



ICT Academy of Kerala

Building the Nation's Future

Certified Specialist in Data Science & Analytics

Foundation Session 1

A GOVT. OF INDIA SUPPORTED, GOVT. OF KERALA PARTNERED SOCIAL ENTERPRISE.



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CONSULTANCY
SERVICES

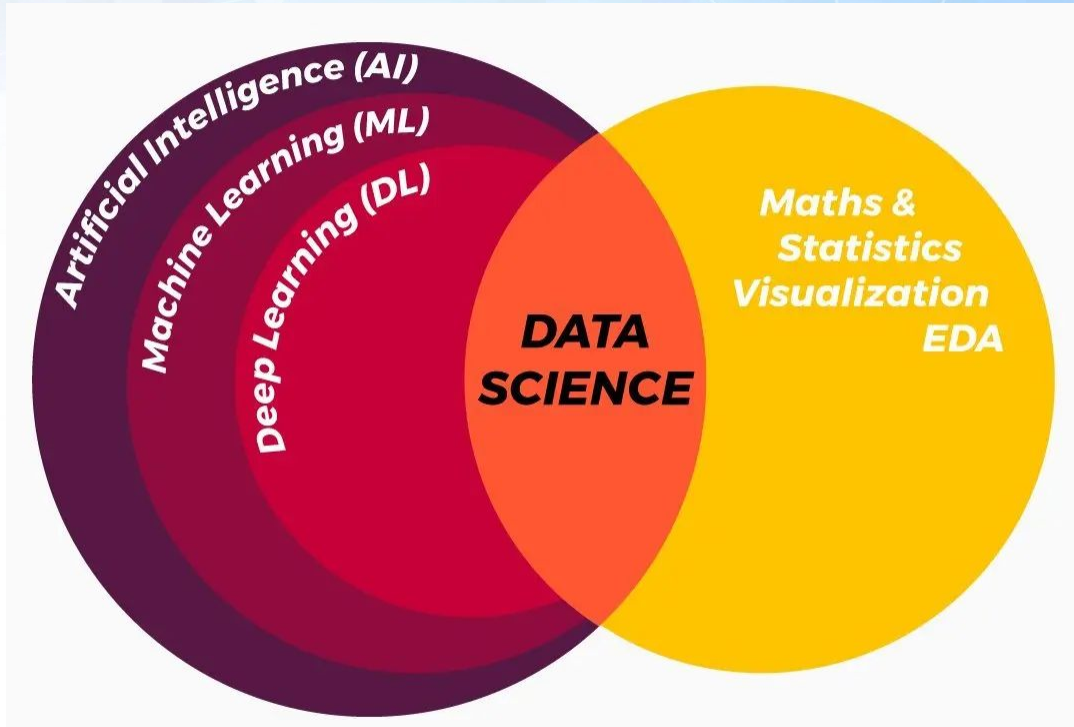
Quest
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Sowparnika
Education Infrastructure

MACHINE LEARNING



Dynamic Pricing
Predicting Flight
Delay

TRAVEL

Disease
Prediction
Medication
Effectiveness

HEALTHCARE

Discount
Offering
Demand
Forecasting

SALES

Claims
Prediction
Fraud & Risk
Detection

CREDIT & INSURANCE

MARKETING

Upselling
Cross selling
Predicting lifetime
Value of Customer
Churn

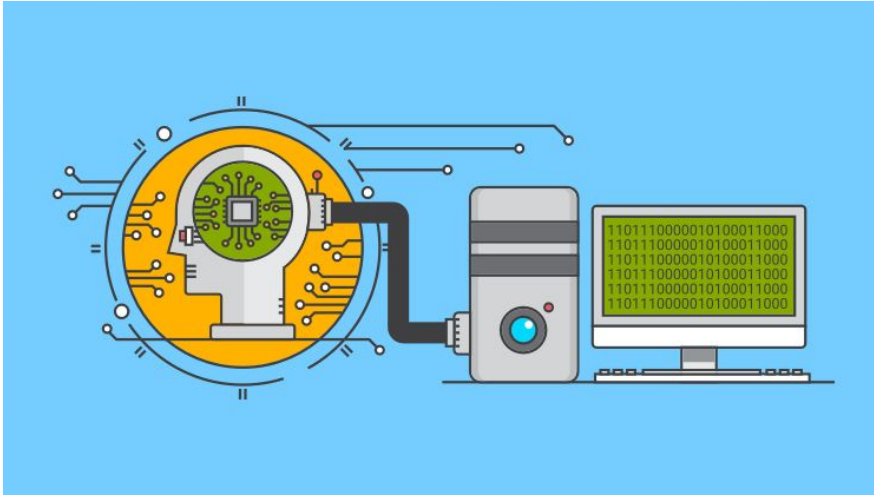
SOCIAL MEDIA

Sentiment
analysis
Digital
Marketing

AUTOMATION

Self Driving
Cars
Pilotless aircrafts,
drones

MACHINE LEARNING



Machine Learning is the field of study that gives computers the capability to learn without being explicitly programmed.

