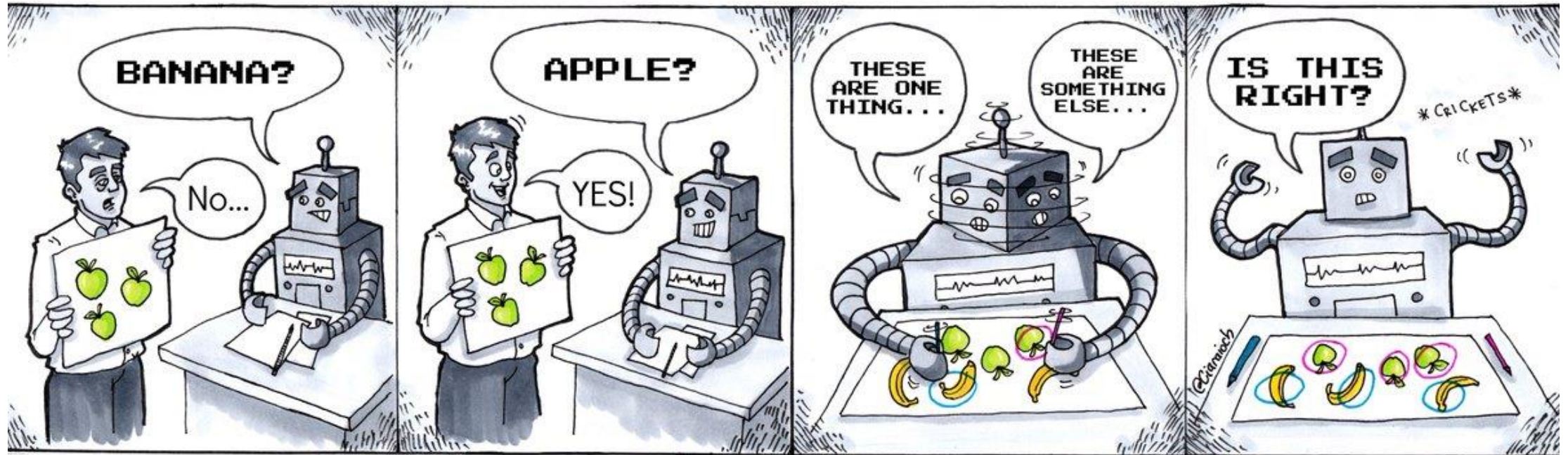


Supervised Learning

Arturo Aguilar, Diego Hernandez & Mariano Herrera

Supervised vs Unsupervised



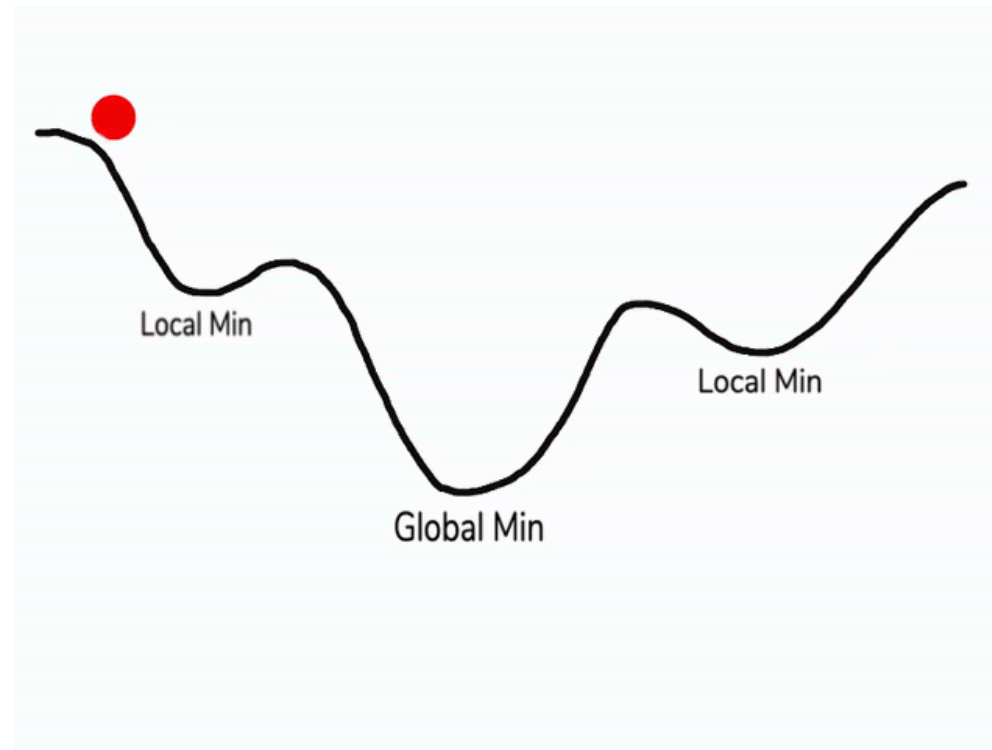
Supervised Learning

Unsupervised Learning

Some supervised algorithms [1]

