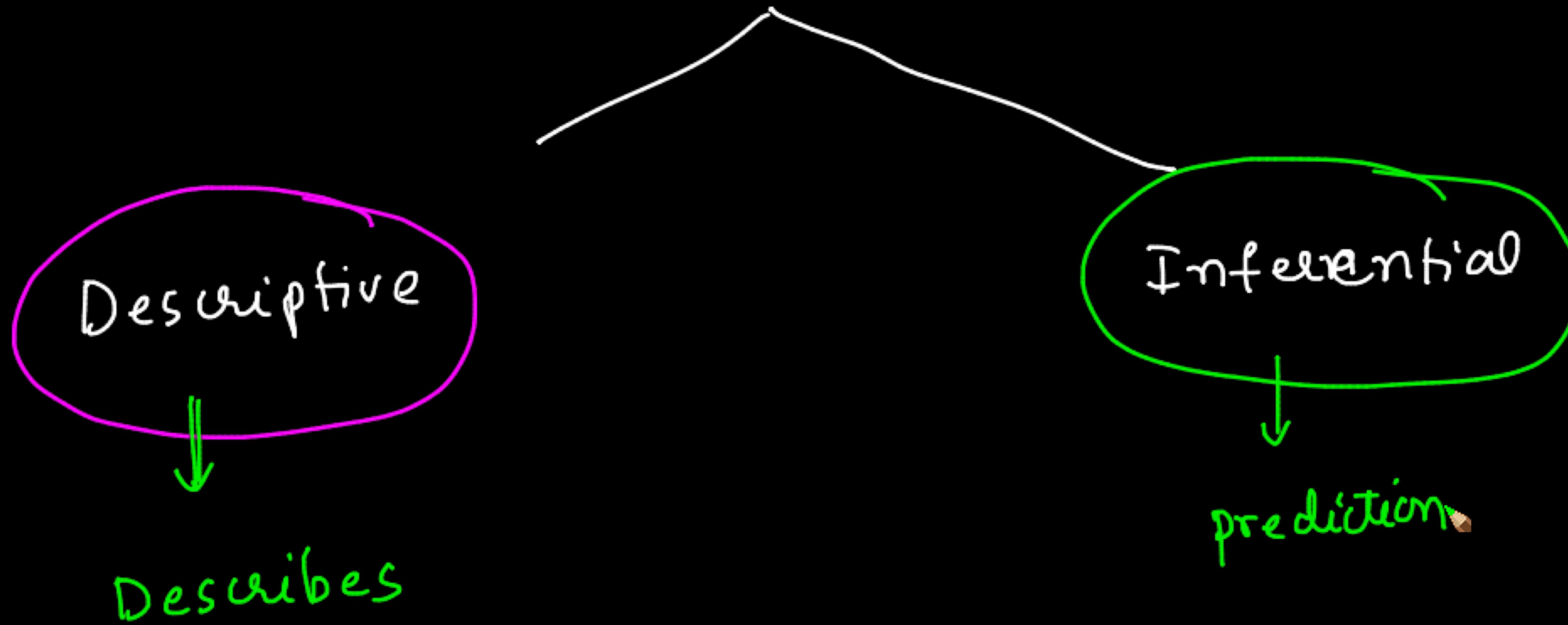


# Agenda

- \* Mean, Median, Mode
  - \* Weighted Average
  - \* Range, Inter Quartile Range
  - \* Random variables
  - \* Cumulative Distributive Function

The diagram consists of a central box containing the word "Assignments". Three arrows point from this box to four separate labels arranged vertically on the left side: "ODI", "Gretel", "Sehwag", and "Probability". The "ODI" label is written in pink, while the other three labels are in white. The entire diagram is drawn with black ink on a white background.