Why ML is the future?



**Since the Dawn of time until
2005, humans had created 130
Exabytes of Data**

Why ML is the future?



By 2025, the amount of data generated each day is expected to reach 463 exabytes globally.

Why ML is the future?

**Letter A on computer takes One
Byte of Data**

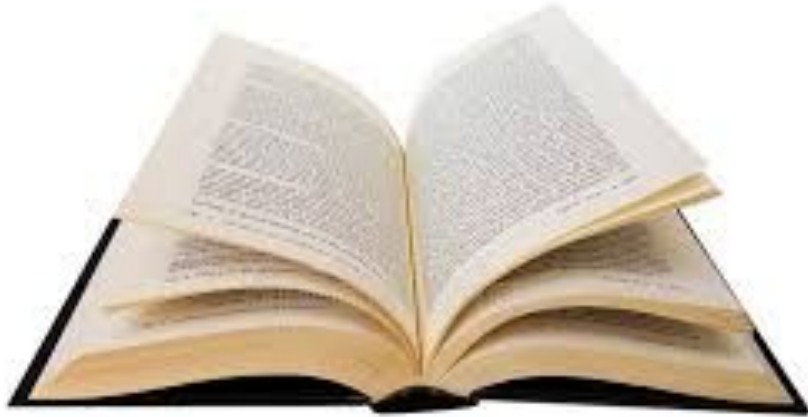


Why ML is the future?



1000 such Letters forms 1 Kilobytes

Why ML is the future?



**Another 1000 times forms 1
Megabytes**

Why ML is the future?



**Another 1000 times forms 1
Gigabytes**

Why ML is the future?



**Another 1000 times forms 1
Terabytes**

Why ML is the future?



**Another 1000 times forms 1
Petabytes**

Why ML is the future?



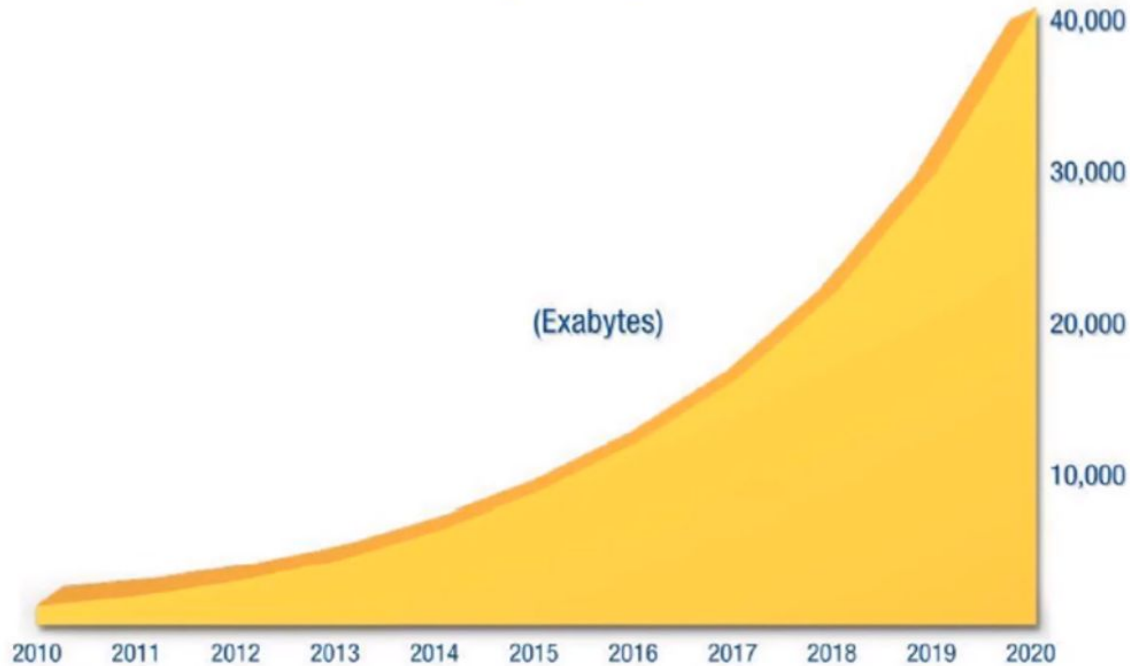
**Another 1000 times forms 1
Exabytes**

Why ML is the future?

