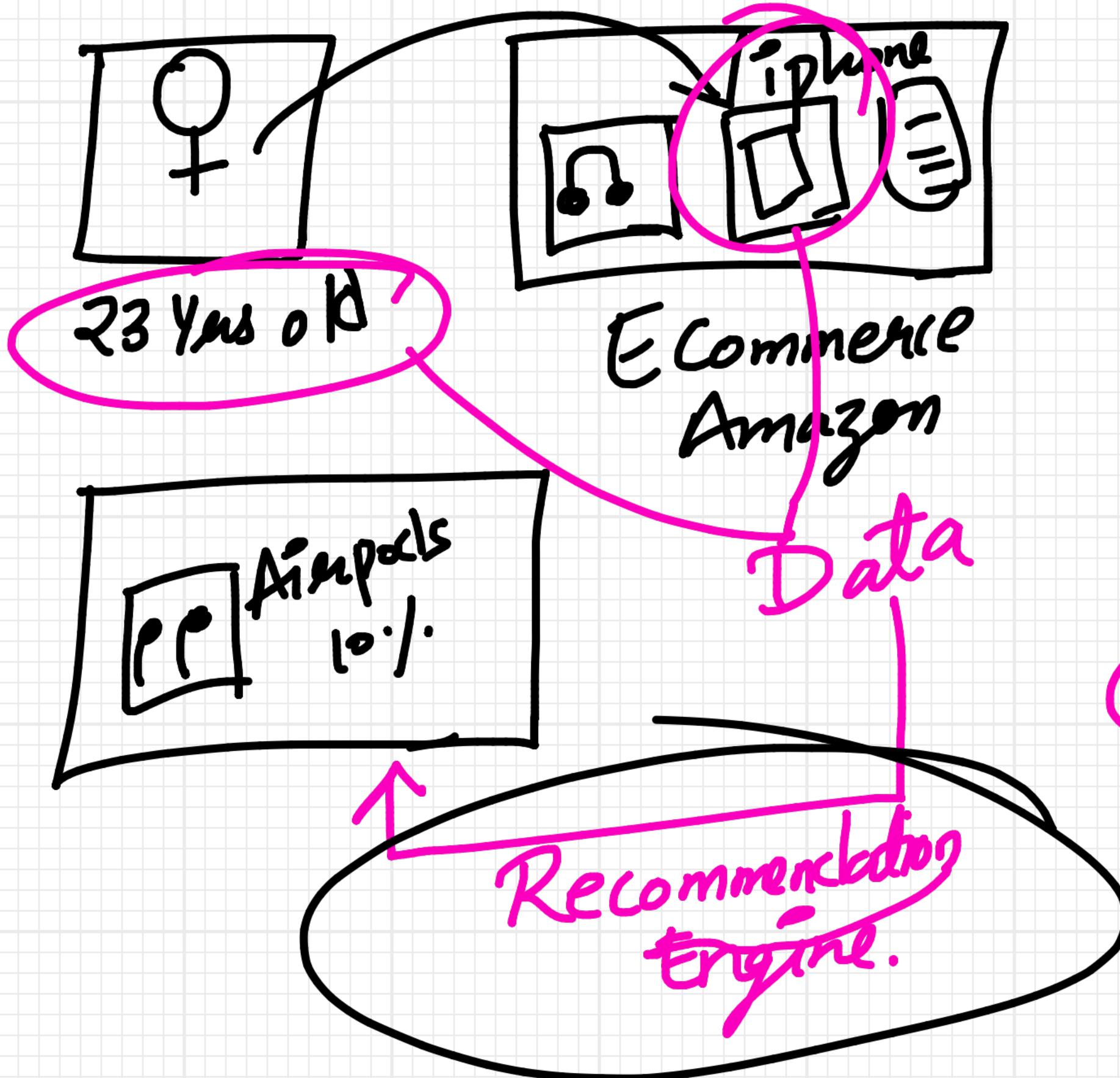


Computational Thinking

How to think like a computer programmer

- ① Not all problems can be solved by computers.
- ② How to solve the problem at hand.

