Describing Distributions

Lesson Objectives

- Review ways of visualizing probability distributions
- Review terms for describing distributions

Let’s collect some data

You will have one minute to make a paperclip chain.

When you’re done, I’ll tell you what we’re going to do with it ☺

How would you describe the shape of our graph?

Describing distributions

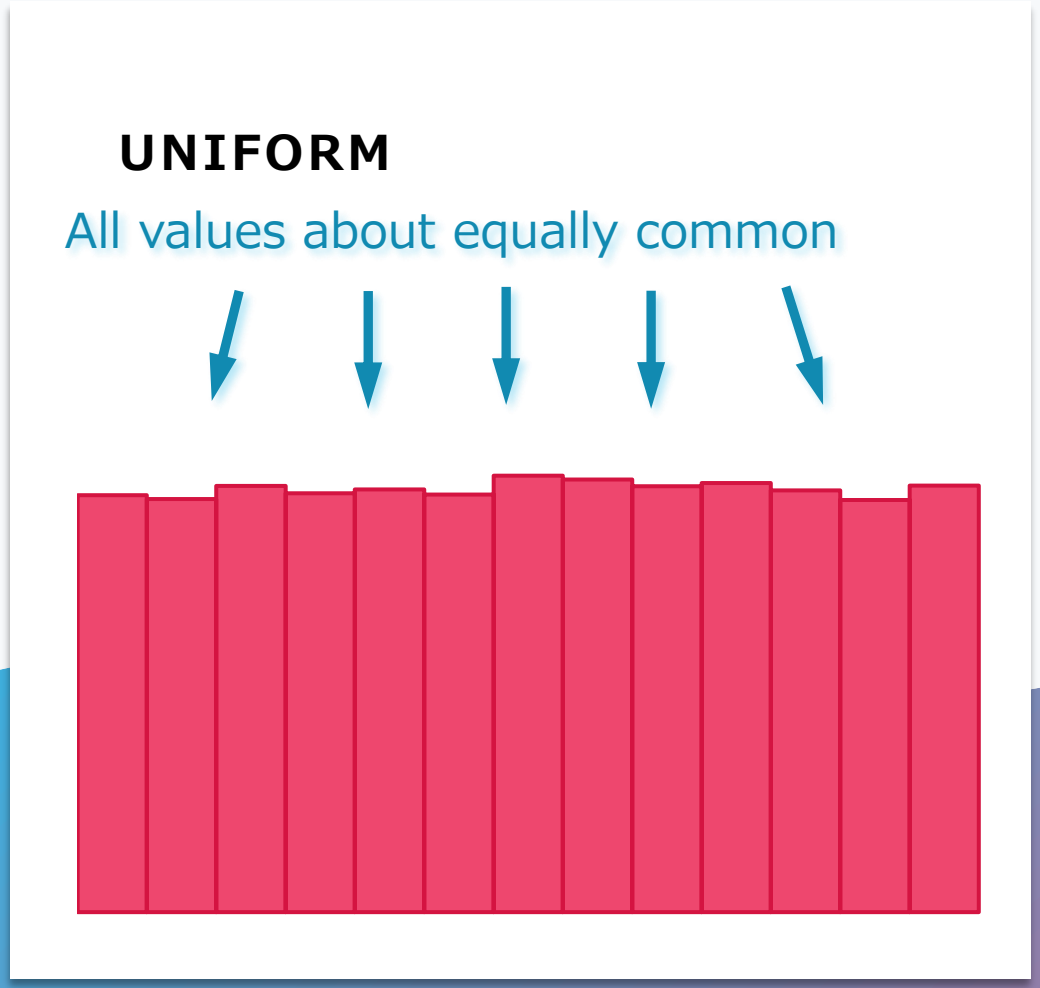
HELPFUL WORDS

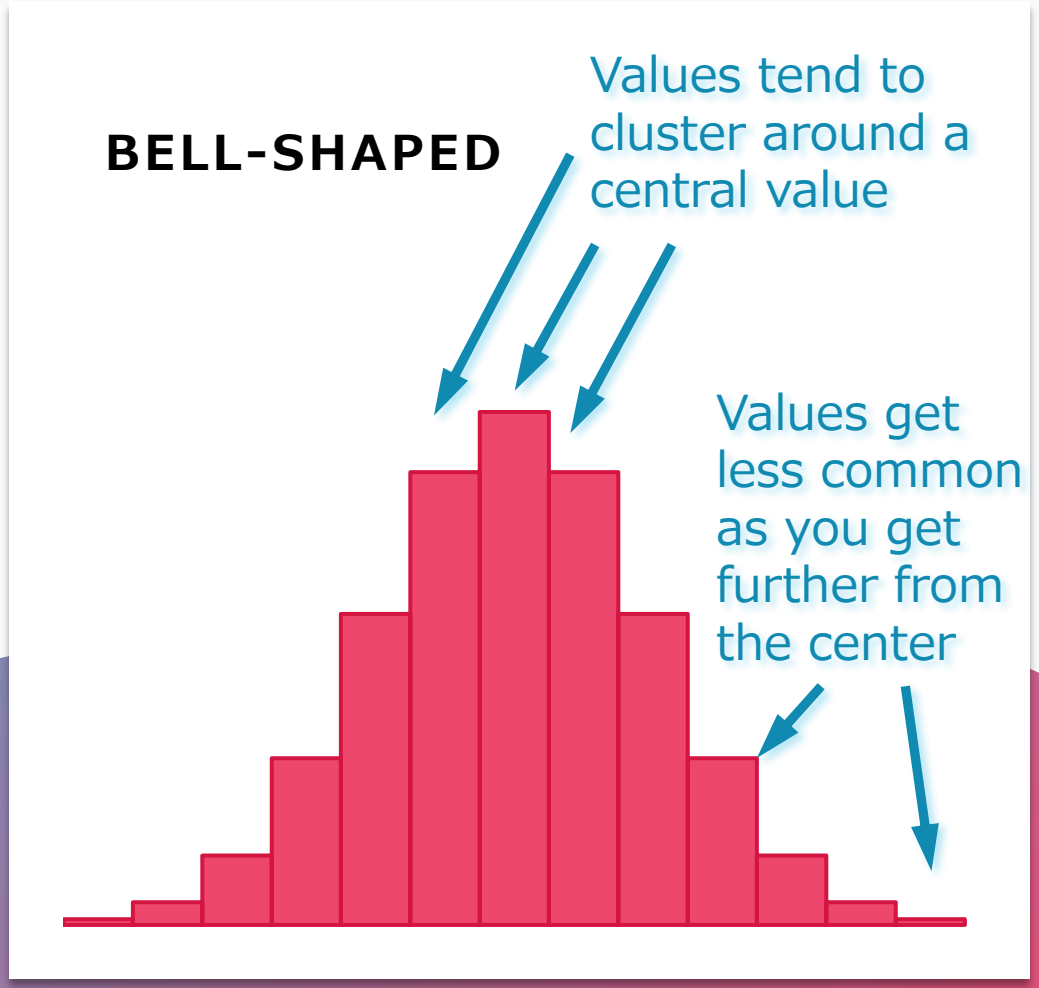
- Uniform
- Bell-shaped
- Symmetric
- Skewed
- Bimodal
- Multimodal

HELPFUL NUMBERS

- Mean
- Median
- Mode
- Range
- Inter-Quartile Range (IQR)