- **Since 2005 -130 Exabytes of Data**
- **2010 – 1,200 Exabytes of Data**
- **2015 – 7900 Exabytes of Data**
- **This year – 40,900 Exabytes of data**

Why ML is the future?

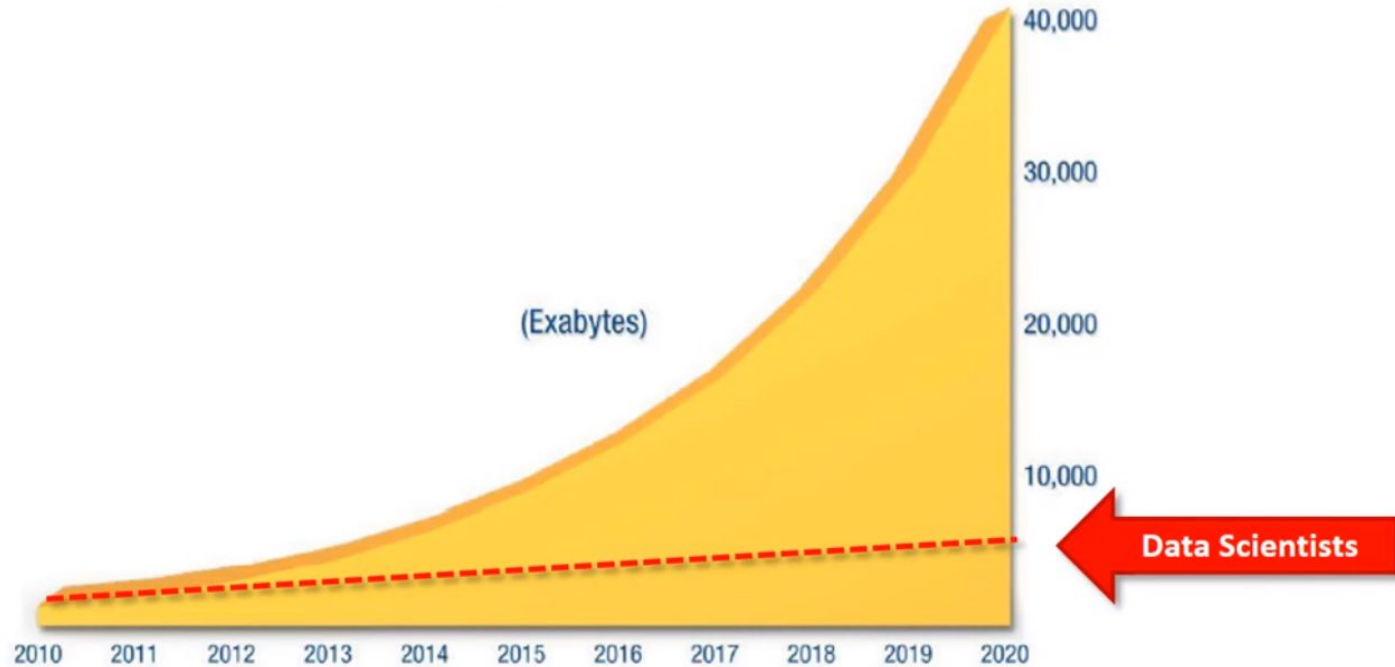
50-Fold Growth from the Beginning of 2010 to the end of 2020



Source: IDC's Digital Universe Study, sponsored by EMC, December 2012

Why ML is the future?

