PHPID ONLINE LEARNING #55

MACHINE LEARNING DENGAN PHP

Konsep dan Coding

LIVE

Jumat, 19 Februari 2021 @19.00 WIB

https://web.facebook.com/groups/phpid

PHPID COMMUNITY

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artificial intelligence

"the designing and building of intelligent agents that receive percepts from the environment and take actions that affect that environment"

Russel & Norvig, 2016 "Artificial Intelligence: A Modern Approach"

ARTIFICIAL INTELLIGENCE

IS NOT NEW

ARTIFICIAL INTELLIGENCE

Any technique which enables computers to mimic human behavior

MACHINE LEARNING

AI techniques that give computers the ability to learn without being explicitly programmed to do so

DEEP LEARNING

A subset of ML which make the computation of multi-layer neural networks feasible

1950's 1960's 1970's 1980's 1990's 2000's 2010s

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TOP 10 Artificial INTELLIGENCE TECHNOLOGY & RESEARCH TRENDS IN 2021

1. Robotic Process Automation
2. Smart Health
3. AI For Cybersecurity & Data Breaches
4. Natural Language Processing
5. Reinforcement Learning
6. Smart City
7. Smart Education
8. Touchless Technology
9. Ai-powered Business Processing, Forecasting, And Analysis
10. Quantum AI

Scan dan tonton video lengkapnya

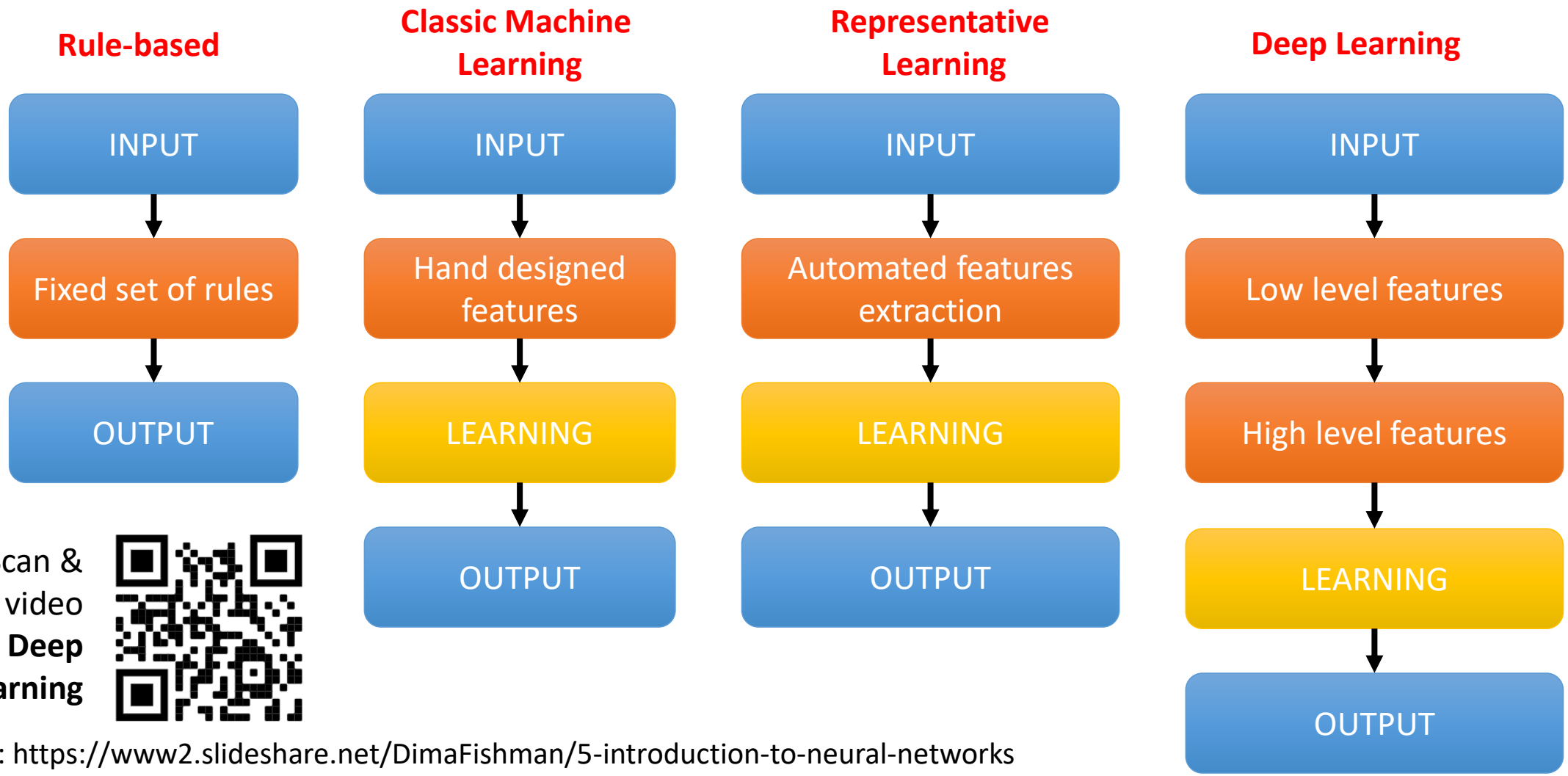
Machine Learning (Pemelajaran Mesin)