Distributions: Uniform vs Bell-Shaped



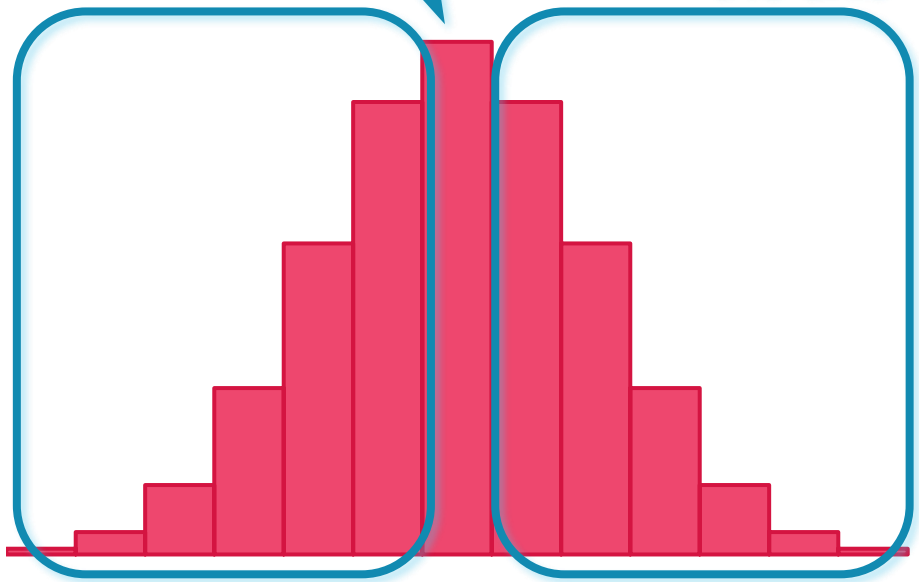


Distributions: Symmetric vs Skewed

SYMMETRIC

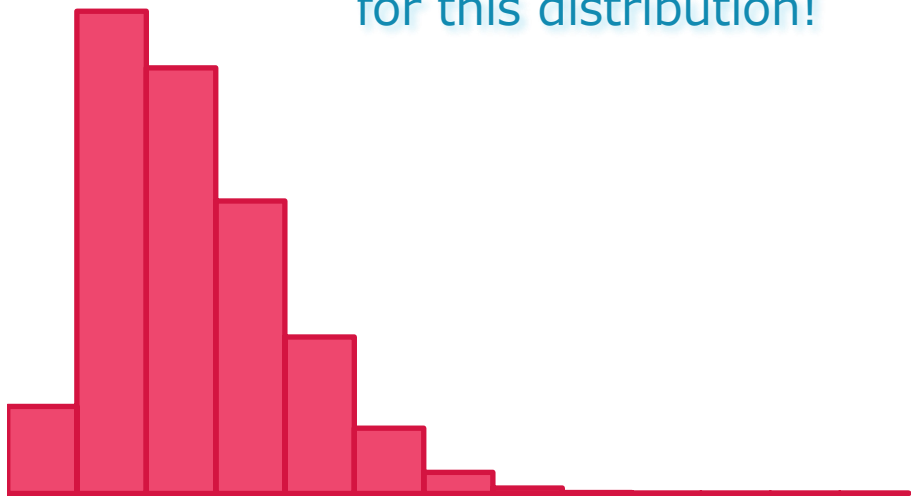
This value is my axis of symmetry

Same distribution on each side of the axis

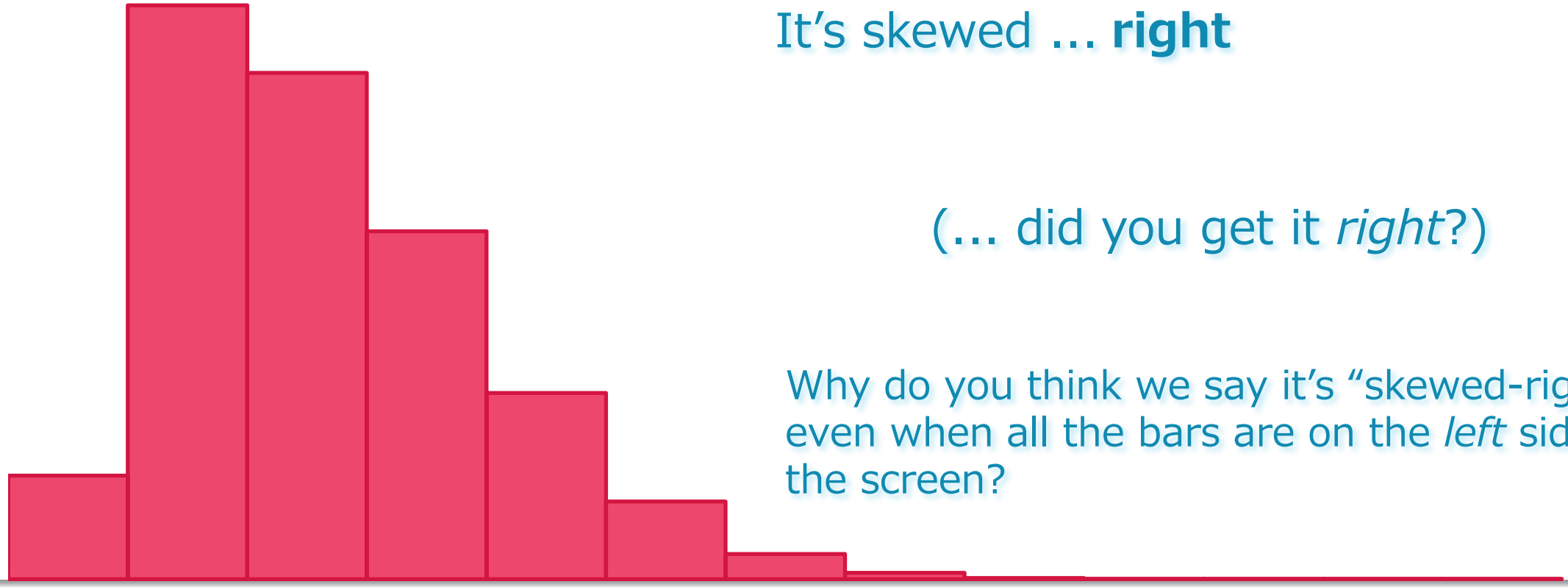


SKEWED

There's nowhere I can draw an axis of symmetry for this distribution!