## \* Statistics



=>

65 kmph

Descriptive

=>

prediction

Inferential Statistics

Hyder

→

Banglore

10 kmph, → 100

5

⇒ Mean,

DS - I

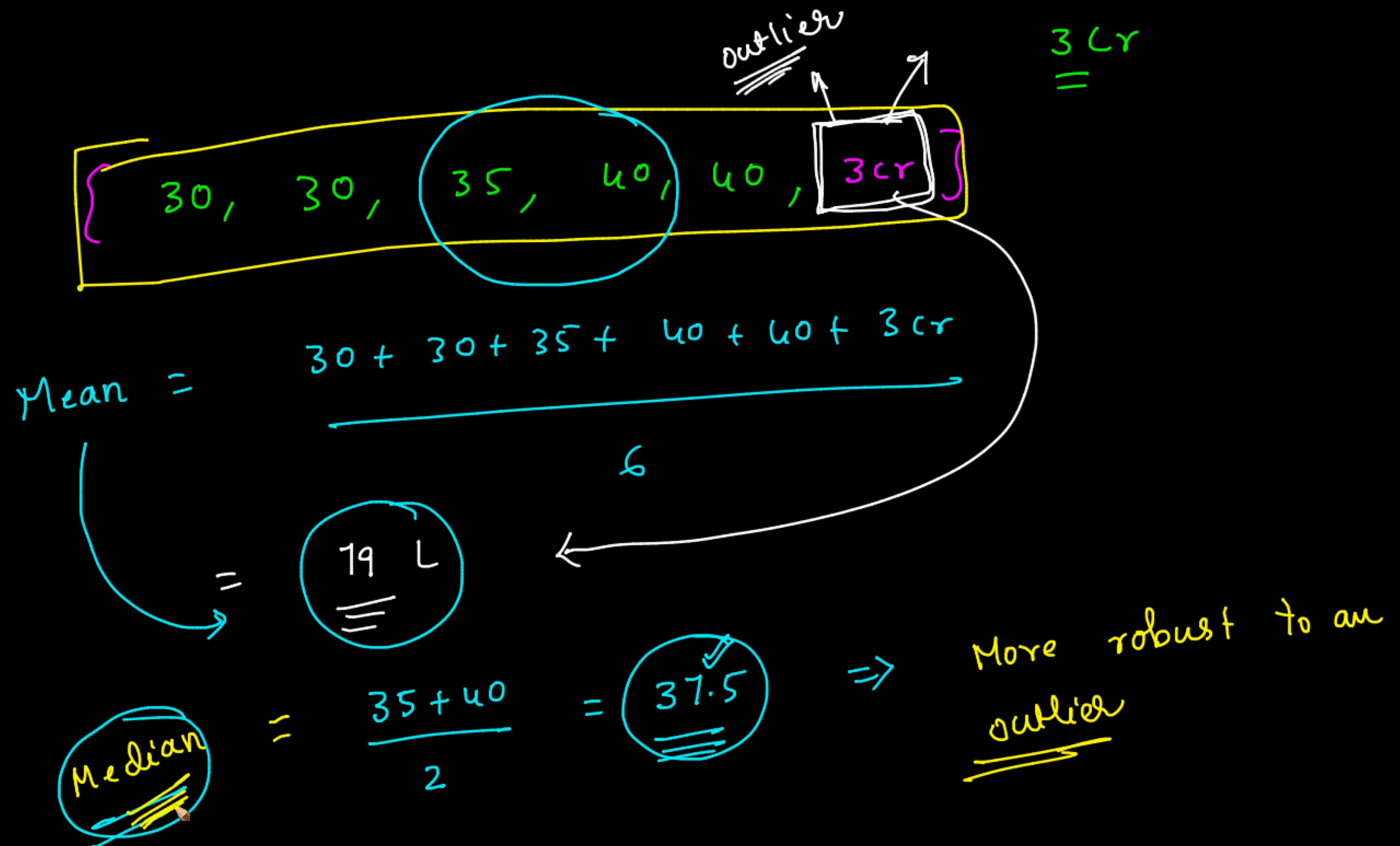
[ 30, 30, 35, 40, 40 ]

$$\text{avg/ mean} = \frac{30 + 30 + 35 + 40 + 40}{5}$$

$$= 35 \text{ Lacks}$$

Median

Median = 35 Lacks



## Quiz #1

4 people whose average age is 24

We know the age of 3 people : 20, 22, and 28.  
What is the median age of these 4 people?

$$\frac{20 + 22 + 28 + x}{4} = 24$$

①  $x = 26$

$$20 + 22 + 28 + x = 24 \times 4$$
$$x = 24 \times 4 - 70$$

= 26

①  $20, 22, 26, 28$

$\frac{22 + 26}{2} = 24$  ✓

Mode : The most frequently occurring data point

90, 85, 90, 90, 91, 87, 90

Mode : 90

$\Rightarrow$

10, 20, 15, 20, 10, 25

a. 10

b. 10, 20

Mode : 10, 20 bi mode

$\Rightarrow$  1, 2, 3, 4, 5, 6, 7, 8

Quiz #2

In a survey about favourite animal

30 people said cat,

~~10 people said dog~~, 10 people said dog, 20 people said cow

mode of favourite animals in this data?

