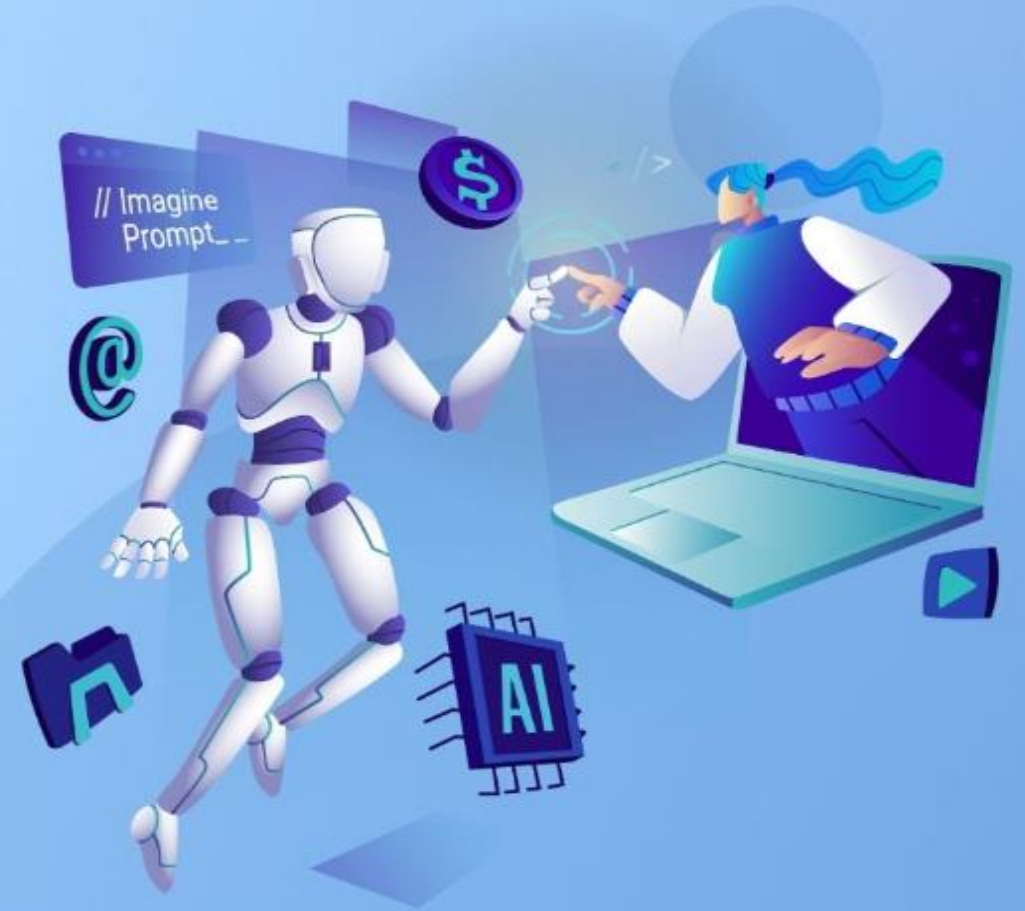


Data Science untuk Pengembangan dan Penerapan **Artificial Intelligence (AI)**



Andrian The

andrian@inixindojogja.co.id

Instruktur Inixindo Jogja bidang:

- IT Governance / Management
- Cyber Security
- Secure Software Design
- Secure Software Development
- Certified Information Systems Auditor



KECERDASAN **B**UATAN



↓
HERE



BALITA



SD



SMP



SMA- KULIAH



KERJA-PRODUKTIF



LANSIA

**DI MASA YANG MANAKAH KITA BISA DAN MAMPU
MENGAMBIL SEBUAH KEPUTUSAN SENDIRI ?**

HARUS
MAKAN APA?

HARUS
LEWAT MANA?

HARUS
PAKAI BAJU APA ?

HARUS
BICARA APA?

HARUS
PERGI KE MANA?



Intelligence Quotient (IQ)

Stanford-Binet Fifth Edition (SB5) classification

IQ Range ("deviation IQ")	IQ Classification
144+	Very gifted or highly advanced
130-144	Gifted or very advanced
120-129	Superior
110-119	High average
90-109	Average
80-89	Low average
70-79	Borderline impaired or delayed
55-69	Mildly impaired or delayed
40-54	Moderately impaired or delayed

KECERDASAN MANUSIA INI DIGUNAKAN OLEH MANUSIA UNTUK MENGAMBIL KEPUTUSAN

BERBASIS PADA LOGIKA (OTAK), BUKAN PERASAAN (HATI)



Intelligence Quotient (IQ)

Stanford-Binet Fifth Edition (SB5) classification

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80-89	Low average
70-79	Borderline impaired or delayed
55-69	Mildly impaired or delayed
40-54	Moderately impaired or delayed

Keputusan apa yang telah Anda ambil hingga siang ini?



Pakai baju apa hari ini?



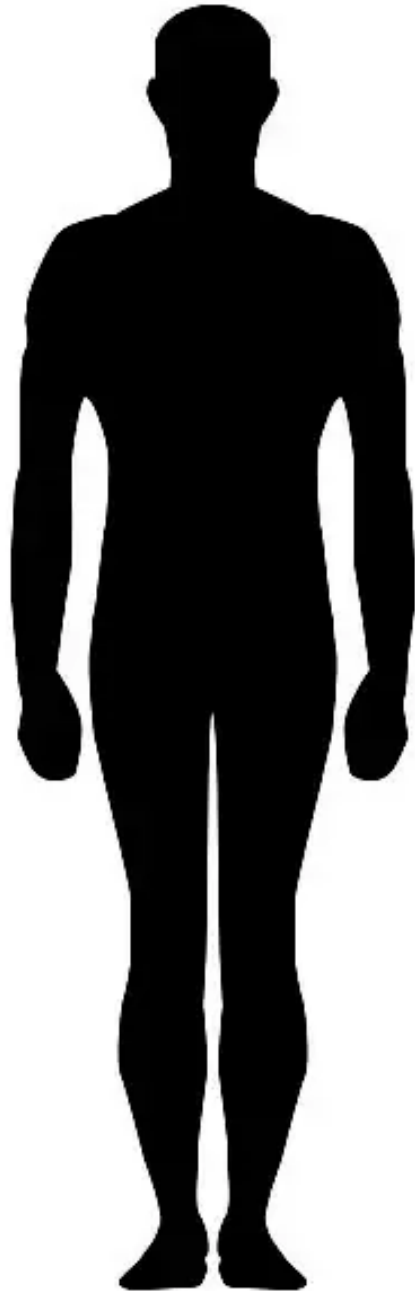
Pakai sepatu apa hari ini?



Makan siang apa hari ini?

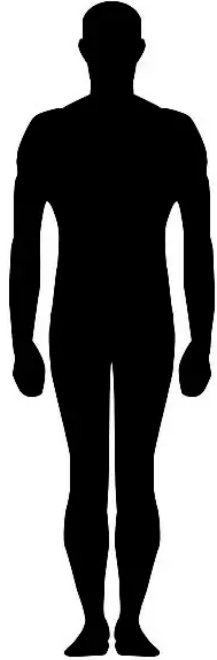


Naik apa ke kantor hari ini?



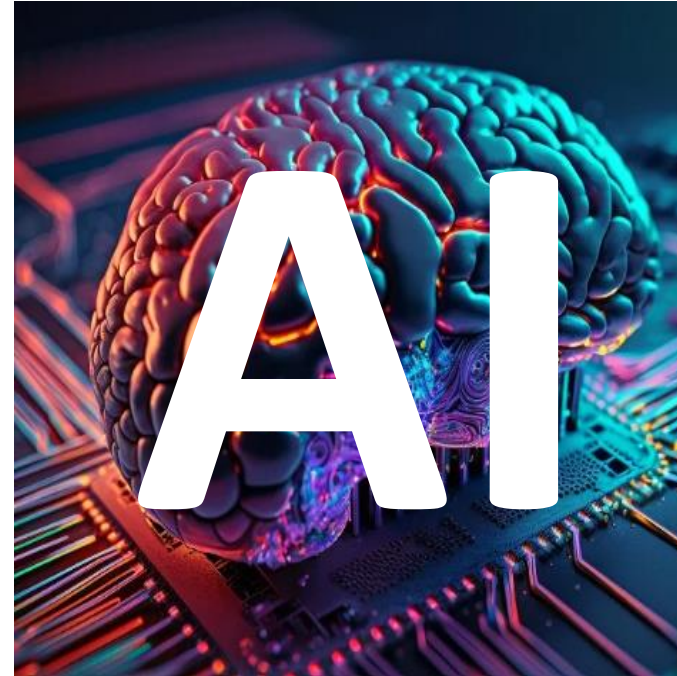
- Keputusan kadang tidak konsisten
- Keputusan kadang lama diambil
- Keputusan kadang tidak tepat
- Keputusan kadang bukan yang terbaik
- Keputusan kadang tidak terukur
- Keputusan kadang yang tidak menjelaskan

