



Enterprise
Data
Management
Laboratory

Grow With EDM

Machine Learning: Algorithms, Applications, and Model Evaluation

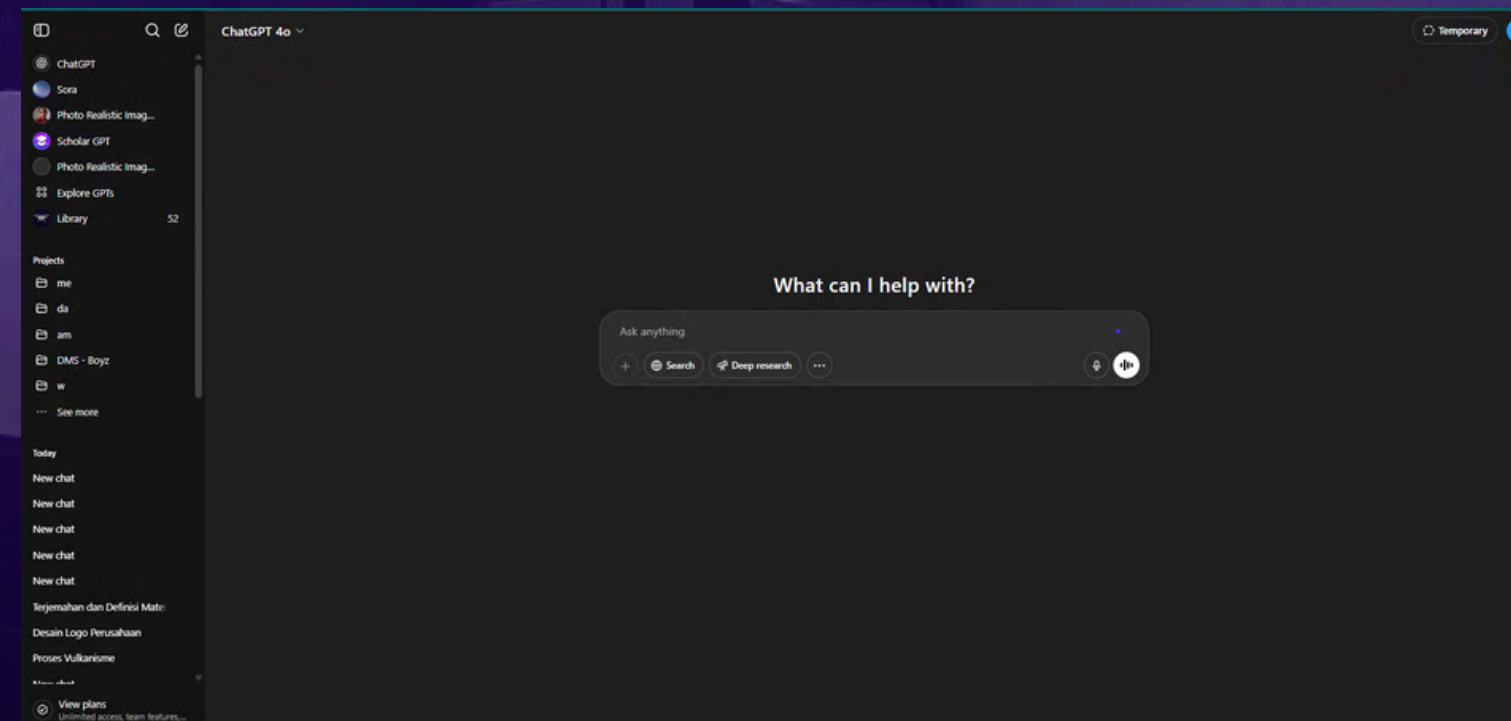
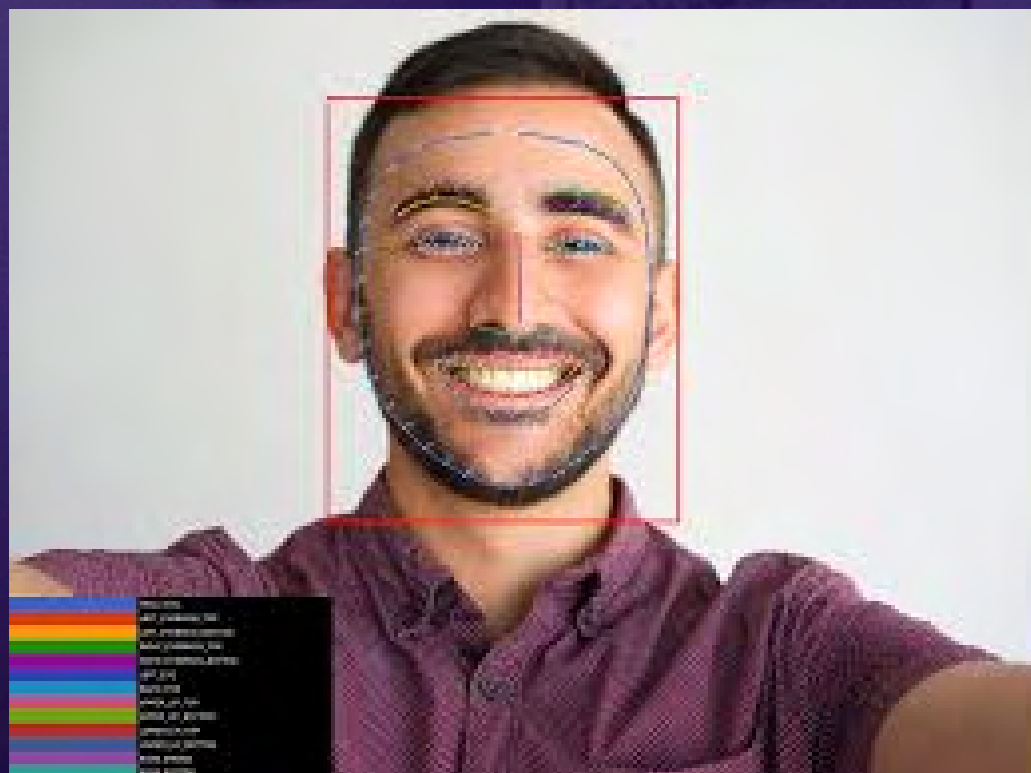
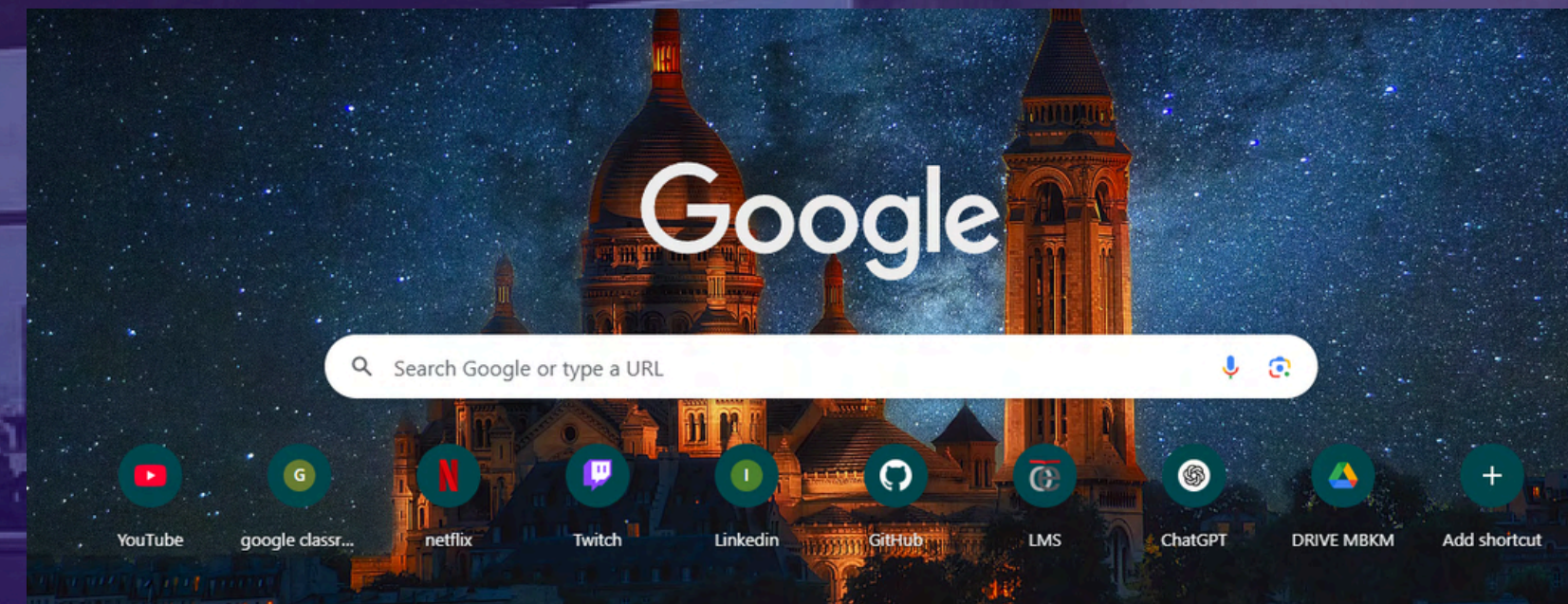
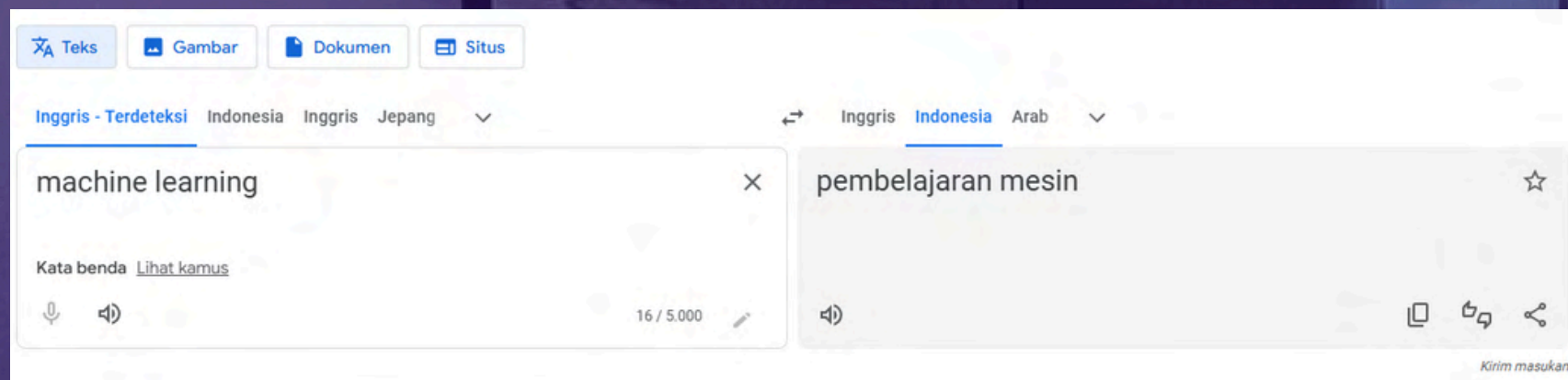
GWE

