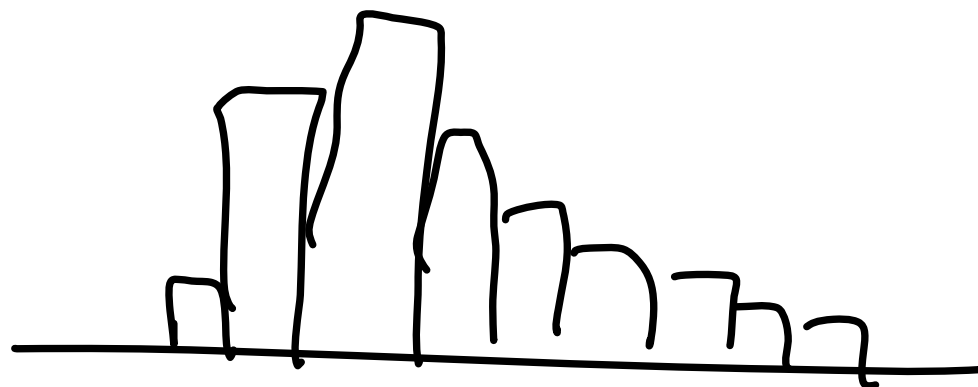
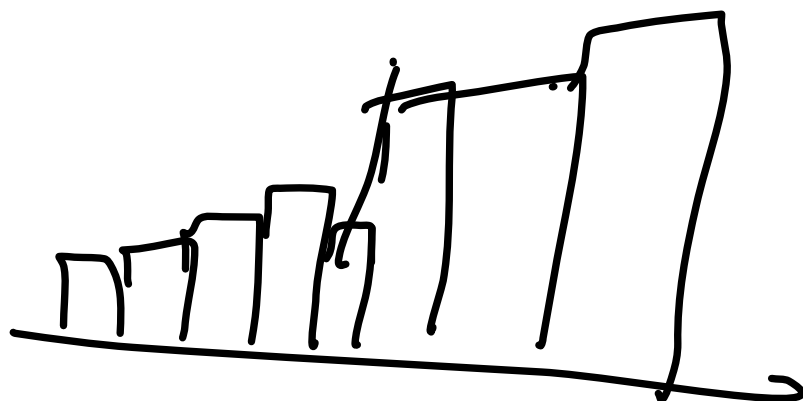
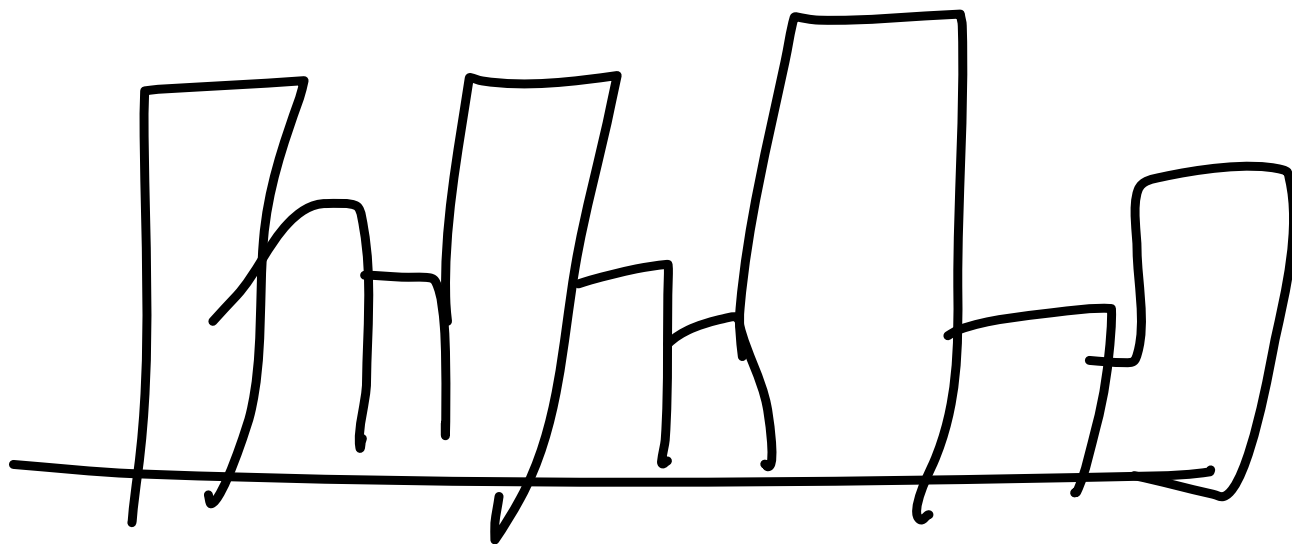