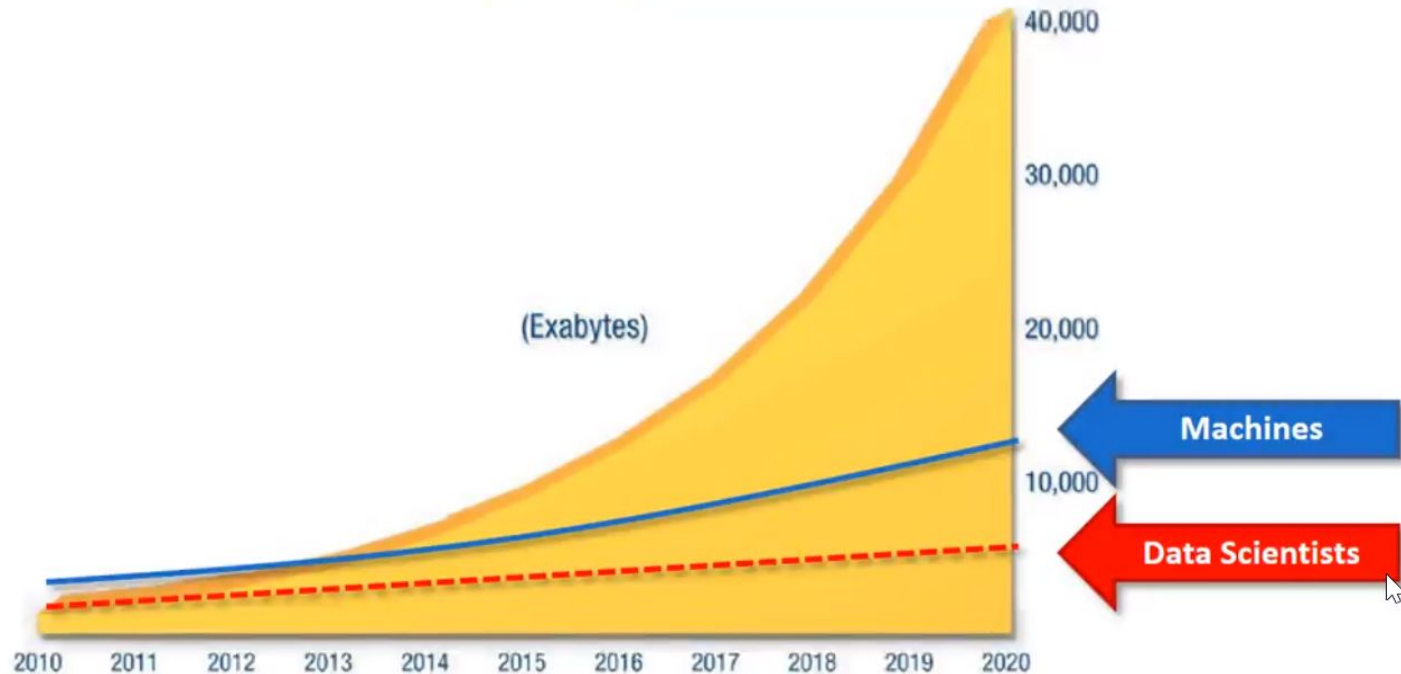
50-Fold Growth from the Beginning of 2010 to the end of 2020



Source: IDC's Digital Universe Study, sponsored by EMC, December 2012

Why ML is the future?

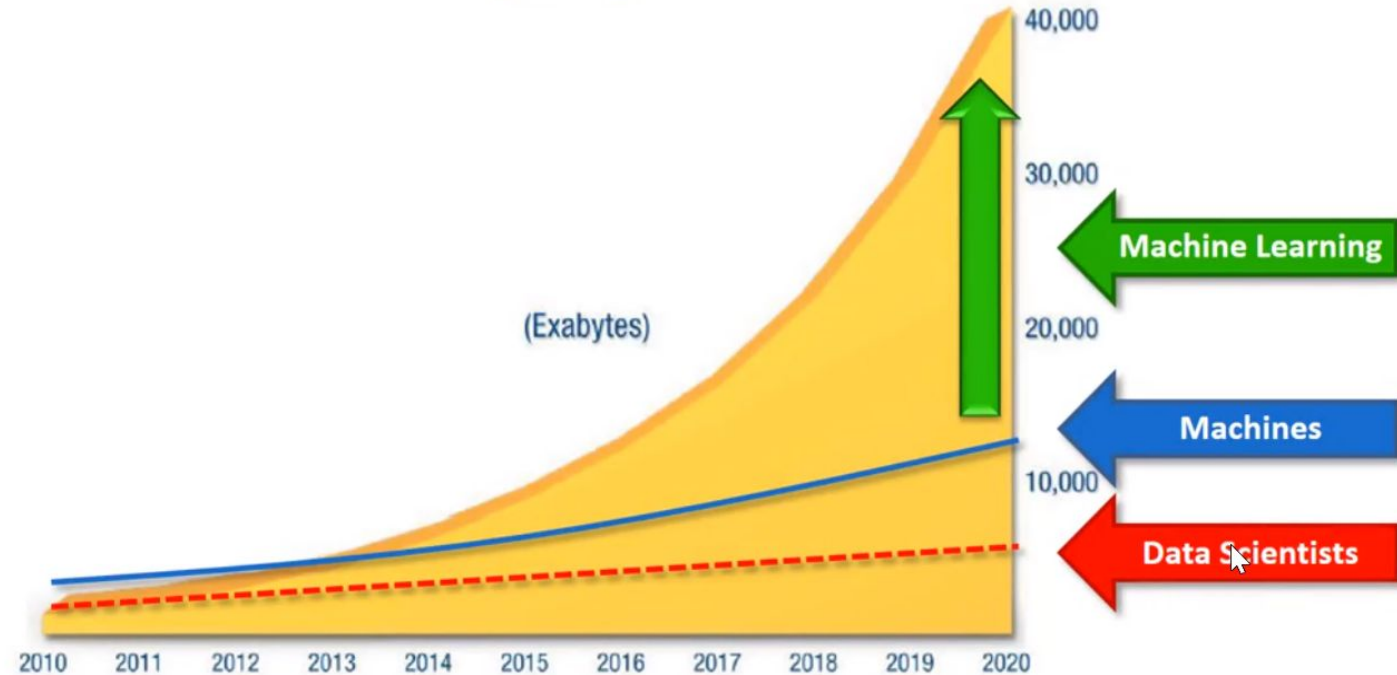
50-Fold Growth from the Beginning of 2010 to the end of 2020



