



Introduction to Data Science

It's time to start
living the life you've imagined.

By Henry James





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What will We Learn Today?

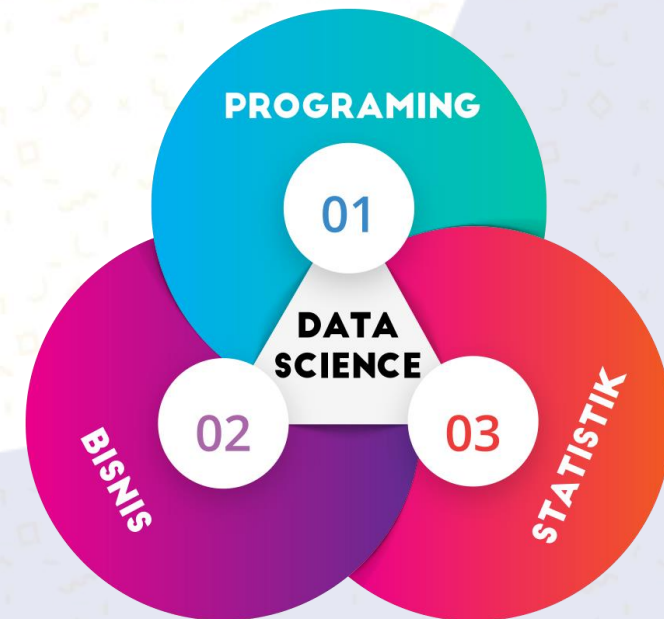
1. What is Data Science
2. Why Data Science
3. Data Science Implementation
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What is Data Science?

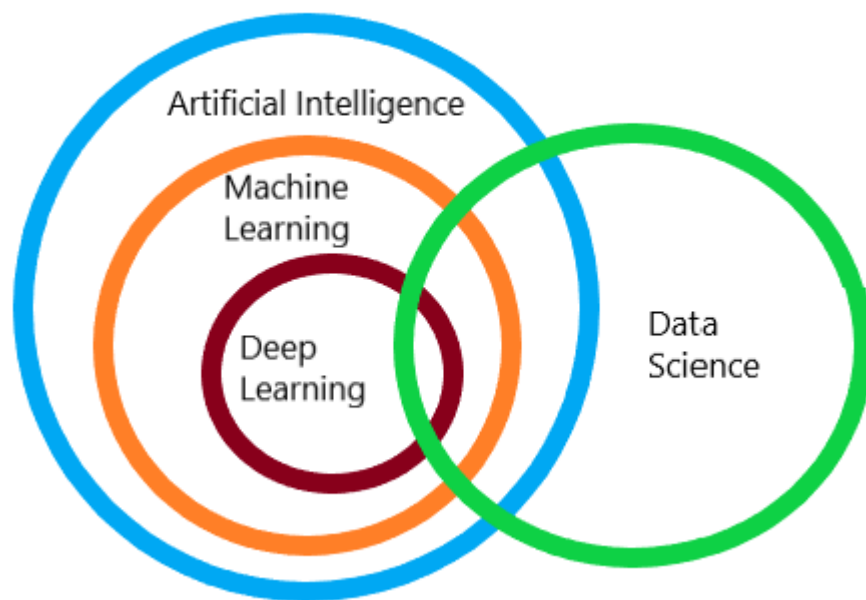
Data (/ˈdɑdə,ˈdādə/) : Facts and statistics collected together for reference or analysis.

Science (/ˈsiəns/) : The **intellectual and practical** activity encompassing the systematic study of the structure and behavior of the physical and natural world through **observation and experiment**.





