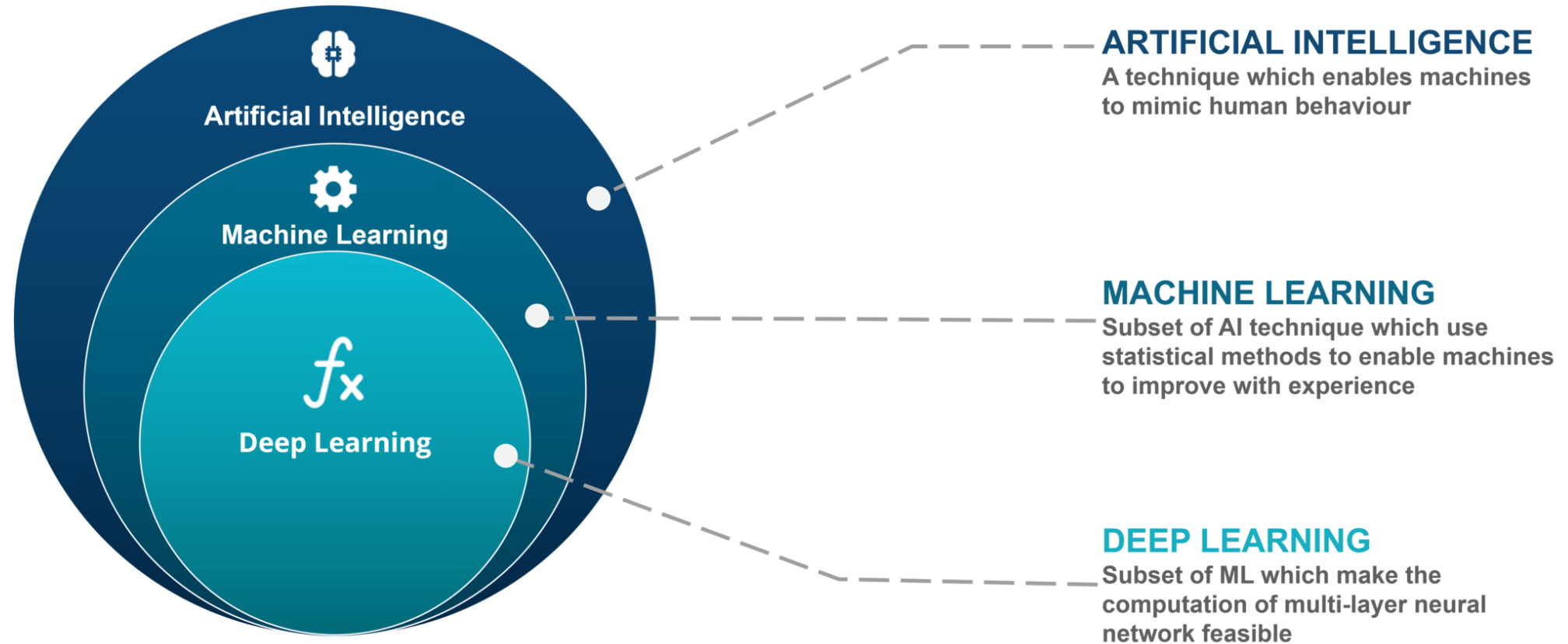


Machine Learning (ML) for Kids

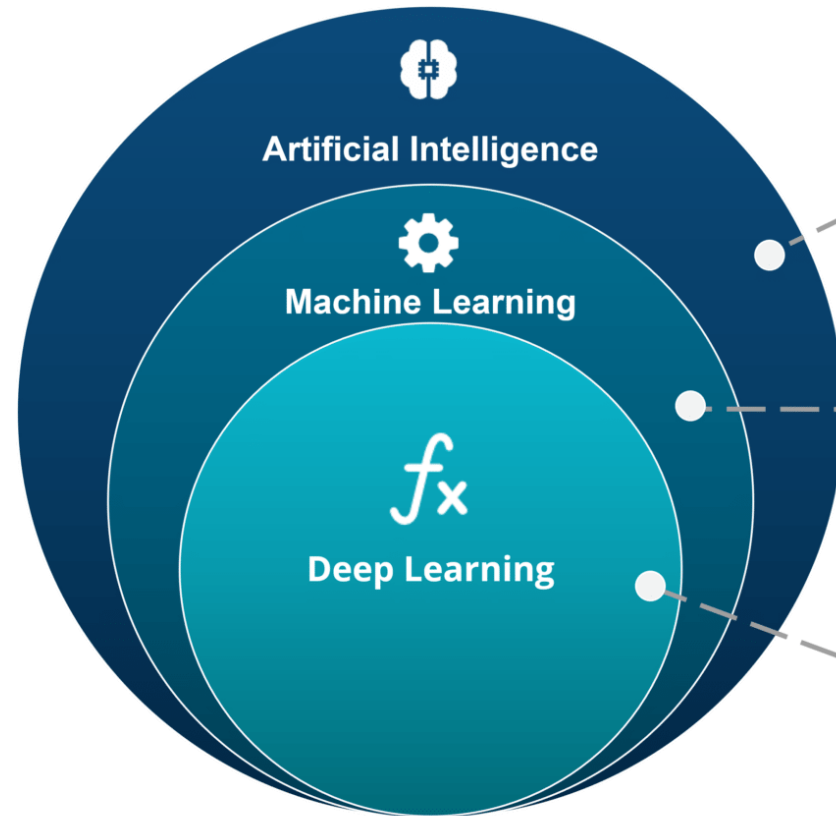
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What is ML?

Pause and read through the text and understand what it says



What is ML?



