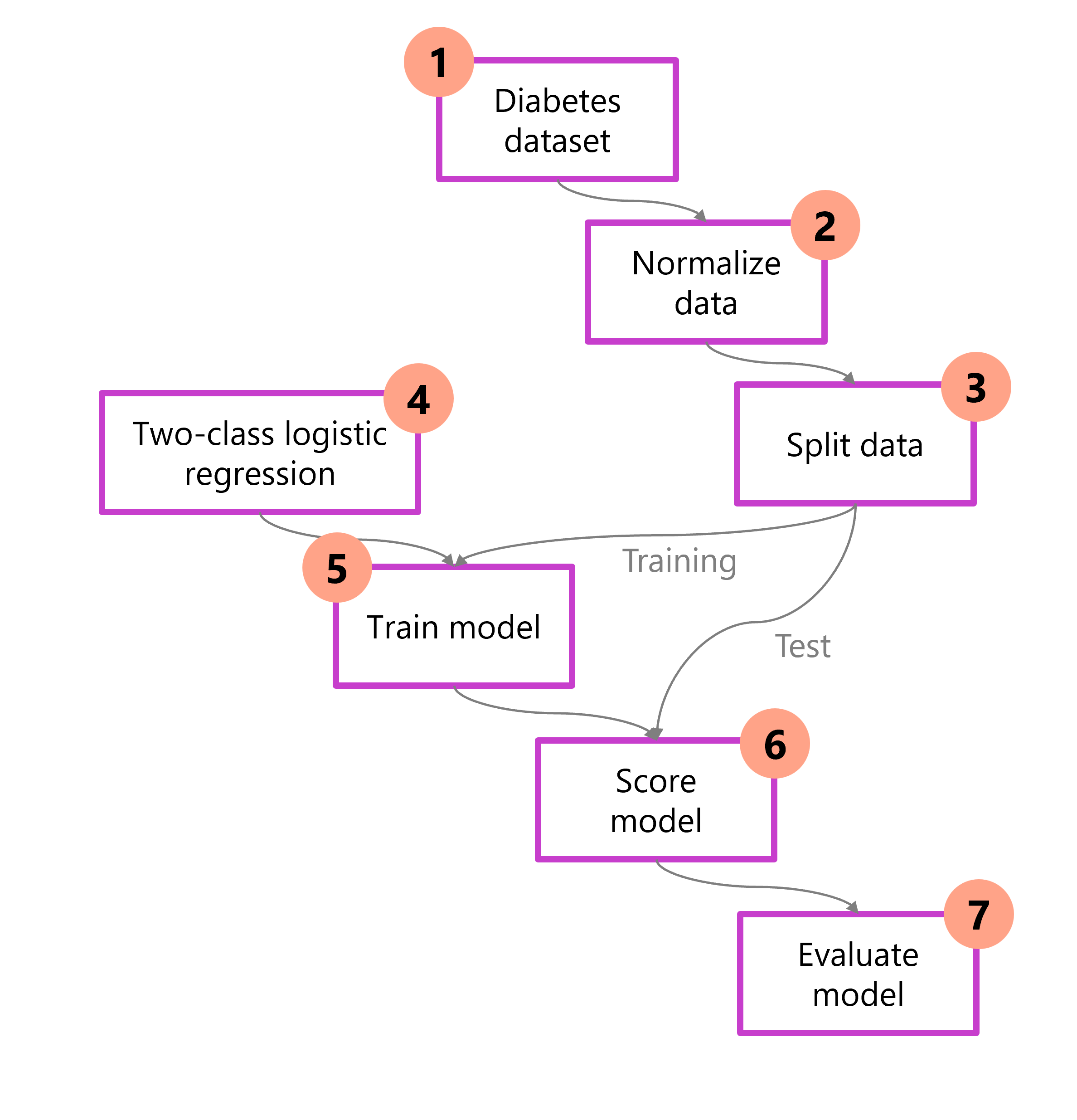


1. **Define the problem**: Decide on what model should predict and when it's successful.
2. **Get the data** from data sources.
3. **Prepare the data** through ETL based on the model's requirements.
4. **Train the model** by choosing right algorithm and hyper-parameter values based on trial and error.
5. **Integrate the model**: Deploy the model to an endpoint to generate predictions.
6. **Monitor the model’s** performance.

# Define the Problem

* **Criteria**:
  + What the model’s output should be.
  + What type of machine learning task you use.
  + What criteria make a model successful.
* Use Cases:
  + **Classification**: Predict a categorical value.
  + **Regression**: Predict a numerical value.
  + **Time-series forecasting**: Predict future numerical values based on time-series data.
  + **Computer vision**: Classify images or detect objects in images.
  + **Natural language processing** (NLP): Extract insights from text.

**Example**: *Determine if Patients have Diabetes*

* **Framework**: *Problem you're trying to solve and the type of data available determines the machine learning task you choose*.
  + In this case, the available data are other health data points from patients. We can represent the output we want as categorical information that either the patient has diabetes or doesn't have diabetes. Thus, the machine learning task is classification.
* 
  1. **Load data**: Import / inspect the dataset.
  2. **Preprocess data**: Normalize / clean.
  3. **Split data**: Separate into training and test sets.
  4. **Choose model / Algorithm**
  5. **Train model** to learn patterns from the training data.
  6. **Score model**: Generate predictions in test.
  7. **Evaluate**: Calculate performance metrics.

# Get and Prep Data

## Identity Data Source/Format

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