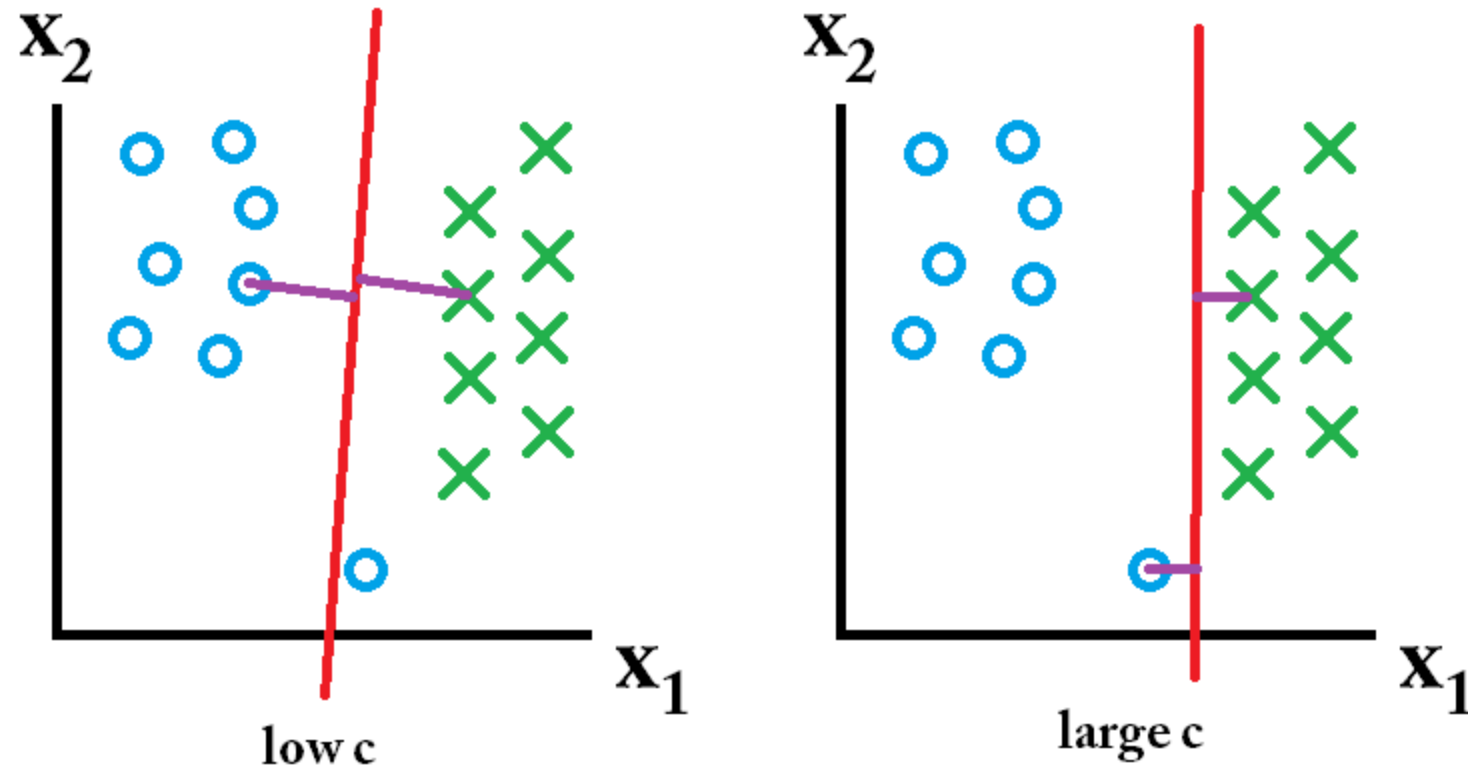
- [Linear Regression](#)
- Logistic Regression
- [K-Nearest Neighbors](#)
- [Support Vector Machines \(SVMs\)](#)
- [Decision Trees and Random Forest](#)