ARTIFICIAL INTELLIGENCE

A technique which enables machines to mimic human behaviour

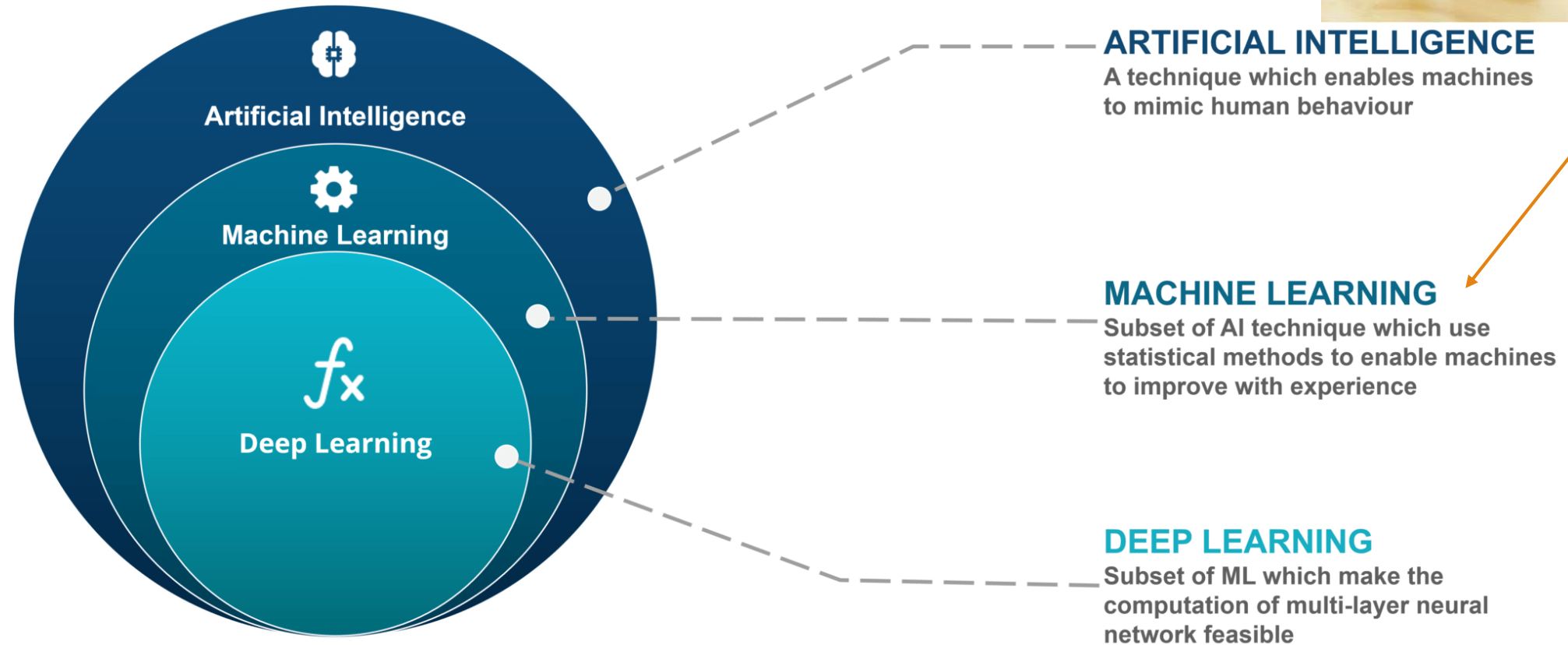
MACHINE LEARNING

Subset of AI technique which use statistical methods to enable machines to improve with experience

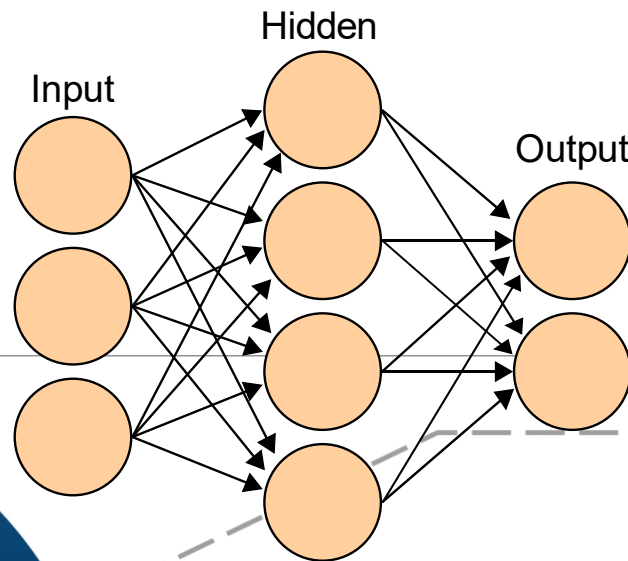
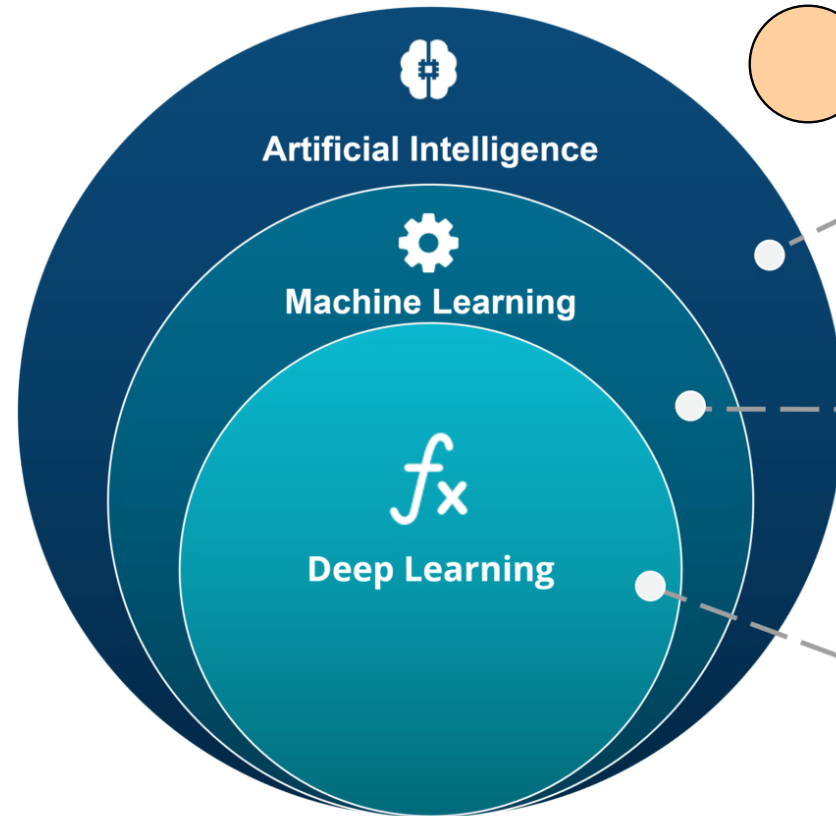
DEEP LEARNING

Subset of ML which make the computation of multi-layer neural network feasible

What is ML?



What is ML?