- The science and engineering of making intelligent machines [John McCarthy]
- Sebuah cabang dari ilmu komputer yang berkaitan dengan bagaimana mensimulasikan kecerdasan pada komputer
- Kemampuan mesin untuk meniru kecerdasan manusia
- Salah satu cabang dari kecerdasan buatan yang membahas mengenai pembangunan sistem yang didapat berdasarkan pada pemelajaran data, atau sebuah studi yang mempelajari cara untuk memprogram sebuah komputer untuk belajar [Wikipedia]

Algoritma Machine Learning

Supervised Learning	Unsupervised Learning	Reinforcement Learning	Deep Learning
• DT (C4.5), • NBC, • KNN, • ANN, • SVM, • LR, • CART, dll	• Apriori, • FPGrowth, • K-Means, • K-Medoids, • DBSCAN, • C-Means, • SOM, dll	• Genetic Algorithm, • Dynamic Programming, • Generalized Policy Iteration, • Monte Carlo, dll	• Convolutional Neural Networks (CNN), • Deep Belief Networks (DBN), • Restricted Boltzmann Machine (RBM), • Stacked Autoencoders, dll

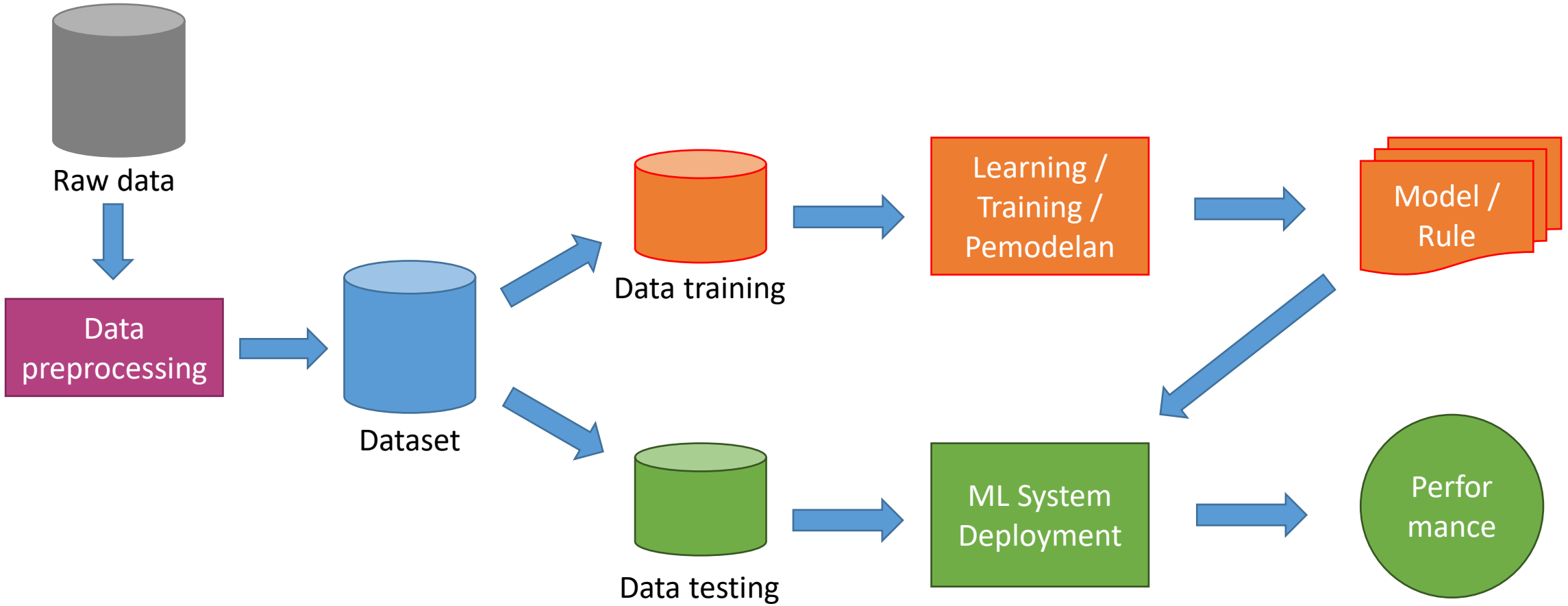
Learning Evolution



Scan & tonton video **Deep Learning**

Sumber: https://www2.slideshare.net/DimaFishman/5-introduction-to-neural-networks

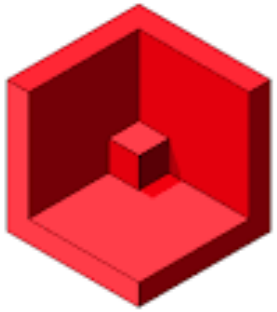
ML System Deployment



ML dengan PHP ?

