Workshop

Pemodelan Machine Learning Menggunakan Python

Asep Muhidin, S.Kom, M.Kom.

Universitas Pelita Bangsa

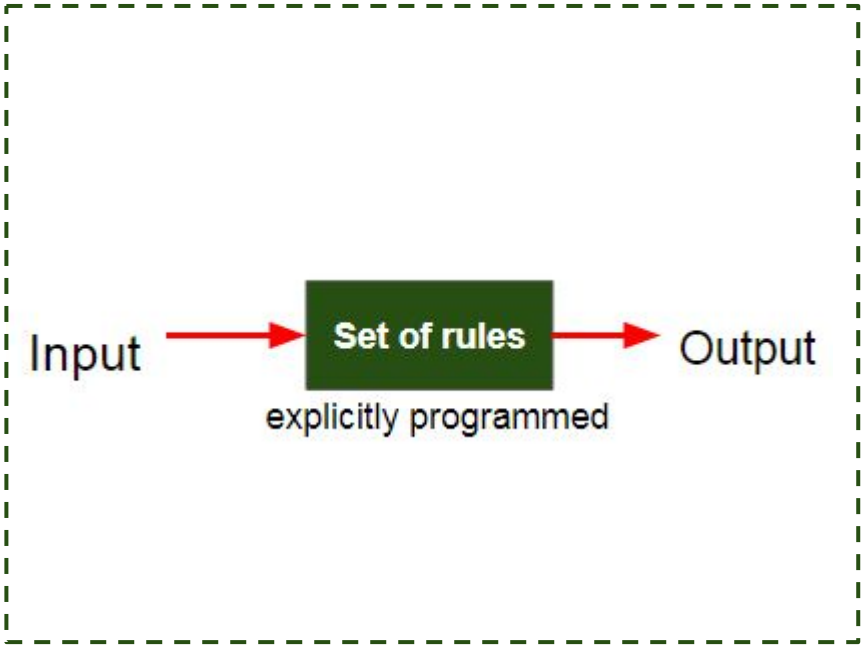
22 November 2020

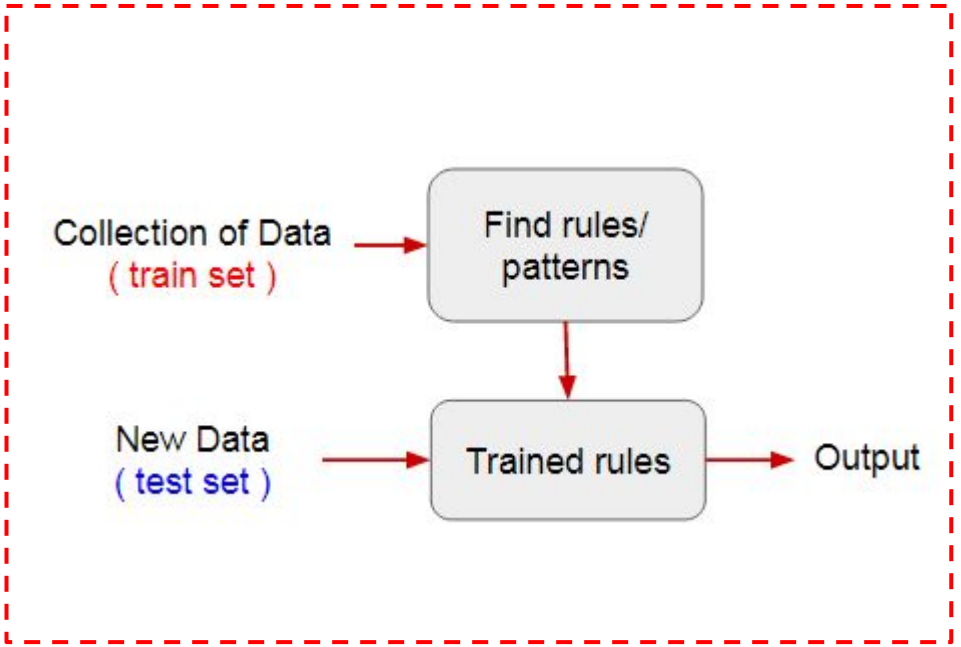
Machine Learning ??

In 1959, Arthur Samuel, a pioneer in the field of machine learning (ML) defined it as the "field of study that gives computers the ability to learn without being explicitly programmed".

- a field of study
- gives a machine the ability to learn
- without explicitly programmed