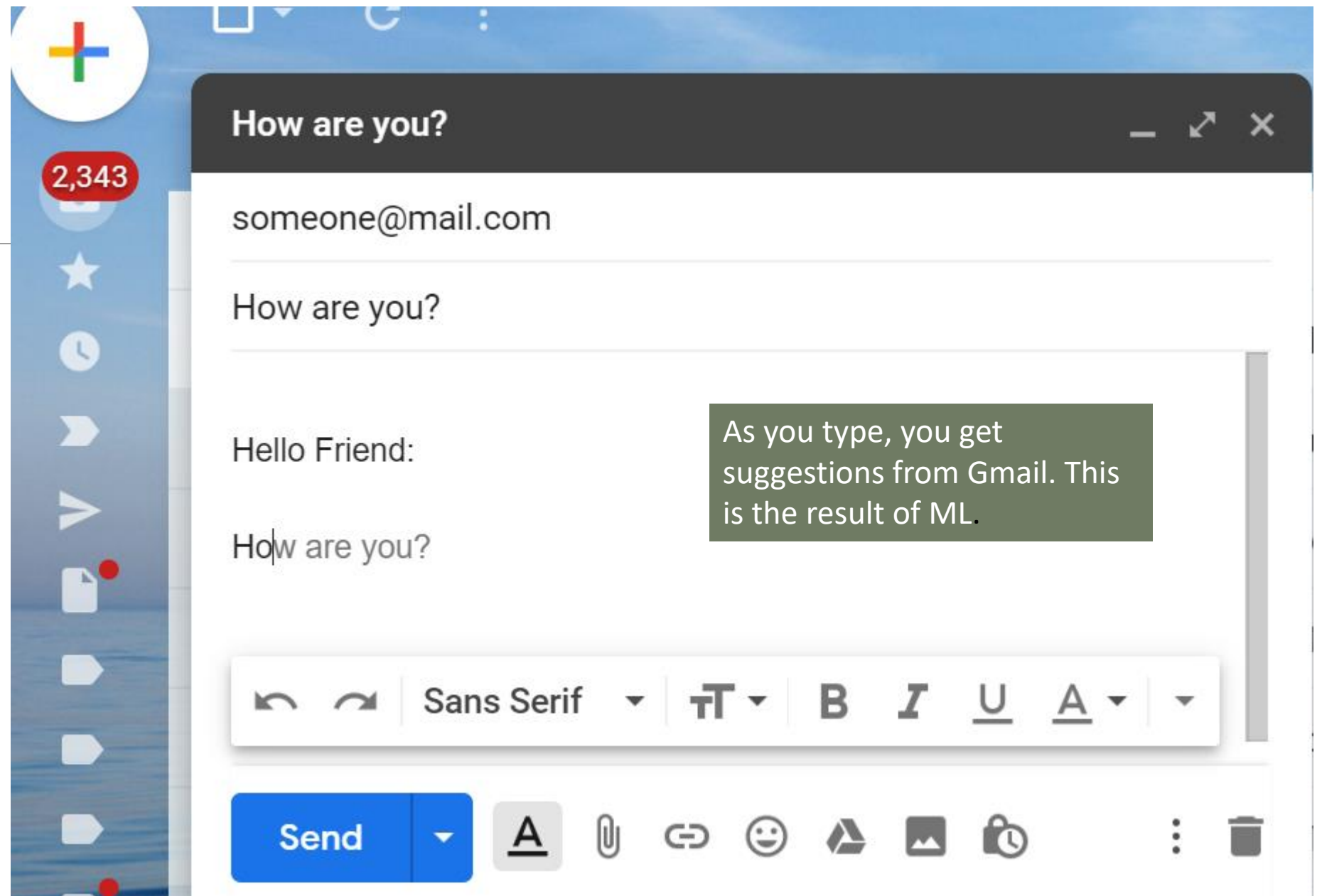
ARTIFICIAL INTELLIGENCE
A technique which enables machines to mimic human behaviour

MACHINE LEARNING
Subset of AI technique which use statistical methods to enable machines to improve with experience

DEEP LEARNING
Subset of ML which make the computation of multi-layer neural network feasible

SELECTED APPLICATIONS OF MACHINE LEARNING IN EVERYDAY LIFE

Gmail



Amazon

Custom recommendations to improve your shopping experience

Customers who bought this item also bought





Bioinformatics Data Skills: Reproducible and Robust Research with Open...
› Vince Buffalo
★★★★★ 39
Kindle Edition
\$24.99



Molecular Biology of the Gene
› James D. Watson
★★★★★ 191
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RNA-seq Data Analysis: A Practical Approach
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Jocelyn E. Krebs
★★★★★ 40
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Molecular Biotechnology: Principles and Applications of Recombinant DNA...
Bernard R. Glick
★★★★★ 8
Kindle Edition
\$81.20