PHP Native

PHP-ML



Rubix ML

Fresh approach to Machine Learning in PHP. Algorithms, Cross Validation, Neural Network, Preprocessing, Feature Extraction and much more in one library.

PHP-ML requires PHP >= 7.1.

Download at https://php-ml.readthedocs.io/en/latest

```php
require_once __DIR__ . '/vendor/autoload.php';

use Phpml\Classification\KNearestNeighbors;

$samples = [[1, 3], [1, 4], [2, 4], [3, 1], [4, 1], [4, 2]];
$labels = ['a', 'a', 'a', 'b', 'b', 'b'];

$classifier = new KNearestNeighbors();
$classifier->train($samples, $labels);

$classifier->predict([3, 2]);
// return 'b'
```

- Association rule Lerning: Apriori
- Classification: SVC, k-Nearest Neighbors, Naive Bayes
- Regression: Least Squares, SVR
- Clustering: k-Means, DBSCAN
- Metric: Accuracy, Confusion Matrix, Classification Report
- Workflow: Pipeline
- Neural Network: Multilayer Perceptron Classifier
- Cross Validation: Random Split, Stratified Random Split
- Feature Selection: Variance Threshold, SelectKBest
- Preprocessing: Normalization, Imputation missing values
- Feature Extraction: Token Count Vectorizer, Tf-idf Transformer
- Datasets: Iris, Wine, Glass

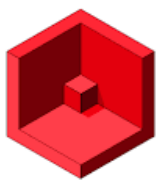
A high-level machine learning and deep learning library for the PHP language.

Developer-friendly API is delightful to use
40+ supervised and unsupervised learning algorithms