Source: IDC's Digital Universe Study, sponsored by EMC, December 2012

Why ML is the future?

50-Fold Growth from the Beginning of 2010 to the end of 2020



Source: IDC's Digital Universe Study, sponsored by EMC, December 2012

Human learns from experience



Machine execute instructions



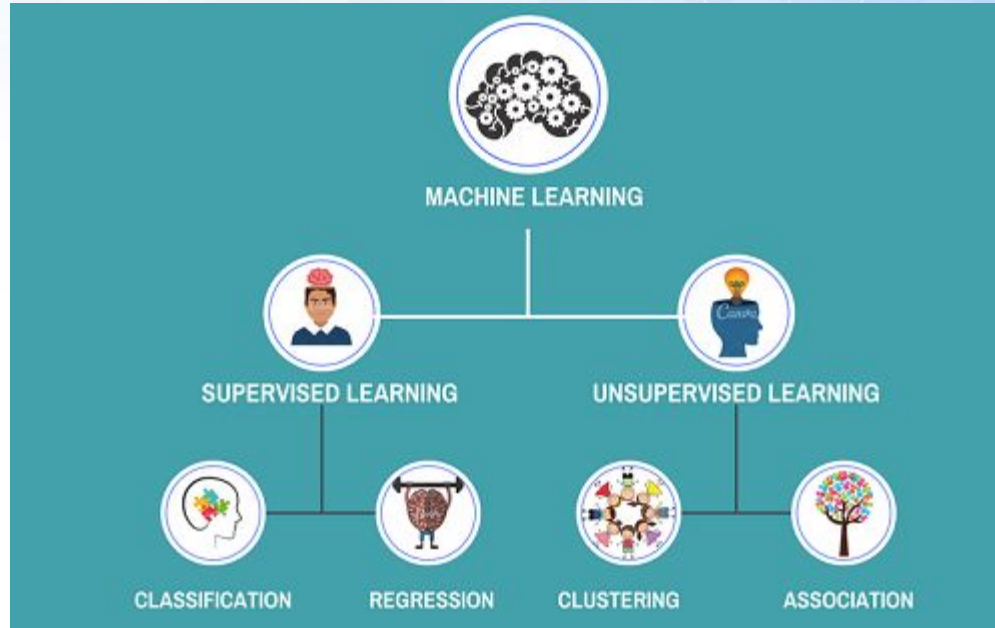
Can a machine too learn from experiences??

Yes.....

That precisely the **machine learning** is.
However, here the experience is the **data**.



Machine Learning Methods



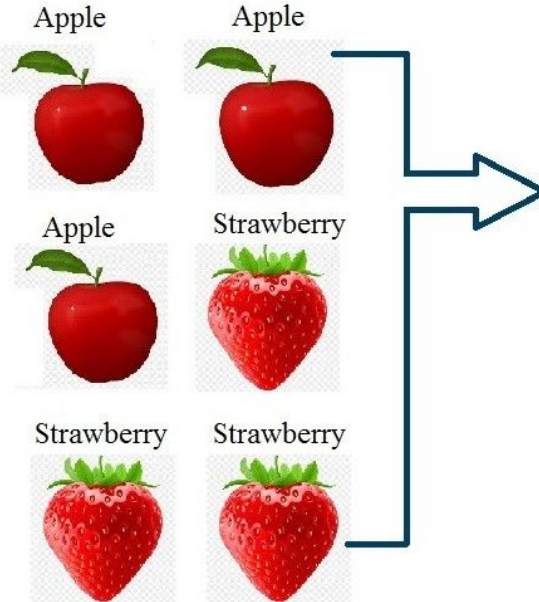
Supervised Learning



- Machines learn with guidance
- Labelled data will be used for learning
- ✓ **Classification**
- ✓ **Regression**