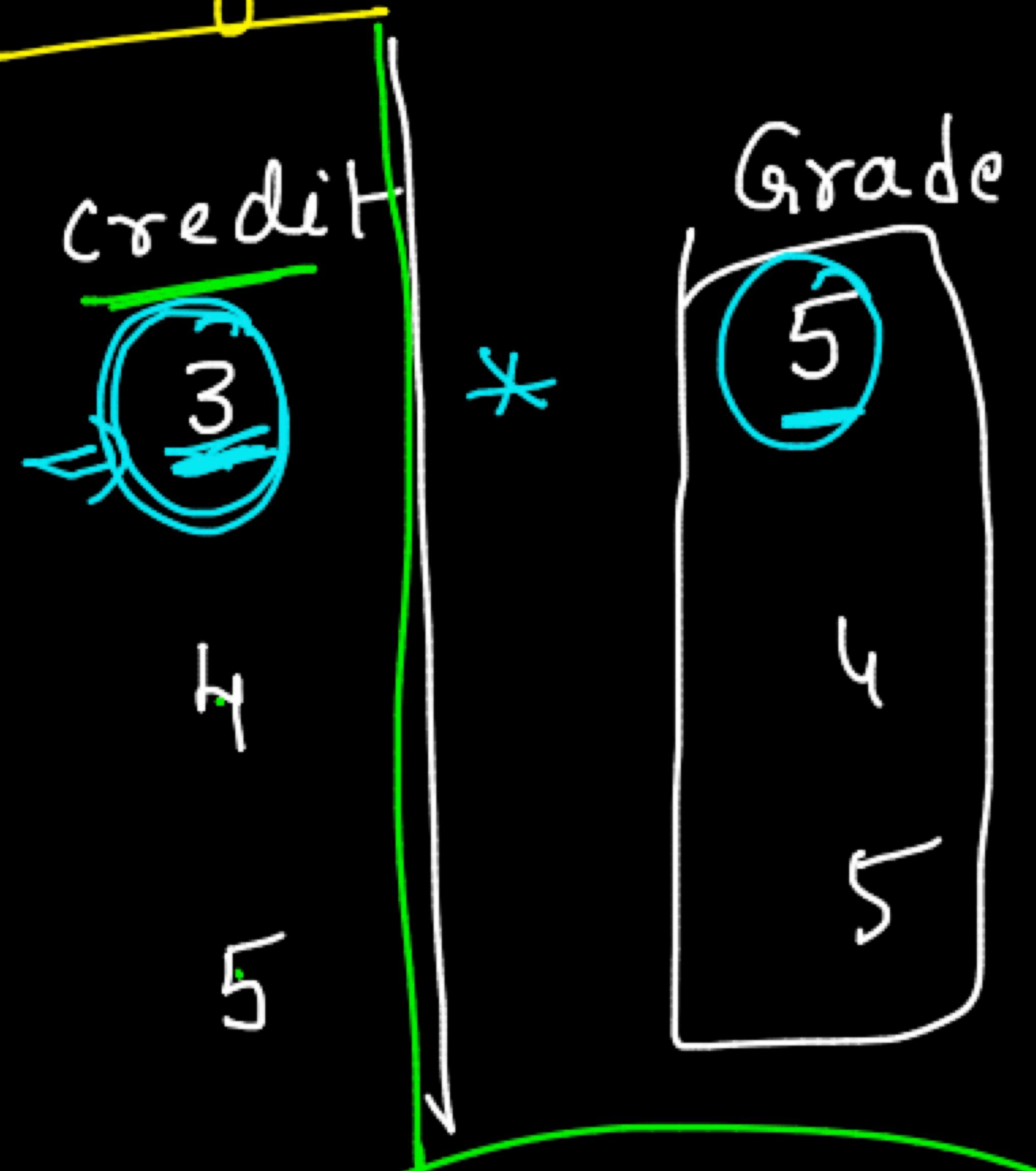


Maths

physics

chemistry

weighted average



$$3*5 + 4*4 + 5*5$$

12

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GPA =  $\frac{5+4+5}{3}$  → average

