

Capstone Project : Question : What to do when design an AI project?

Data

images:  $X$ .  
label:  $Y$ .

Lab Procedure:

Given  $X, Y \longrightarrow$  We are searching for  $f(\cdot)$ .

Here  $f(\cdot)$  is a function.

It maps from  $X$  to  $Y$ .  
i.e.  $f: X \rightarrow Y$ .

Error Measure:

There is a loss function

$$\frac{1}{n} \sum_{i=1}^n (\hat{y}_i - y)^2$$

this function is called "squared loss"

It measures square distance for all the observation (i.e. if there are  $n$  observations, we add all  $n$  terms together)

Production

now we have new image. another  $X$

We find  $f(\cdot)$

$X \longrightarrow$

We can use  $f(\cdot)$

$\longrightarrow$

Generate a prediction  
 $\hat{y} = f(X)$

- event
- sample space
- parameter / outcome

ex: coin toss

Coin toss:



possible outcome:  $\{H, T\}$

assume: coin landed.

sample space:  $\{H, T\}$

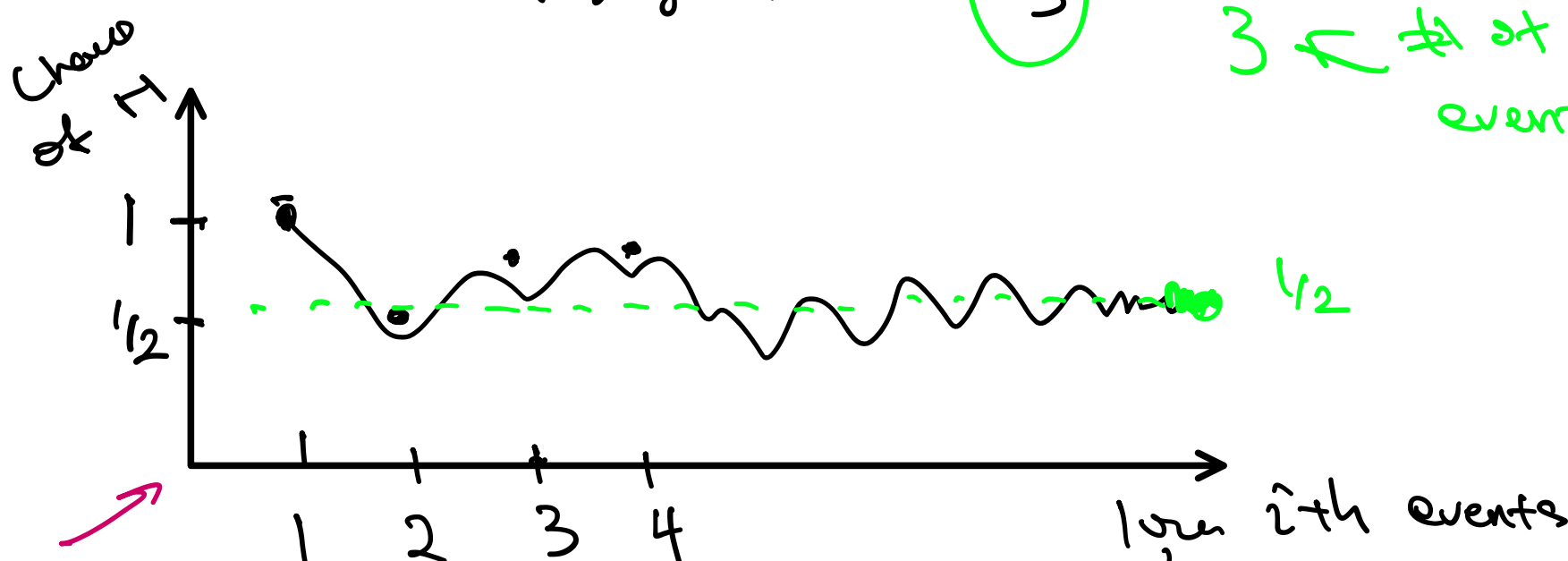
1st	2nd	3rd	4th	5th	6th	...	10,000th
H	T	H	H	T	T	...	T

Chance of H:  $\frac{1}{1}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{3}{5}, \frac{3}{6}$

Ex: Toss a fair coin 3 times.

I get  $\{H, T, T\}$ .

Chance of getting H is:  $\frac{1}{3} = \frac{1}{3}$



"CLT": Central Limit Theorem.