IQ EQ SQ PQ



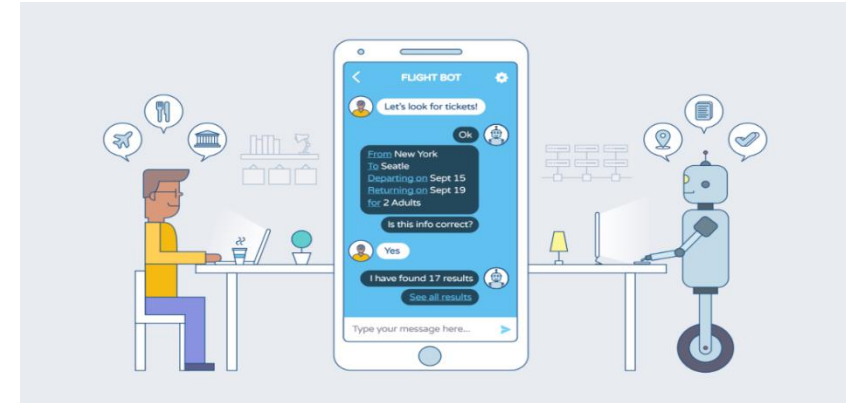
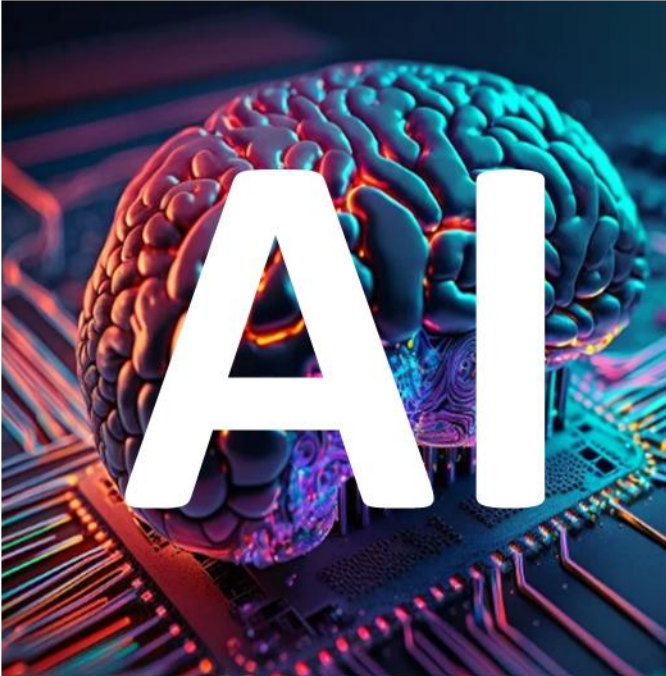
- Keputusan kadang tidak konsisten
- Keputusan kadang lama diambil
- Keputusan kadang tidak tepat
- Keputusan kadang bukan yang terbaik
- Keputusan kadang tidak terukur
- Keputusan kadang yang tidak menjelaskan

IQ



- Keputusan selalu konsisten
- Keputusan cepat
- Keputusan tepat
- Keputusan yang terbaik
- Keputusan terukur
- Keputusan menjelaskan

OTOMASI ?



PREDIKSI ?



REKOMENDASI ?

What are the top 10 industries that can benefit from using mobile apps

- 1. Retail and e-commerce
- 2. Banking and finance
- 3. Healthcare
- 4. Transportation and logistics
- 5. Food and hospitality
- 6. Real estate
- 7. Education and training
- 8. Gaming
- 9. Travel and tourism
- 10. Fitness and wellness

POLITIK | INDONESIA

KPK Akan Gunakan Teknologi AI untuk Periksa LHKPN

27.09.2023

Guna mempercepat pemeriksaan LHKPN, KPK berencana menggunakan teknologi artificial intelligence (AI).



OJK & CBI Dorong BPR Pakai Credit Scoring & AI, Ini Alasannya

MARKET - Zefanya Aprilia, CNBC Indonesia

29 May 2023 10:38

SHARE |



Kira-kira apakah siap bahwa keputusan LHKPN (kekayaan pejabat) diambil oleh AI tanpa campur tangan manusia?

Kira-kira apakah siap bahwa keputusan pengajuan kredit diterima atau tidak dilakukan oleh AI tanpa campur tangan manusia?

KPK Akan Gunakan Teknologi AI untuk Periksa LHKPN

27.09.2023

Guna mempercepat pemeriksaan LHKPN, KPK berencana menggunakan teknologi artificial intelligence (AI).



Kalau bicara AI intinya adalah **keputusan** apa yang dilakukan oleh **mesin**, tanpa **campur tangan manusia...**

Kira-kira apakah siap bahwa **keputusan** LHKPN (kekayaan pejabat) diambil oleh AI tanpa campur tangan manusia?

Kira-kira apakah siap bahwa **keputusan** pengajuan kredit diterima atau tidak dilakukan oleh AI tanpa campur tangan manusia?

OJK & CBI Dorong BPK Pakai Credit Scoring & AI. Ini Alasannya
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SHARE |



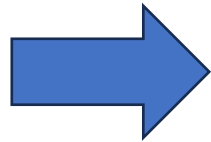
Apakah kita siap hidup di jaman AI?



KOMPUTERISASI

Membantu Proses
oleh komputer

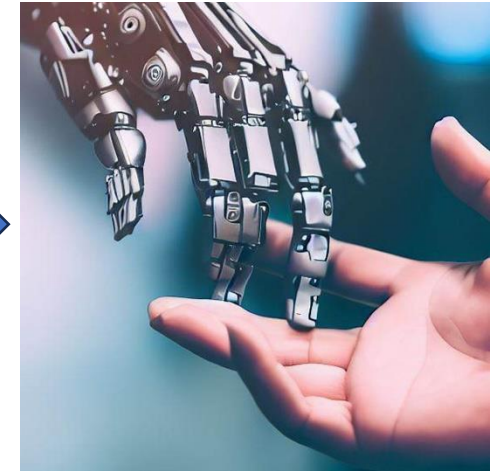
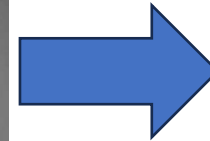
NON KERTAS



DIGITALISASI

Memberi rekomendasi
oleh Teknologi Informasi

DATA

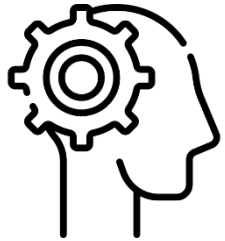


KECERDASAN BUATAN

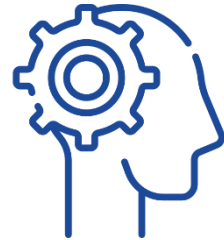
Mengambil Keputusan
oleh mesin AI

BERPIKIR

DUNIA YANG TERUS BERUBAH.....



MANUAL



KOMPUTERISASI

[NON KERTAS & PROSES]



DIGITALISASI

[REKOMENDASI DATA]



ARTIFICIAL INTELLIGENCE

[KEPUTUSAN OLEH MESIN]

**SISTEM YANG DAPAT BERPIKIR DAN
BERTINDAK SECARA RASIONAL ...**

4 TEKNIK DASAR DALAM AI

Menemukan langkah sistematis

SEARCHING

BLIND SEARCH

HEURISTIC

PROBABILISTIC

Menarik Kesimpulan berbasis fakta

REASONING

RULE BASED

CASE BASED

FUZZY

UNCERTAINTY

Mengurai masalah jadi sederhana

PLANNING

GOAL STACK

CONSTRAINT

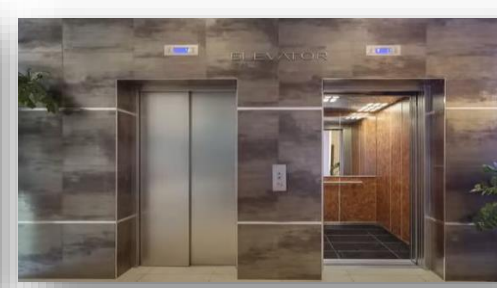
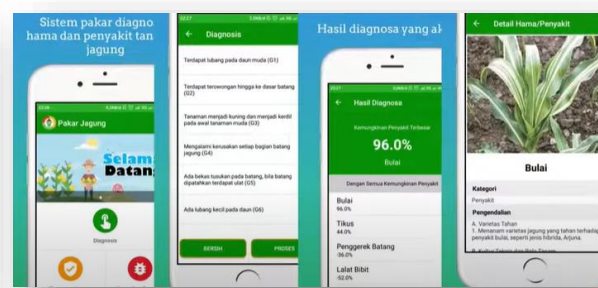
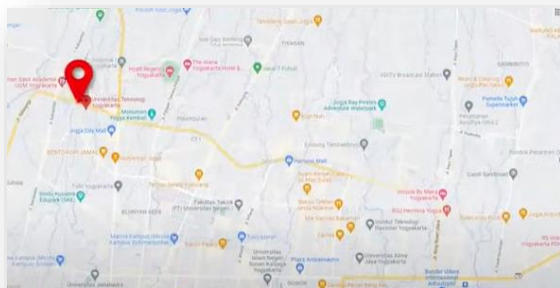
Mempelajari pola data untuk dapat pengetahuan