Is this distribution skewed-left or skewed-right?



It's skewed … **right**

(… did you get it *right*?)

Why do you think we say it's "skewed-right" even when all the bars are on the *left* side of the screen?

To turn this into a **skewed-right** distribution …

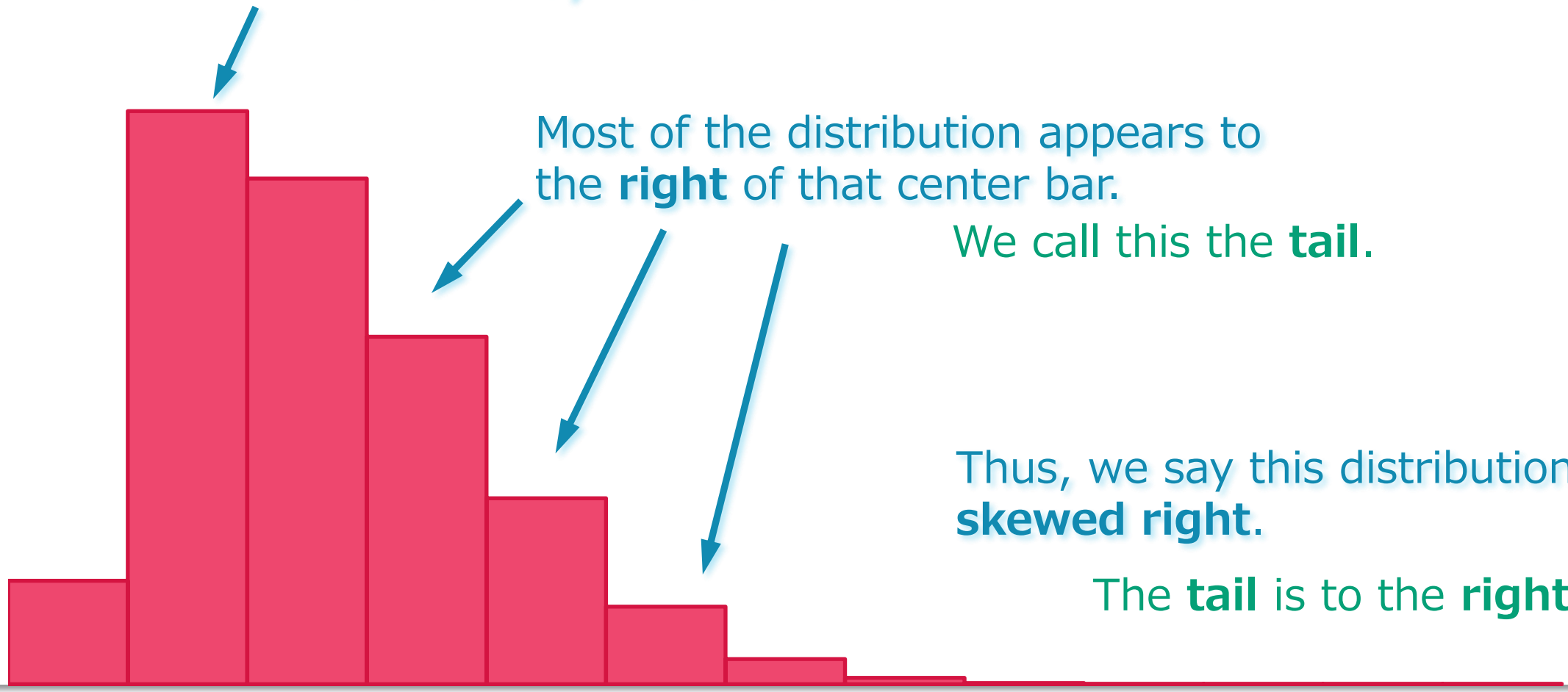
We take some of the data **left** of the center …