Supervised Learning

Labelled Data



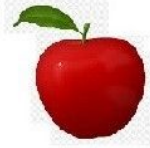
Machine
Learning Model



Training

Output for
future inputs

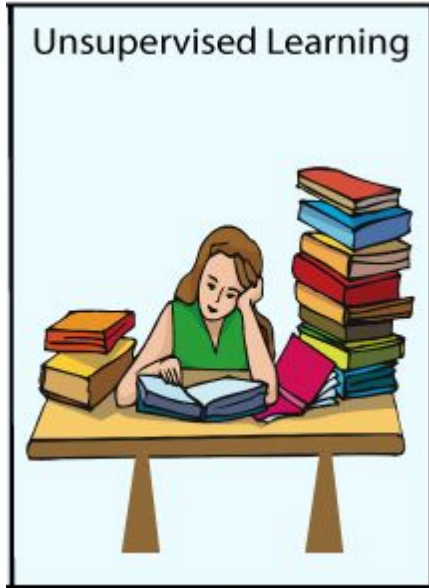
Apple



Strawberry



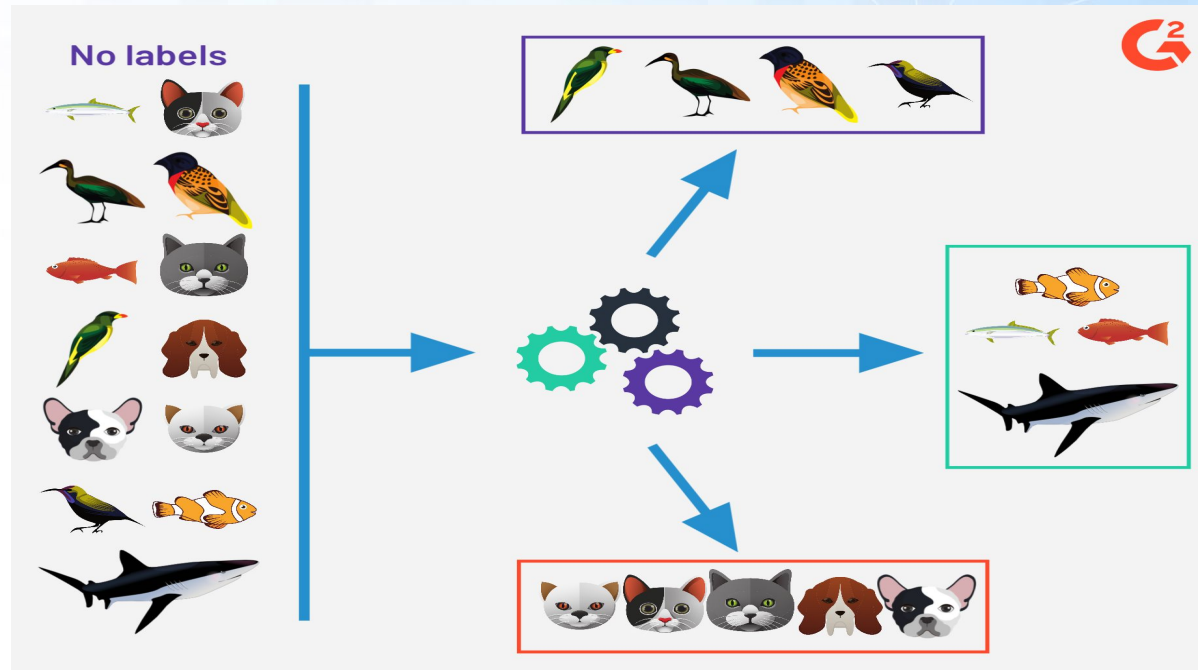
Unsupervised Learning



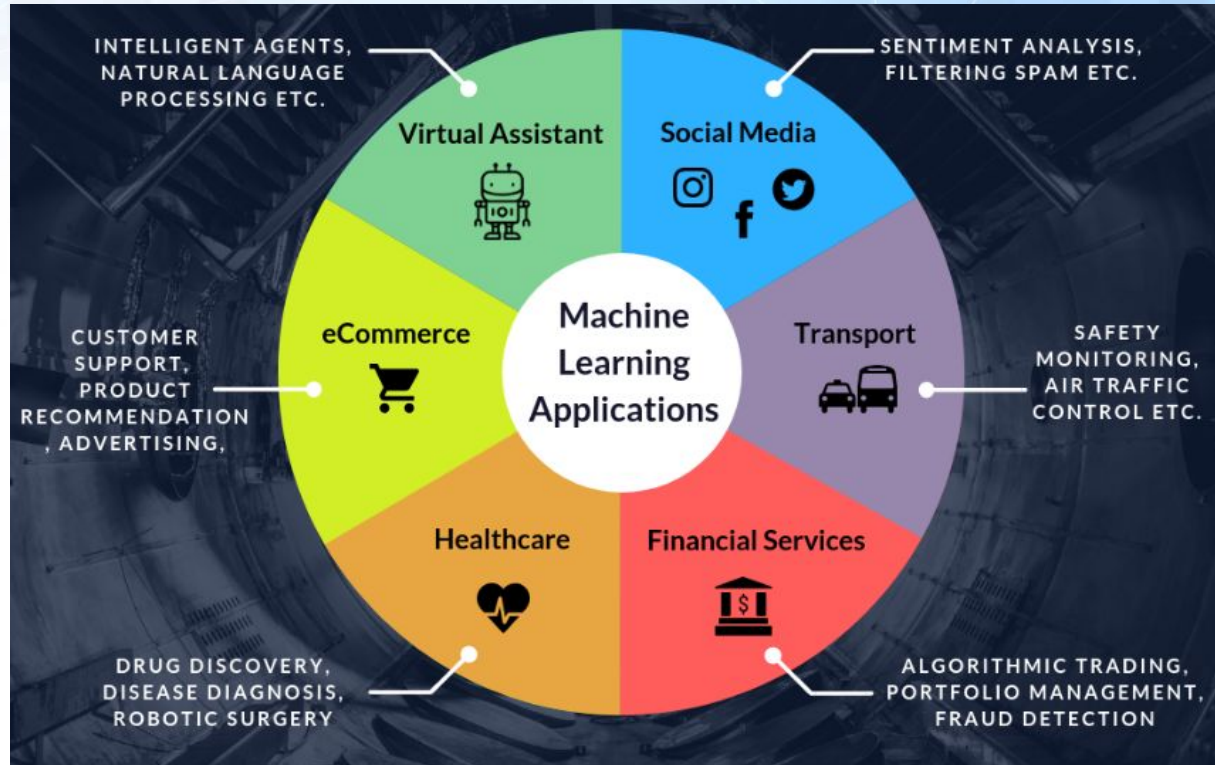
- Machines learn without guidance
- No labels will be given inside data
- Machine figure out some pattern in data and acts its own

- ✓ Association
- ✓ Clustering

Unsupervised Learning



Machine Learning Applications



Python



Guido Van Rossum

What is Python?