Hi, |
Customer since 2016

Top links for you



Your Orders



Mobiles and Accessories

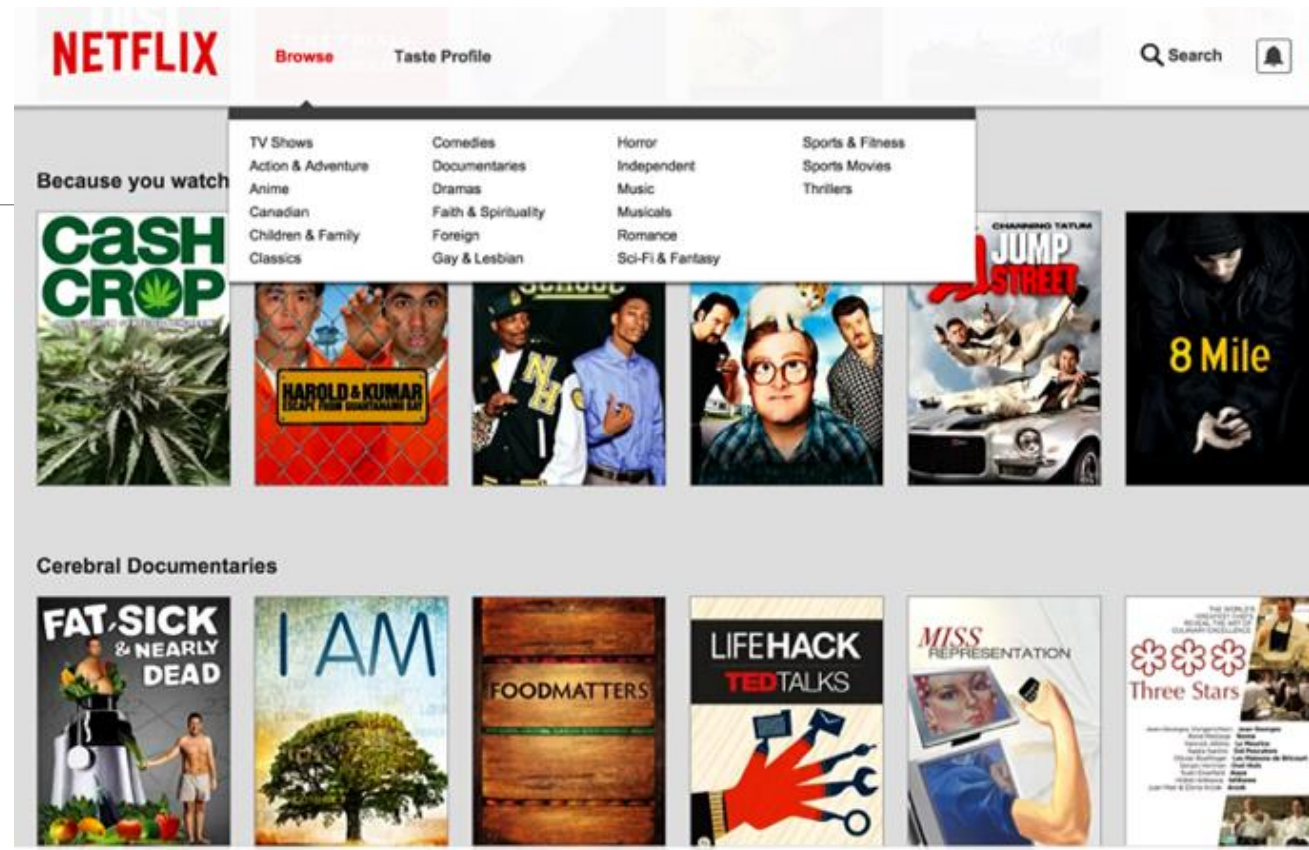


Fashion



Grocery

Netflix



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What movies to watch based on your previous experience and what people like you would like to watch.

News for Everybody; Is this what you want to read?

☰

Google News

🔍

Search for topics, locations & sources

☰

Top stories

👤

For you

☆

Following

🔍

Saved searches

🛡️

COVID-19

🇺🇸

U.S.

🌐

World

📍

Your local news

📊

Business

⚙️

Technology

🎬

Entertainment

🚴

Sports

🔬

Science

🏥

Health

🌐

Language & region

English (United States)

Headlines

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COVID-19 news: See the latest coverage of the coronavirus (COVID-19)

>

Coronavirus live updates: US set to surpass Italy in most worldwide deaths; authorities fight against Easter gatherings

USA TODAY · 1 hour ago

- **Trump announces second task force on reopening economy as he weighs 'biggest decision'**
Fox News · Yesterday
- **Trump eyes reopening economy despite health warnings**
CBS Evening News · Yesterday
- **White House photographers get creative under coronavirus strictures**
The Washington Post · 7 hours ago · Opinion
- **Coronavirus task force doctors cite progress in New York, New Jersey**
New York Post · Yesterday

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⬆

Stimulus Checks for Up to \$4,700 Begin Arriving in Bank Accounts

Newsweek · 1 hour ago

- **IRS (Finally!) Launches Registration Tool For Stimulus Checks**
Forbes · Yesterday

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4/11/2020

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10

News selected just for ~~Everybody~~ you; Imagine a newspaper printed just for you

JUST FOR YOU

Google News

Top stories

For you

Following

Saved searches

COVID-19

U.S.

World

Your local news

Business

Technology

Entertainment

Sports

Science

Health

Search for topics, locations & sources

For you

Recommended based on your interests


Judge orders MGM to hand over 'Celebrity Apprentice' Trump tapes | TheHill

The Hill · Yesterday

• Donald Trump & MGM Strike Out Blocking Release Of 'Apprentice' Tapes; Ordered By Judge In Scam Suit

Deadline · Yesterday

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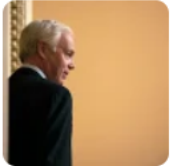
Ron Johnson sends doctors' note to Trump urging action on hydroxychloroquine

POLITICO · Yesterday

• Johnson presses Trump on malaria medication | TheHill


The Hill · Yesterday

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A plan to defeat coronavirus finally emerges, but it's not from the White House

The Washington Post · Yesterday



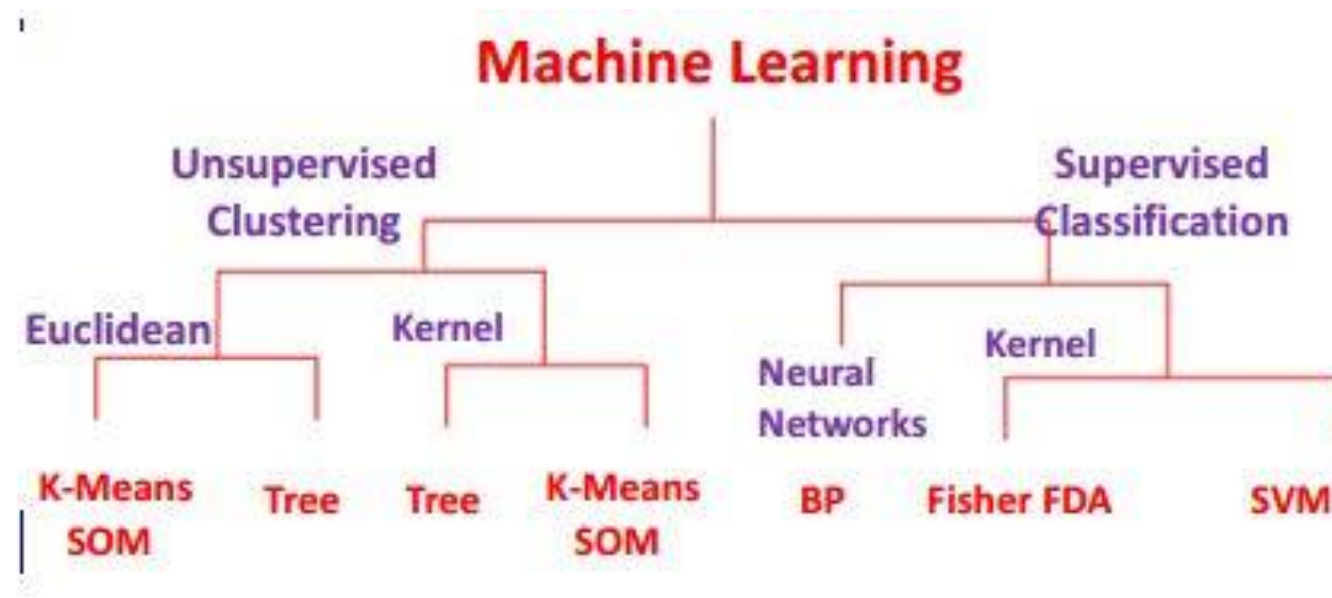
4/11/2020

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11

We are going stay with
ML for now

Types of ML. Don't worry, you need to remember just the supervised/non-supervised methods