LEARNING

SUPERVISED

UNSUPERVISED

REINFORCEMENT



4 TEKNIK DASAR DALAM AI

OTOMASI

Mencari langkah sistematis

Mencari Kesimpulan berbasis fakta

Mengurai masalah jadi sederhana

Mempelajari pola data untuk dapat pengetahuan

SEARCHING

REASONING

PLANNING

LEARNING

BLIND SEARCH

HEURISTIC

PROBABILISTIC

PREDIKSI

CASE BASED

REKOMENDASI

UNCERTANTY

GOAL STACK

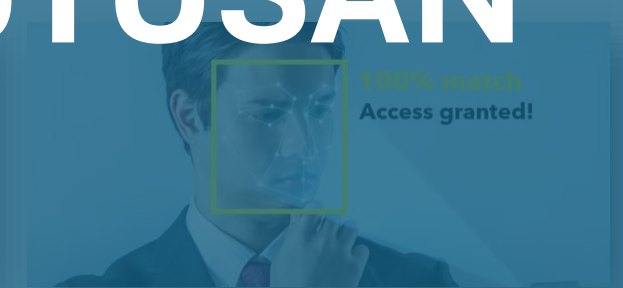
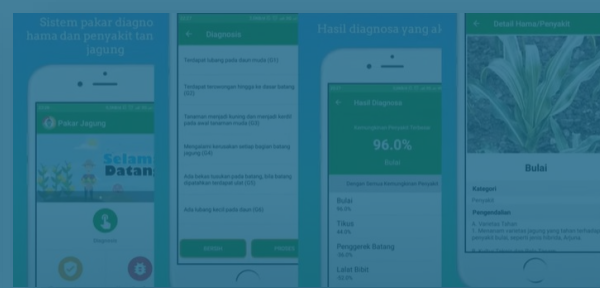
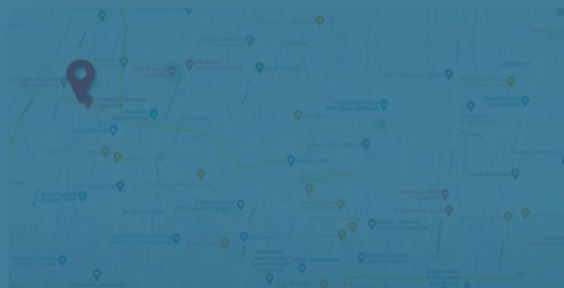
CONSTRAINT

SUPERVISED

UNSUPERVISED

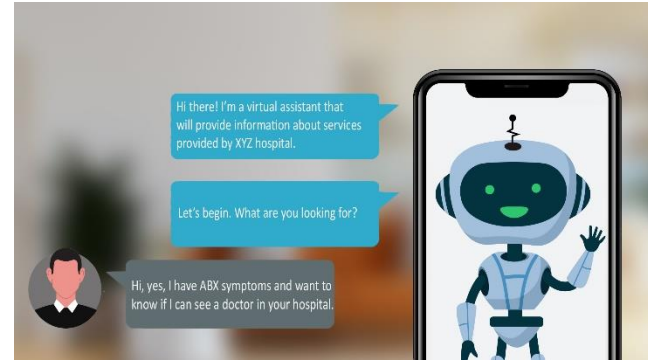
REINFORCEMENT

KEPUTUSAN





Self-driving Cars



Asisten Virtual



Pengenalan Wajah

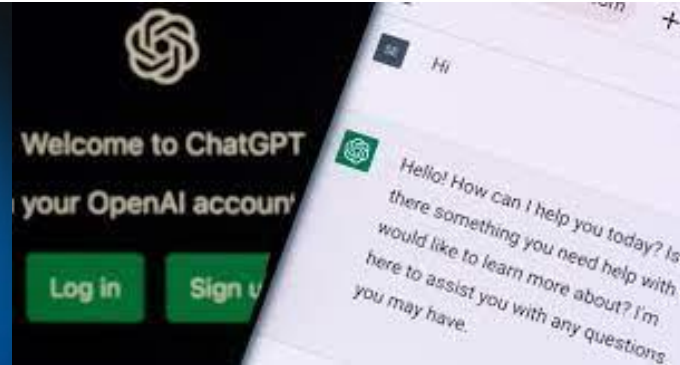


Penerjemahan Bahasa



Penyaringan Spam email

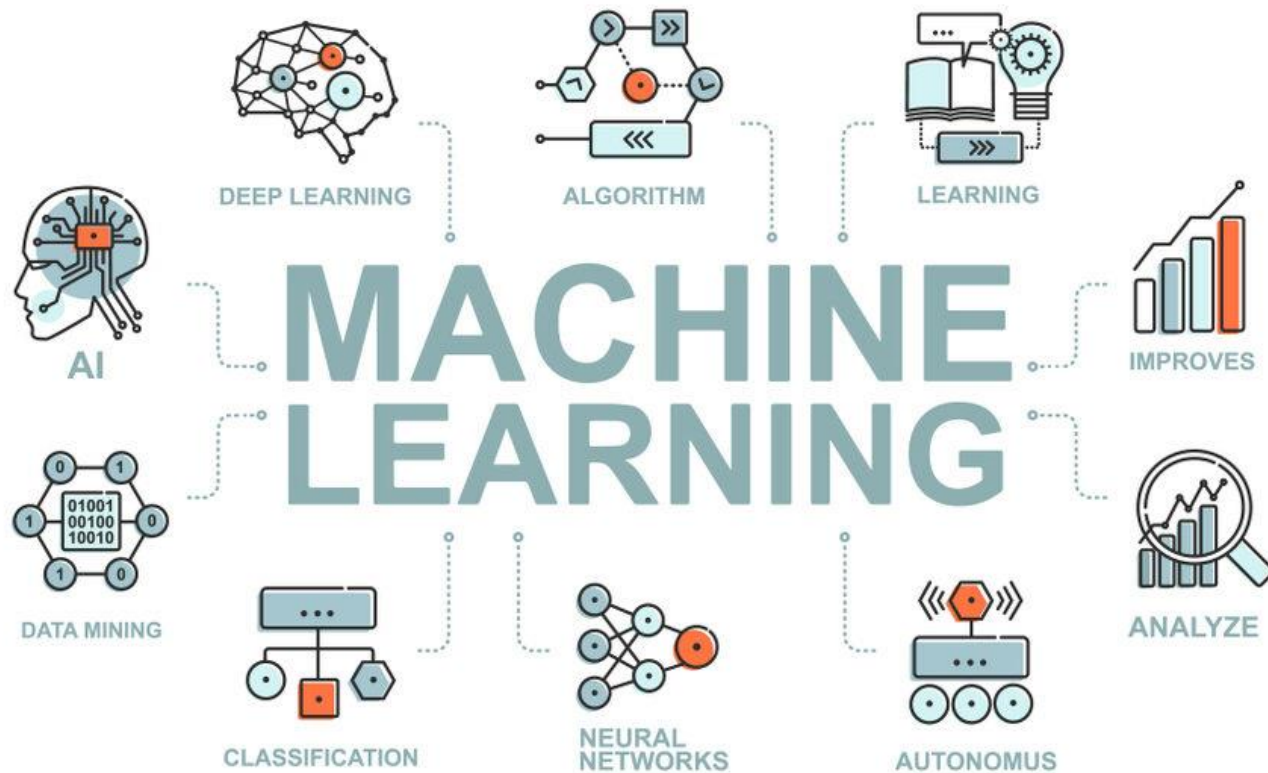
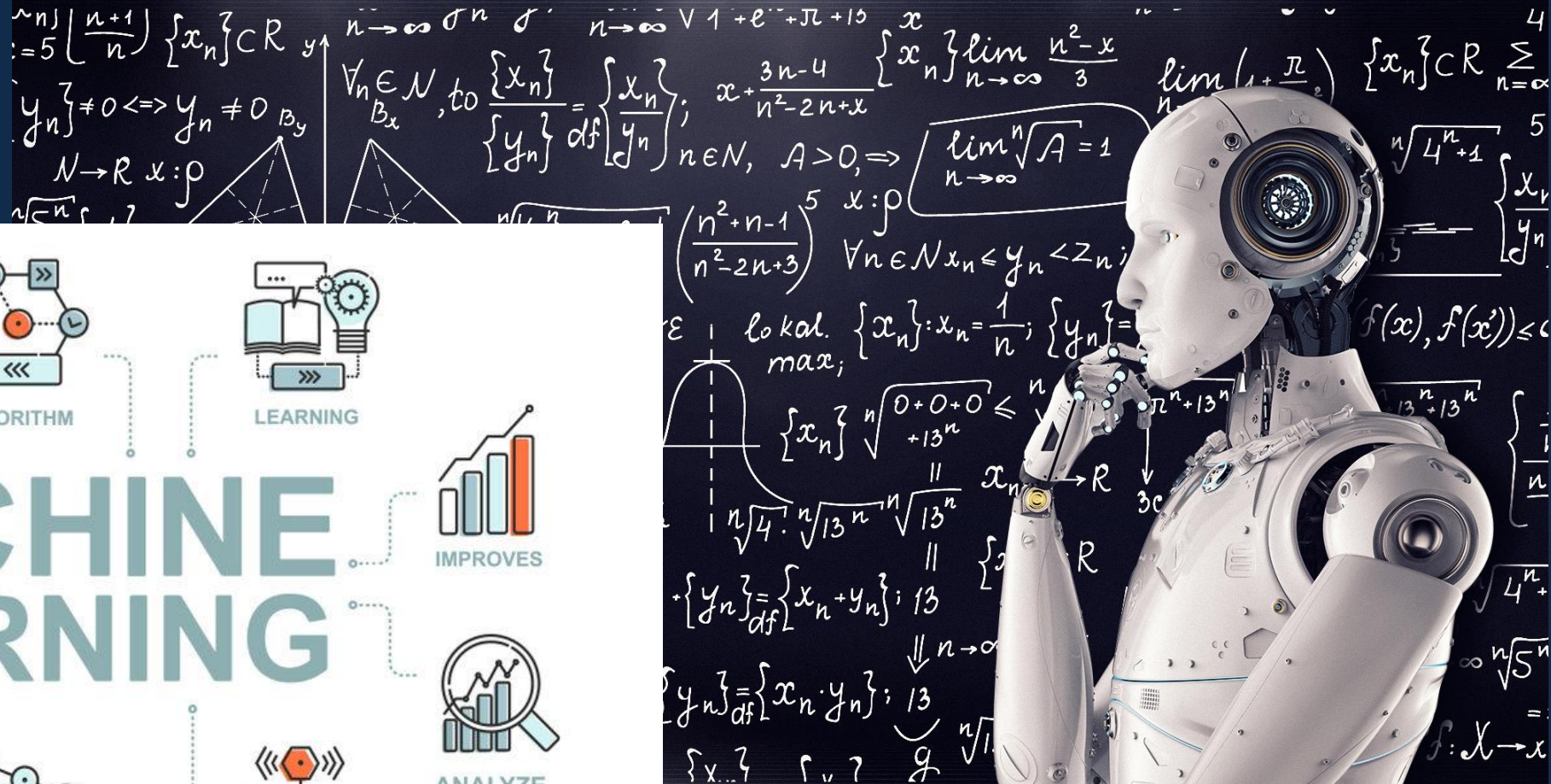
Generative AI