Data Science Domains



Natural language Processing

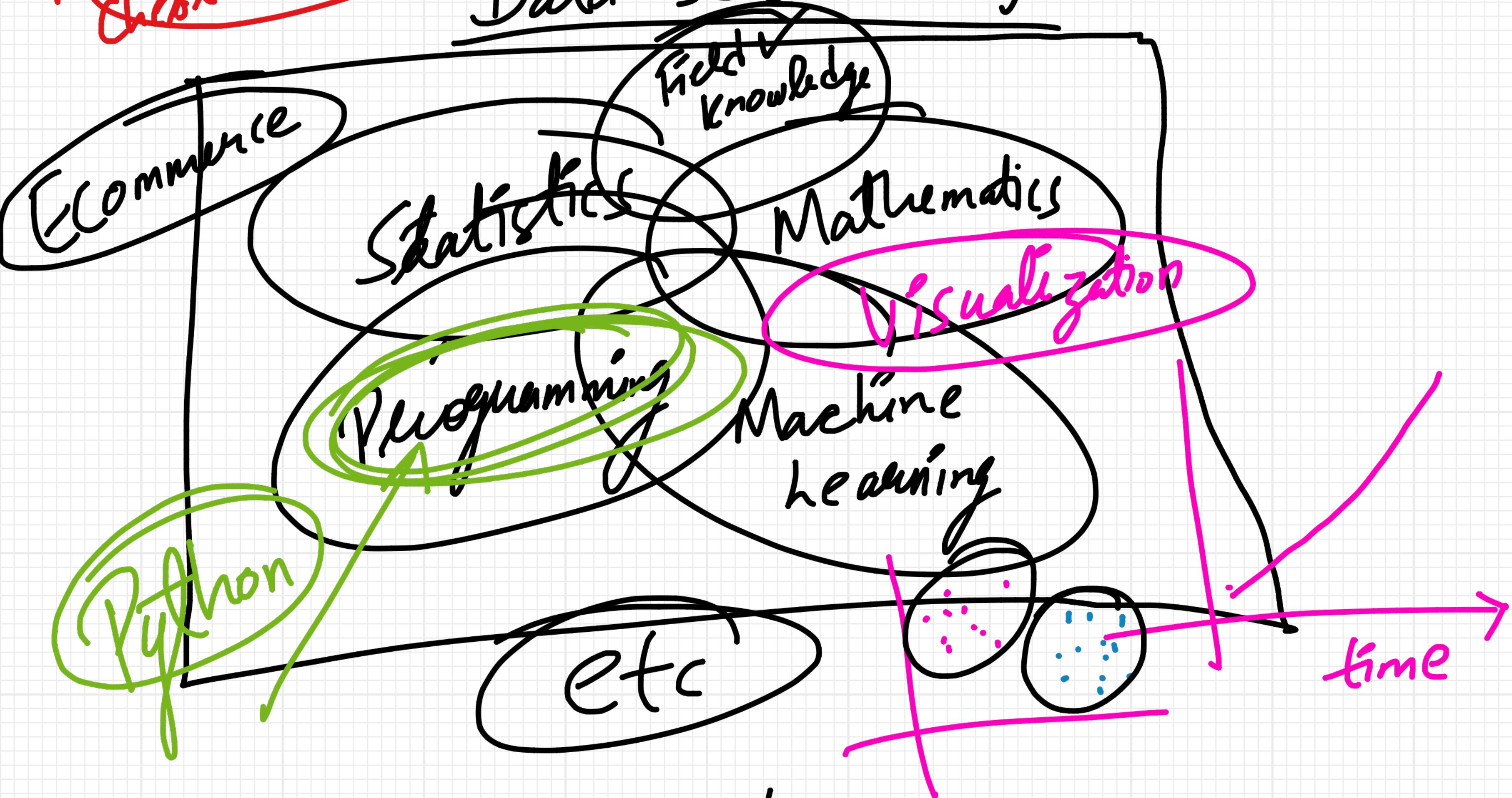
Google Assistant
Siri
Alexa

Self Driving Cars

Computer Vision

Medical
Shirt Cancer

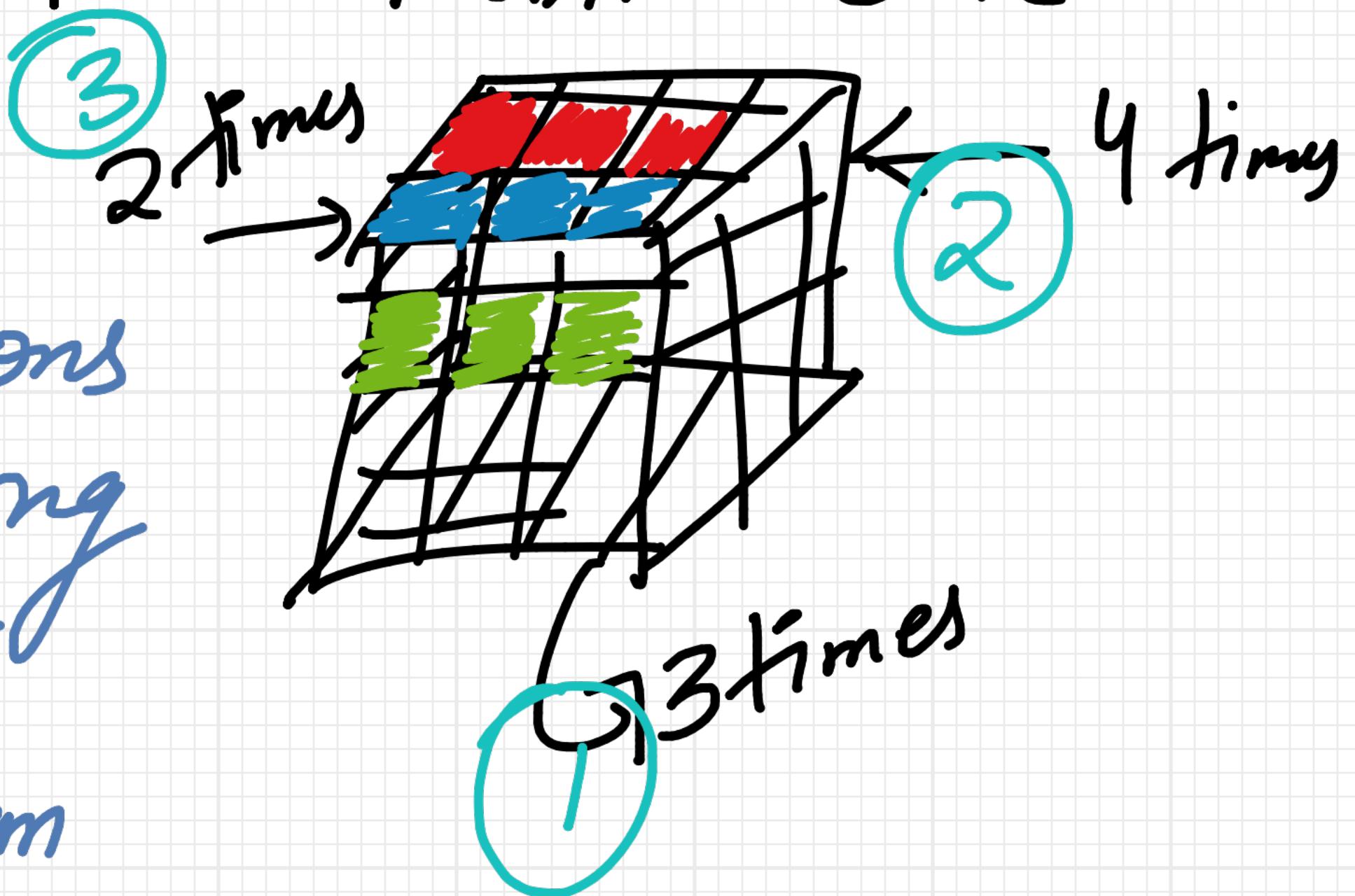
Data Science Subjects.



Programming?

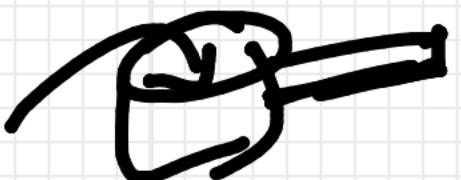
Set of Instructions
