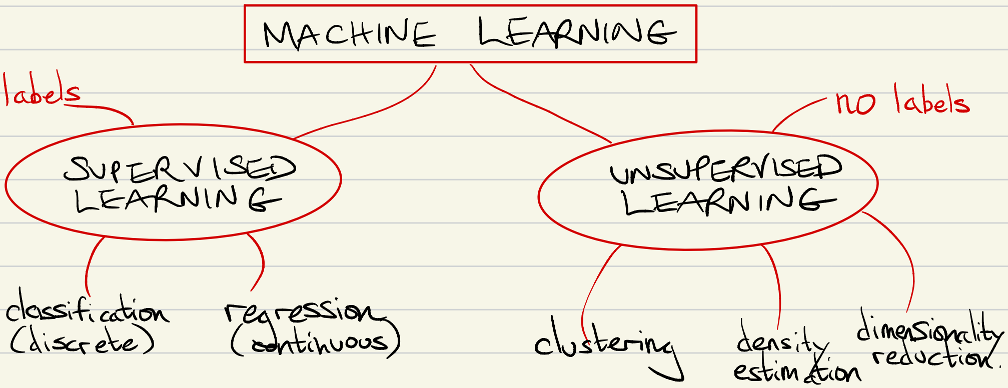
Lecture 13

Intro to Scikit-Learn



Terminology

* Data recorded in matrix form

$$\hookrightarrow [X] = [\underbrace{N_{samples}}_{\#\ datapoints}, \underbrace{N_{features}}_{\#\ attributes}]$$

* Some data will have labels (sklearn calls these "TARGETS") — stars, galaxies etc.

Scikit-Learn Workflow

1. Instantiate an estimator object
2. Fit estimator on data and labels
3. Predict new labels

or

4. Find model parameters

⇒ Usually partition dataset into TRAINING and TESTING sets.

Supervised Learning — labels

* Classification algorithms are trained on labelled data, and used to classify new object features.

* Regression (or "fitting") is the continuous form of classification.

Unsupervised Learning — no labels.

* Use the data to discover its own labels.

* Clustering (group similar data), density estimation (find the PDF), dimensionality reduction (find important features).