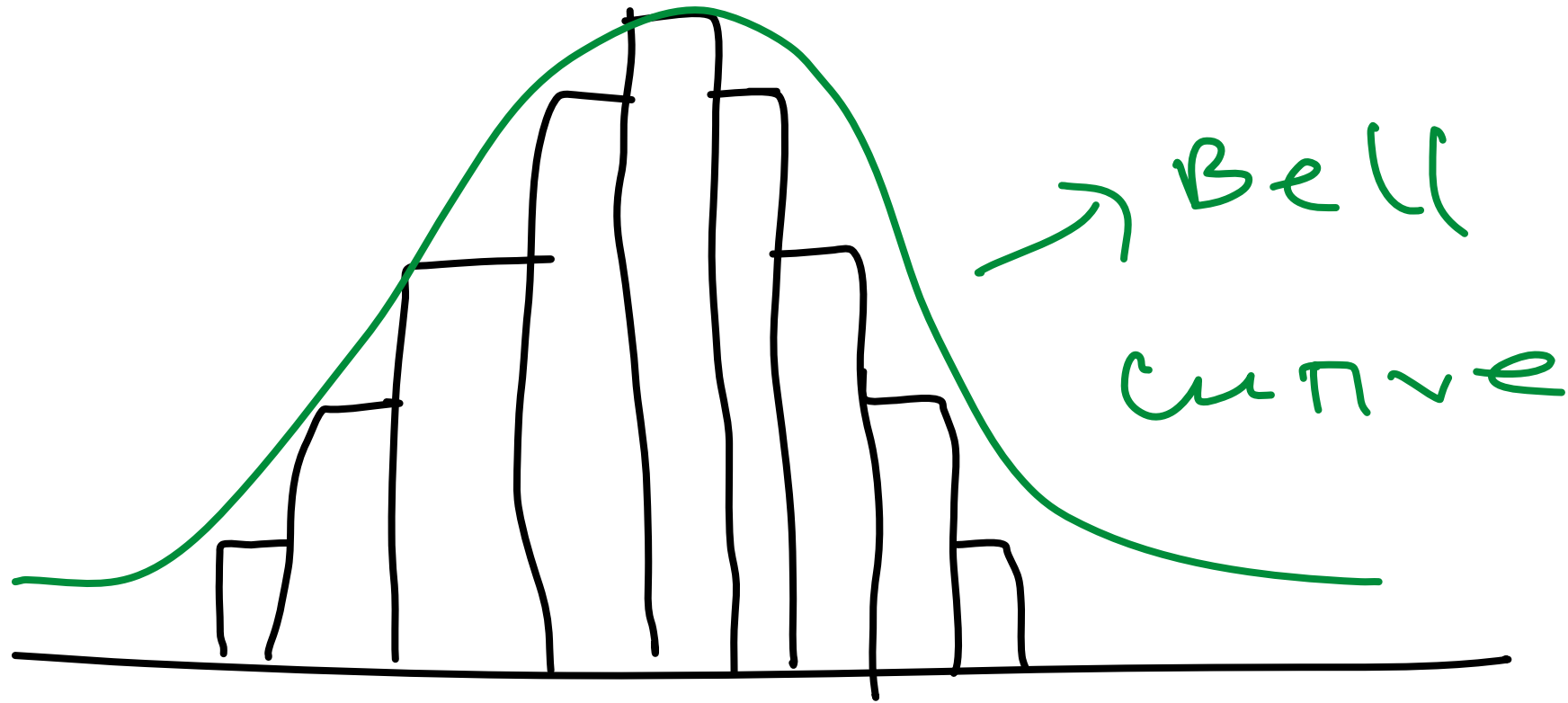
# Normal Distribution

Spread out



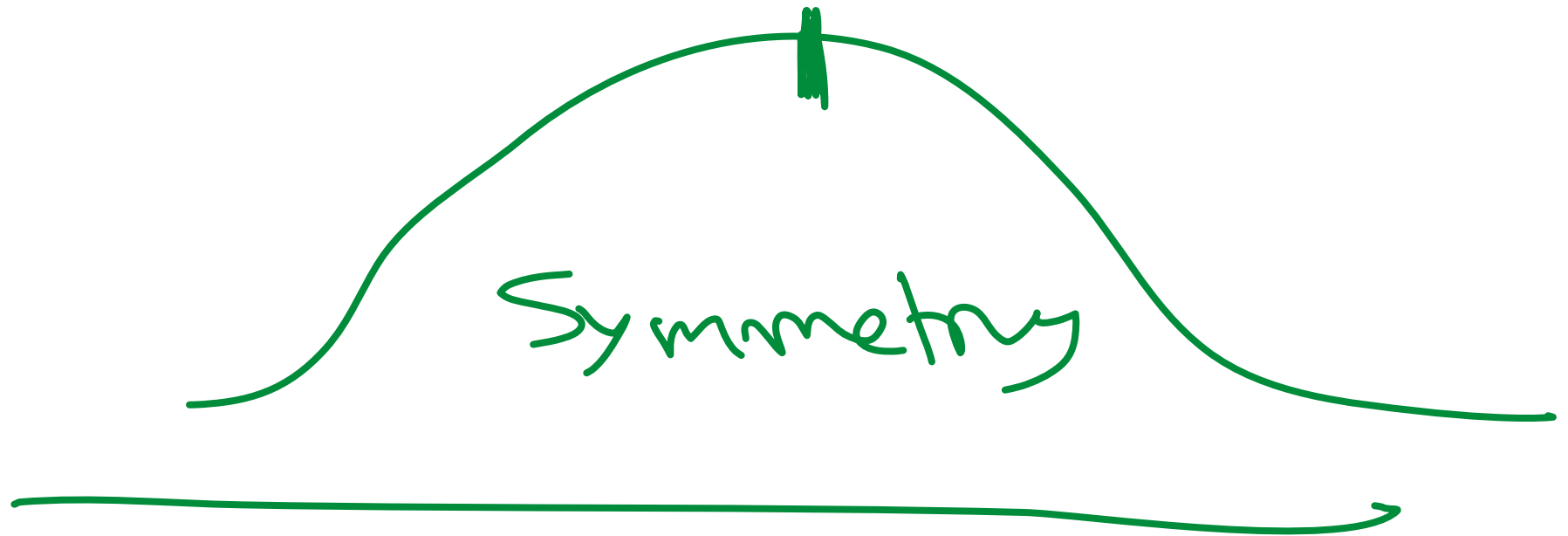


jumbled out



- height
- blood pressure
- mankes → test