to do something
with target of
solving a problem

Rubik's Cube

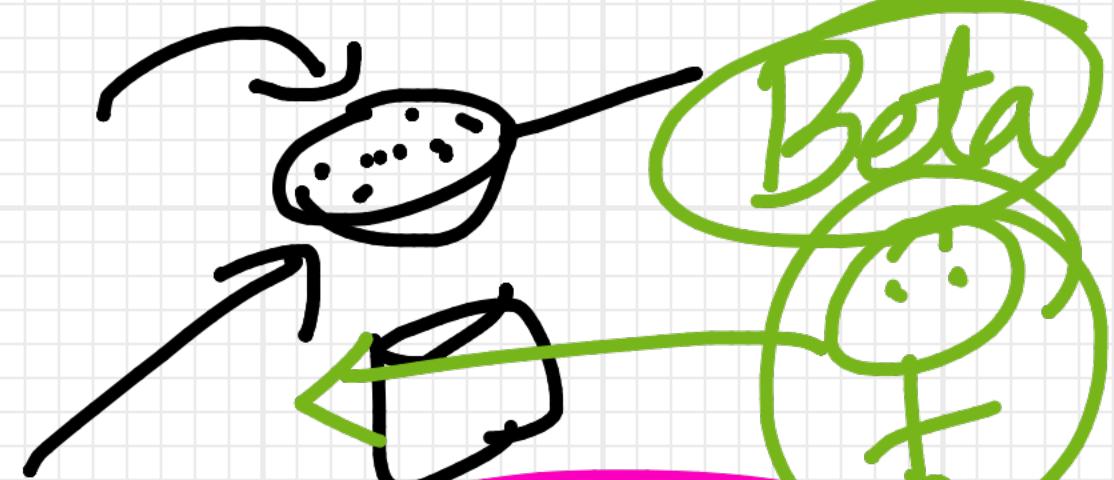


Teach a robot: how to
make Tea

1. Take a Utensil
2. Keep that on Stove
3. Put water & milk
4. Put tea leaves & sugar
5. Boil for some time
6. Use Sieve and filter into the cup
7. Cut Give to me.



