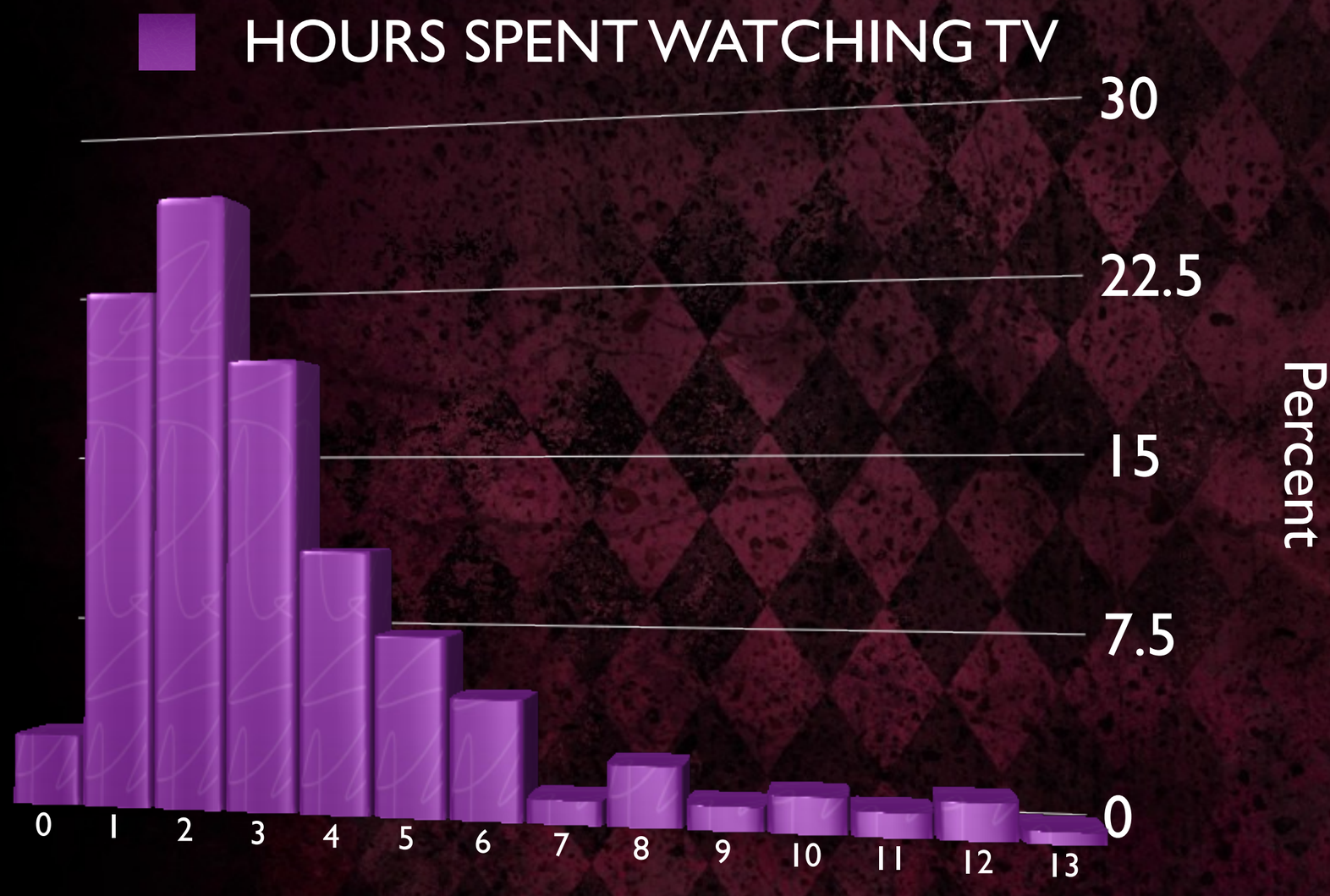
DAP: Day 3

Describing Data Numerically

