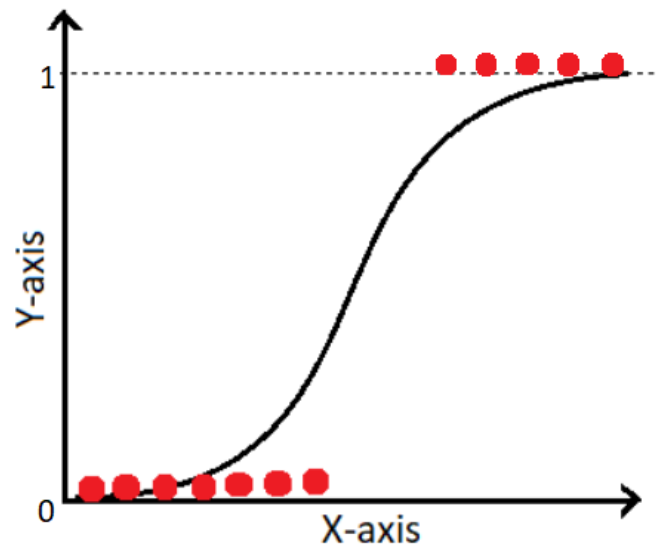


Machine Learning

Practical Sheet 3: Logistic Regression



1. Your task for today's practical class, is to adapt the "linear_regression.py" script to perform logistic regression.
 - At first, implement only the "two-classes" version
 - Generalize your script, to handle multi-class problems.

Also, consider different feature normalization strategies:

- Min-max
- Z-score

Download the data from the "**wine**" Dataset, available at the course web page.

- In this set, the goal is to use chemical analysis to determine the origin of different wines.
- There are 13 attributes, all numeric (either integer or real numbers):
 - 1) *Alcohol*
 - 2) *Malic acid*
 - 3) *Ash*
 - 4) *Alcalinity of ash*
 - 5) *Magnesium*



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- 6) *Total phenols*
 - 7) *Flavanoids*
 - 8) *Nonflavanoid phenols*
 - 9) *Proanthocyanins*
 - 10) *Color intensity*
 - 11) *Hue*
 - 12) *OD280/OD315 of diluted wines*
 - 13) *Proline*
-
- The dependent variable is provided in the first column.