… and move it to the **right** side

Skew is relative to the center of the distribution

Here's where the center **would** be, if this were a **symmetric** bell curve!

We call this area the **head** of the distribution.



Most of the distribution appears to the **right** of that center bar.

We call this the **tail**.

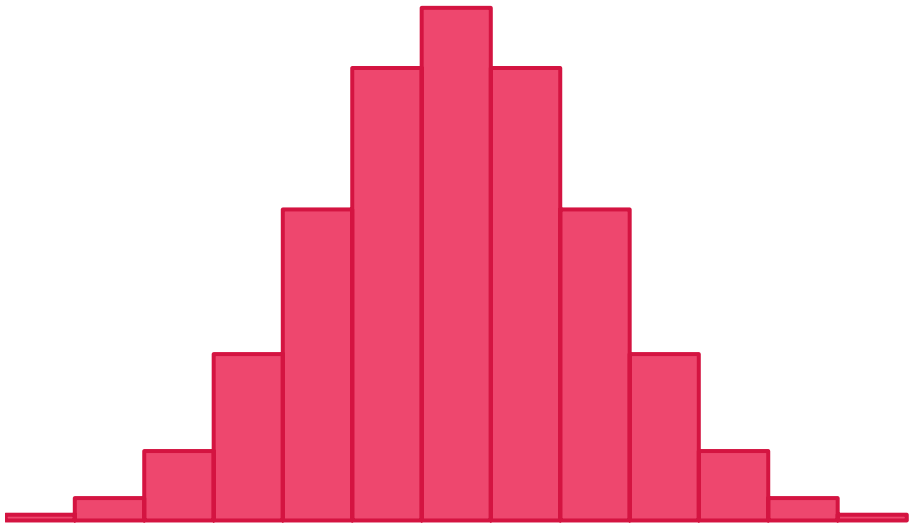
Thus, we say this distribution is **skewed right**.

The **tail** is to the **right**.