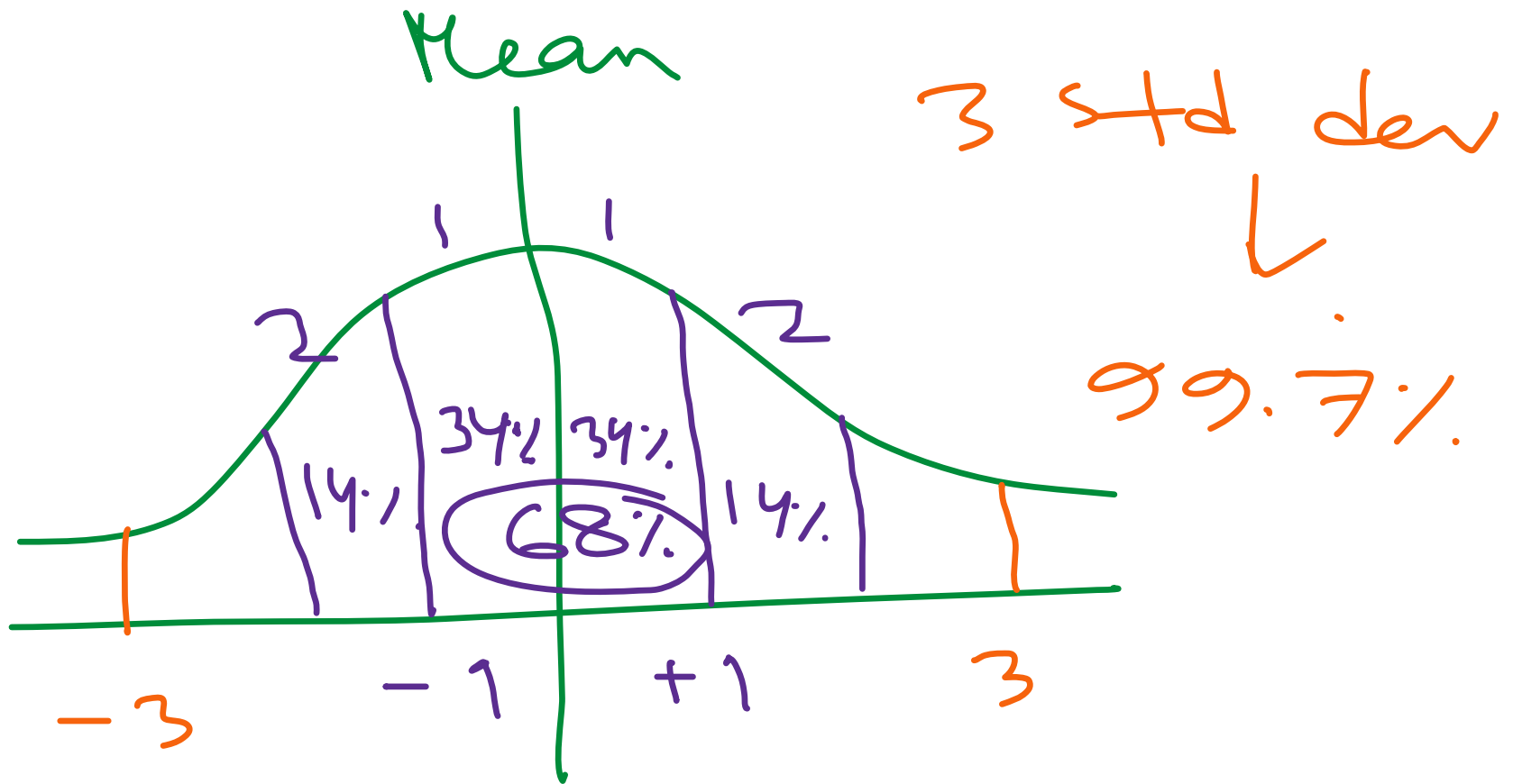
Mean = Median = Mode



Mean

$$\frac{7+1}{2} = 4$$

1, 2, 3, 4, 5, 6, 7



2 std. dev.  $\longrightarrow$  95% of data