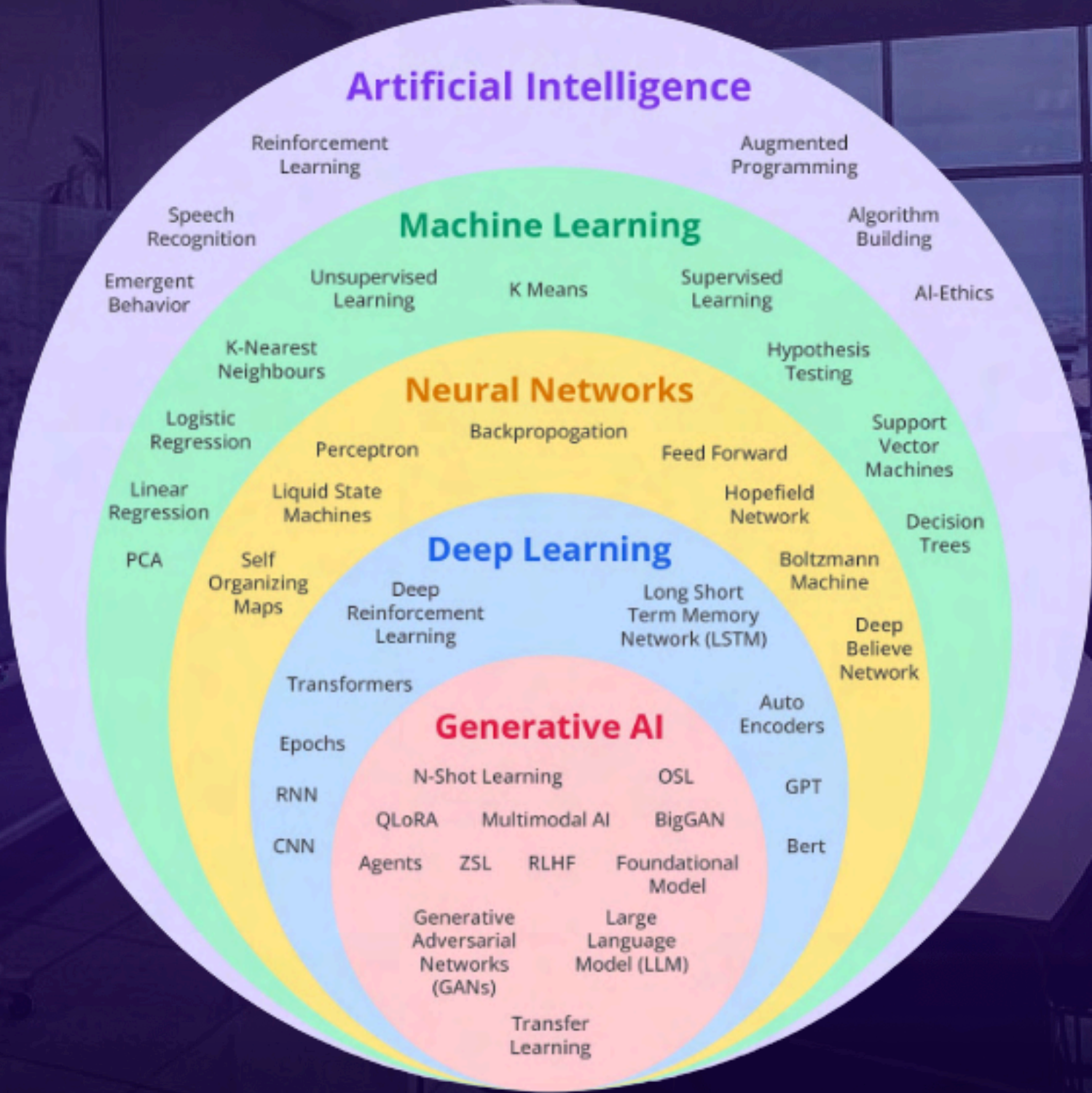


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Apa itu Machine Learning??

GWE





Data

Algoritma

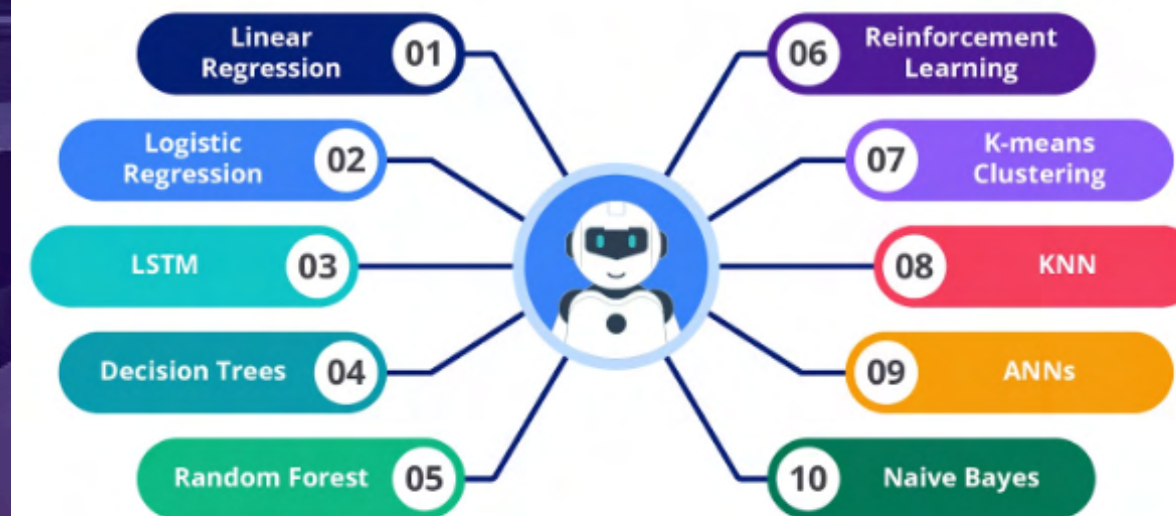
Attribute/Feature/Dimension Class/Label/Target

	Sepal Length (cm)	Sepal Width (cm)	Petal Length (cm)	Petal Width (cm)	Type
1	5.1	3.5	1.4	0.2	<i>Iris setosa</i>
2	4.9	3.0	1.4	0.2	<i>Iris setosa</i>
3	4.7	3.2	1.3	0.2	<i>Iris setosa</i>
4	4.6	3.1	1.5	0.2	<i>Iris setosa</i>
5	5.0	3.6	1.4	0.2	<i>Iris setosa</i>
...					
51	7.0	3.2	4.7	1.4	<i>Iris versicolor</i>
52	6.4	3.2	4.5	1.5	<i>Iris versicolor</i>
53	6.9	3.1	4.9	1.5	<i>Iris versicolor</i>
54	5.5	2.3	4.0	1.3	<i>Iris versicolor</i>
55	6.5	2.8	4.6	1.5	<i>Iris versicolor</i>
...					
101	6.3	3.3	6.0	2.5	<i>Iris virginica</i>
102	5.8	2.7	5.1	1.9	<i>Iris virginica</i>
103	7.1	3.0	5.9	2.1	<i>Iris virginica</i>