Data Science's Subset

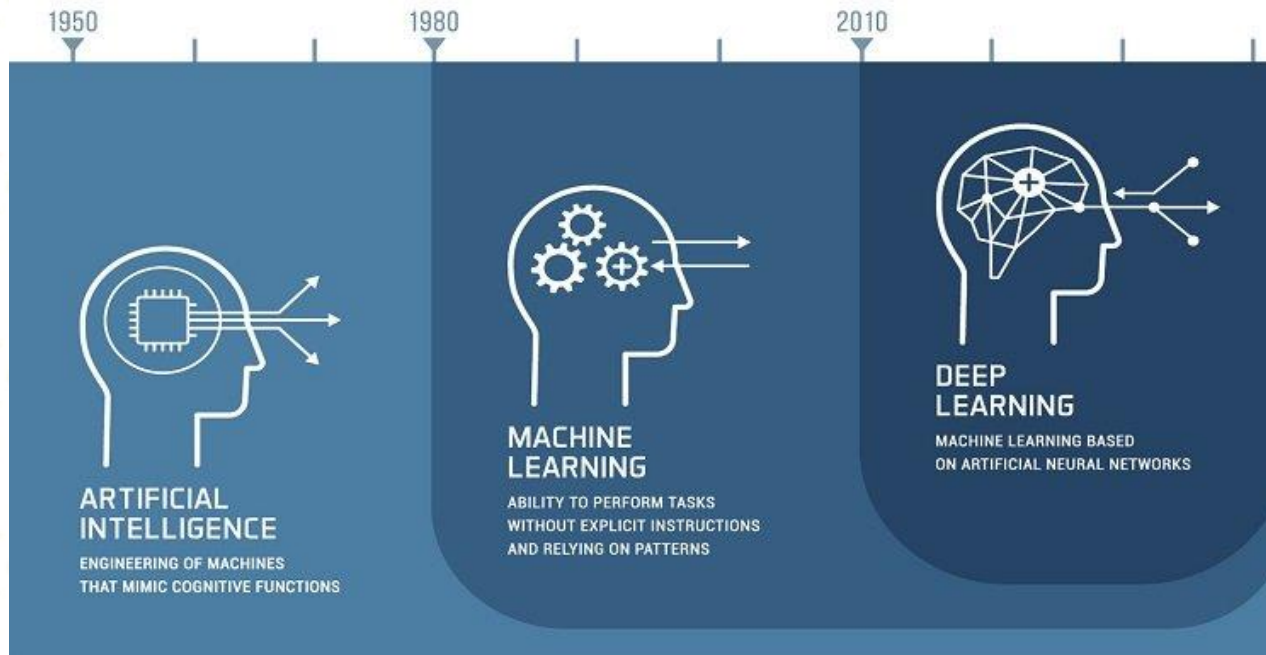


Description

AI: A branch of computer science in which computer systems are developed to perform tasks that would typically need human intelligence

ML: A subset of artificial intelligence with the goal to teach the machine to learn patterns of data without explicitly program the pattern

Deep Learning: A subset of ML that uses set of algorithms modeled by the structure of human brain (also called neural network)