95% of students  $\rightarrow$  height range

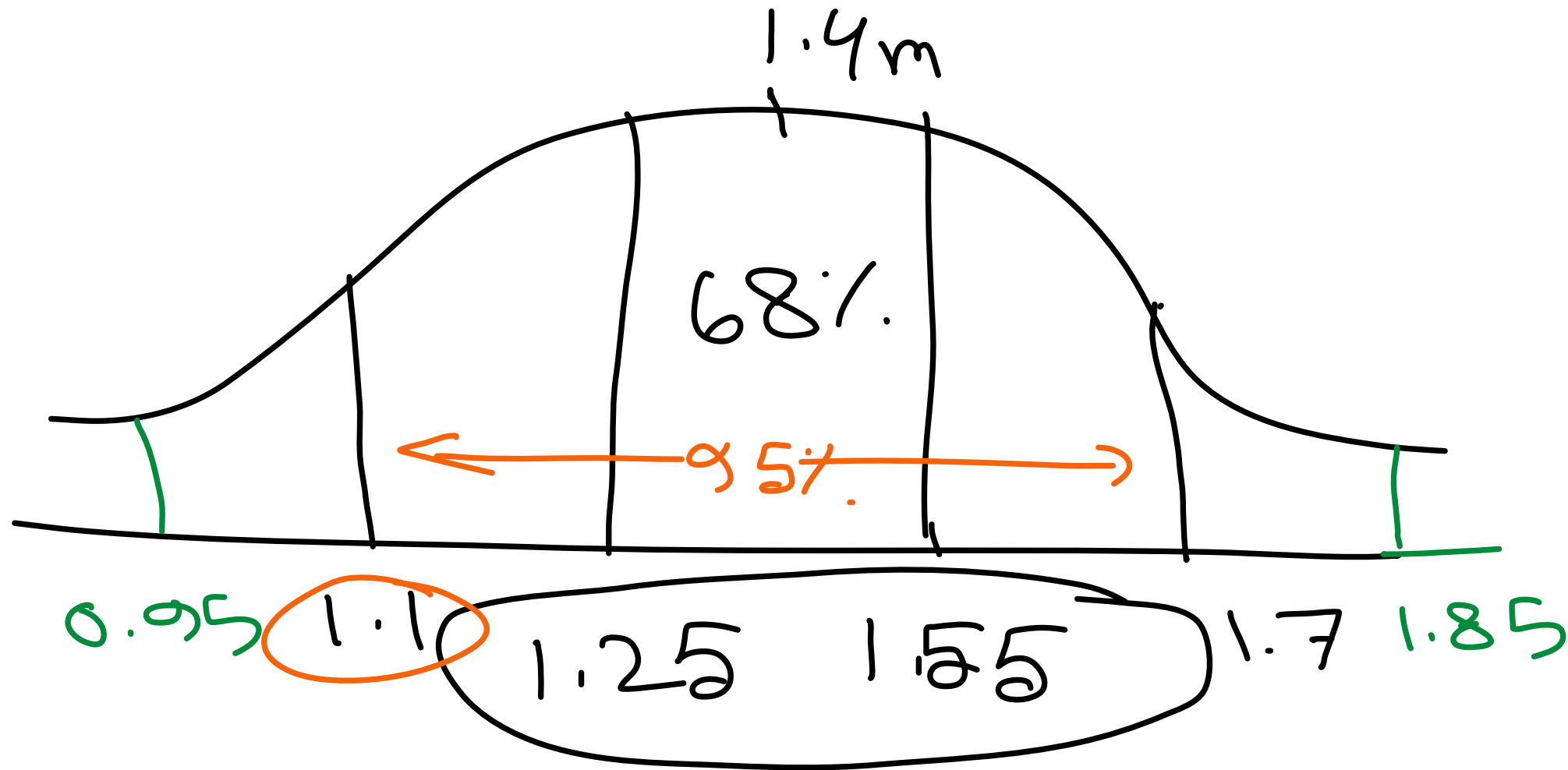
$$1.1 - 1.7 \text{ m}$$

$$\rightarrow \text{Mean} = \frac{1.7 + 1.1}{2} = 1.4 \text{ m}$$