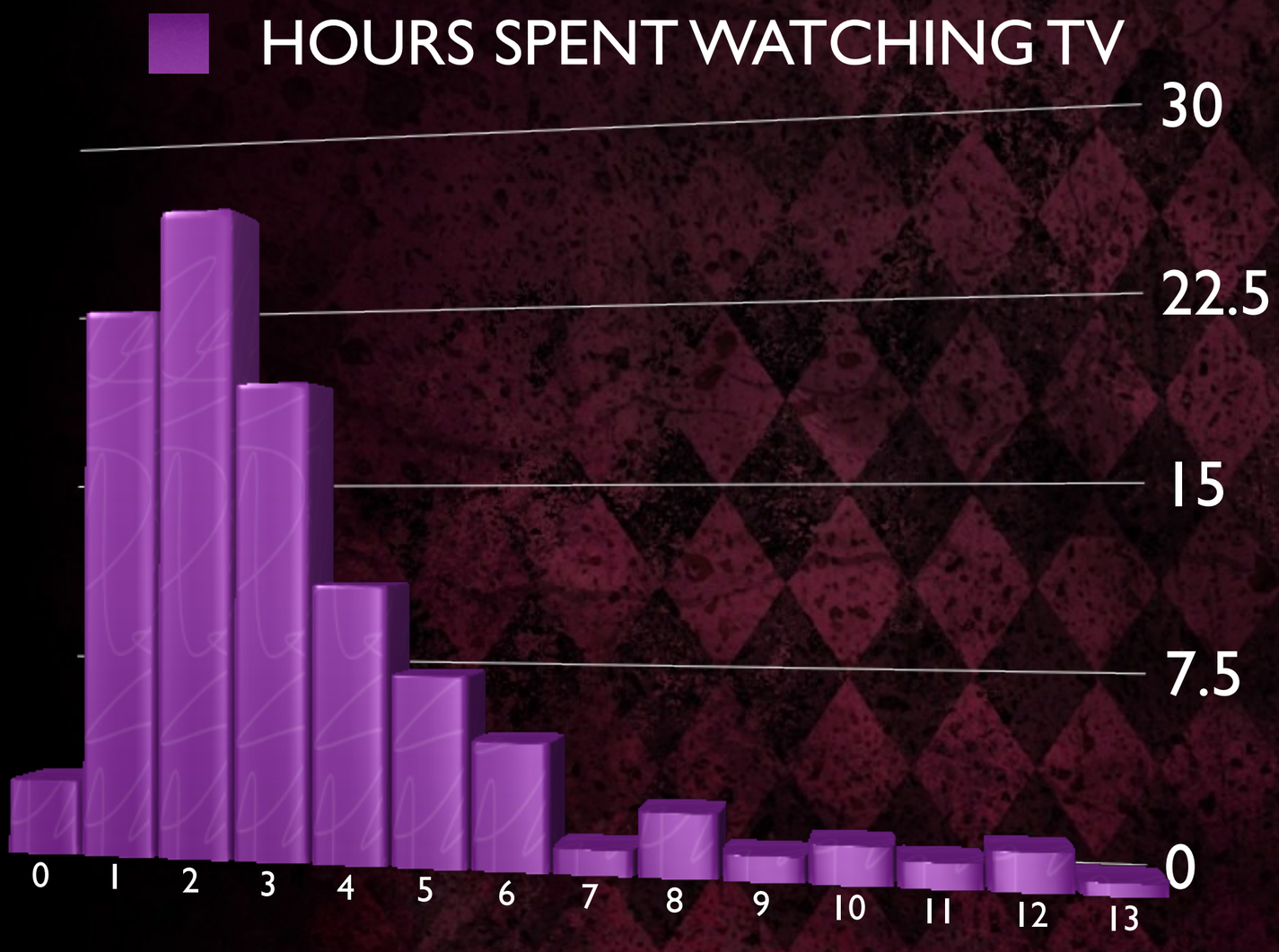
98% of all Statistics are made up.
-Unknown