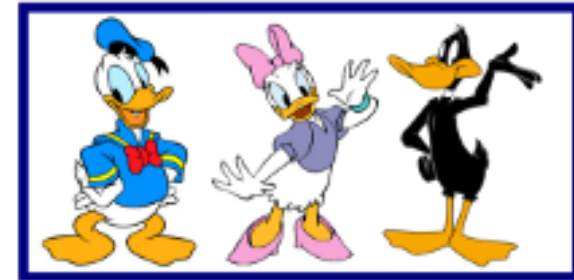


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Mixed groups



Discovering groups



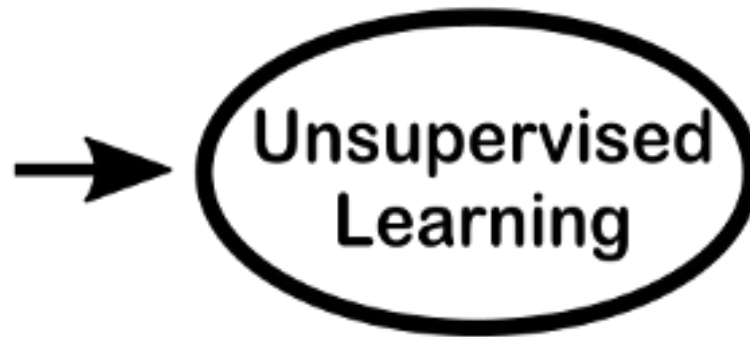
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Why would be a company interested in this ML approach?

1. Companies can provide targeted sales information (profit)
2. This inturn can also provide nice shopping experience for shoppers.

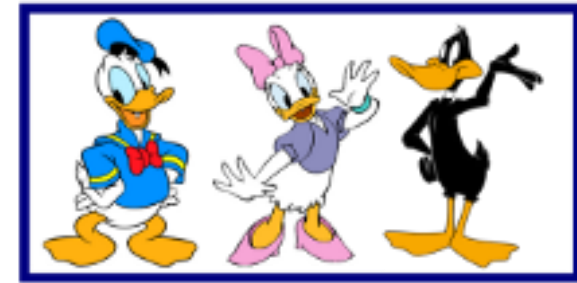
Think about these two things when you shop in an online store next-time.

Mixed groups

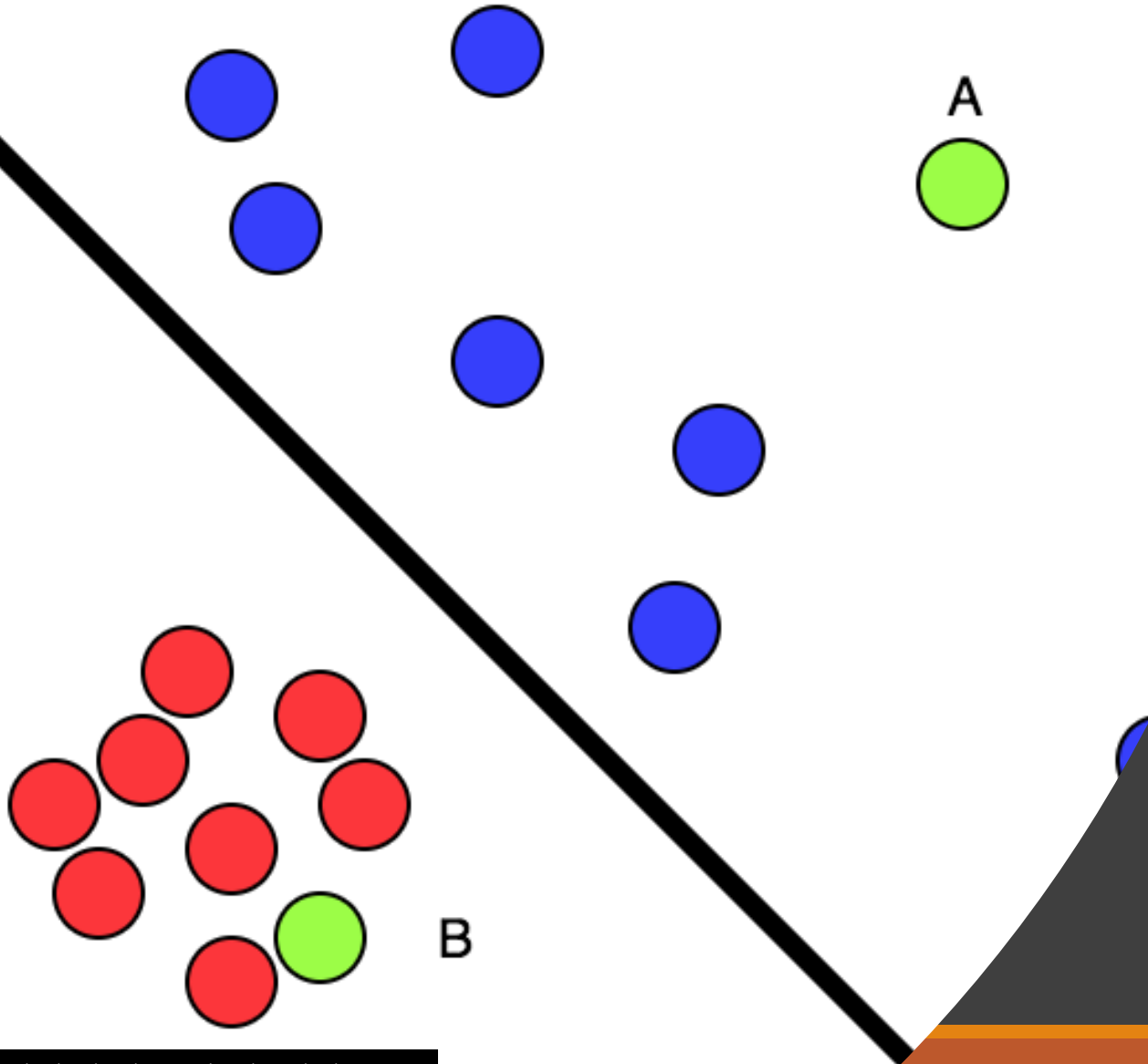


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Discovering groups of people with similar shopping behaviors