$$1 \text{ std. dev} = \frac{1.7 - 1.1}{4} = 0.15 \text{ m}$$



2



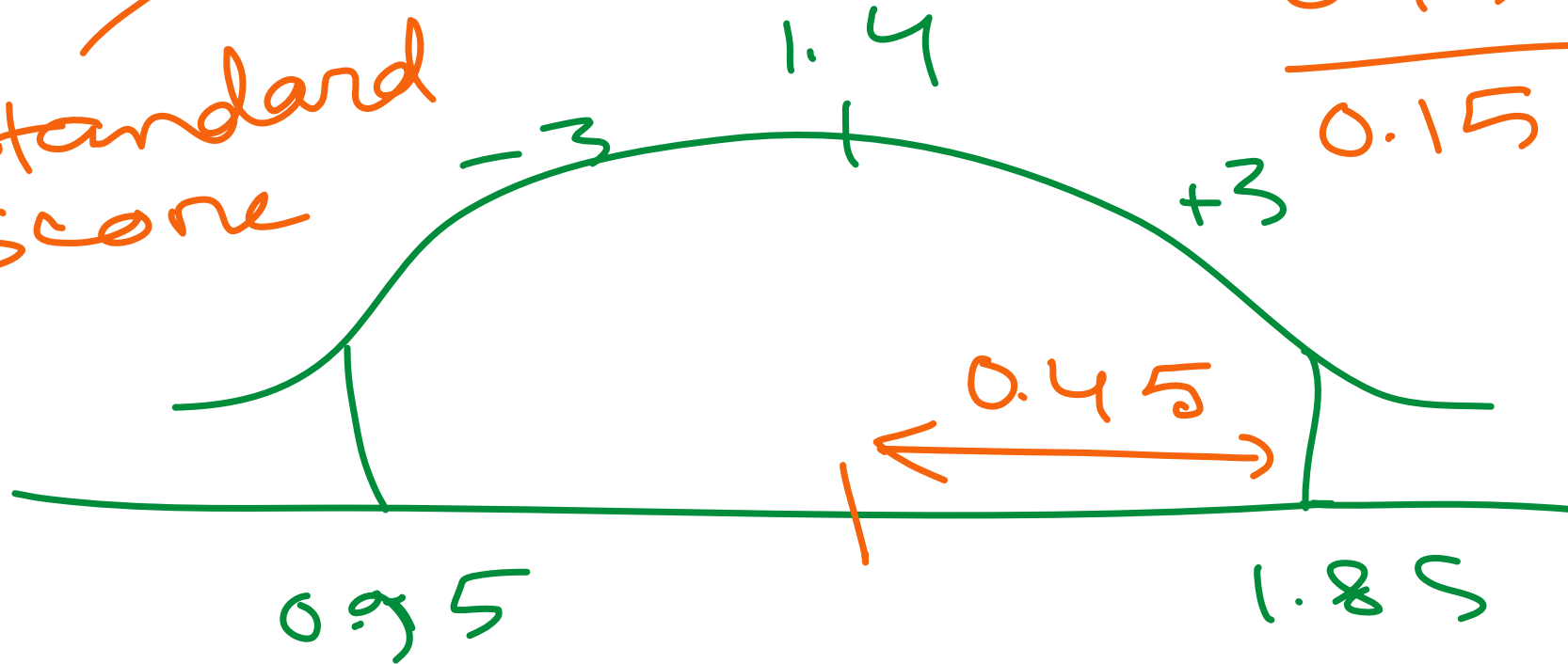
Std dev.  $+1 \rightarrow$  likely to  
most students