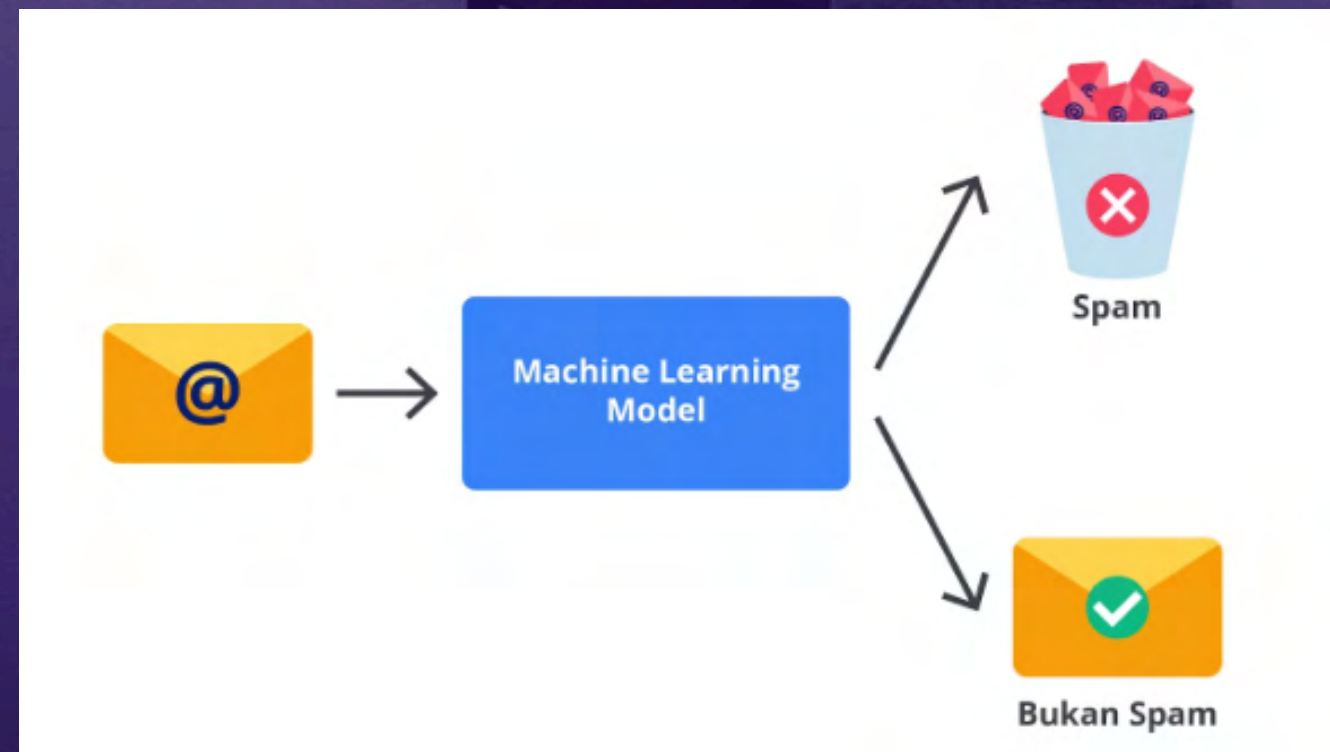
Nominal

Numerik

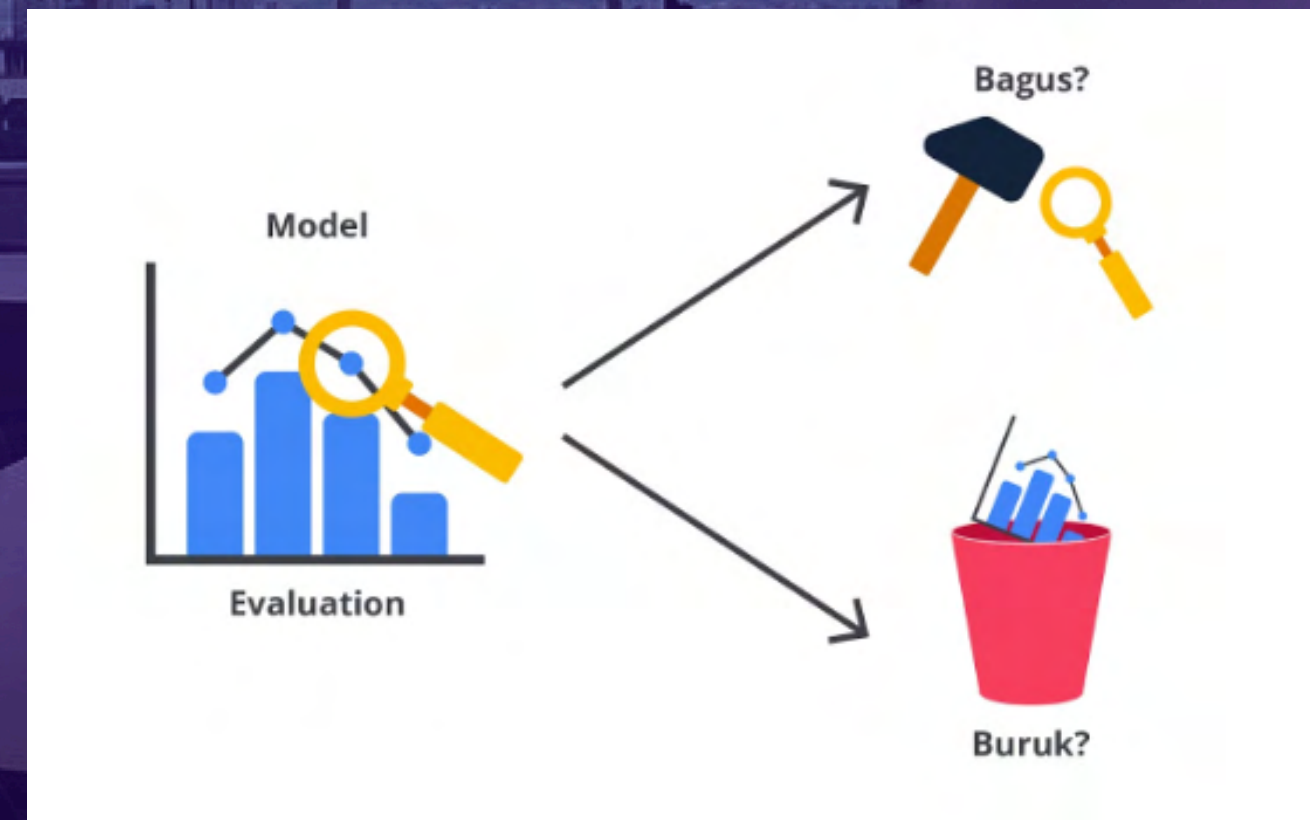
Berbagai Algoritma Machine Learning



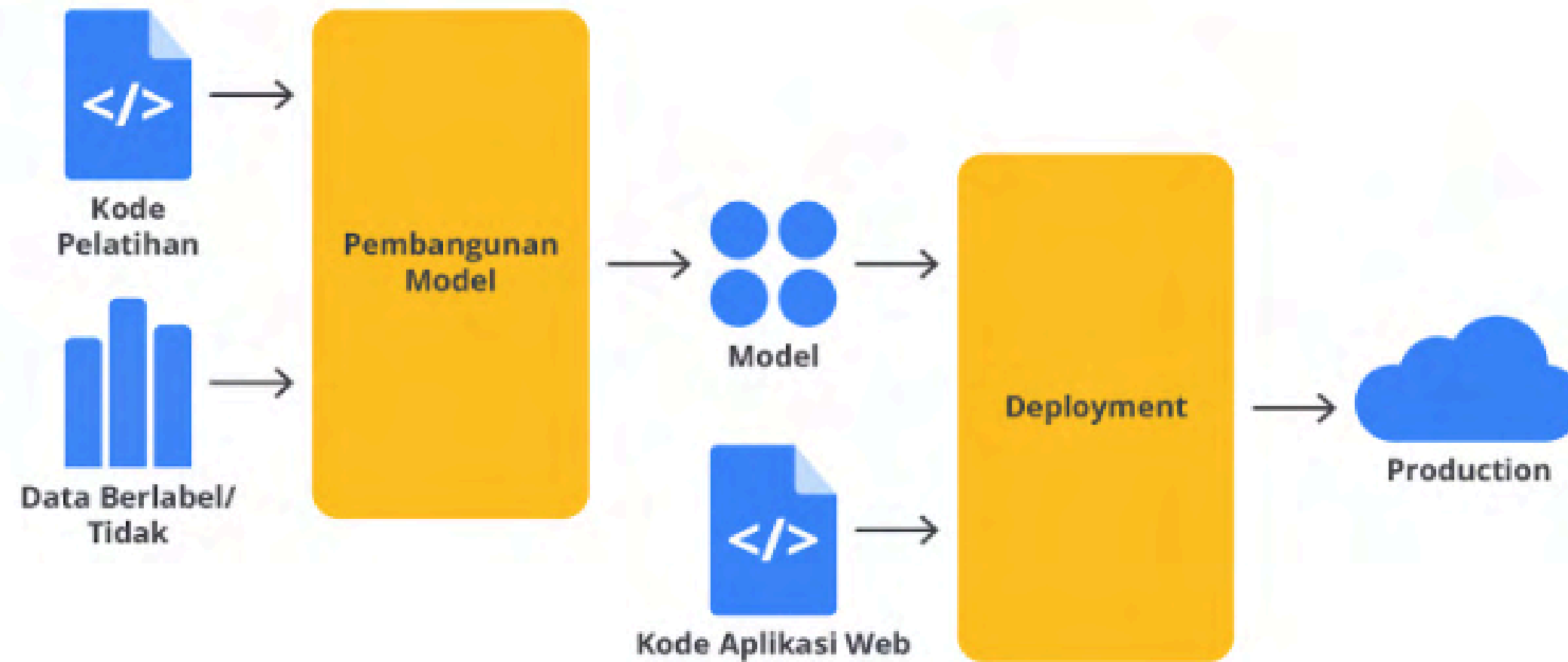
Model



Training & Evaluation

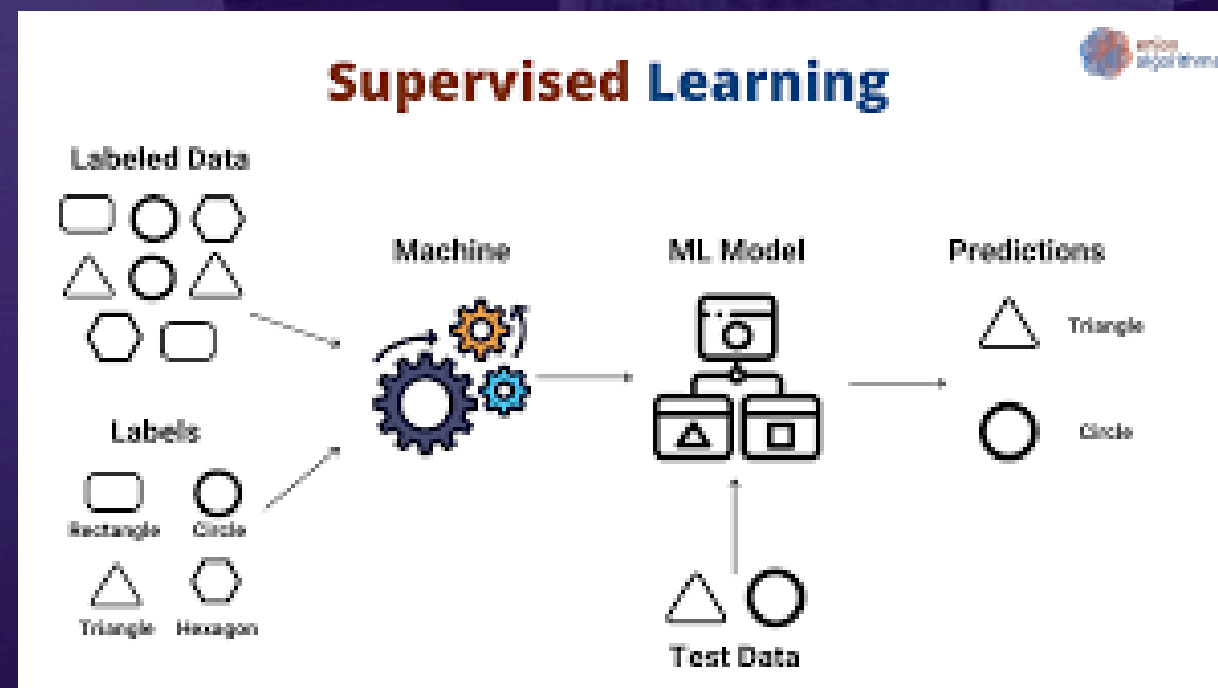


Deployment