Support for ETL, preprocessing, and cross-validation

Open source and free to use commercially

Download at https://rubixml.com/



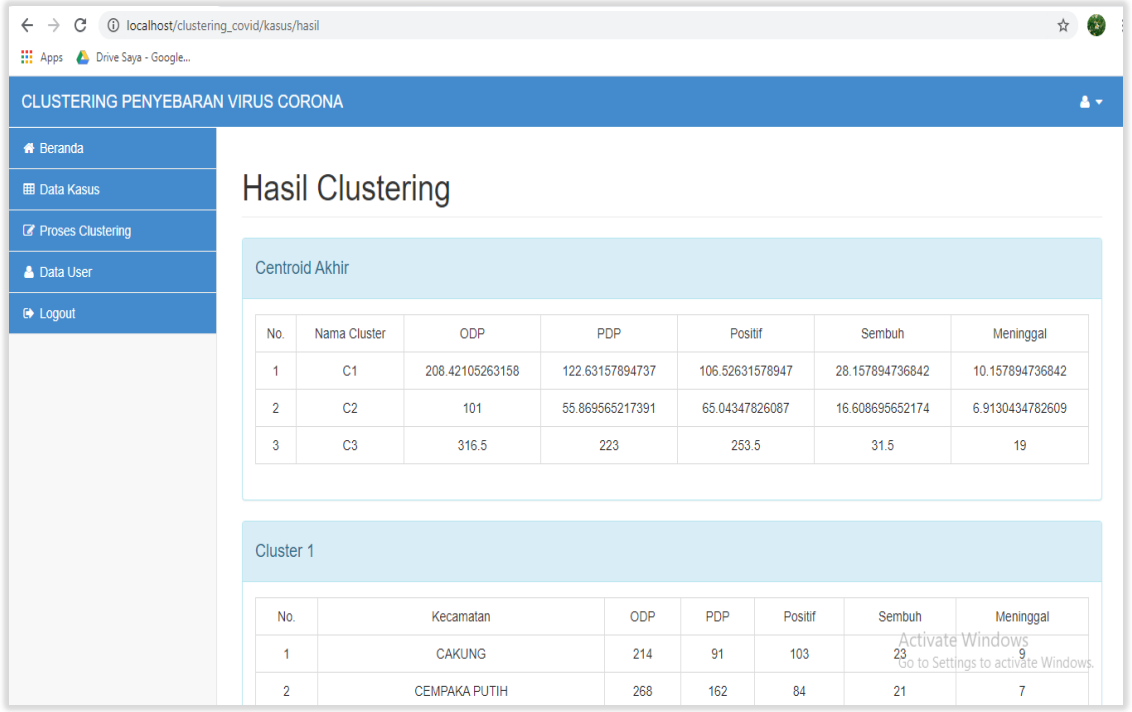
Rubix ML

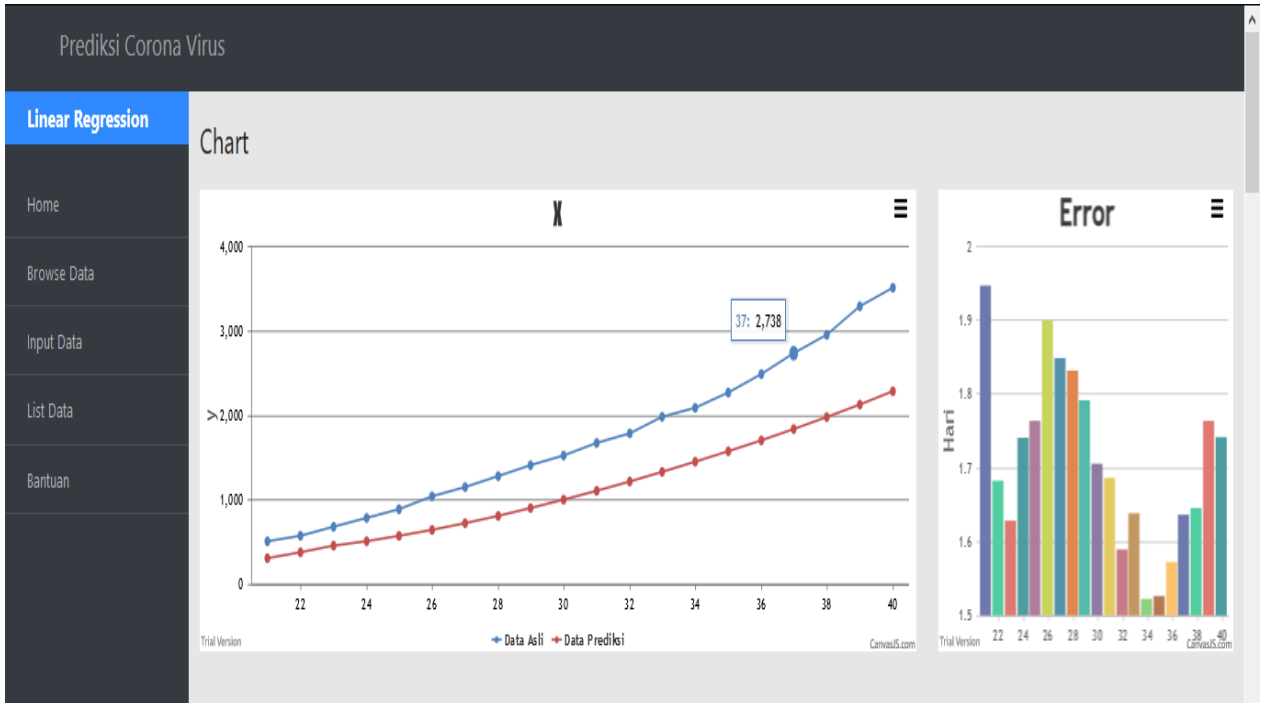
```php
use Rubix\ML\Datasets\Labeled;
use Rubix\ML\Extractors\CSV;
use Rubix\ML\Classifiers\KNearestNeighbors;

$dataset = Labeled::fromIterator(new CSV('dataset.csv'));

[$training, $testing] = $dataset->stratifiedSplit(0.8);

$estimator = new KNearestNeighbors(3);

$estimator->train($training);

$predictions = $estimator->predict($testing);
```

Check out these example projects using the Rubix ML library. Most come with instructions and a pre-cleaned dataset.

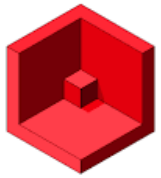
1. CIFAR-10 Image Recognizer
2. Color Clusterer
3. Credit Default Risk Predictor
4. Divorce Predictor
5. Dota 2 Game Outcome Predictor
6. Human Activity Recognizer
7. Housing Price Predictor
8. Iris Flower Classifier
9. MNIST Handwritten Digit Recognizer
10. Text Sentiment Analyzer

Contoh Implementasi di Skripsi





PHP-ML



Rubix ML

Demo Coding dengan PHP-ML dan Rubix ML

solusi terbaik tidak selalu membutuhkan metode atau tools **canggih, hebat** dan **terbaru**

solusi terbaik adalah solusi yang dapat **menyelesaikan permasalahan** secara optimal

http://youtube.com/c/AchmadSolichin

Achmad Solichin | Achmatim

"Ikatlah ilmu dengan menuliskannya, lipatgandakan ilmu dengan berbagi"

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TERIMA KASIH | SEMOGA BERMANFAAT