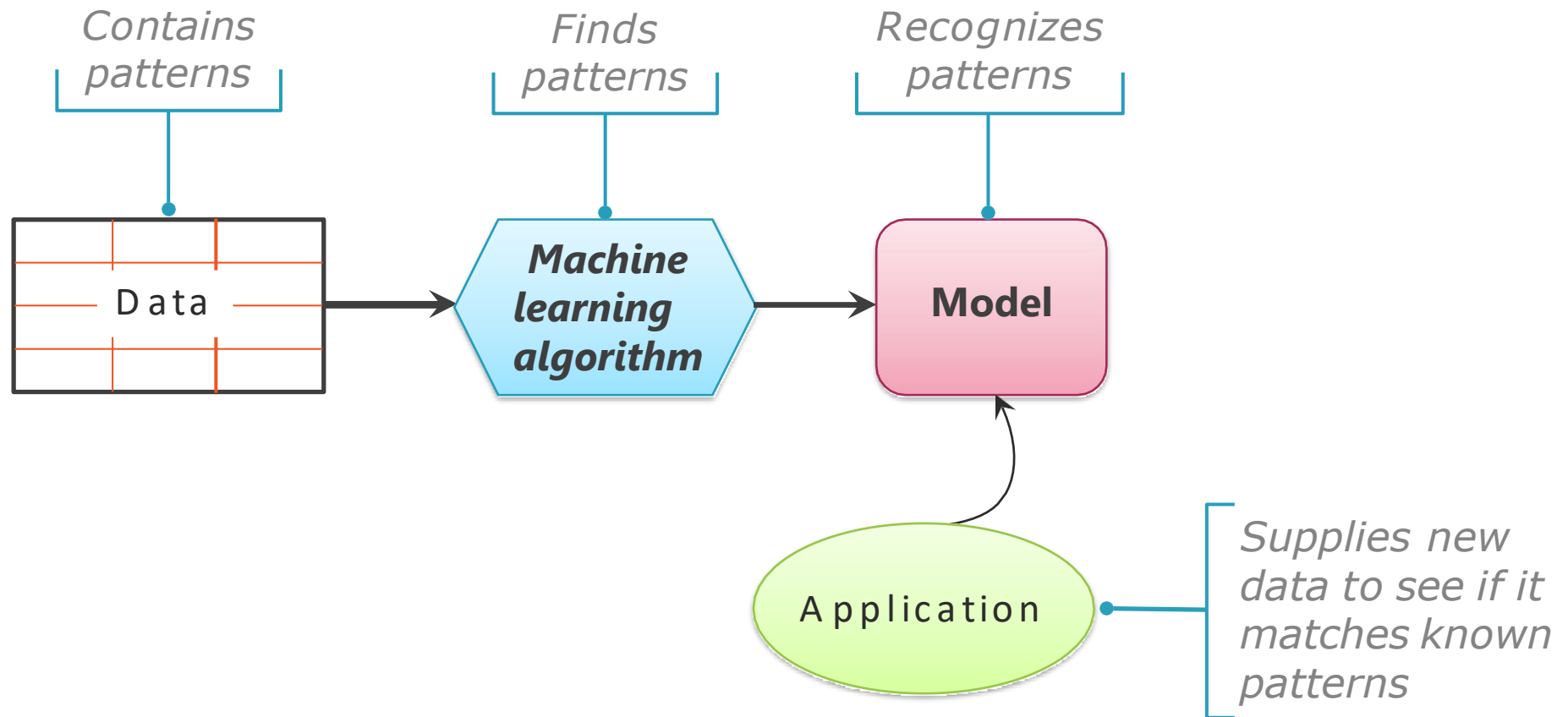
AI yang mampu menghasilkan sesuatu, mampu berkarya, mampu menciptakan