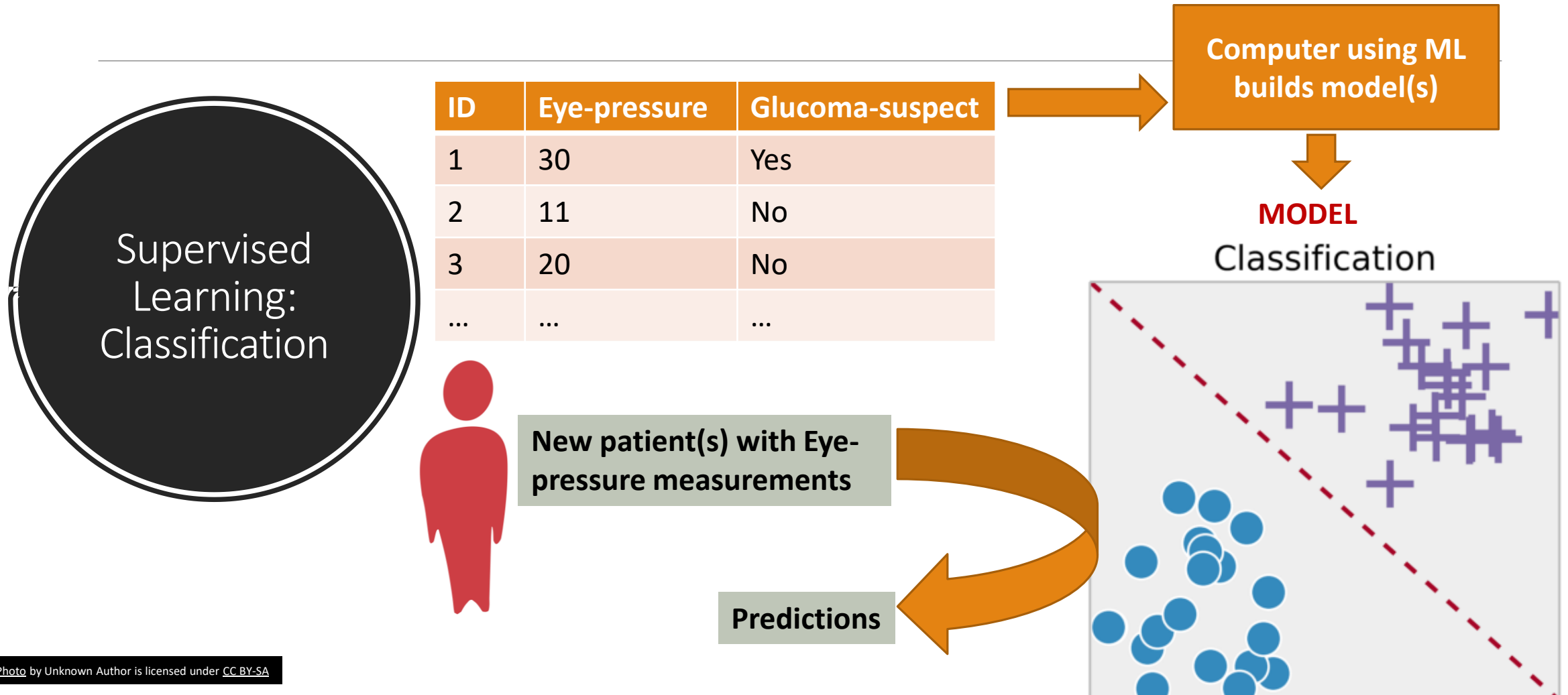


Unsupervised Learning: Another Example



Now let us look at Supervised Learning

Given the data (eye-pressure) with labels (Glaucoma suspect). ML methods can build models and will then be able to identify whether new patients are Glaucoma suspect or not. For example. Look at the table below. Note that I am only showing just 3 patients. To build a model, we need more than 3 patients 😊 and more features. Eye-pressure is one of the features.



House square-feet and Price (Price * 100 is the actual price; $6450 = 6450 * 100 = 645,000$)



Data

Square-feet	Price
150	6450
200	7450
250	8450
300	9450
350	11450
400	15450

You want to build a model that can predict the price of any house within this range (150-400 sq-feet).

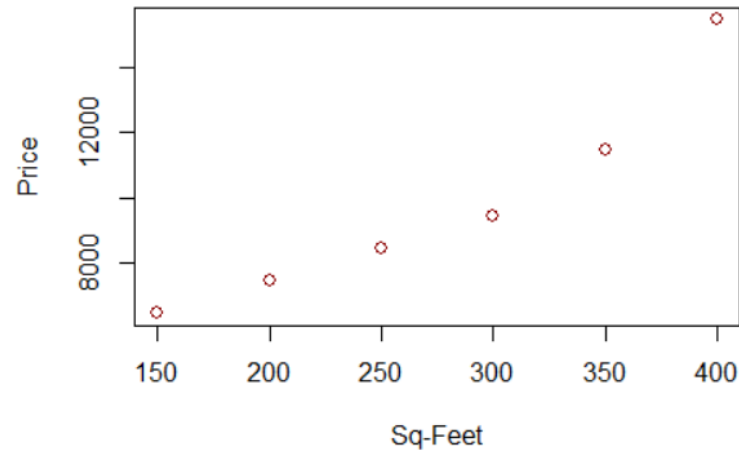
How can we do it?

Use ML to create a model for our data

Square-foot	Price
150	6450
200	7450
250	8450
300	9450
350	11450
400	15450

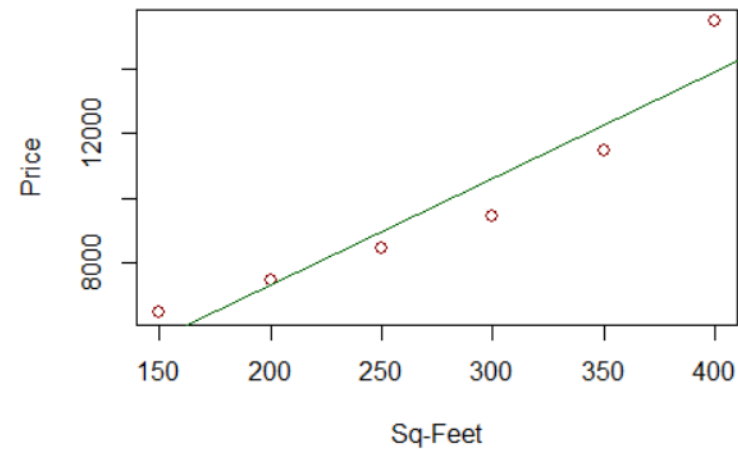
Plot the data

Sq-Feet vs Price



Build (computer will do it for you) MODEL (green line)