Quiz

Survey of no of pets in a town saw  $\Rightarrow 120$

30% people had 0 pet,

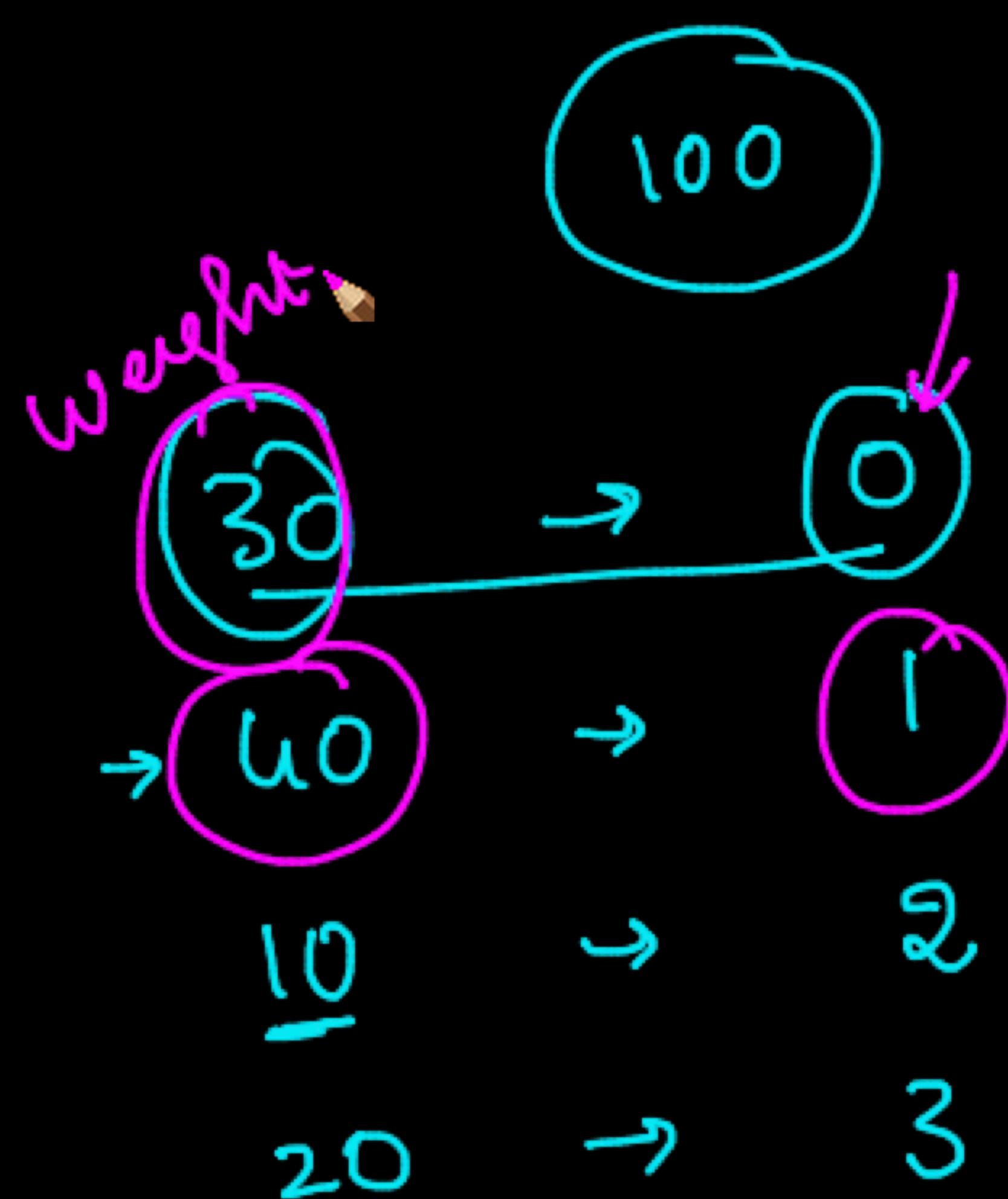
40% had 1 pet

10% had 2 pets

20% " 3 pets

What is the avg no of pets?

$$\frac{120}{100}$$



$$\begin{aligned}
 & \left( \underbrace{0+0+\dots+0}_{\text{---}+2} \right) + \left( \underbrace{1+1+\dots+1}_{\text{---}+2} \right) + \left( \underbrace{2+2+\dots+2}_{\text{---}+3} \right) + \left( \underbrace{3+3+\dots+3}_{\text{---}+3} \right) \\
 & = \cancel{\frac{30 * 0}{100}} + \cancel{\frac{40 * 1}{100}} + \cancel{\frac{10 * 2}{100}} + \cancel{\frac{20 * 3}{100}} = \frac{120}{100} = 1.2 \checkmark
 \end{aligned}$$

- Ques
- ⇒ mean weight of 2 children in a family is 40 kgs
  - ⇒ If the weight of the mother is included, the mean becomes 45.
  - What is the weight of the mother?

$$\frac{c_1 + c_2}{2} = 40 \Rightarrow c_1 + c_2 = 80$$

$$\frac{c_1 + c_2 + M}{3} = 45$$

$$80 + M = 135$$

$$M \Rightarrow 135 - 80 \Rightarrow 55 \checkmark$$

\* Range :  $\max - \min$

①      30,    30 , 35 , 40 , 40  
≡

$$\text{range} := 40 - 30 = 10$$

$$\text{range} = 40 - 30 = 10$$

outlier

range :  $300 - 30 = \underline{\underline{270}}$

range got corrupted

# IQR

# Inter Quartile Range

→ Percentile

:

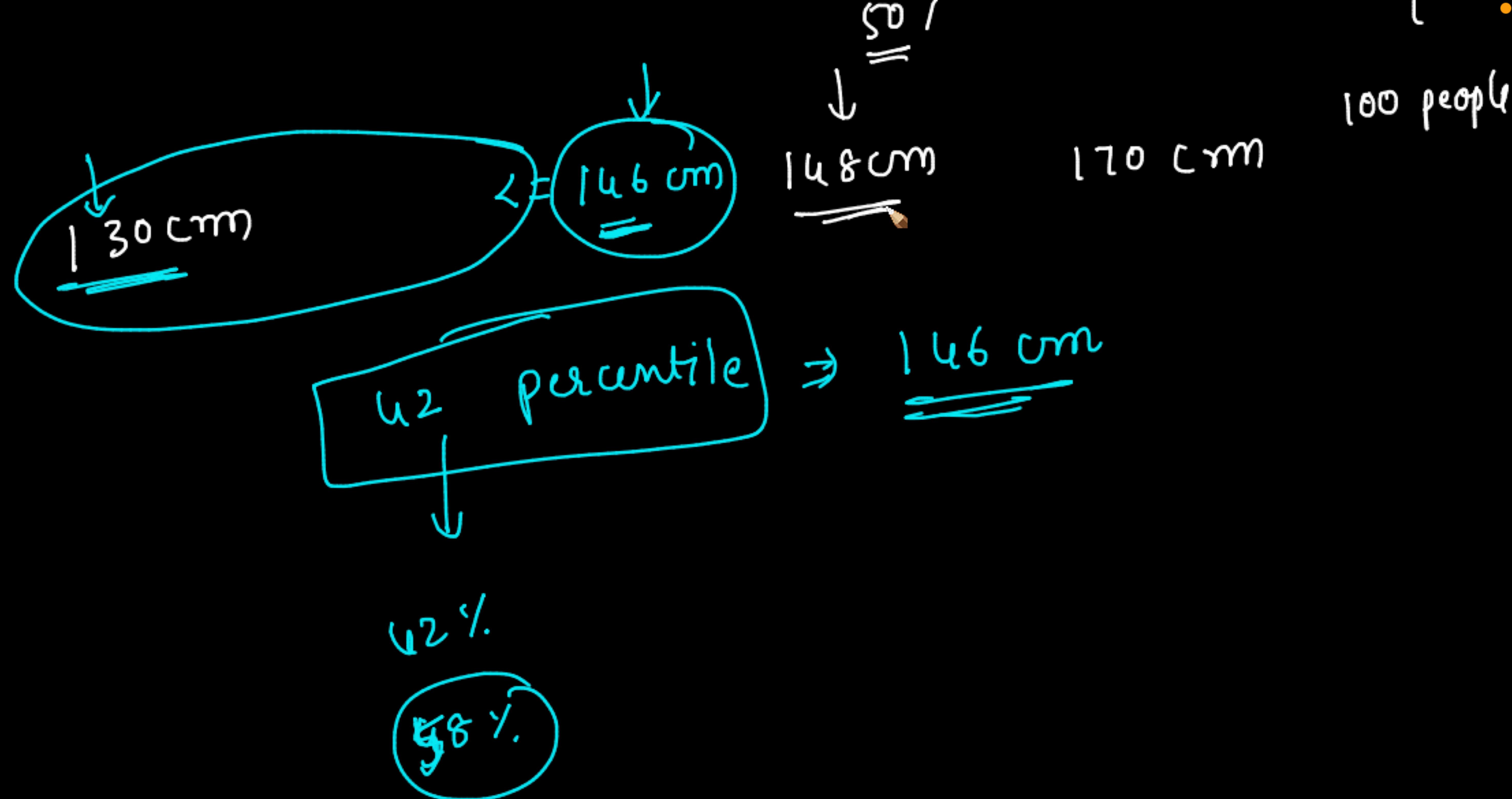
33 percentile = 32 Lacks

33

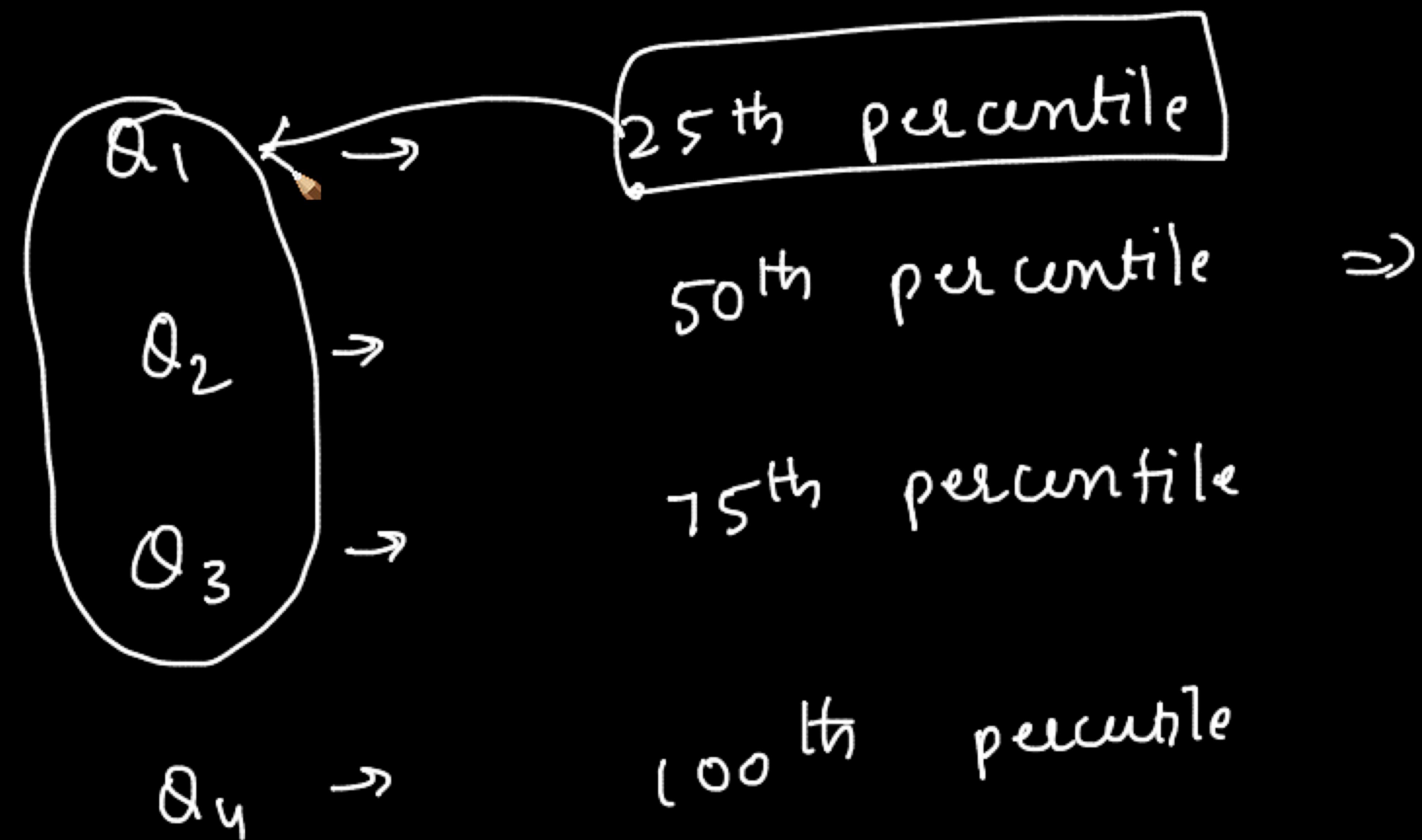
33%  
=

< 32 Lacks

Height :



Quartile



\*  $IQR = Q_3 - Q_1$

~~Runs~~

Sehwag

Drawid ?