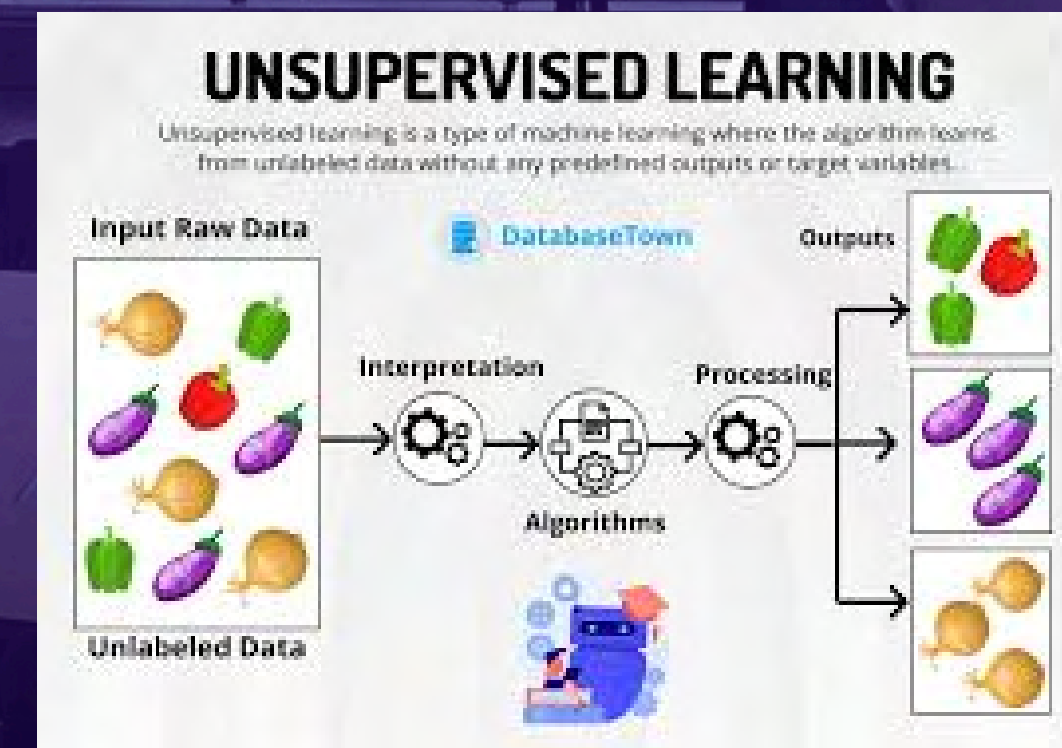


Jenis Machine Learning

Supervised Learning

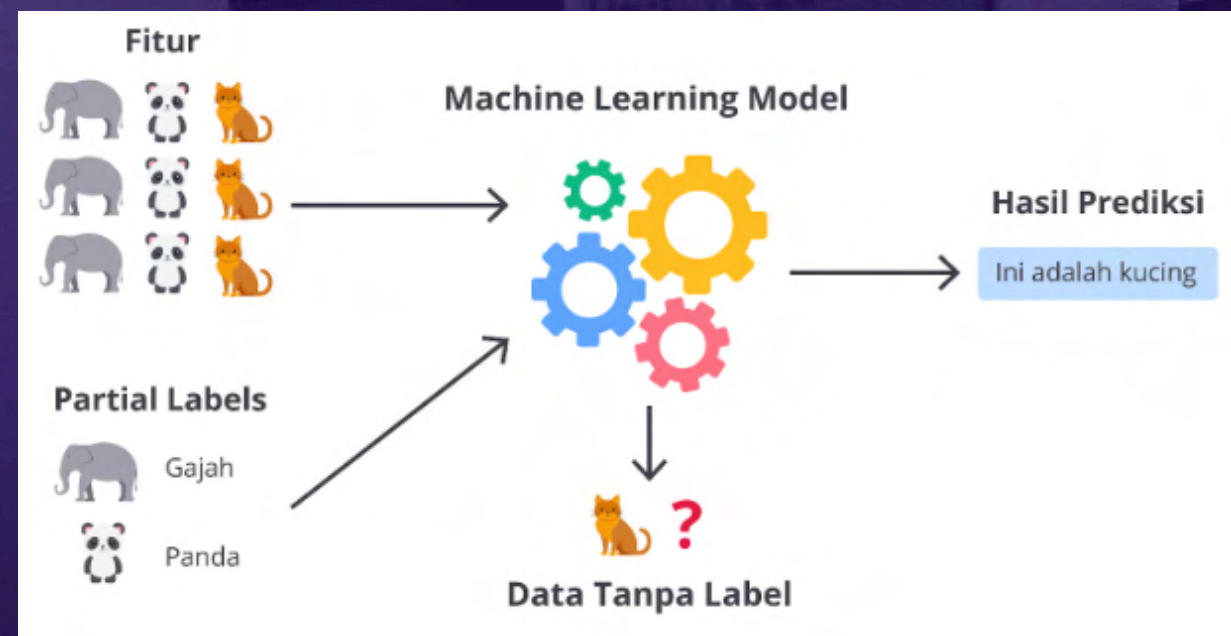


Unsupervised Learning



Jenis Machine Learning

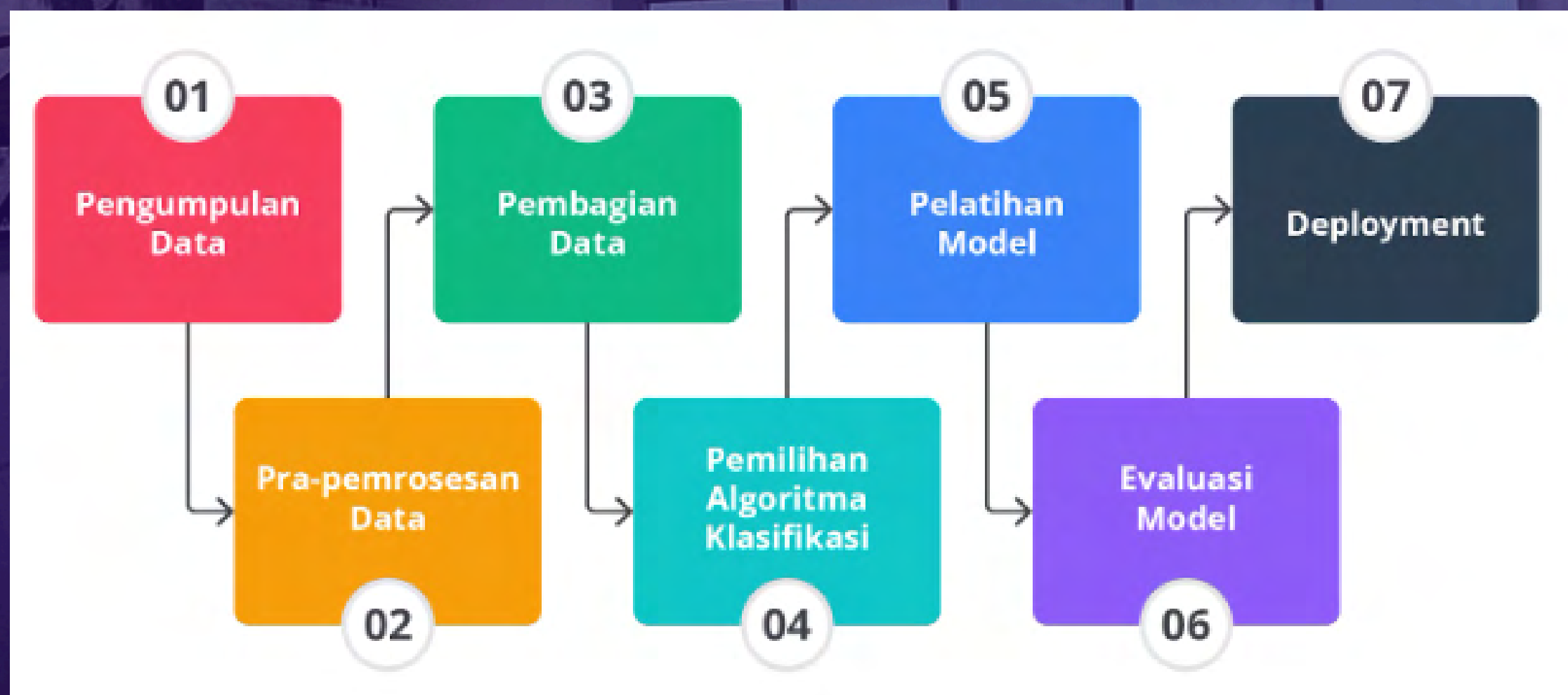
Semisupervised Learning



Reinforcement Learning

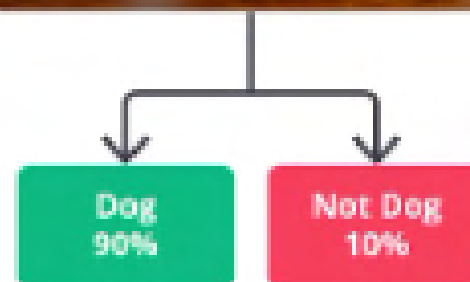