Alpha



Beta

Sankirt

Program

Machine

tea

$$\text{Simple Interest} = \frac{P * T * R}{100}$$

Sorting of Numbers

⇒ Arrange numbers in either Ascending or Descending.

[-2, 2, 3, 5, 6, 13]

[5, 13, -2, 3, 2, 6]

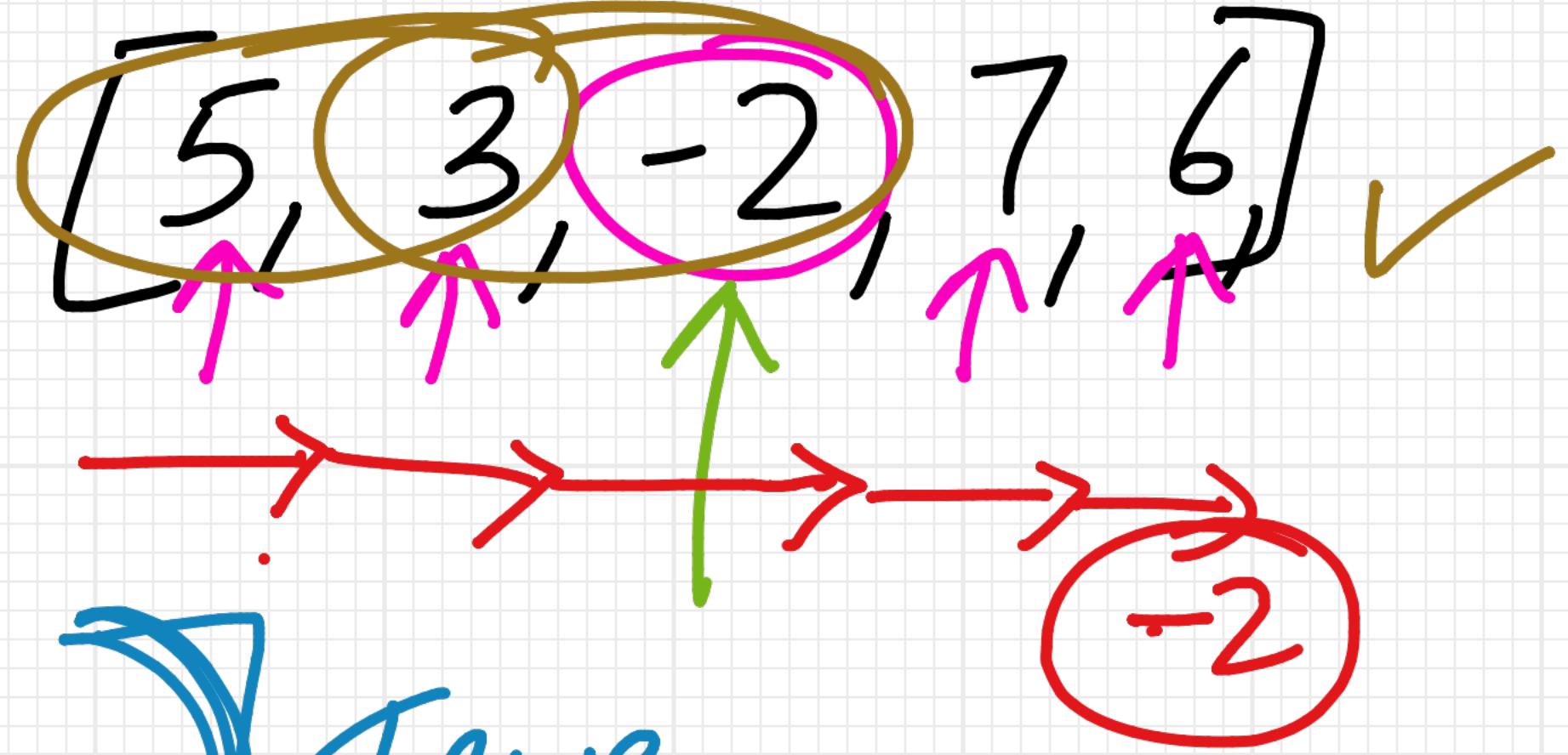
sorted

Sorting

$$x = 5$$

$$y = 3$$

if $x >$
smallest = y
else
smallest = x



(smallest) $\rightarrow 2$
smallest = $\underline{\underline{2}}$
smallest = $\underline{\underline{-2}}$

BODMAS

$$x = 5 + (5 \times 2)$$

How to Add? How to multiply

Problem

subproblem

subproblem

Naming of
these sub
programs

~~[3, 5, 1, 2, 7]~~ } old list
is empty.

Sort \Rightarrow Pick out the smallest