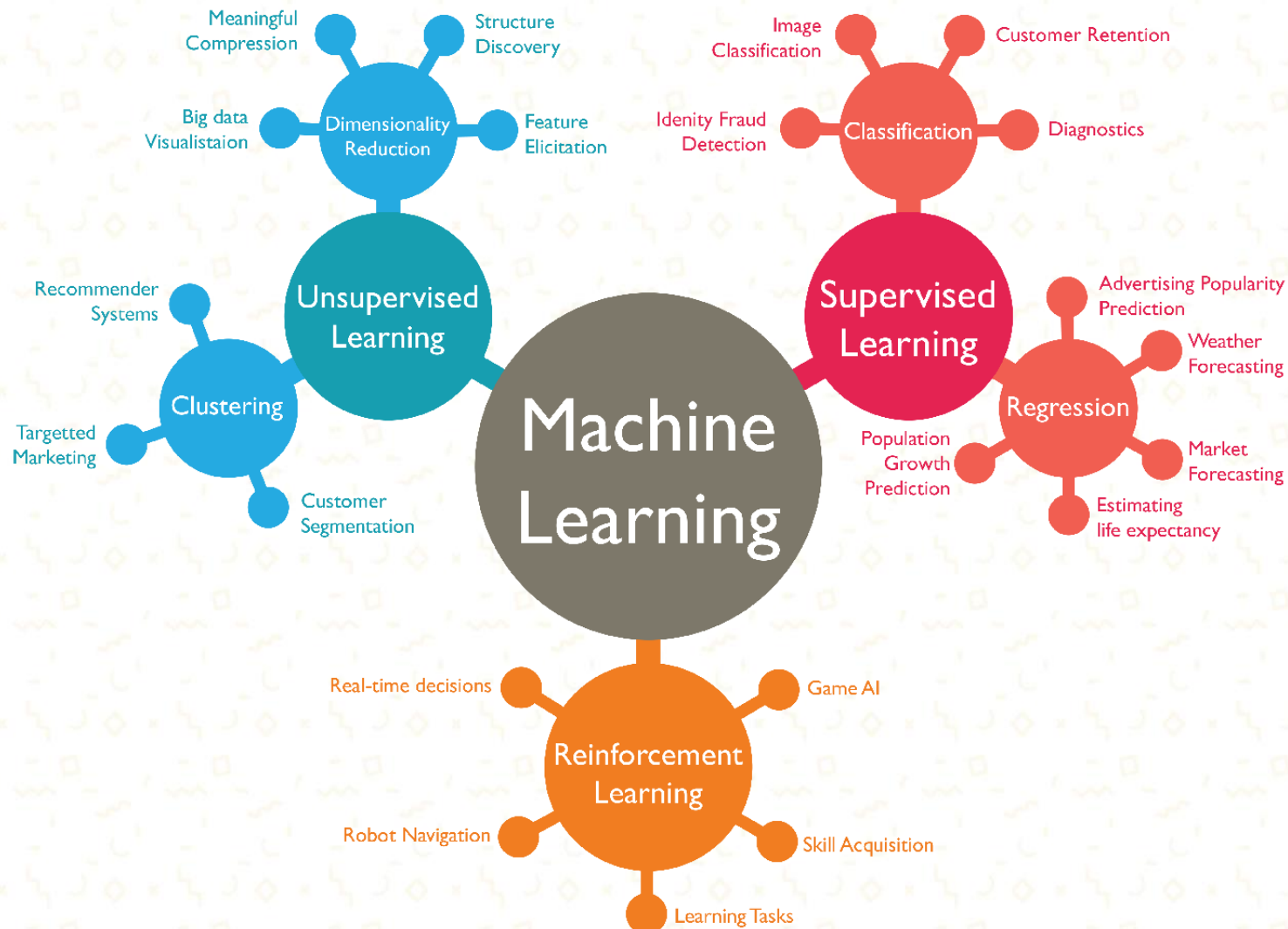


<https://electronics360.globalspec.com/article/17406/deep-learning-and-its-applications>

Description

Cognitive Functions: Brain-based skills which are needed in acquisition of knowledge, manipulation of information, and reasoning.

Artificial Neural Networks: Computing systems inspired by the biological neural networks that constitute animal brains.



Source: <https://linkedin.com/pulse/business-intelligence-its-relationship-big-data-geekstyle>