Training Models - Gradient Descent



Source: <https://towardsdatascience.com/gradient-descent-in-python-a0d07285742f>

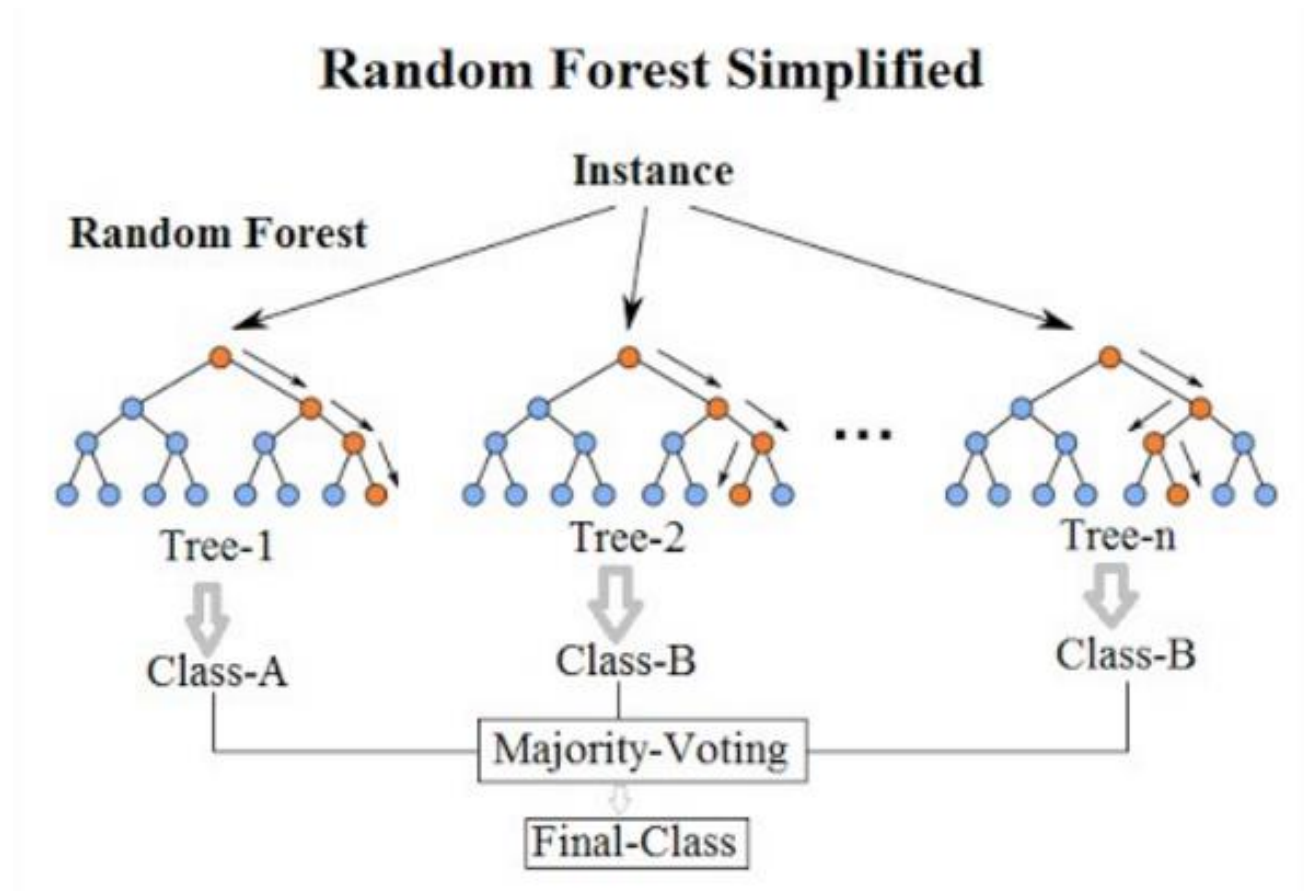
Regularization Parameters - SVM



Source: <https://stats.stackexchange.com/questions/31066/what-is-the-influence-of-c-in-svms-with-linear-kernel>

RandomForestClassifier

Random forests or random decision forests are an ensemble learning method for classification, regression and other tasks that operate by constructing a multitude of decision trees at training time and outputting the class that is the mode of the classes (classification) or mean/average prediction (regression) of the individual trees.