Sq-Feet vs Price

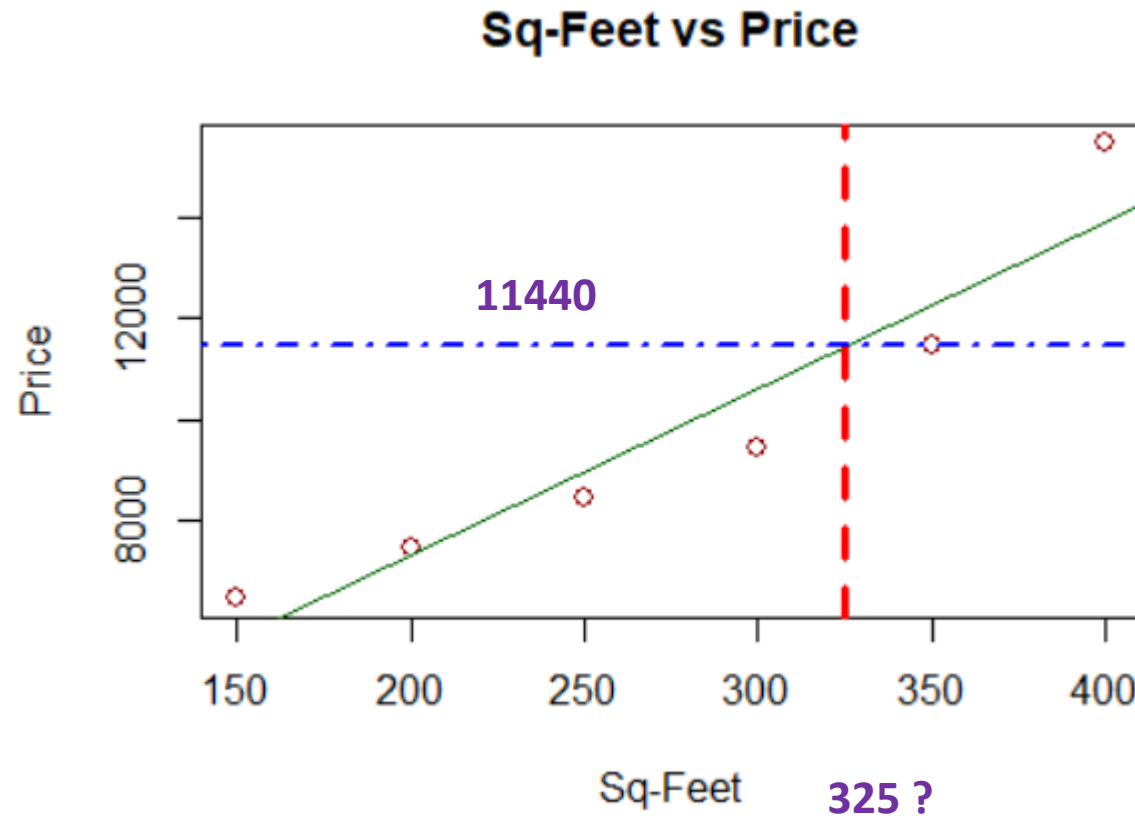


What if my house is 325 sq-feet, how much is it worth?

Computer will predict, 9783 (ie $9783 * 100 = 978,300$)

Ask a question,

*In real-life, linear model almost always doesn't work.
This is just an example to drive down the concept*



The computer says, your house is worth,

11440

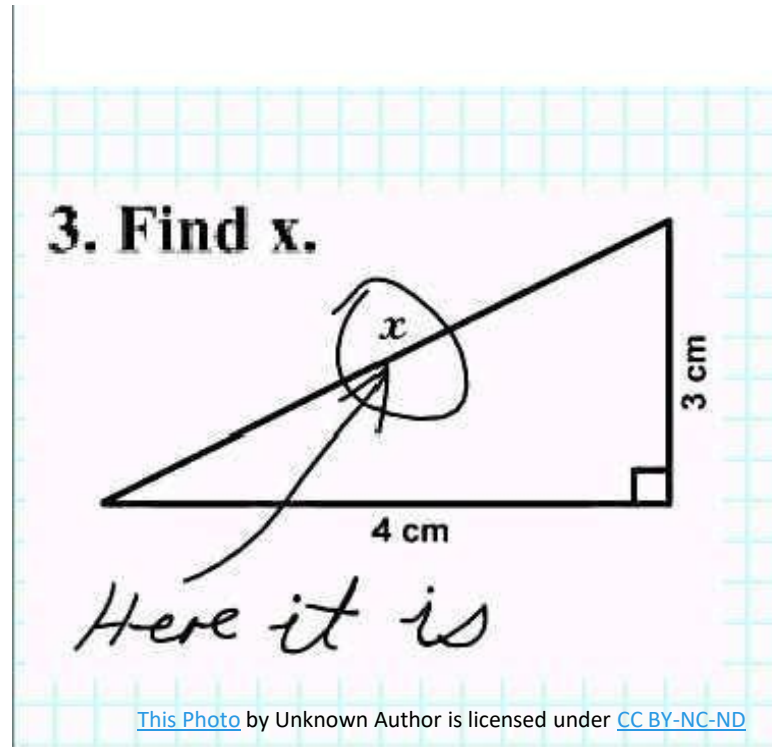
Sounds interesting, how
can I become a ML expert
and make lots of \$\$\$\$?