„  $+2 \rightarrow$  less likely

„  $+3 \rightarrow$  least likely

$$\rightarrow Z\text{-score} = 3.0$$

Standard  
score



# Standardization

— Subtract from mean

— divide by std.

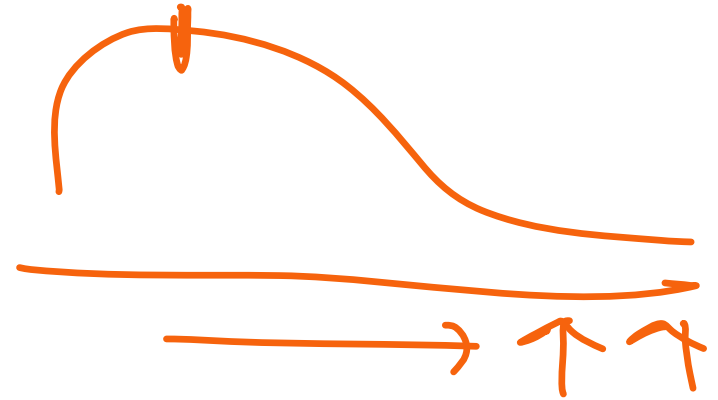
# Skewness

Left



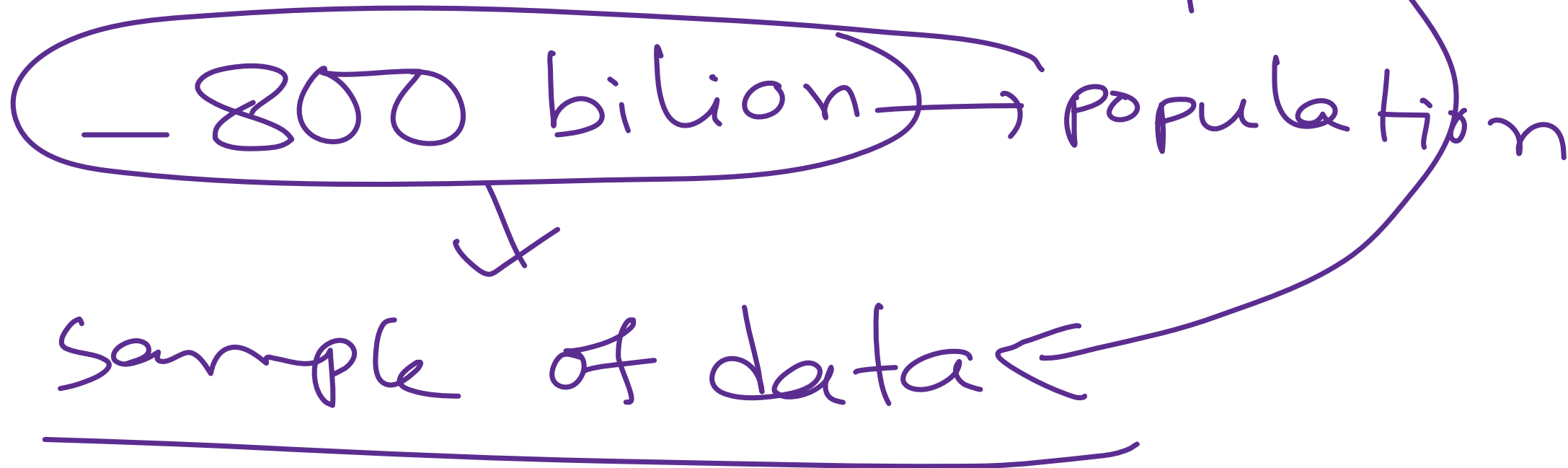
median > mean

right.