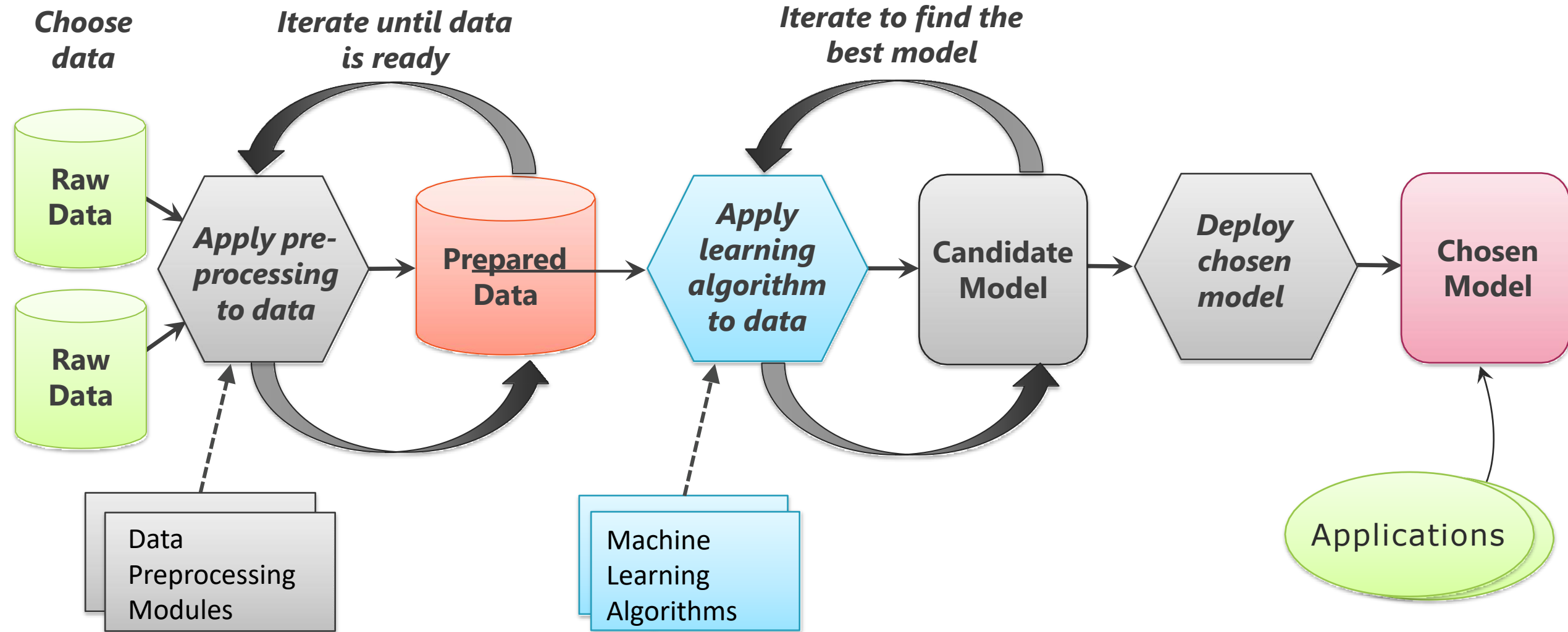
Kenapa AI bisa “pintar”?



Machine Learning in a Nutshell



The Machine Learning Process



Terminology



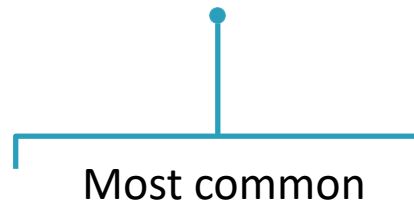
Training
Data

The prepared data used
to create a model
Creating a model is called
training a model



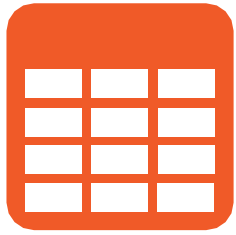
Supervised
Learning

The value you want to
predict is in the training data
The data is **labeled**

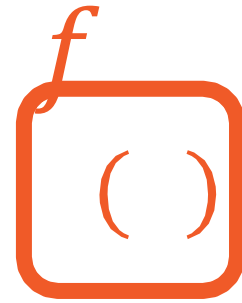
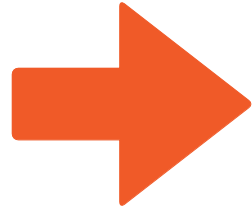


Unsupervised
Learning

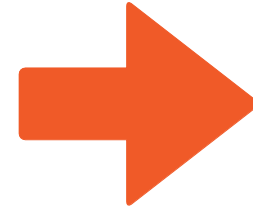
The value you want to
predict is not in the
training data
The data is **unlabeled**



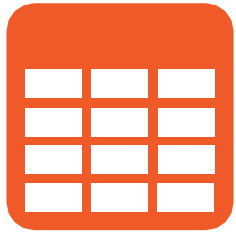
Data



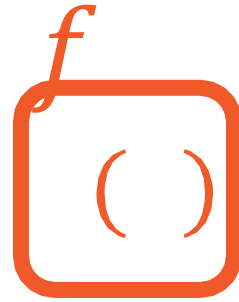
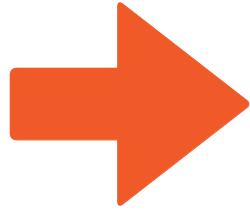
Function



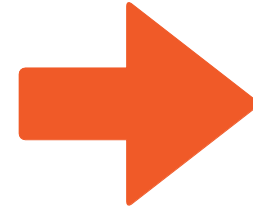
Prediction



Data



Function



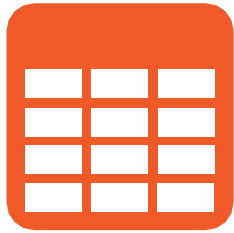
Prediction



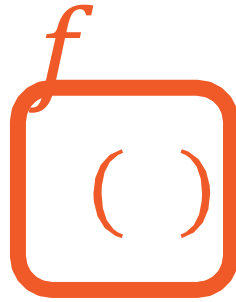
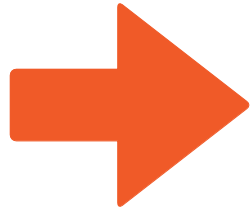
Cat



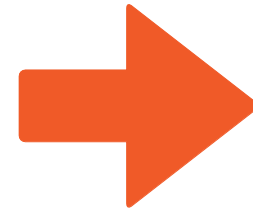
Not cat



Data



Function



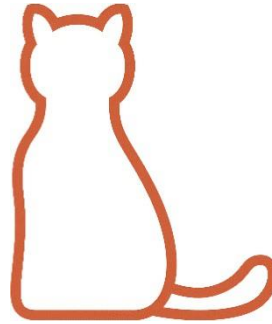
Prediction



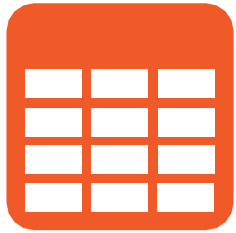
Cat



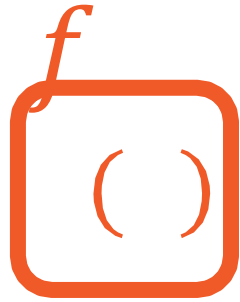
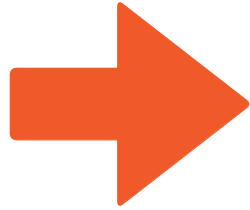
Not cat



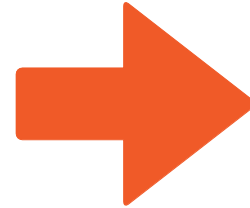
Is cat?



Data



Function



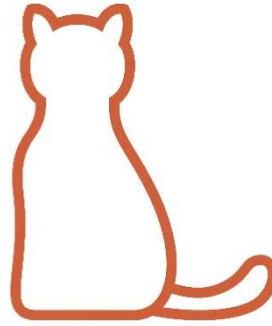
Prediction



Cat



Not cat



Is cat?



Cat

What is Data Science?