WAIT A SECOND! I THOUGHT WE WERE JUST GETTING STARTED 😊

To learn ML, we need few things

- Eagerness to learn
 - self-learning will help you the most
- Not afraid to fail
- Basic Math
- Basic Programming (programming is more important than Math at least in the beginning)

No getting away from Math. No not this kind of Math



Solving equation by

$$\frac{1}{n} \sin x = ?$$

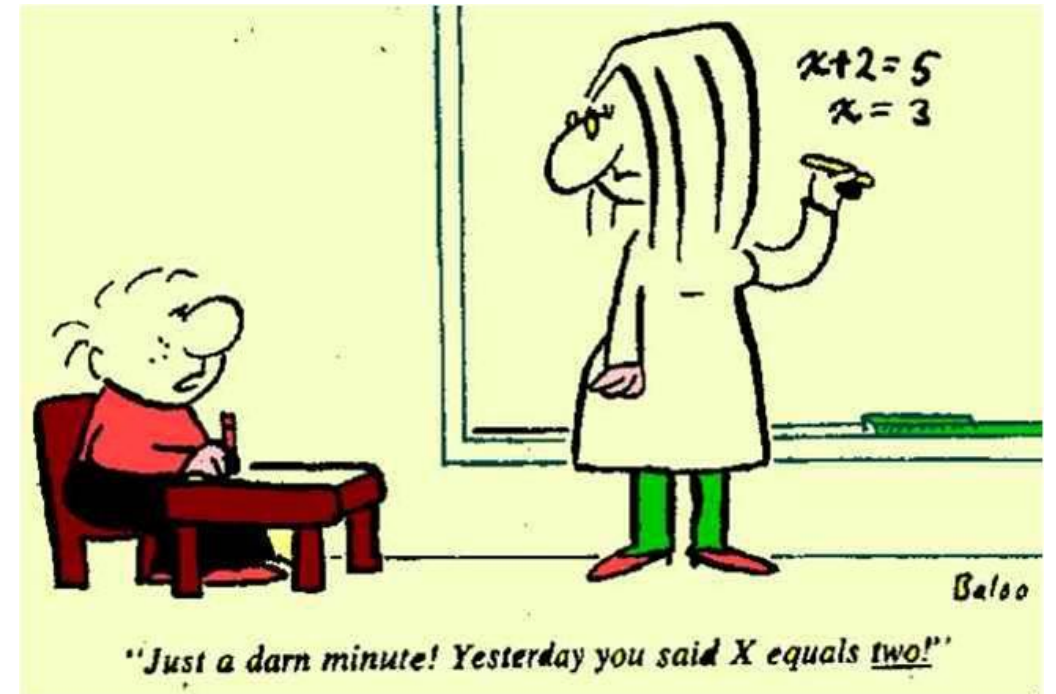
No getting away
from Math. No not
this kind of Math

$$\cancel{\frac{1}{n}} \cancel{\sin} x =$$

$$six = 6$$

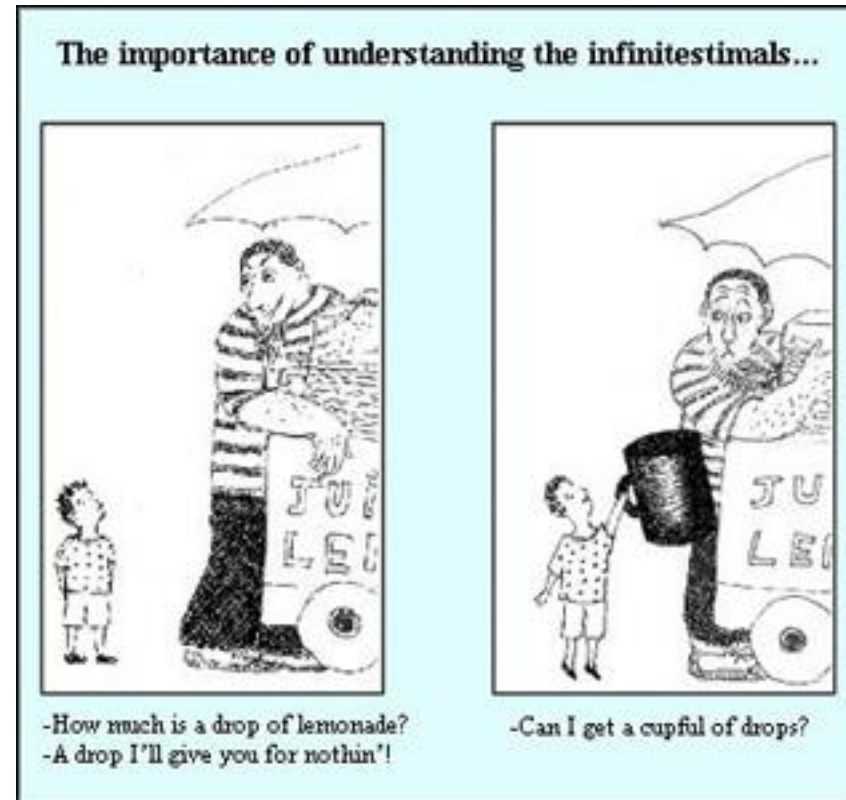
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No getting away
from Math: No
not this kind of
Math



What do you need to become successful in ML?

Math (basic)

- Linear Algebra
 - Matrix Algebra
- Calculus
- Probability/Statistics

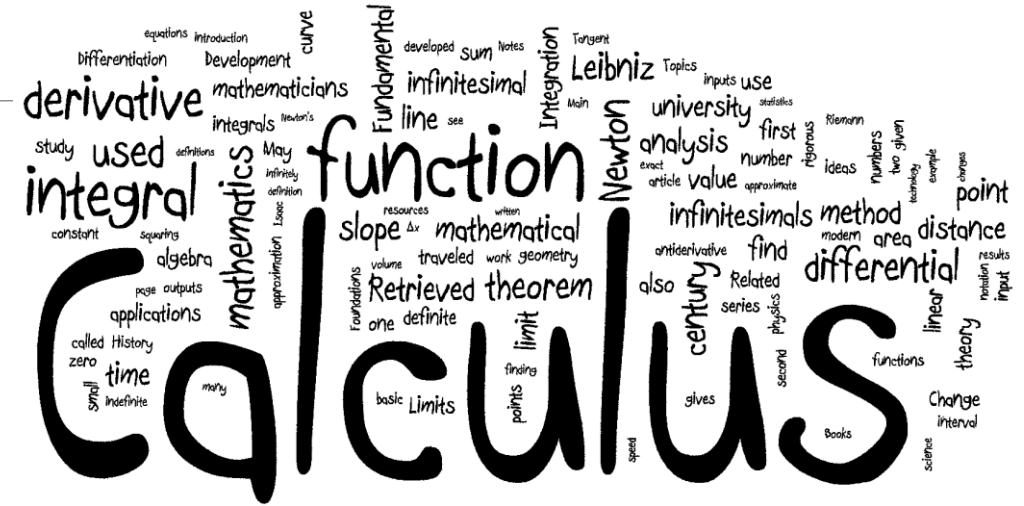
Programming (expert)

- Start with Python
- Later, you can pick up R

Linear Algebra



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Where
(Programming/Basic Math)
do you want to begin your
ML Journey?