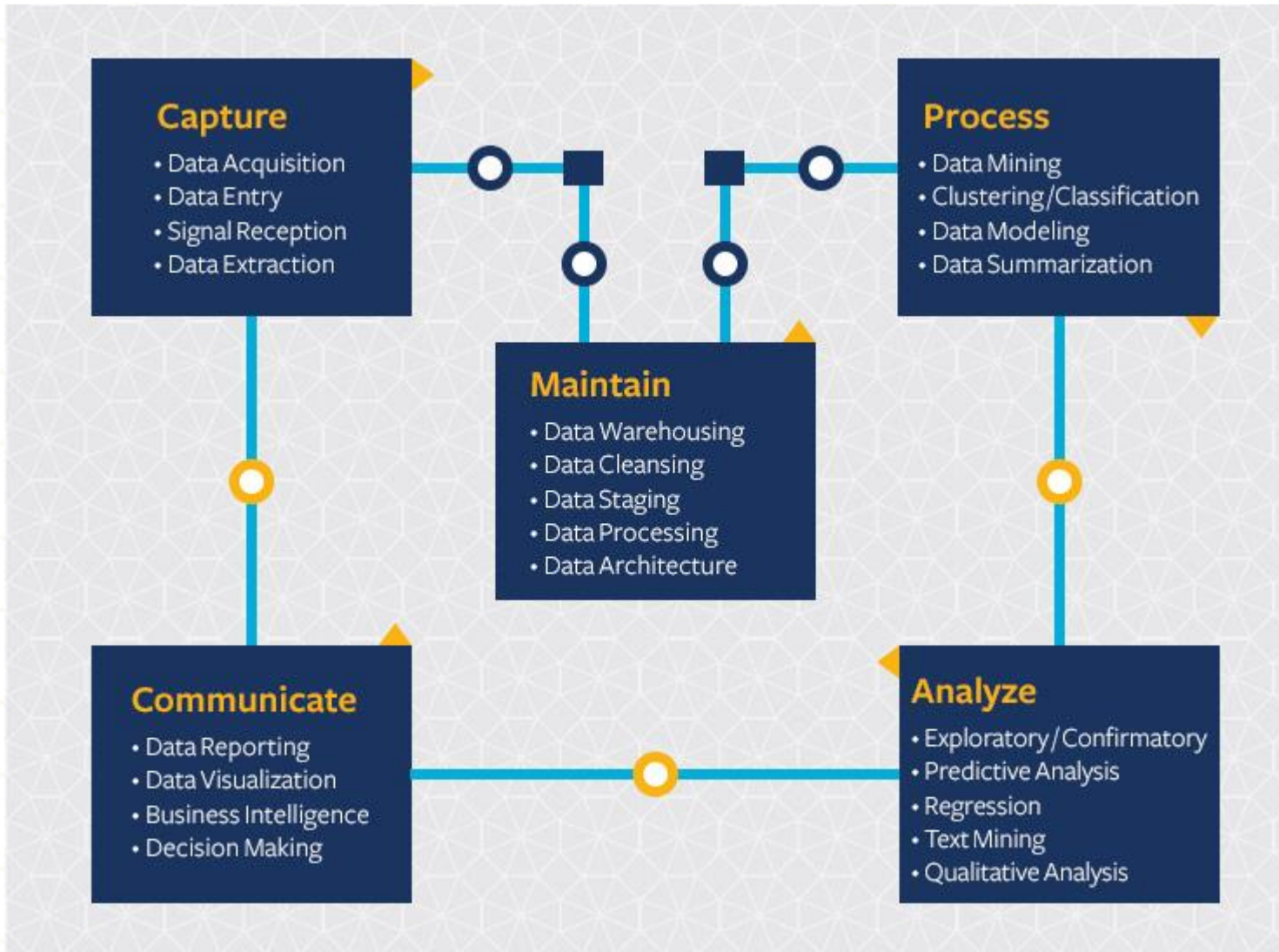


	Raw Data Collection	Data Warehousing	Data Preprocessing	Data Training & Testing	Data Insights
	Collect data from different sources	Centralized data storage	Create organization relevant data	Fit data training and test the result	Insights gained from data.
Skills	Python Web Scraping API	AWS Redshift Google Big Query	Python SQL	Python statsmodels sklearn	Tableau Metabase Python
Source Data	Data Generated by App Clicks Sensors	App Database	Data Warehouse Data Lake	Processed data	Processed data

Data Analyst

Data Engineer

Data Scientist



Source: <https://ischoolonline.berkeley.edu/data-science/what-is-data-science/x>

Why Data Science?

Growth of Data

Data is everywhere and expansive. Various business industry has recorded their data.

Data Driven Decision

Data science combines domain expertise from programming, mathematics, and statistics to create insights and understanding of data.





Data Science in Business

Implementation in Financial Industry



Investment Decision

Maximizing returns based on billions of market signals and alternative data sources



Fraud Prevention

Detect and prevent fraudulent activities by leveraging ML to predict anomalies in real time.



Credit Scoring

Determine the creditworthiness of a person or a small, owner-operated business



Data Science in Business

Implementation in Media & Entertainment



Sentiment Analysis

Understanding how content is resonating in social channel.



Content Personalization

Show personalized content when accessing platform to improve user experience



Churn Prediction

Predict which users that are likely to churn, analyze its factors and prevent them from churning.