~~ODI's~~

more consistent

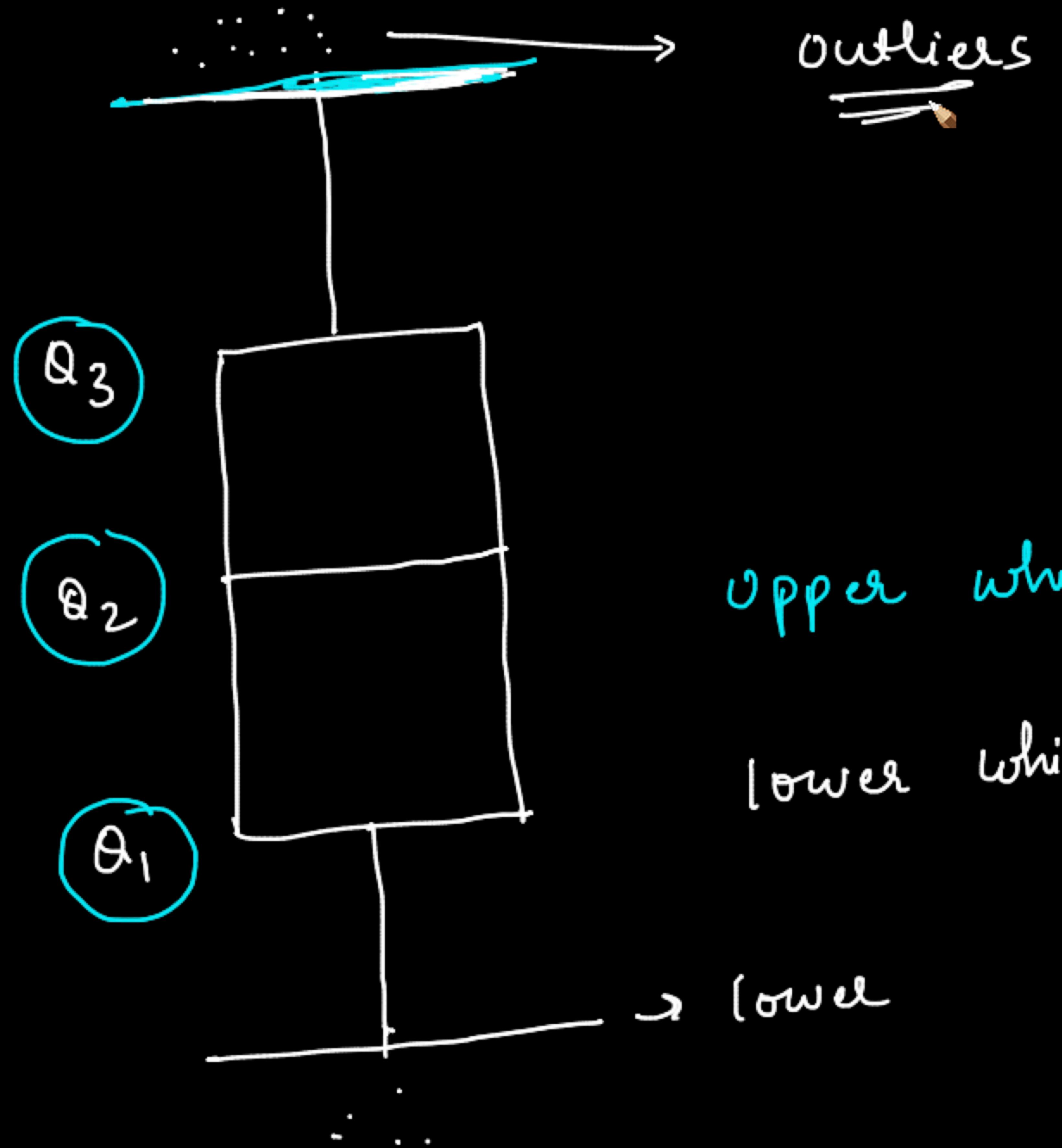
Buttler

Stats

conclude

10 : 11 → 10 : 16

Box plot  
with whiskers



$$\text{IQR} = \underline{\underline{Q_3 - Q_1}}$$

$$\text{Upper whisker} = Q_3 + 1.5 * \text{IQR}$$

$$\text{Lower whiskers} = Q_1 - 1.5 * \text{IQR}$$

lower

## Random Variable



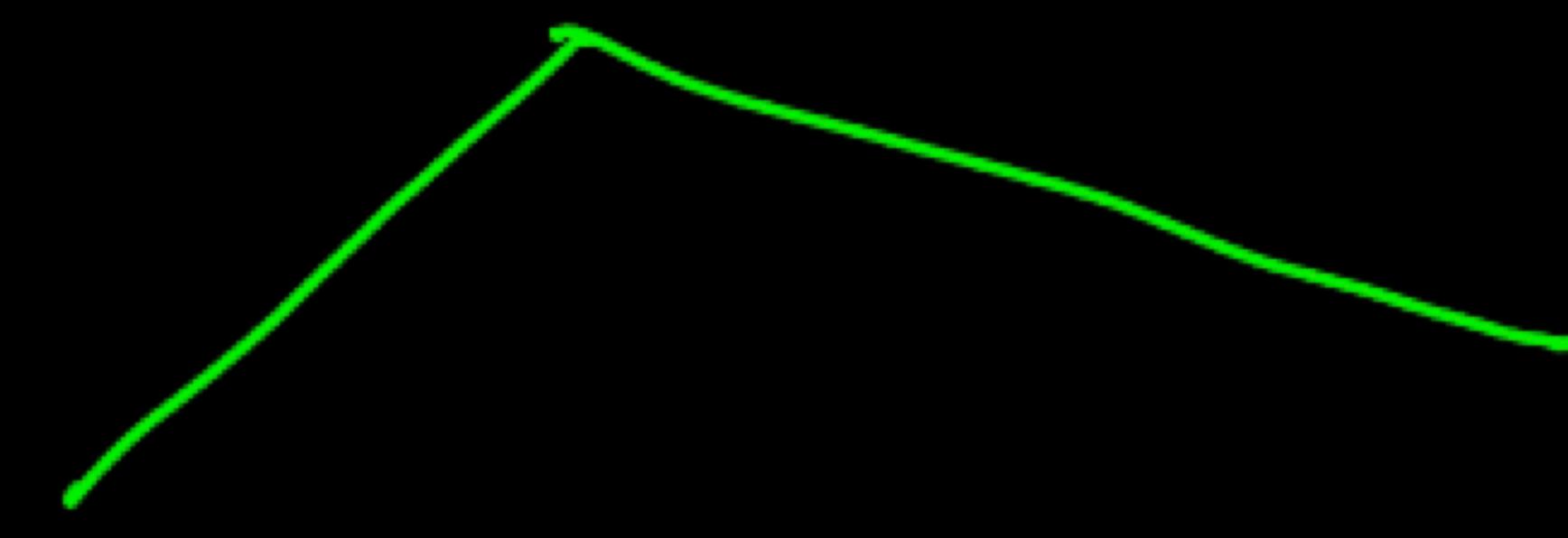
Situation / event / experiment, for which we are not certain about the ~~certain~~ outcome.