Distributions: Unimodal vs Bimodal

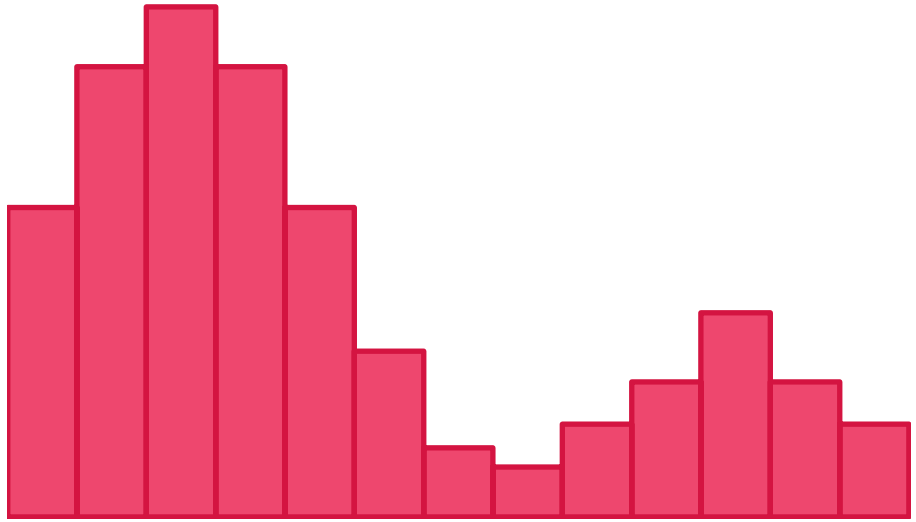
UNIMODAL

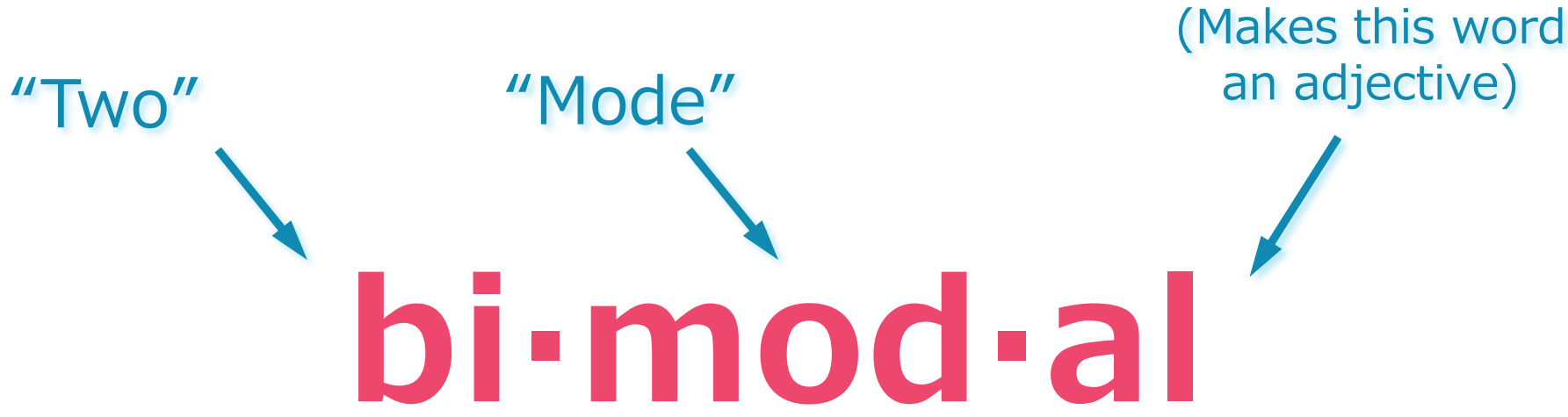
One cluster ...



BIMODAL

... Two clusters!





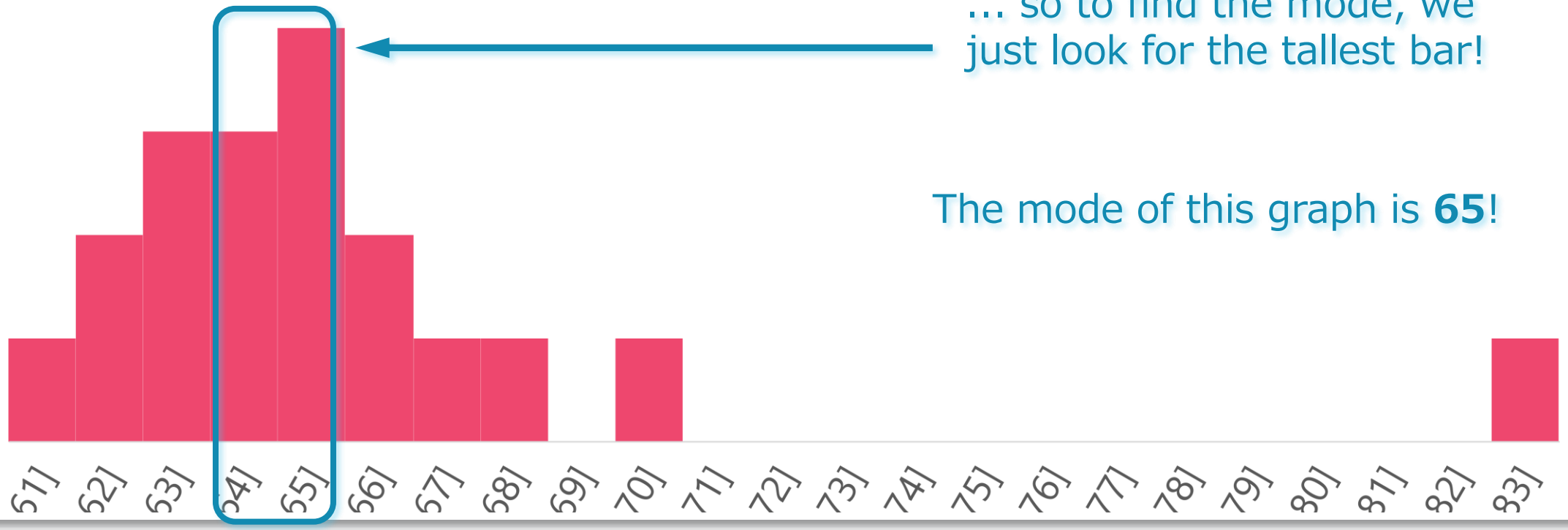
"Having **two modes**."

