Introduction to machine learning

Mardônio França / Vinicius Sampaio

boitatá lab

Introduction

1 - Why machine learning ?

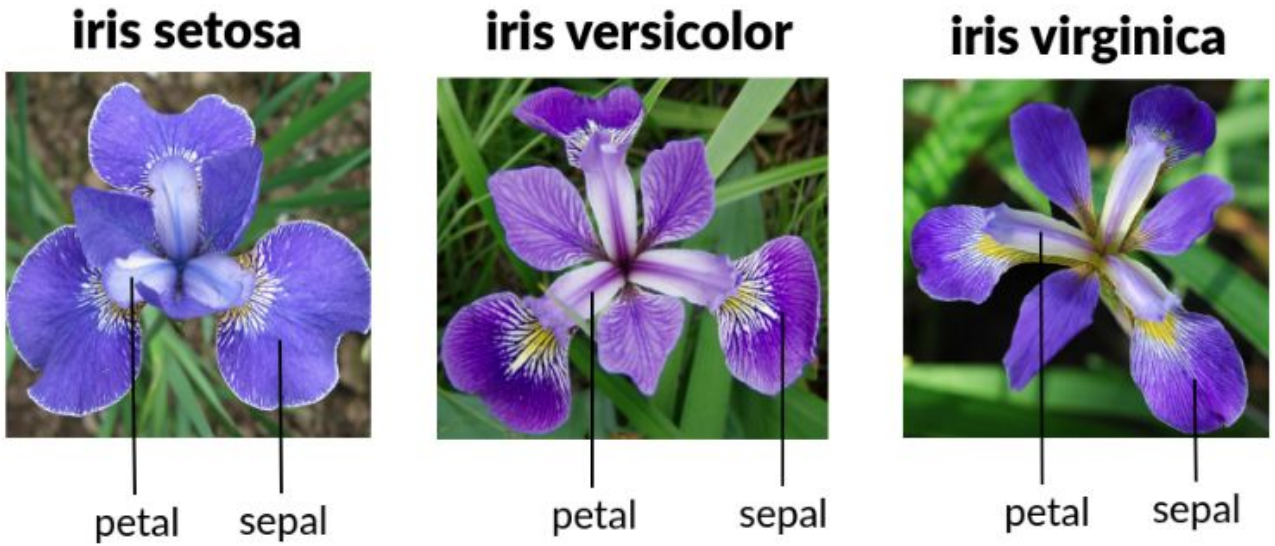
2 - Python

3 - Essential Libraries

- 3 - 1 - Jupyter notebook
- 3 - 2 - numpy
- 3 - 3 - pandas
- 3 - 4 - matplotlib
- 3 - 5 - scikit-learn

Introduction

4 - A first application : classifying Iris Species



Introduction

4 - A first application : classifying Iris Species

The Iris flower data set or Fisher's Iris data set is a multivariate data set introduced by the British statistician, eugenicist, and biologist Ronald Fisher in his 1936 paper the use of multiple measurements in taxonomic problems as an example of linear discriminant analysis.

Introduction

4 - A first application : classifying Iris Species

- 4- 1 - Meet the Data
- 4 - 2 - Measuring Success: Training and Testing Data
- 4 - 3 - First Things First : Look at Your Data
- 4 - 4 - Building Your First Model: k-Nearest Neighbors
- 4 - 5 - Making Predictions
- 4 -6 - Evaluating the Model

Introduction

4 - A second application : classifying Music genre

rock

reggae

salsa

Introduction

Data Acquisition

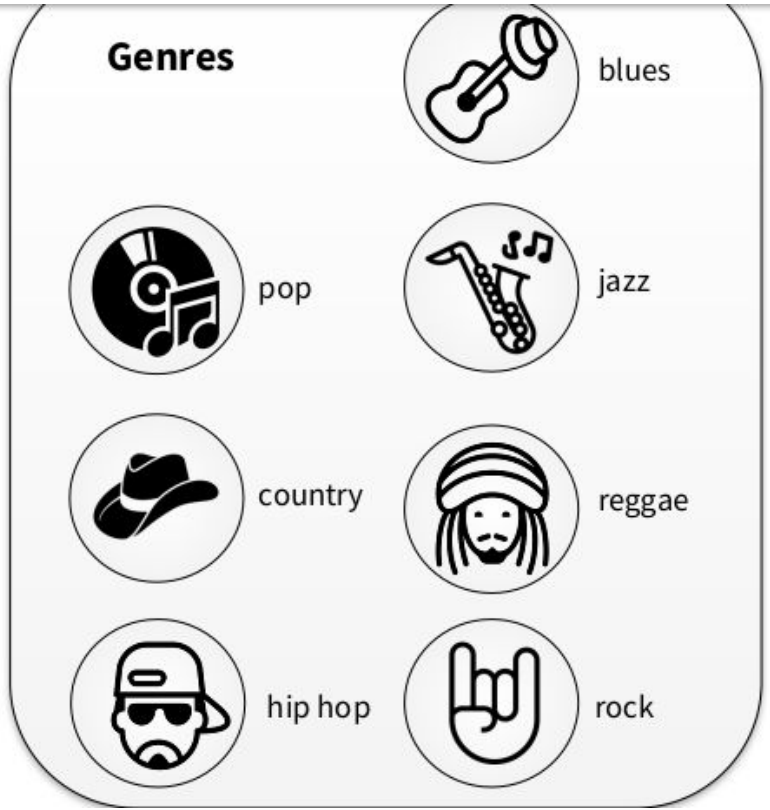
Defining our public

Number of songs:

82452

Release date

1950 2019



Introduction

Data Acquisition

Requesting songs information

Spotify API: Metadata

- *Acousticness*: Presence of acoustic instruments
- *Danceability*: Rhythm stability, beat strength
- *Loudness*: Average loudness in decibels
- *Instrumentalness*: Absence of vocals
- *Valence*: Measure of happiness
- *Energy*: Intensity and activity of music

Introduction

Data Acquisition

Requesting songs information

Spotify API: Metadata

- *Acousticness*: Presence of acoustic instruments
- *Danceability*: Rhythm stability, beat strength
- *Loudness*: Average loudness in decibels
- *Instrumentalness*: Absence of vocals
- *Valence*: Measure of happiness
- *Energy*: Intensity and activity of music

Lyrics Genius API: Lyrics

Introduction

ENIAC 2020 boitatálab Itaú

Temporal analysis and visualisation of music metadata and topic modelling of song lyrics

Authors:

- Luan Misael Gomes de Moura
- Carlos Henrique Quartucci Forster
- Emanuel Pinheiro Fontelles
- Mardônio Jó Carvalho de França
- Vinícius Amaro Sampaio

Thank you !