THE STUDY OF DATA TO
EXTRACT MEANINGFUL INSIGHTS
FOR BUSINESS

Melihat apa yang
telah terjadi

Descriptive

Menganalisis
mengapa ini terjadi

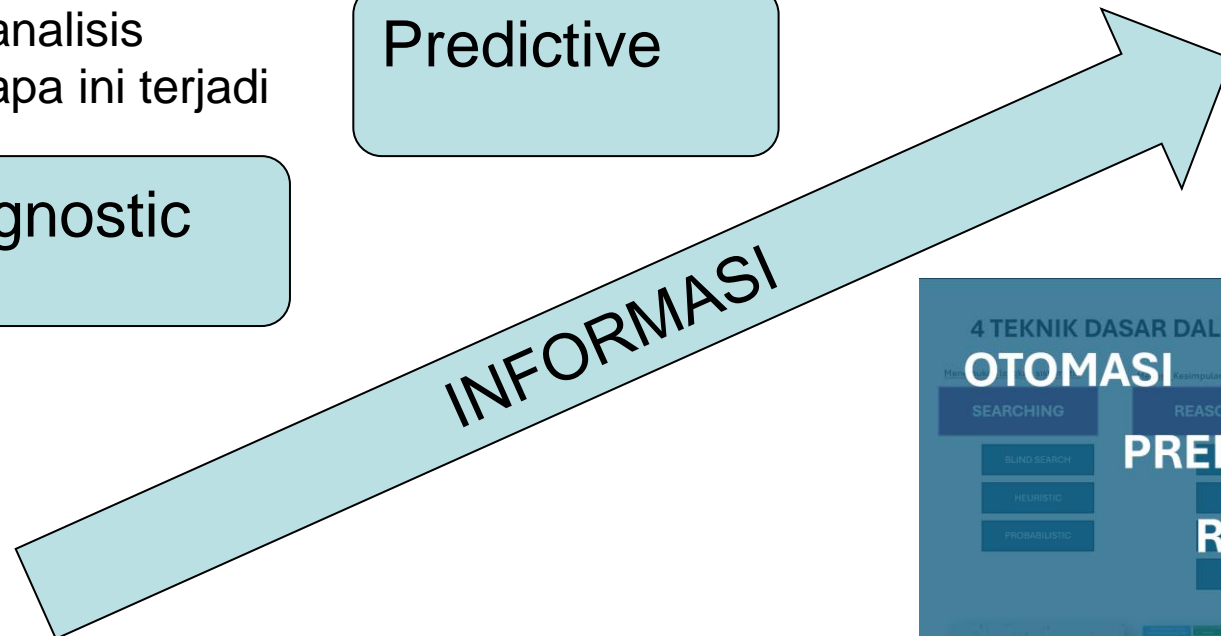
Diagnostic

Menganalisis apa
yang akan terjadi

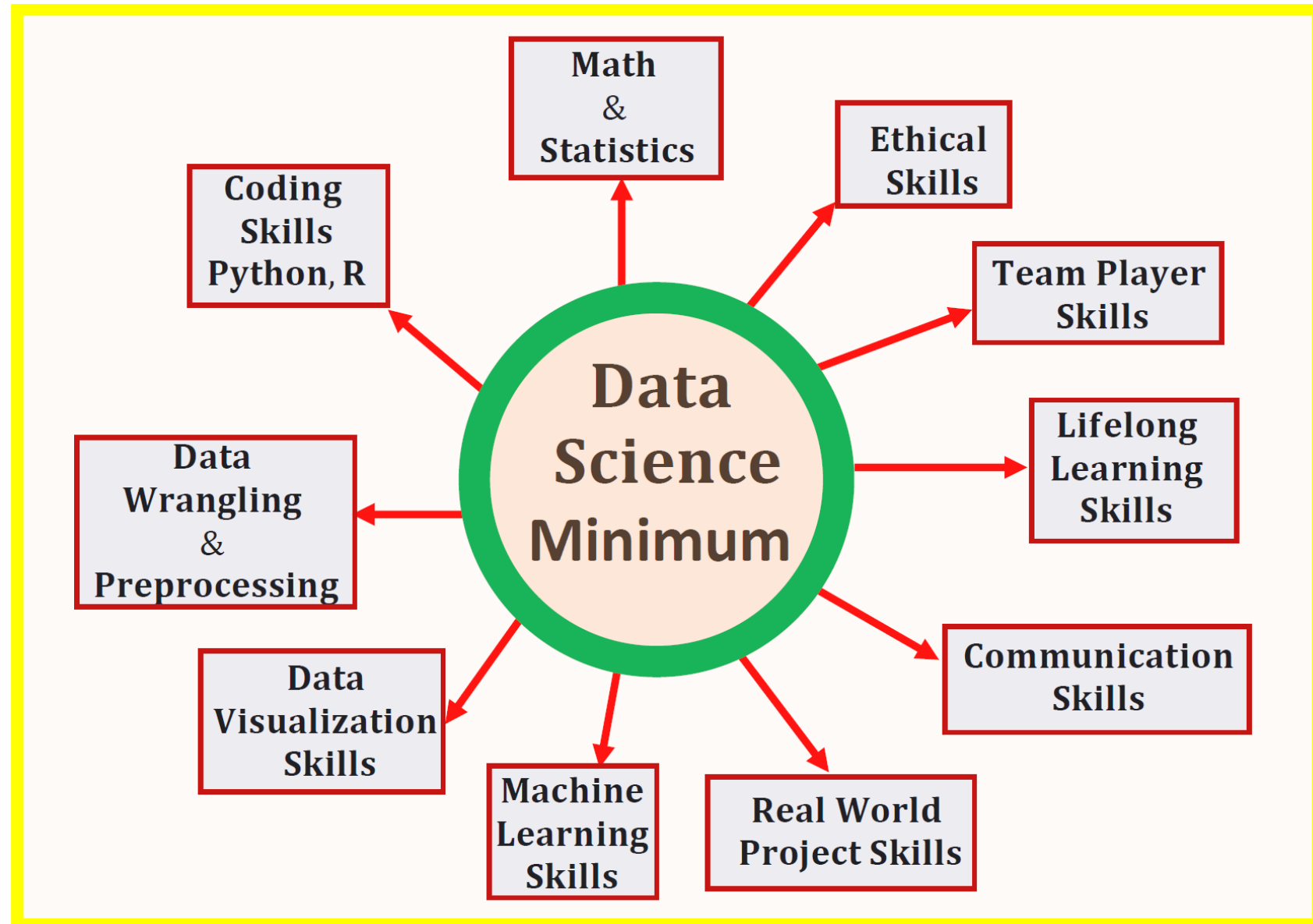
Predictive

Bagaimana semua
berjalan otomatis

Prescriptive



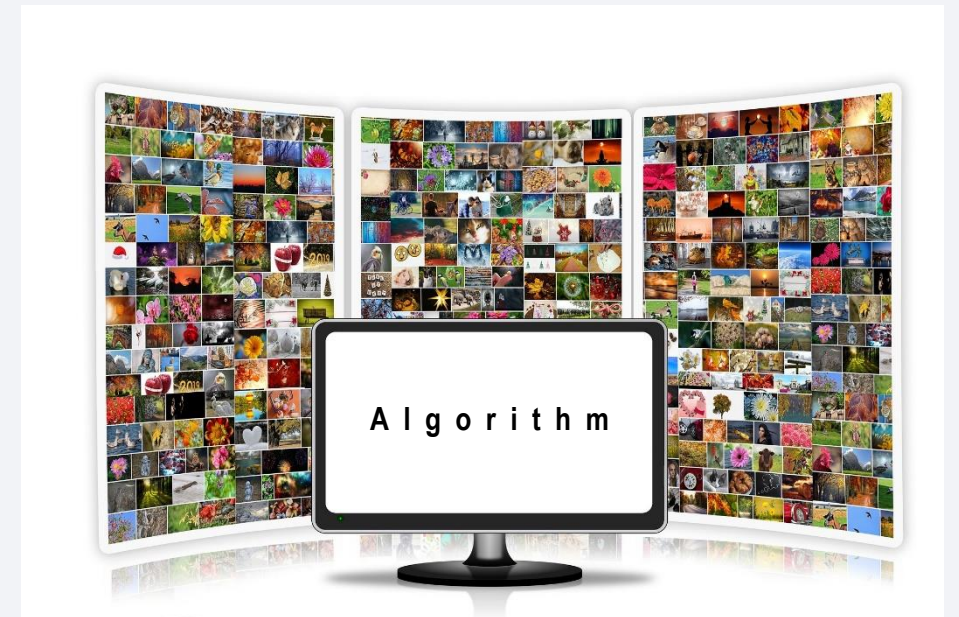
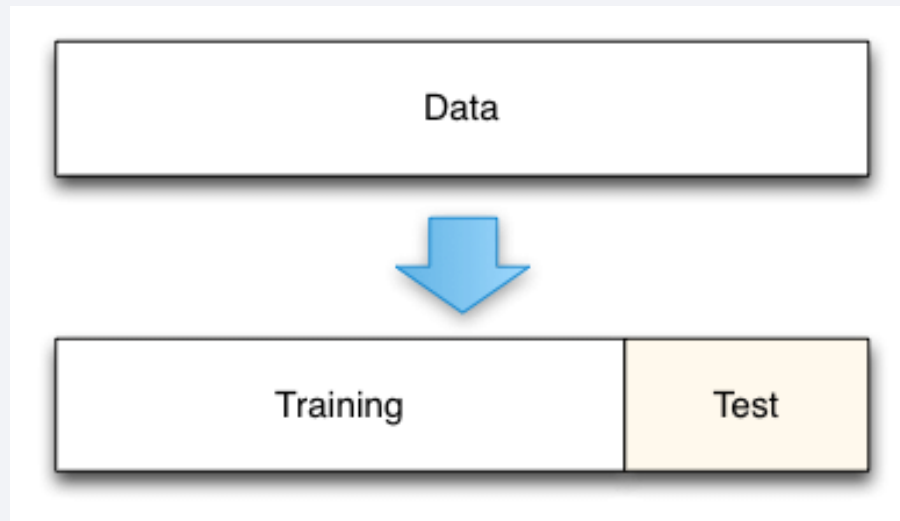
Competency for Data Scientist