(But wait, how can a distribution have *two* modes?)

Finding the mode from a graph

Remember, the **mode** is the value that occurred **most often**

What's the **mode** of this distribution?



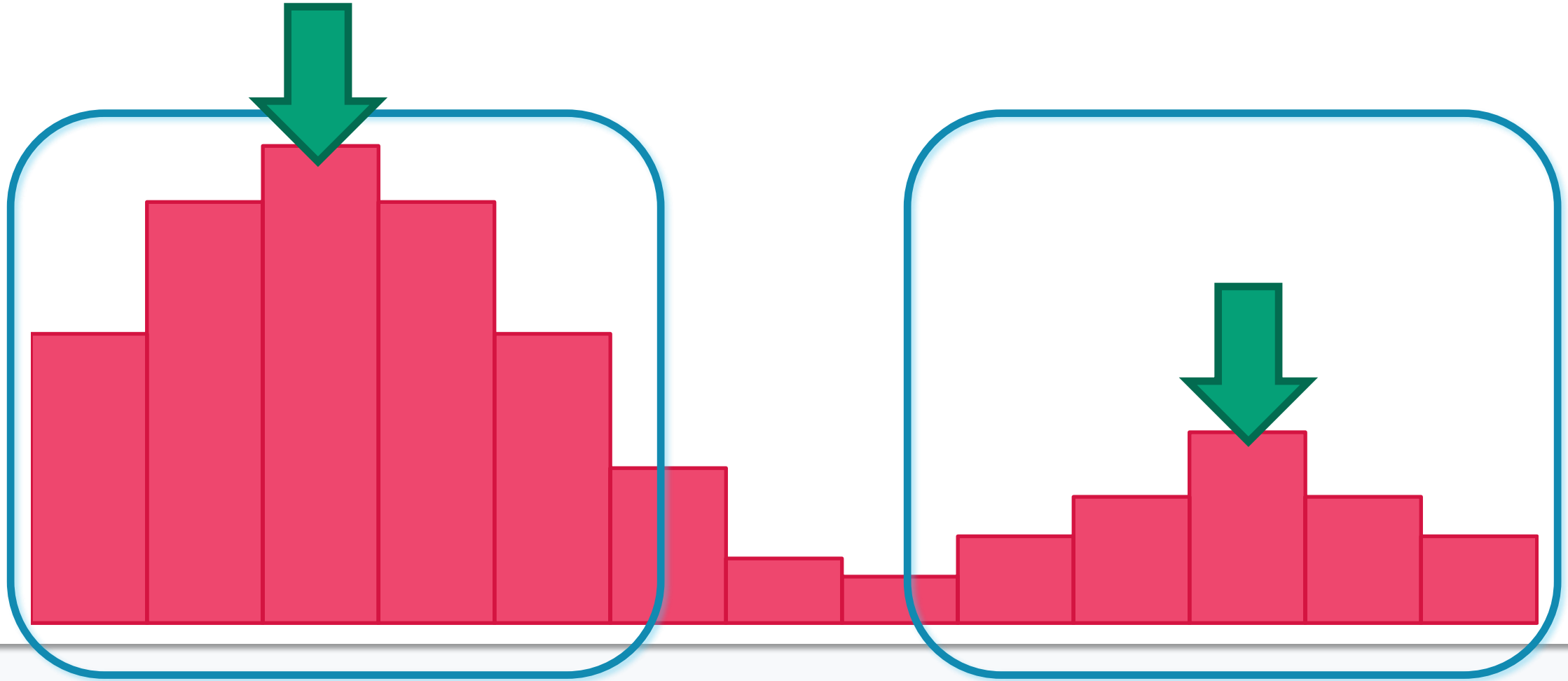
The height of each bar tells us how often that value occurred ...