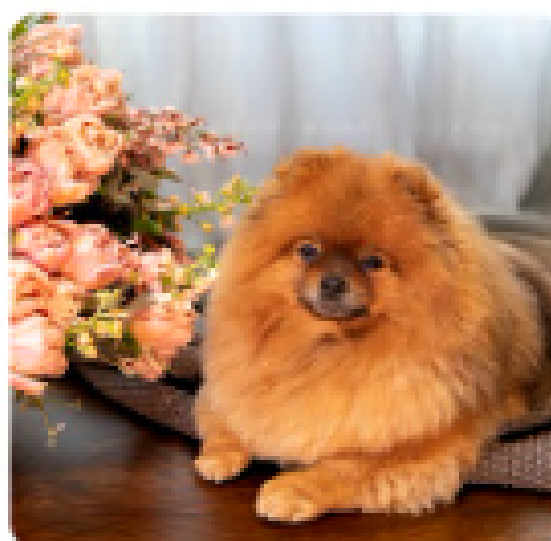


Klasifikasi

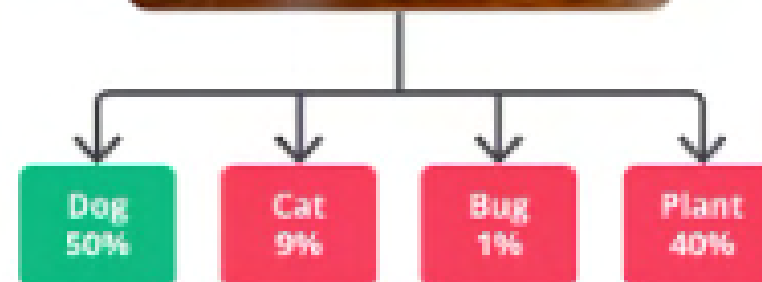
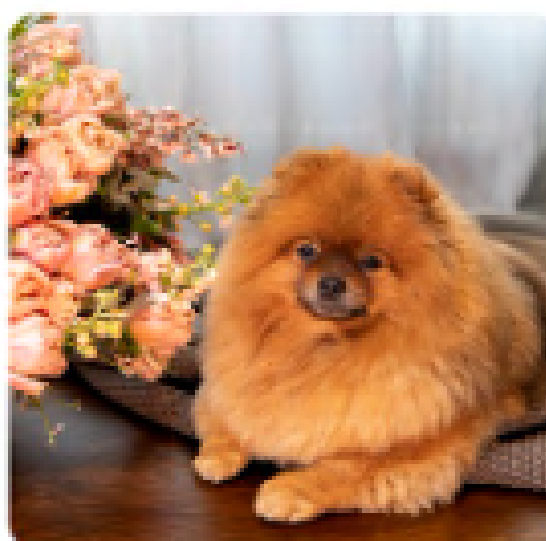


Jenis - Jenis Klasifikasi

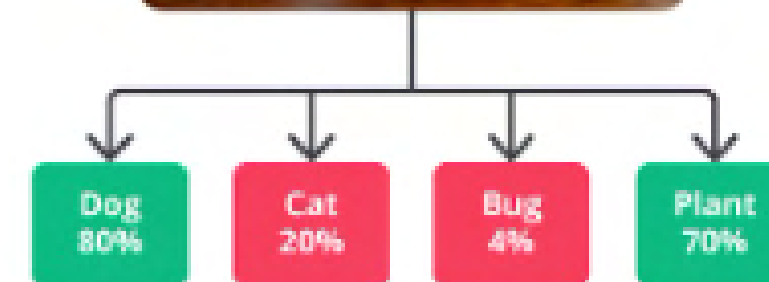
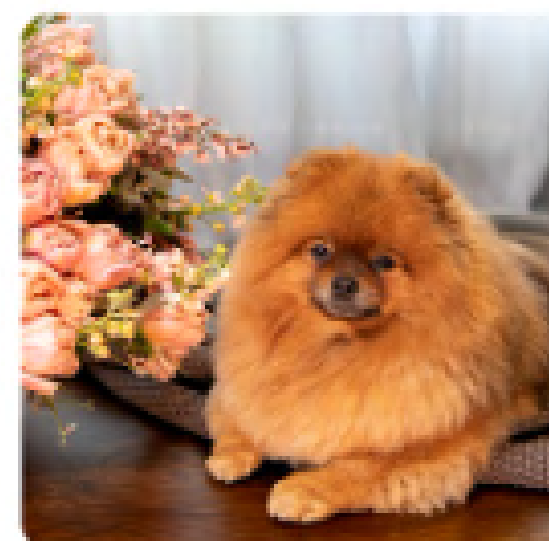
Binary Classification