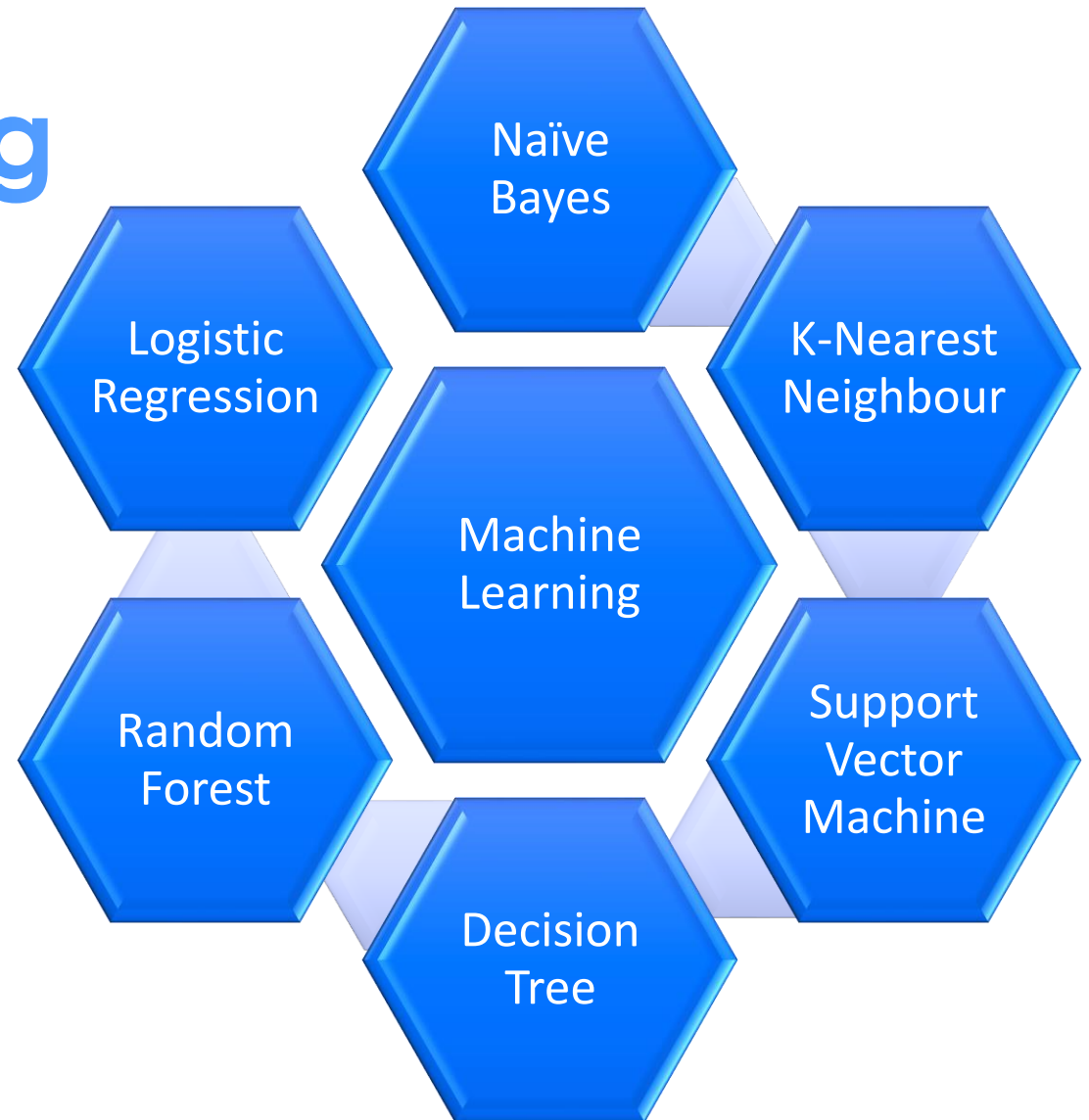
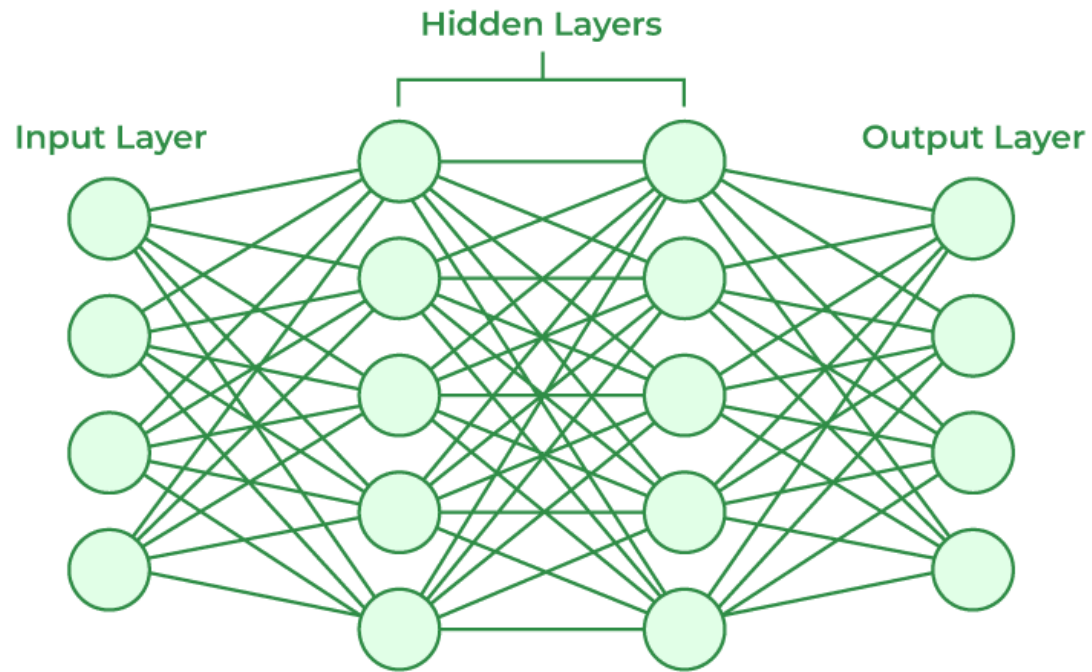
Apa kerjaan Data Scientist?



Splitting & Training Data



Algoritma Machine Learning



Contoh Regression

Uang Saku	Dorayaki
5000	1
20000	4
15000	3
10000	?

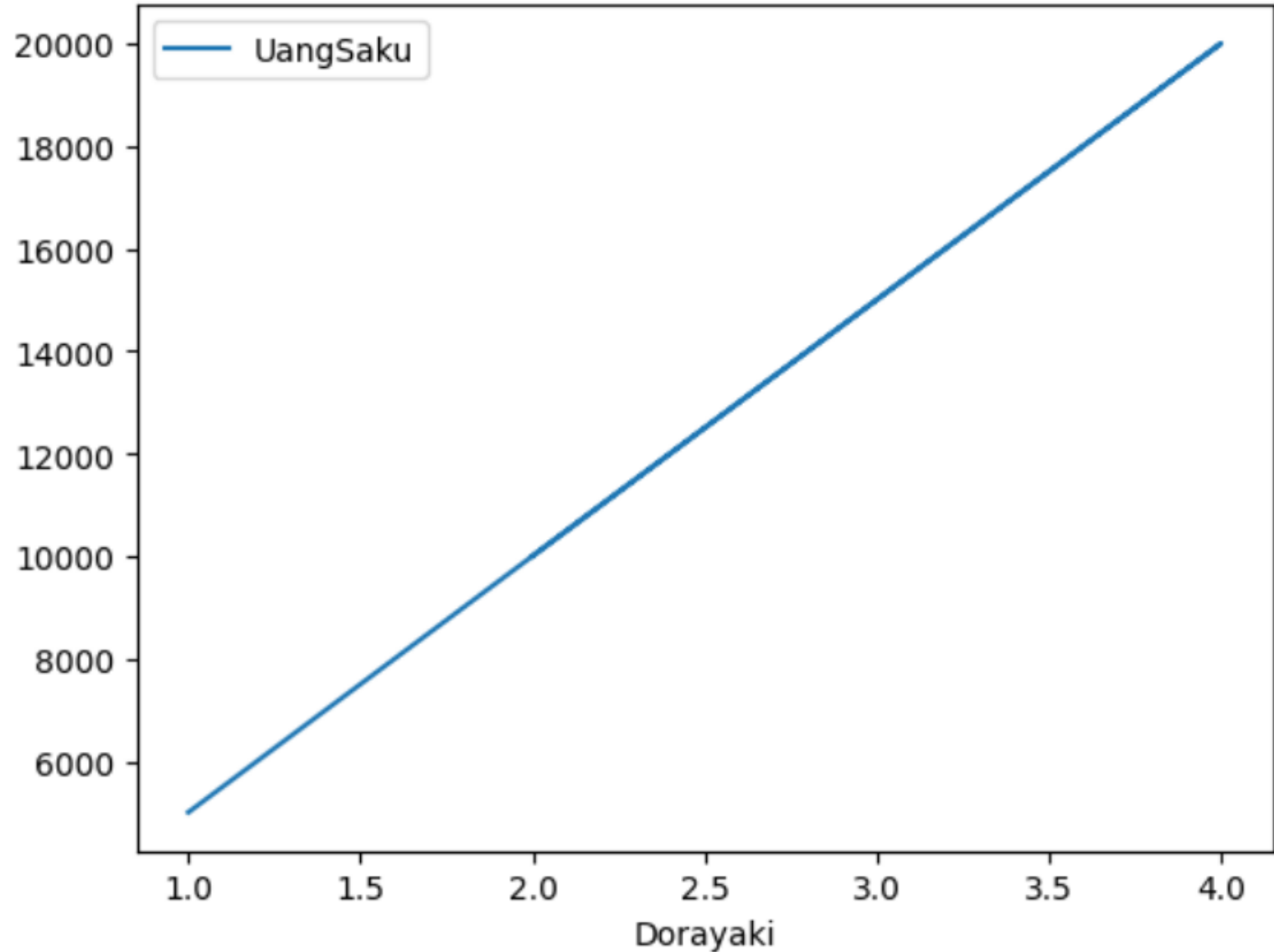
Berapa nilai ?