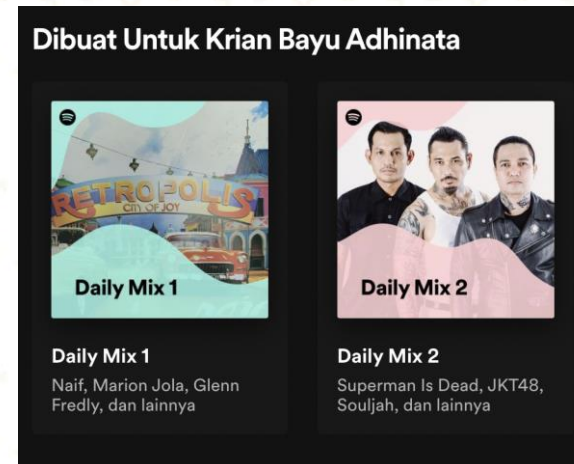


Data Science in Business

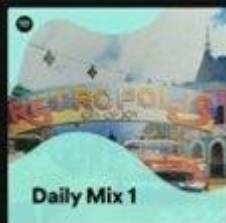
Key Components:

1. Historical data generated by user.
2. Data generated by other users.
3. Knowledge related to the field.

Due to data collected by Spotify, they are able to make such predictions for their users.



Dibuat Untuk Krian Bayu Adhinata



Daily Mix 1

Daily Mix 1

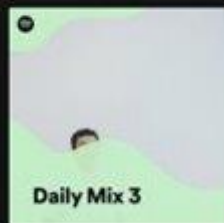
Naif, Marion Jola, Glenn Fredly, dan lainnya



Daily Mix 2

Daily Mix 2

Superman Is Dead, JKT48, Souljah, dan lainnya



Daily Mix 3

Daily Mix 3

Tulus, Adhitha Sofyan, Payung Teduh, dan lainnya



Daily Mix 4

Daily Mix 4

Lady Gaga, Billie Eilish, Olivia Rodrigo, dan lainnya



Daily Mix 5

Daily Mix 5

SBBrising, offonoff, DPR LIVE, dan lainnya



Daily Mix 6

Daily Mix 6

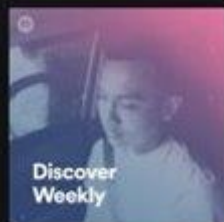
Drake, Post Malone, Abhi The Nomad, dan lainnya



Teman Perjalananmu

Teman Perjalananmu

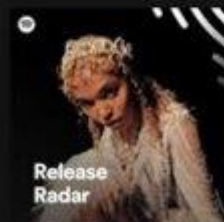
Mix berita dan musik yang dibuat untukmu



Discover Weekly

Discover Weekly

Paduan musik baru setiap minggu untuk kamu....



Release Radar

Release Radar

Dapatkan semua musik terbaru dari artis yang...

PLAYLIST

Daily Drive


A mix of news and music made for you

Made for **Krian Bayu Adhinata** • 35 songs, 2 hr 2 min



Custom order ▾

#	TITLE	ALBUM OR PODCAST	RELEASE DATE	
1	Selamat Hari Jumat Spotify	Teman Perjalananmu		0:07
2	20 Desember 2021, Raditya Oloan, ...	Daily Quote Indonesia	Dec 19	1:55
3	traitor Olivia Rodrigo	SOUR		3:49
4	Peradaban .Feast	Peradaban		5:39







Mood Booster

PLAYLIST

Mood Booster


Get happy with today's dose of feel-good songs!

 **Spotify** • 6,908,913 likes • 76 songs, 4 hr 2 min



Custom order ▼

#	TITLE	ALBUM	DATE ADDED	
1	 Blueberry Eyes (feat. SUGA of BTS) MAX, SUGA	Blueberry Eyes (feat. SUGA of BTS)	28 days ago	2:52
2	 STAY (with Justin Bieber) The Kid LAROI, Justin Bieber	STAY (with Justin Bieber)	28 days ago	2:22
3	 My Universe Coldplay, BTS	My Universe	28 days ago	3:48



Exploratory Data Analysis

The critical process of performing initial **investigations** on data so as **to discover patterns, to spot anomalies, to test hypothesis and to check assumptions** with the help of summary statistics and graphical representations.



Success Story of Data Science

1. Data science increased AirBnB's valuation to \$25.5 B
 - a) Guiding host to set perfect price.
 - b) Enhance search feature
2. Netflix use Data Science to boost its growth.
 - a) Stranger Things born out of data analytics (**Production Planning**)
 - b) Near real-time recommendation engine.
3. Oakland Athletics achieve 20 wins consecutively.
 - a) Set team formation using time-series data.



**Thank
YOU**