100

finite

Discrete



continuous random  
infinite

$\Rightarrow$  Coin toss  $\Rightarrow \{H, T\}$  2

$\Rightarrow$  Dice  $\Rightarrow \{1, 2, 3, 4, 5, 6\}$  6

discrete

$\Rightarrow$  Height of the student

134.5589

temp

continuous

We can't count the no of

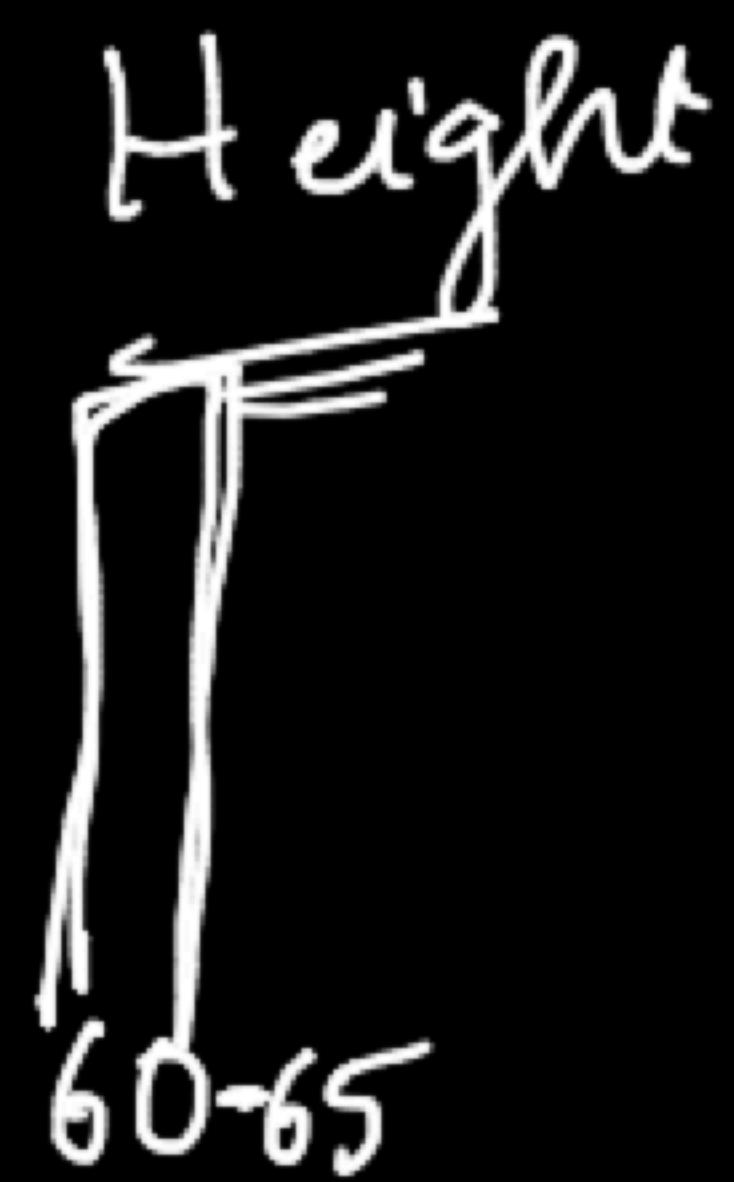
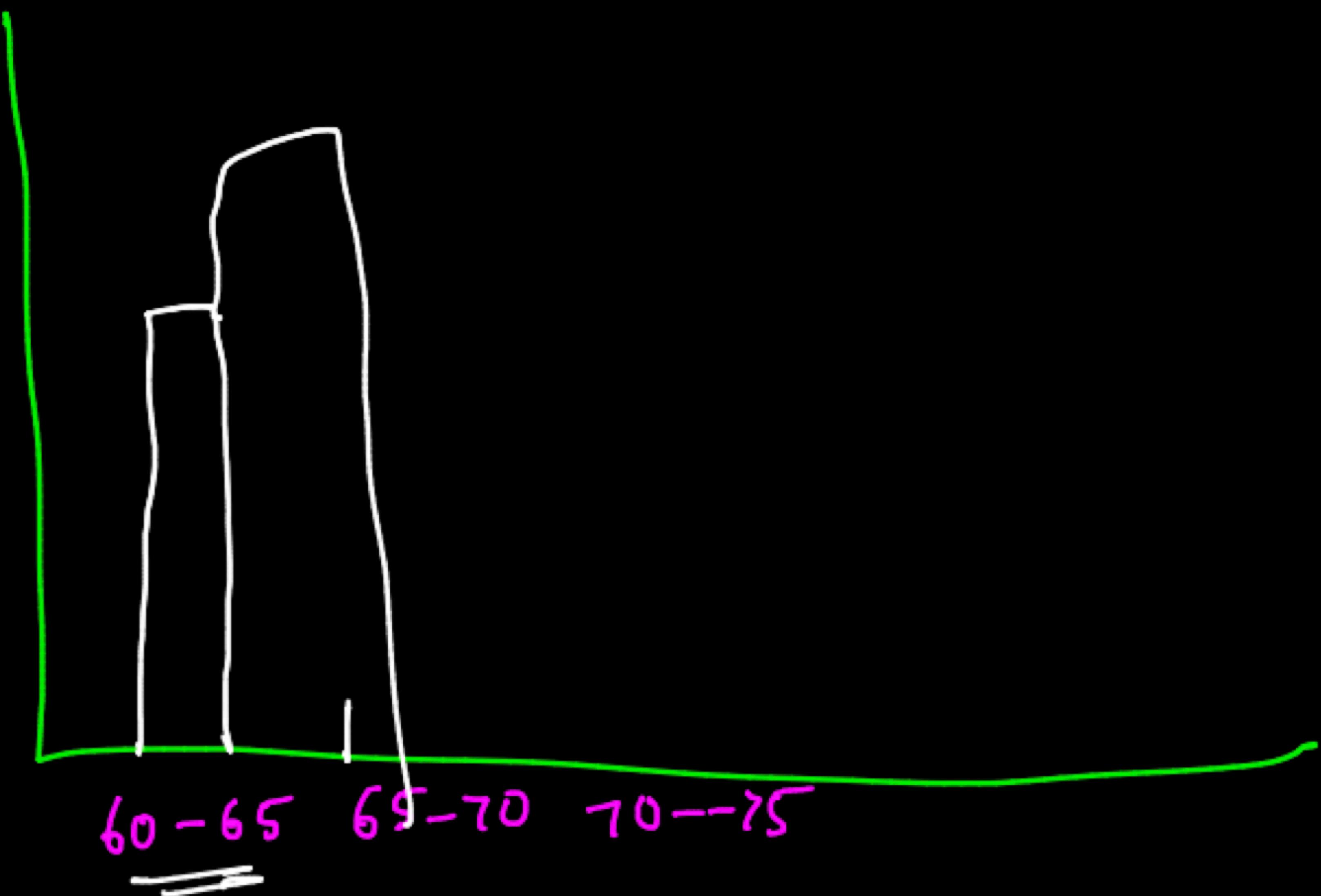
possible outcomes

random variable.

Distribution

Function

CDF



Height