median < mean

# Hypothesis Testing



- model performance evaluate
- parameters significance
- best of features
- statistical validity



# Correlation Matrix

		<u>Truth</u>	
		Null $H_0$ Hypothesis	Alternate Hypothesis
<u>Decision</u>	Null	$1 - \alpha$ ✓	Type - II
	Alt	$\alpha$ Type - I } ✓	

# Steps of ttt

$H_0, A_1 \rightarrow \alpha$  significance level  $\rightarrow$  Criteria for a decision

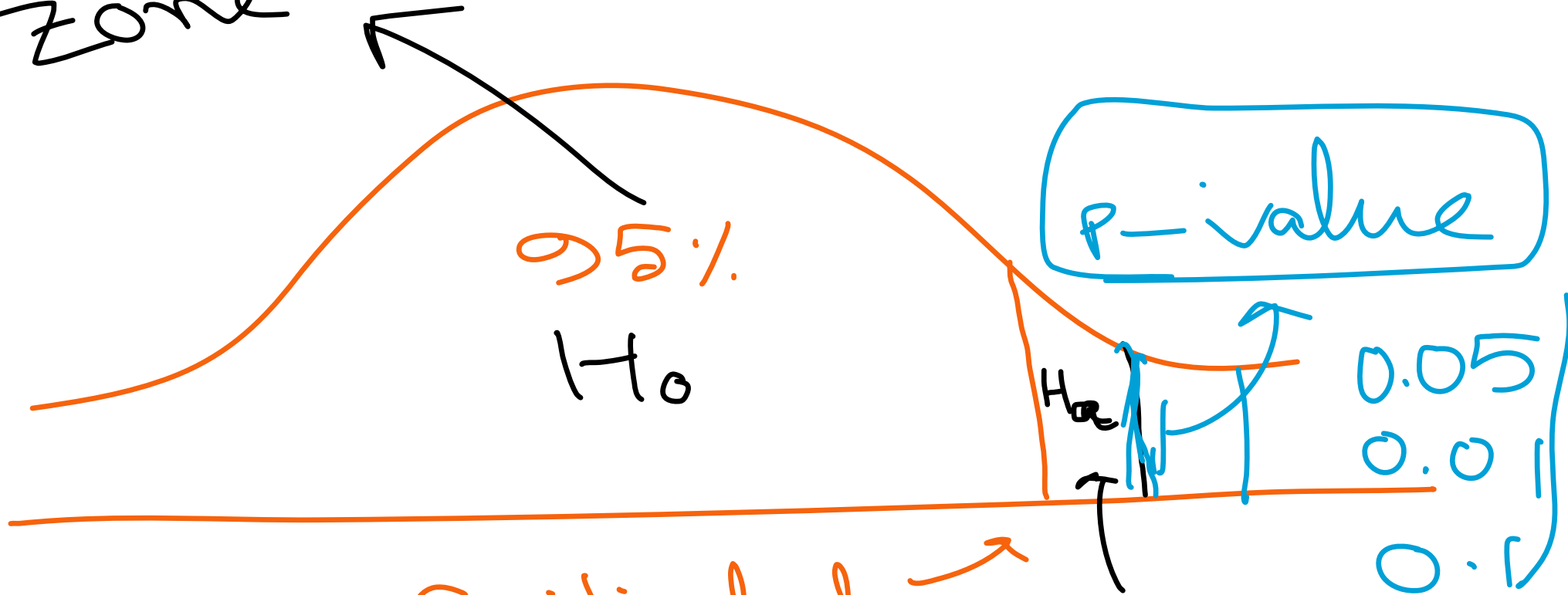
Test statistics

$\downarrow$   
(P-value) Decision



Acceptance  
zone

$$\alpha = \underline{\underline{5\%}}$$



test > critical value  
Reject  $H_0$

Hypothesis — Directional

Non-directional

e.g.  $\rightarrow F \uparrow \uparrow M$



Non-directional :  $T \neq M$