A : 2

B : -5

C : 100

D : 3.5



Contoh Regression

Dana IT	Jumlah Staff IT	Pendapatan Training
500	30	100
200	40	50
400	20	40
300	10	20
150	15	8
250	10	30
450	20	?

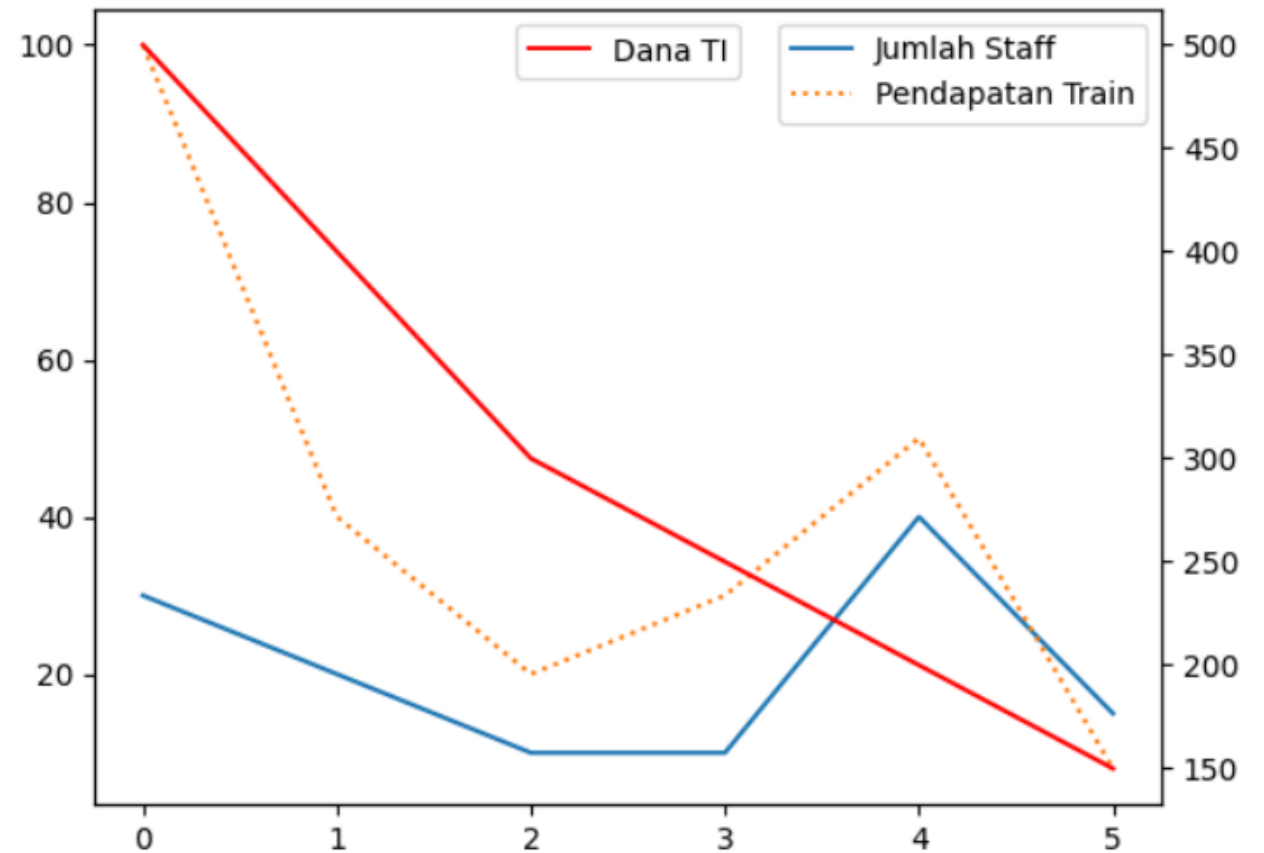
Berapa nilai ?

A : 88

B : 30.7

C : -30

D : 60



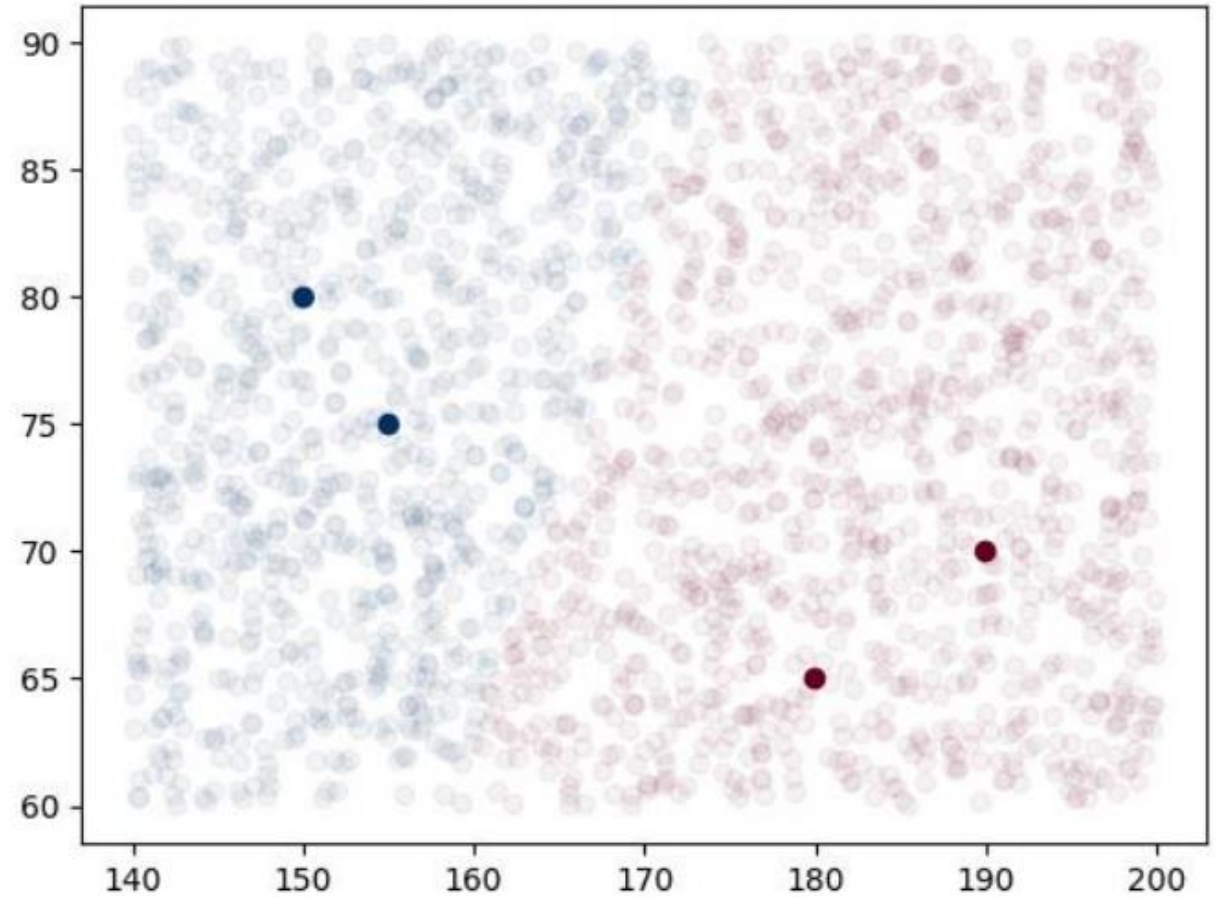
Contoh Classification

Tinggi Badan	Berat	Jaket
155	75	XL
150	80	XL
180	65	L
190	70	L
155	76	?

Berapa nilai ?

A : XL

B : L





Demo Analisis Data dengan Machine Learning