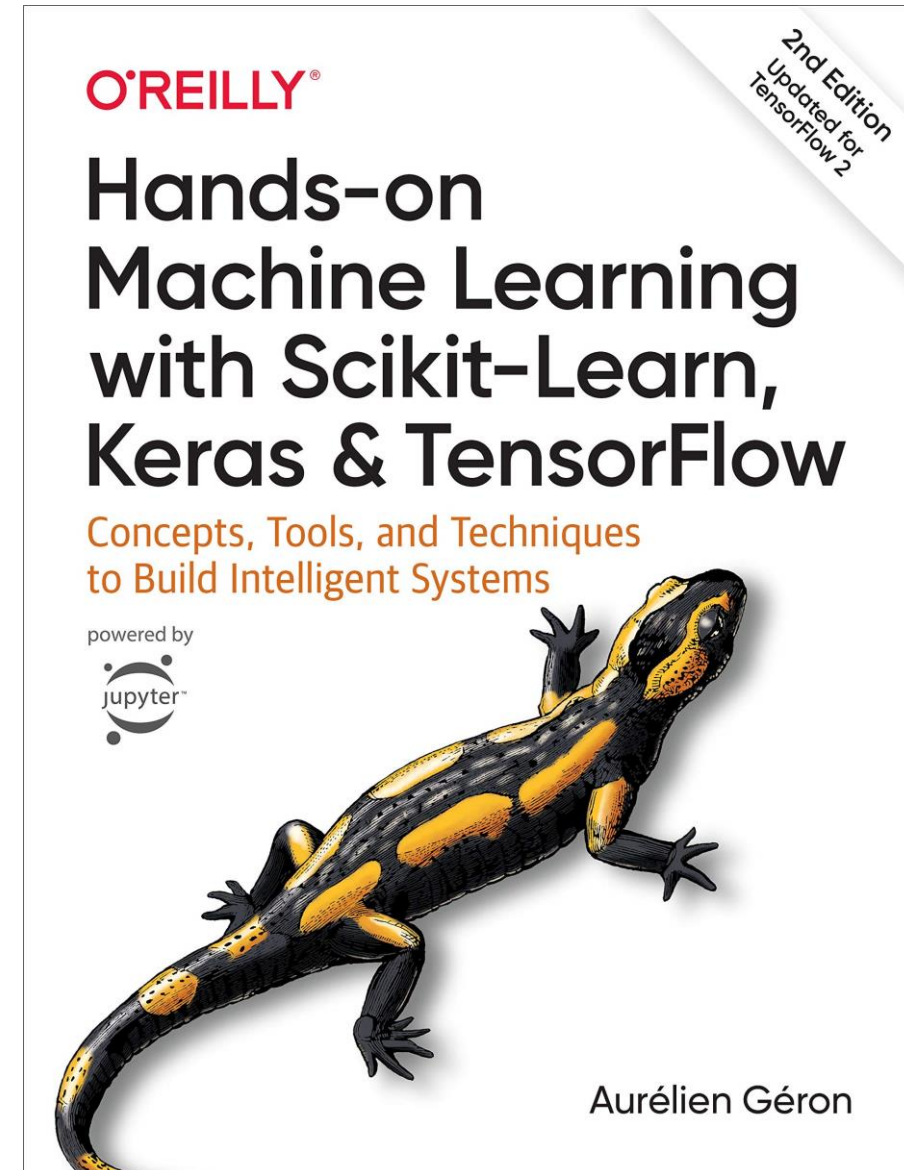


Source: https://en.wikipedia.org/wiki/Random_forest

Codes

<https://github.com/ageron/handson-ml2>

04_training_linear_models.ipynb



Earnings Sentiment Example

```
=====
Model Report:
Precision: The accuracy of the positive predictions
recall: Ratio of positive instances that are correctly detected by the classifier.
F1-Score: Is the harmonic mean of precision and recall. The harmonic mean gives much more weight to low values.
As a result, the classifier will only get a high F1 score if both recall and precision are high.
      precision    recall  f1-score   support

         0         0.80      1.00      0.89         4
         1         1.00      0.50      0.67         2

   accuracy              0.83         6
  macro avg              0.90      0.75      0.78         6
weighted avg              0.87      0.83      0.81         6

Accuracy pct:  83.33 %

=====

Write the report to analyze:
(ex. 2019_4): 2019_4

It is expected that the action will go DOWN on the next quarter.
```


Additional References

[1] Aurélien Géron (2019). Hands-On Machine Learning with Scikit-Learn, Keras & TensorFlow.

Disclaimer

The opinions expressed in this presentation and on the previous slides are solely those of the presenter.