Multiclass Classification

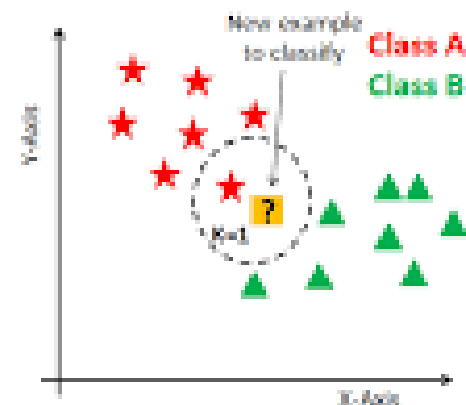


Multilabel Classification



Algoritma Klasifikasi

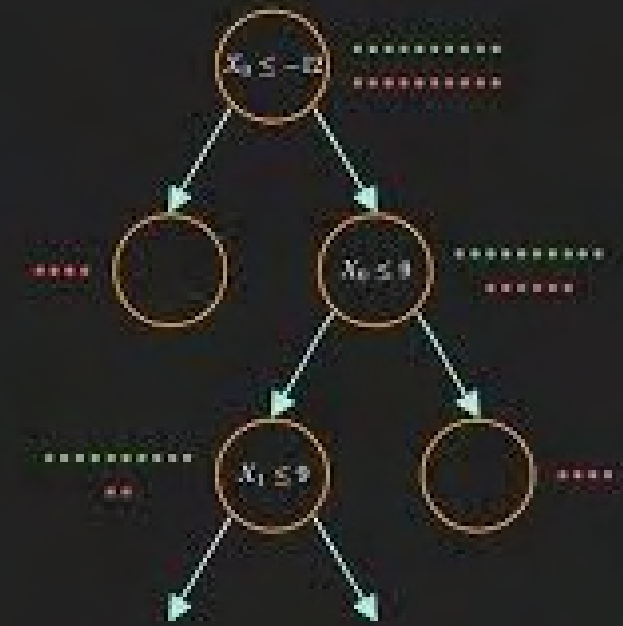
KNN



**K-Nearest
Neighbor
(KNN)**

Decision Tree

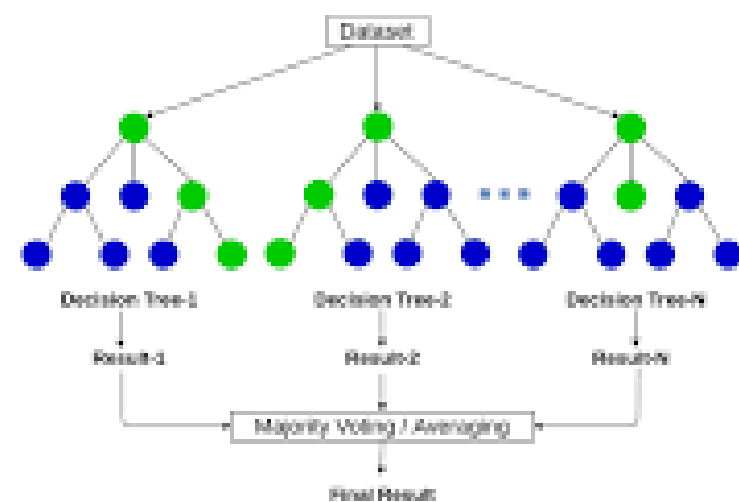
**Decision
Tree
Classifier**



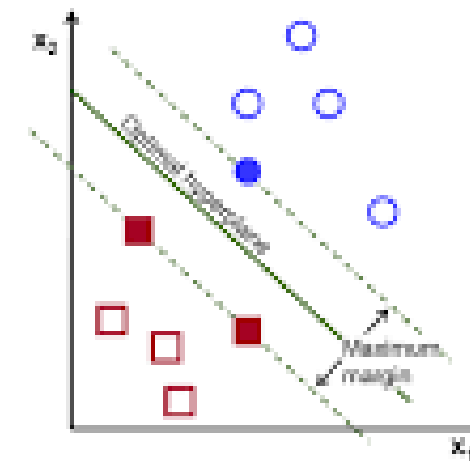
Algoritma Klasifikasi

Random Forest

Random Forest



SVM



Algoritma
Support
Vector
Machine

Algoritma Klasifikasi

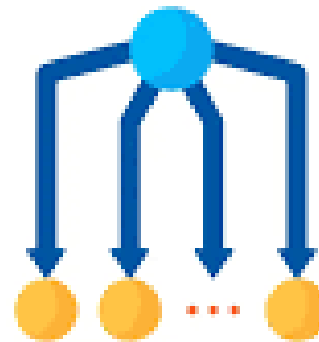
Naive Bayes

Logistic Regression



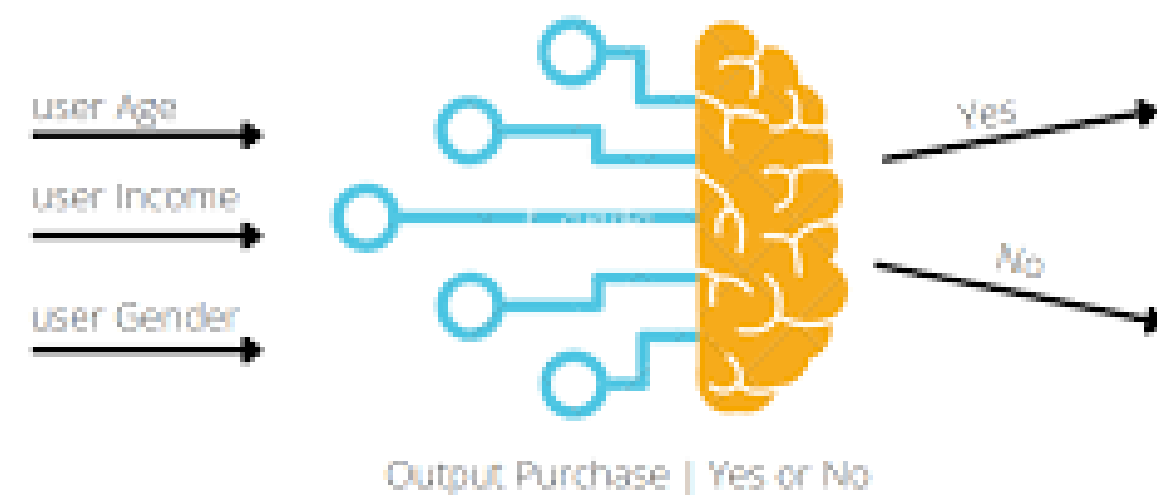
Algoritma Naive Bayes

Kumpulan algoritma pembeda berdasarkan teorema Bayes dengan konsep probabilitas bersyarat.



<https://revou.co/revoupedia/kasakata>
Sumber: Geeks for Geeks

Logistic Regression



Evaluasi Model Klasifikasi

Confusion Matrix

		Predicted	
		Positive	Negative
Actual	Positive	True Positive	False Negative
	Negative	False Positive	True Negative

Evaluasi Model Klasifikasi

Akurasi

$$\text{Akurasi} = \frac{TP + TN}{TP + TN + FP + FN}$$

Recall

$$\text{Recall} = \frac{TP}{TP + FN}$$

Evaluasi Model Klasifikasi

Precision

$$\text{Precision} = \frac{TP}{TP + FP}$$

F1-Score

$$\text{F1-Score} = 2 \times \frac{\text{Precision} \times \text{Recall}}{\text{Precision} + \text{Recall}}$$