High-Level

Object Oriented

Interpreted

Dynamic Semantics



NumPy is a python library for large multi dimensional array processing

Pandas

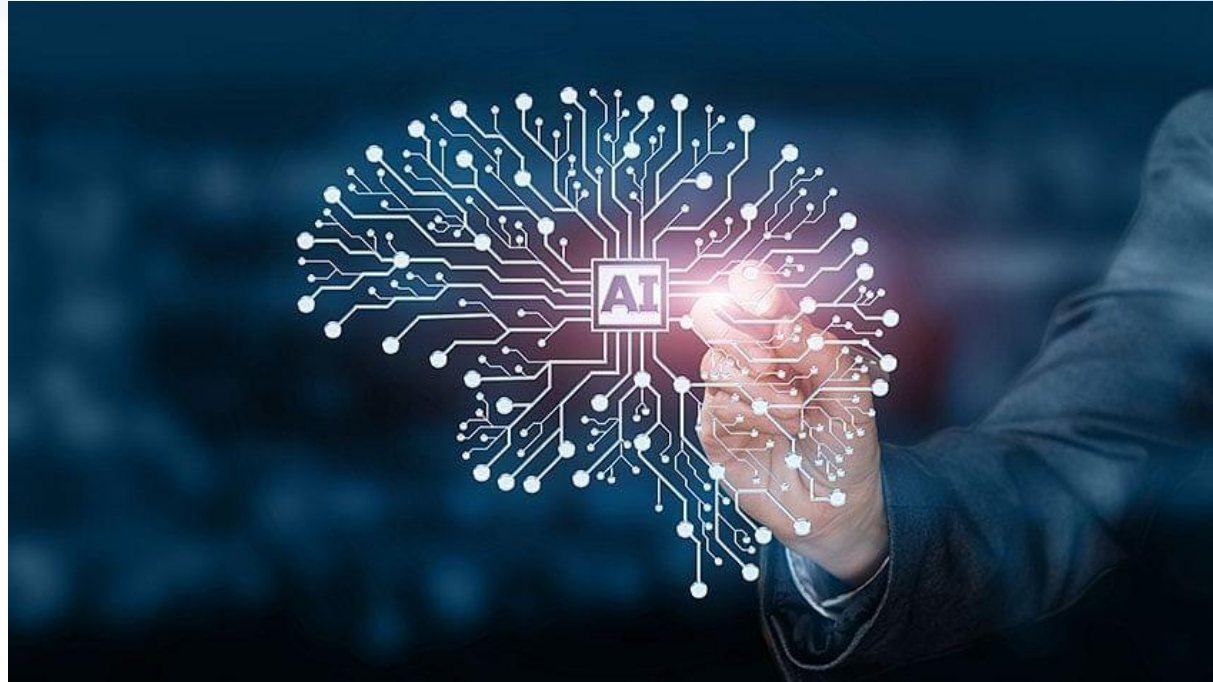


Built on top of NumPy, which provides support for multi-dimensional arrays