... so to find the mode, we just look for the tallest bar!

The mode of this graph is **65**!

Does this **bimodal** graph really have “two modes?”

Well, there are two clusters … and each of them has a mode!



How would you describe the shape of our dot plot?

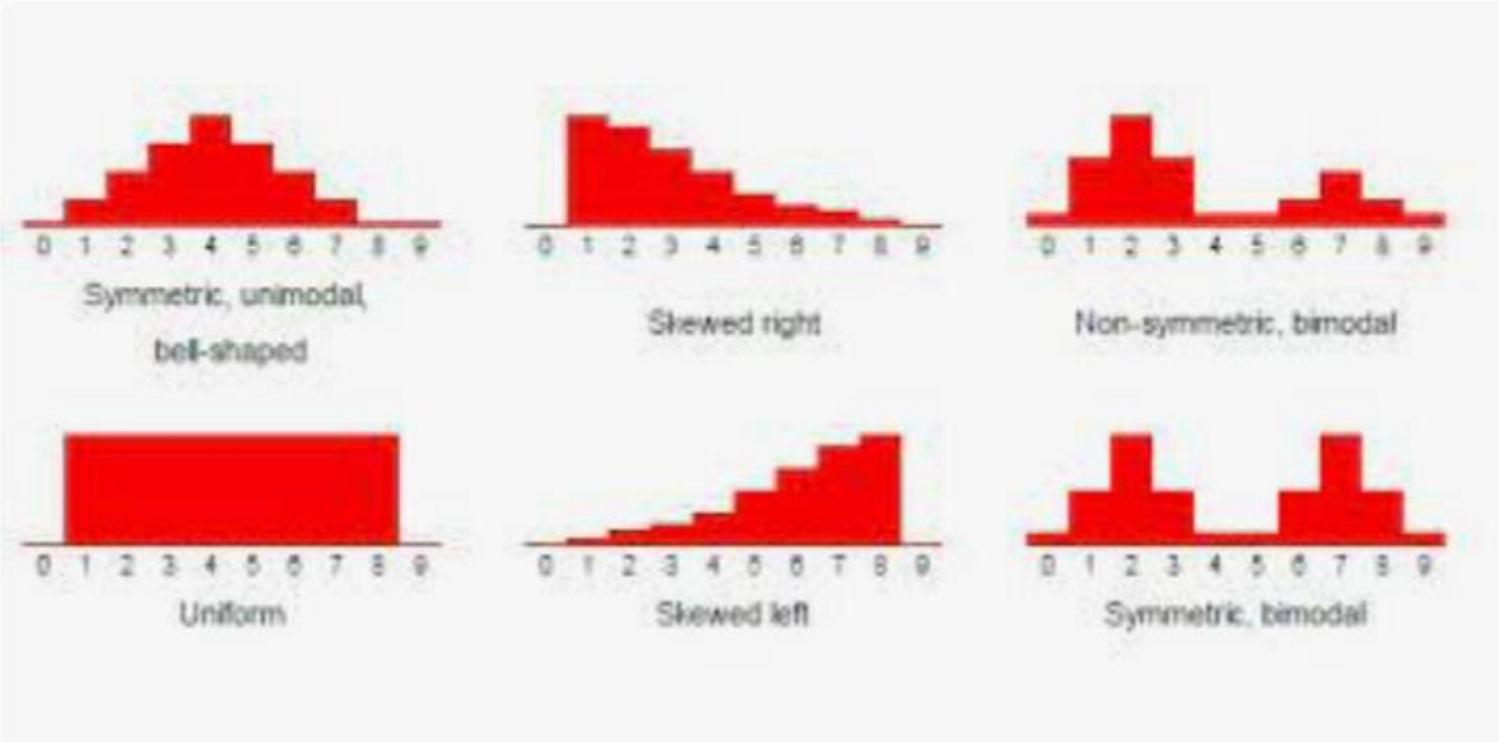
Symmetrical?

Uniform?

Unimodal?

Bimodal?

Skewed? Left or right?



Homework

See Teams for a short assignment based on what we talked about today