HANDSON

Regresi

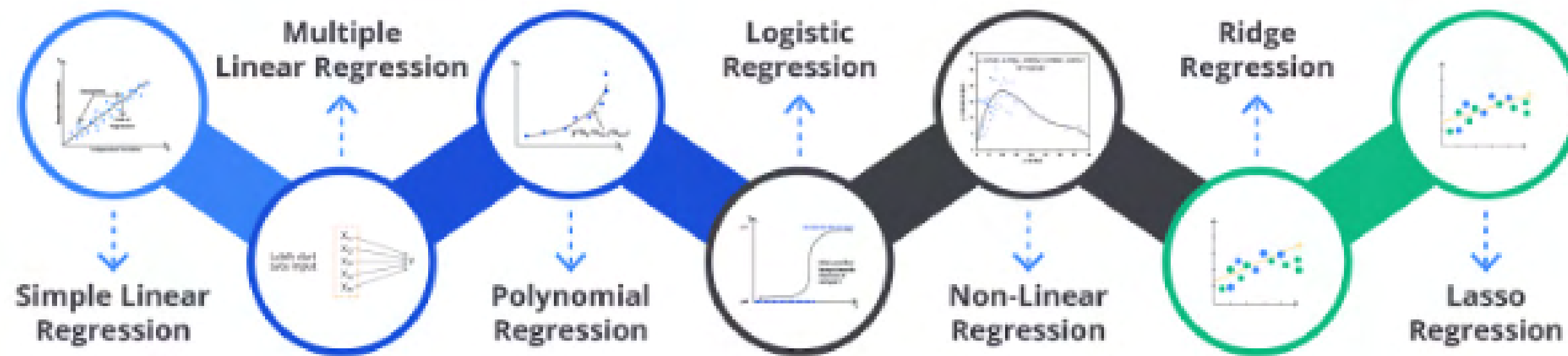
Regression Data

X_1	X_2	X_3	X_p	Y
				5.2
				1.3
				23.0
				7.4

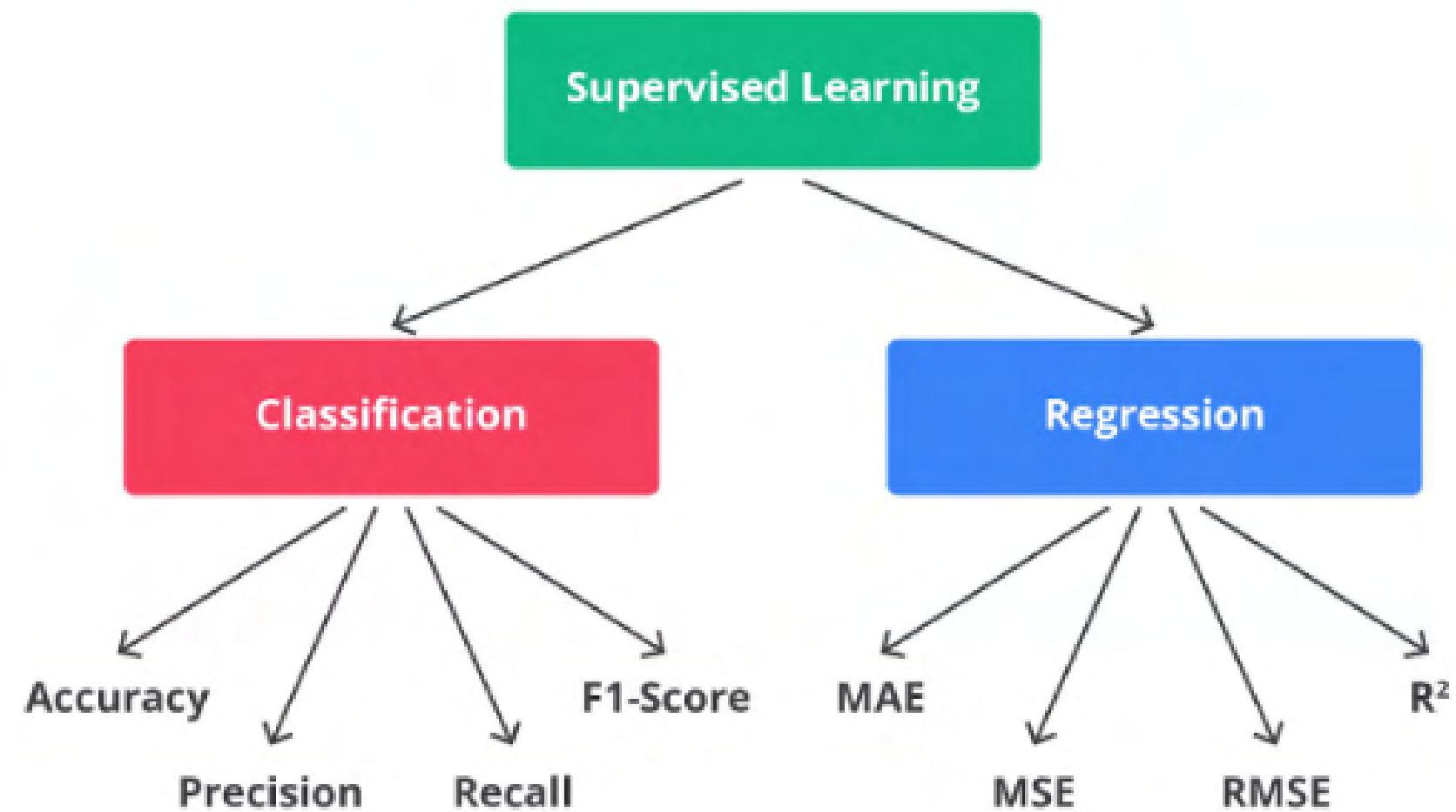
Target
Numerik

Jenis - Jenis Regresi

Berbagai Algoritma Regresi



Evaluasi

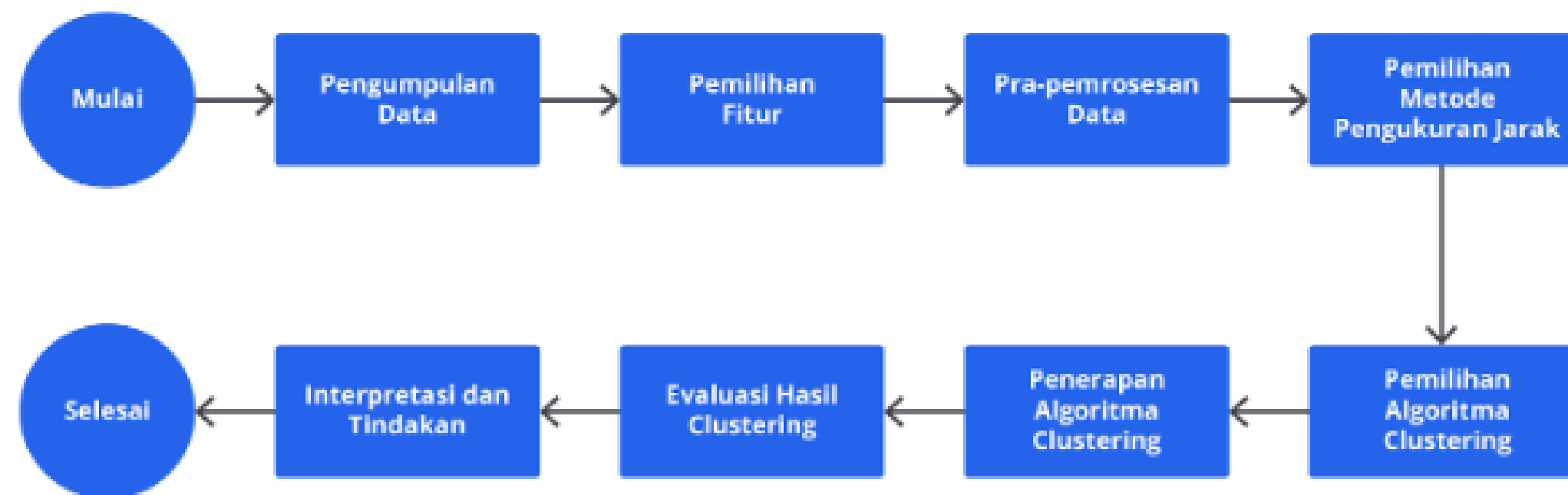


Clustering



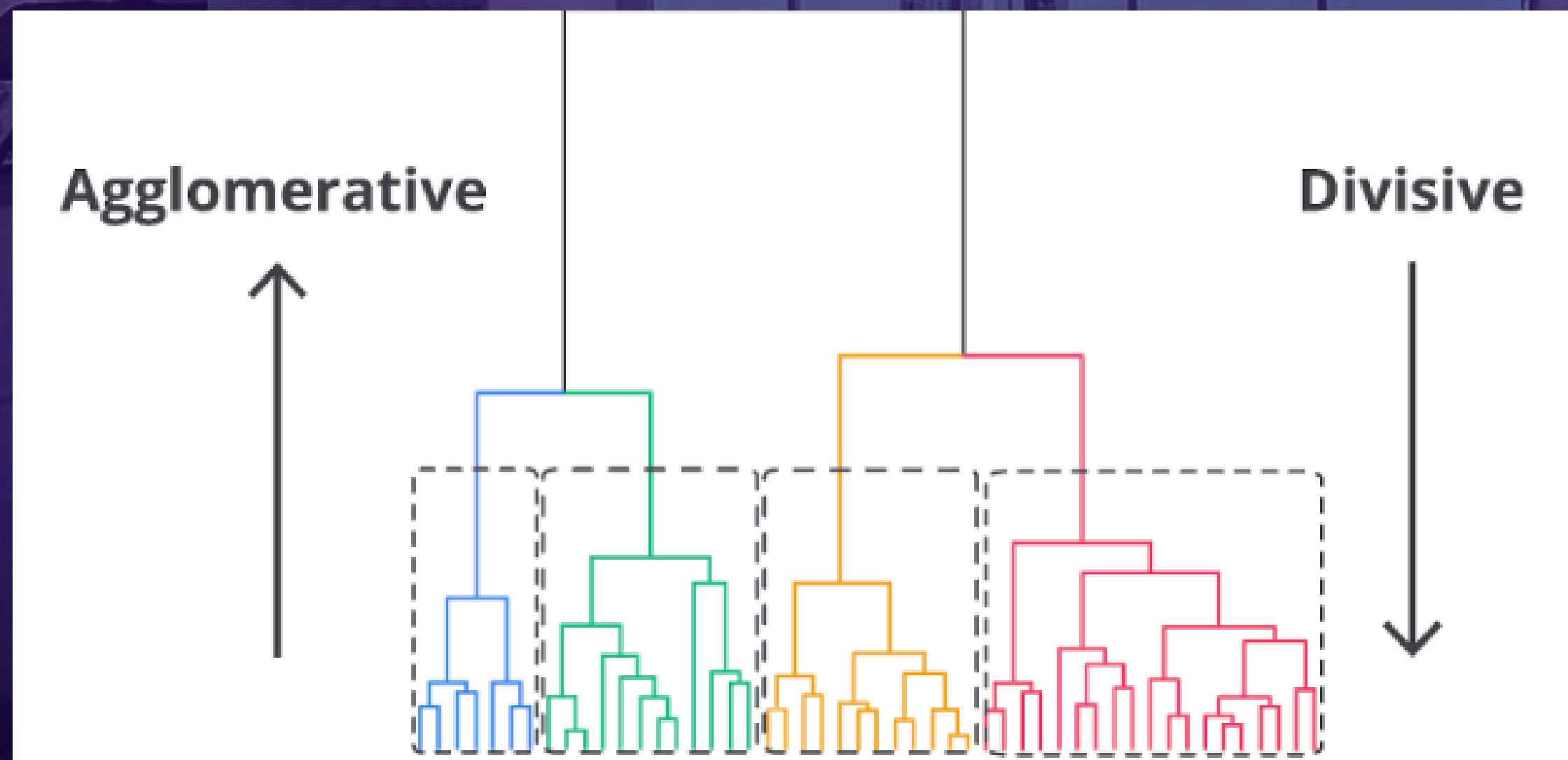
Proses Clustering

Proses Clustering



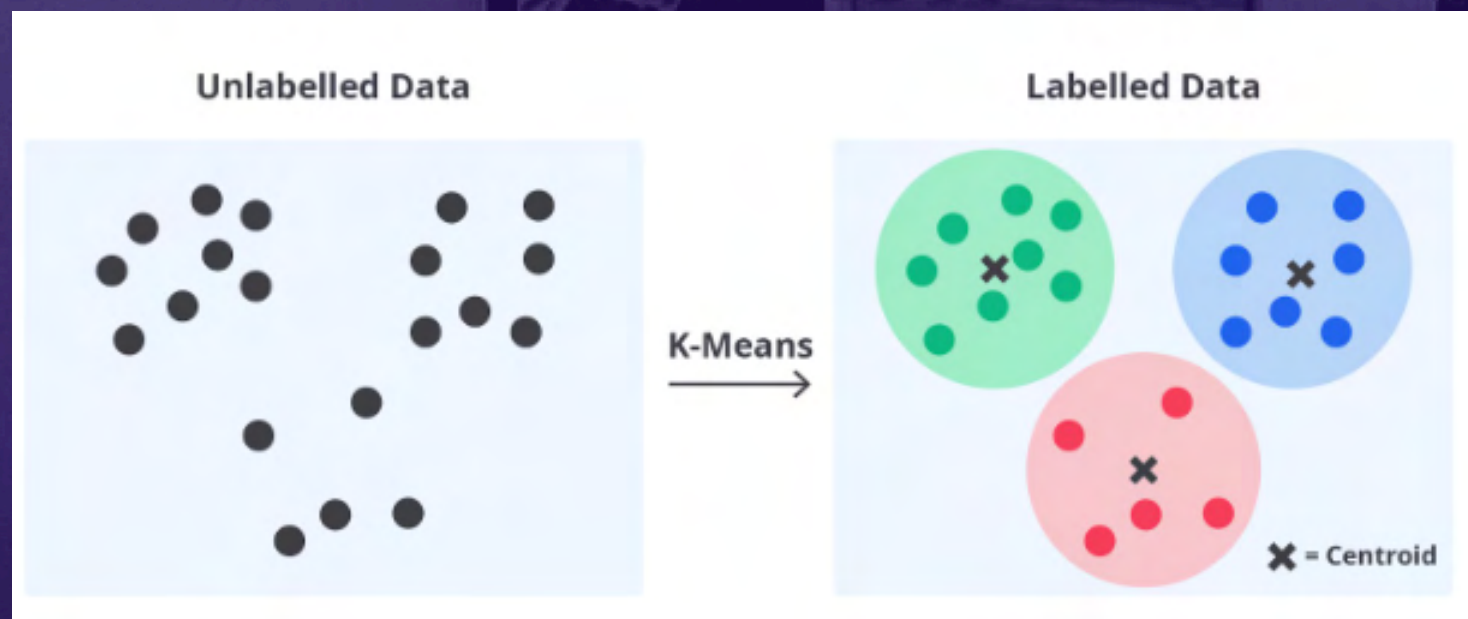
Hierarchical Clustering

Agglomerative (bottom-up) dan Divisive (top-down).

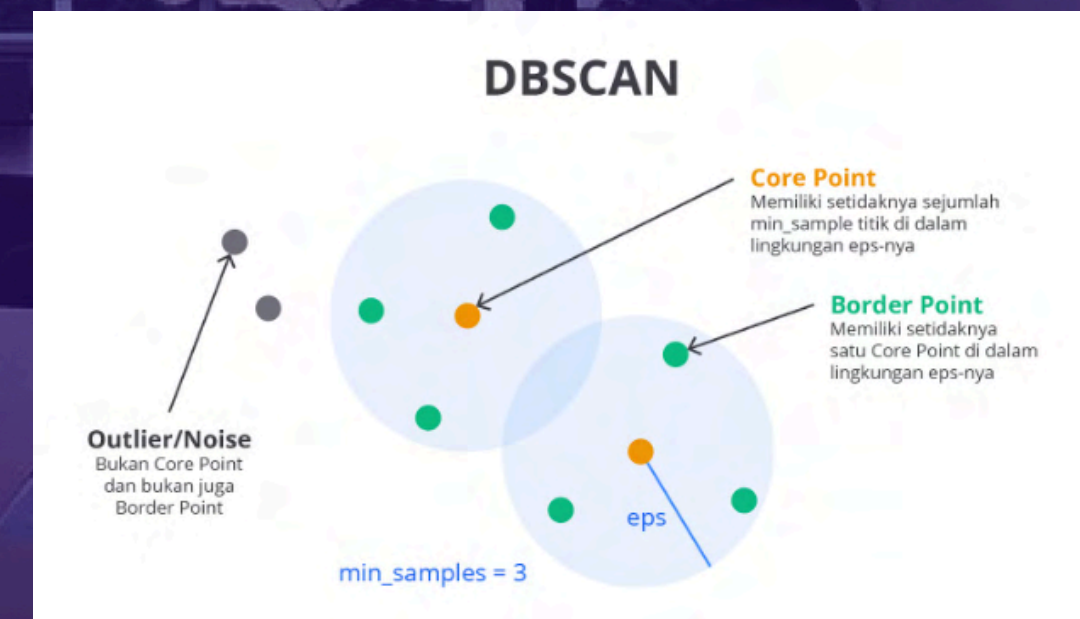


Non-Hierarchical Clustering

KMEANS

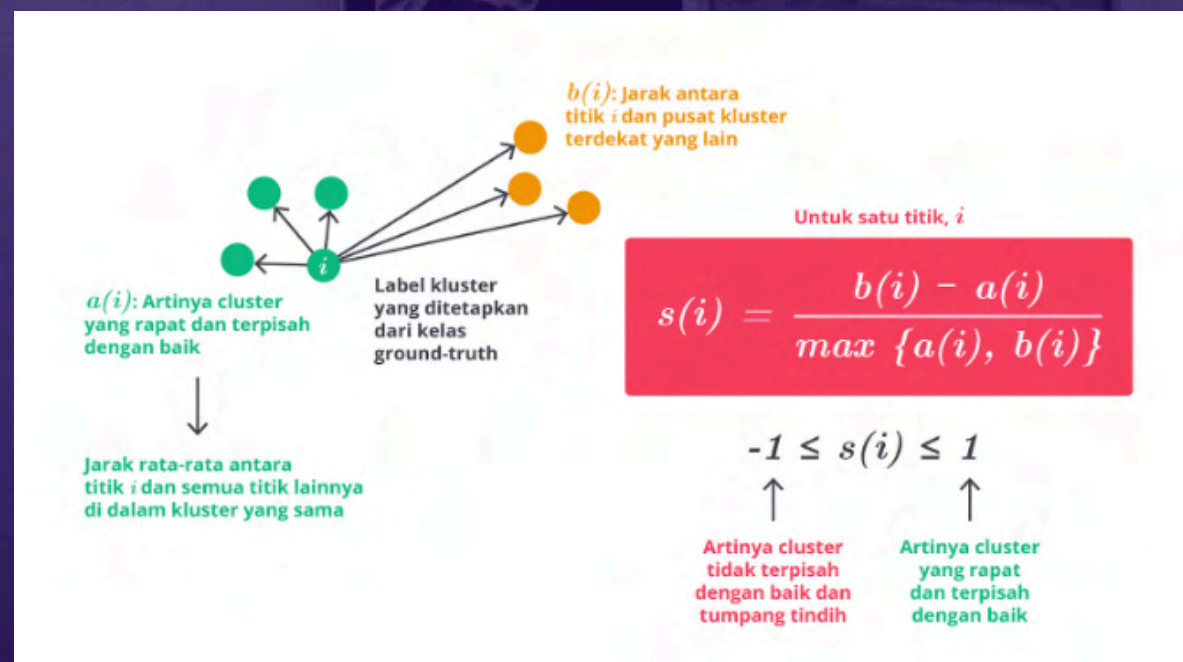


DBSCAN



Evaluasi

Silhouette Score



WCCS

$$WCSS = \sum_{i=1}^k \sum_{x \in C_i} \|x - \mu_i\|^2$$

- C_i adalah cluster ke- i .
- x adalah titik data.
- μ_i adalah centroid cluster ke- i .

HANDSON

Mini Competition

Simulasi Lomba DAC

kaggle

Link Competition

[LINK](#)

Link Contoh .ipynb

[LINK](#)

Satu Peserta Satu Akun

Peserta tidak diperbolehkan mendaftar lebih dari satu akun.

Team

Team disesuaikan dengan kelompok GWE

Nama Team

Sesuai dengan Nomor Kelompok GWE masing2

Team Merger

Ketua team mengundang anggotanya yang lain untuk bergabung pada team yang sudah dibentuk melalui tab 'Team'.

Submission Limits

Setiap tim dapat mengirimkan 5 submisi / hari. dan akan reset setiap jam 07:00 WIB

Competition Deadline

Start Date: 28 April 2025 19:00 WIB

End Date (Final Submission Deadline): 16 Mei 2025, 23:59 WIB

GWE #8

SELESAI :)



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BARCODE

ABSENSI

EDM Laboratory

GWE #8

Presensi GWE #6

<https://tel-u.ac.id/presensigwe>



GWE #8

Terima Kasih



GWE #7



@lifeatedmlab



@186mcgwc