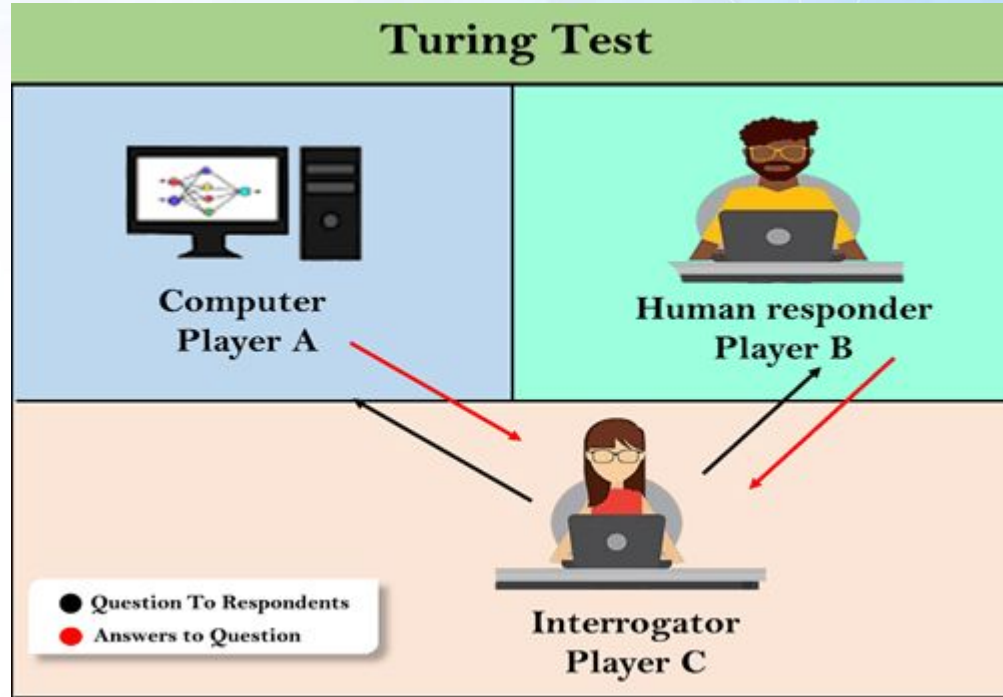


Machine Learning library in Python

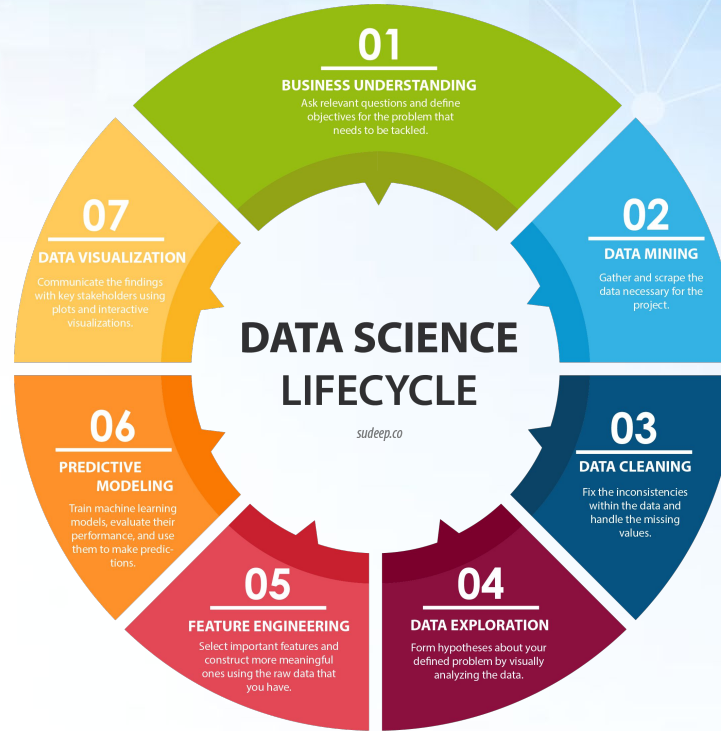
Artificial Intelligence



Turing Test



Data Science Life Cycle





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