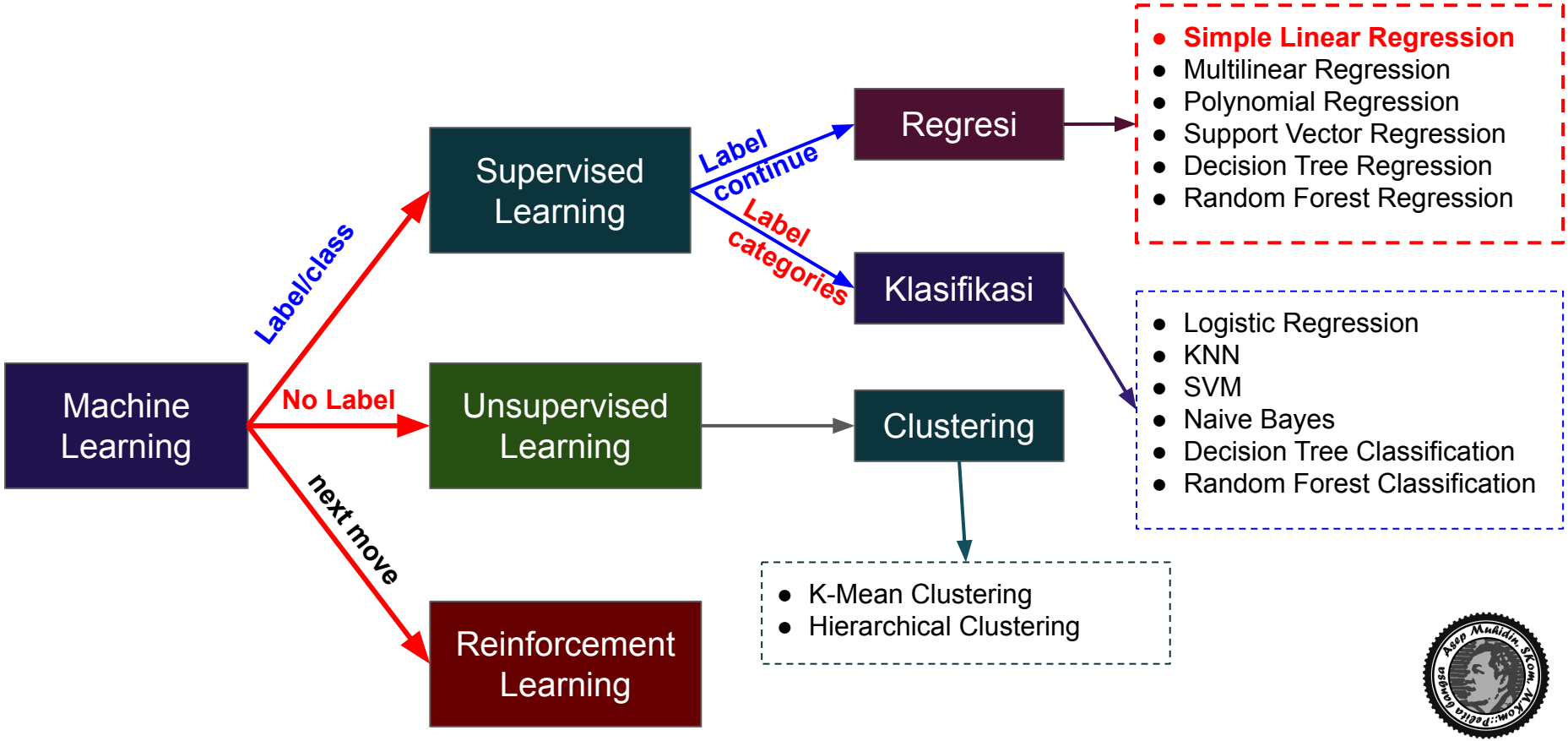
AI (Artificial Intelligence) vs. ML (Machine Learning)





AI : mengikuti instruksi
ML : mempelajari instruksi(menggunakan pengalamannya dari data)

The Main Algorithm of Machine Learning



LINEAR REGRESSION (LR)

Analisa untuk mempelajari dan mengukur hubungan yang terjadi antara dua variabel atau lebih (Wahyono, 2018, "Python for Machine Learning")

LINEAR REGRESSION SEDERHANA (SLR)

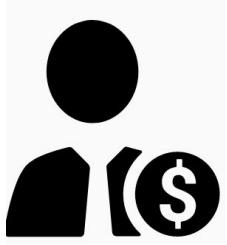
Suatu metode statistika untuk menguji antar dua variabel. Dimana variabel Y sebagai variabel respon (variabel tak bebas) dan variabel X sebagai prediktor (variabel bebas)

Contoh-contoh penggunaan SLR

Lama Belajar

Nilai

Lama Kerja



Gaji

Biaya Promosi perusahaan

Peningkatan Pendapatan

Rumus SLR

$Y = mx + c$; m : Gradient, c : Konstanta

Rumus Gradient (*m*)

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2}$$

Rumus Konstanta (*c*)

$$c = \frac{(\sum y)(\sum x^2) - (\sum x)(\sum xy)}{n(\sum x^2) - (\sum x)^2}$$

Kenapa harus belajar Python ..?

- Sifatnya general (aplikasi sangat luas)
- Dukungan paket riset sangat lengkap dan terus berkembang
- Open source
- Komunitasnya sangat banyak

IDE (Integrated Development Environment)

Software untuk lingkungan pengembangan yang terintegrasi

- Jupyter Notebook
- Jupyter Lab
- PyCharm
- Google Colaboratory (https://colab.research.google.com/)

Workshop

- ➔ Perintah dasar python
- ➔ List, Tuple & Dictionary
- ➔ Numpy
- ➔ Pandas
- ➔ Matplotlib
- ➔ Scikit-learn simple regresi linear

Catatan :

Upload session storage time out (colab):

It's 90 minutes if you close the browser. 12 hours if you keep the browser open. Additionally, if you close your browser with a code cell is running, if that same cell has not finished, when you reopen the browser it will still be running (the current executing cell keeps running even after browser is closed)