Shape, Center, and Spread



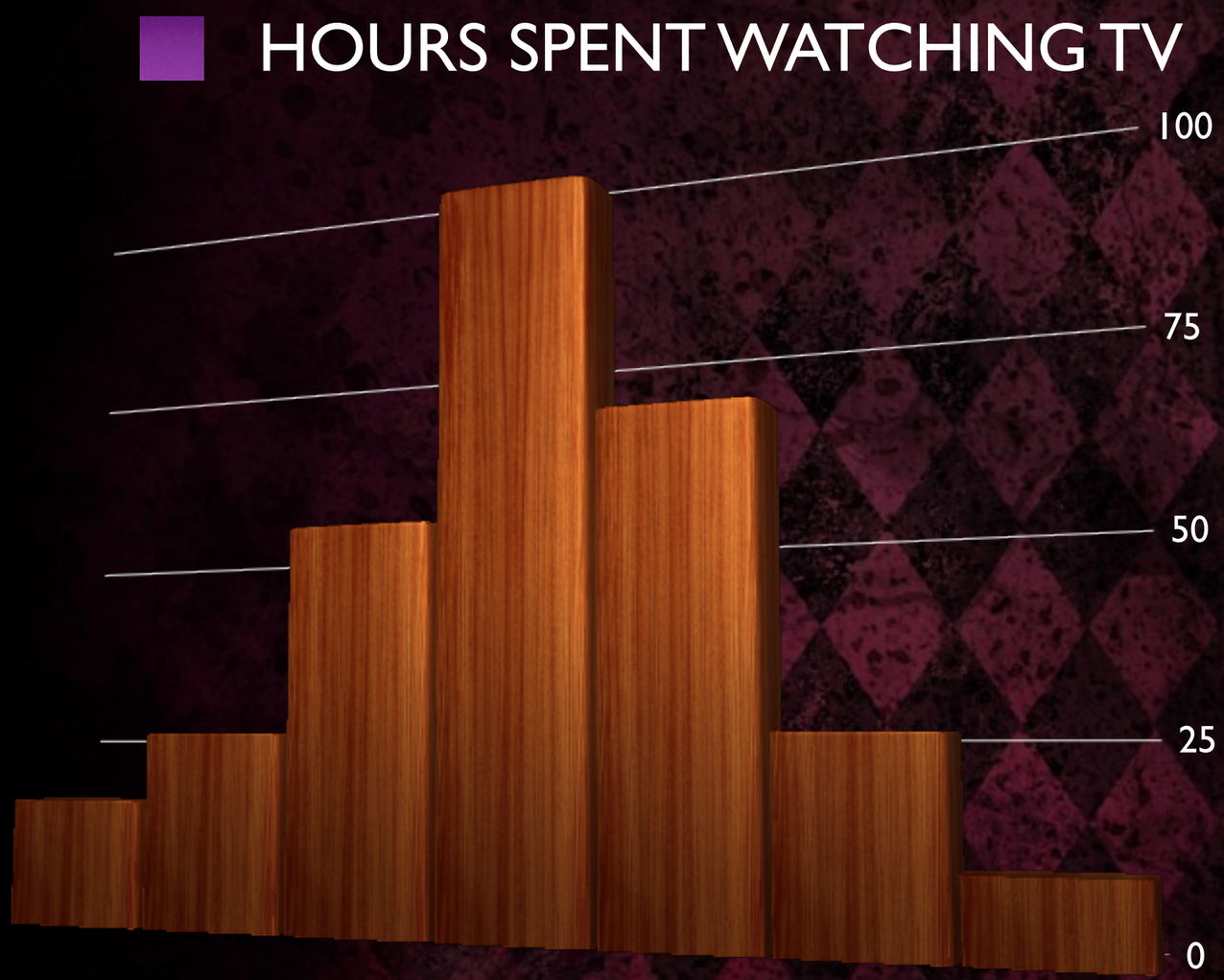
- When presented with quantitative data, we can describe the distribution by looking at the Shape, Center, and Spread.
- How would you describe this histogram?

Shape



- Shape is exactly what it sounds like. Here are a few common vocabulary words.
- Skewed Right

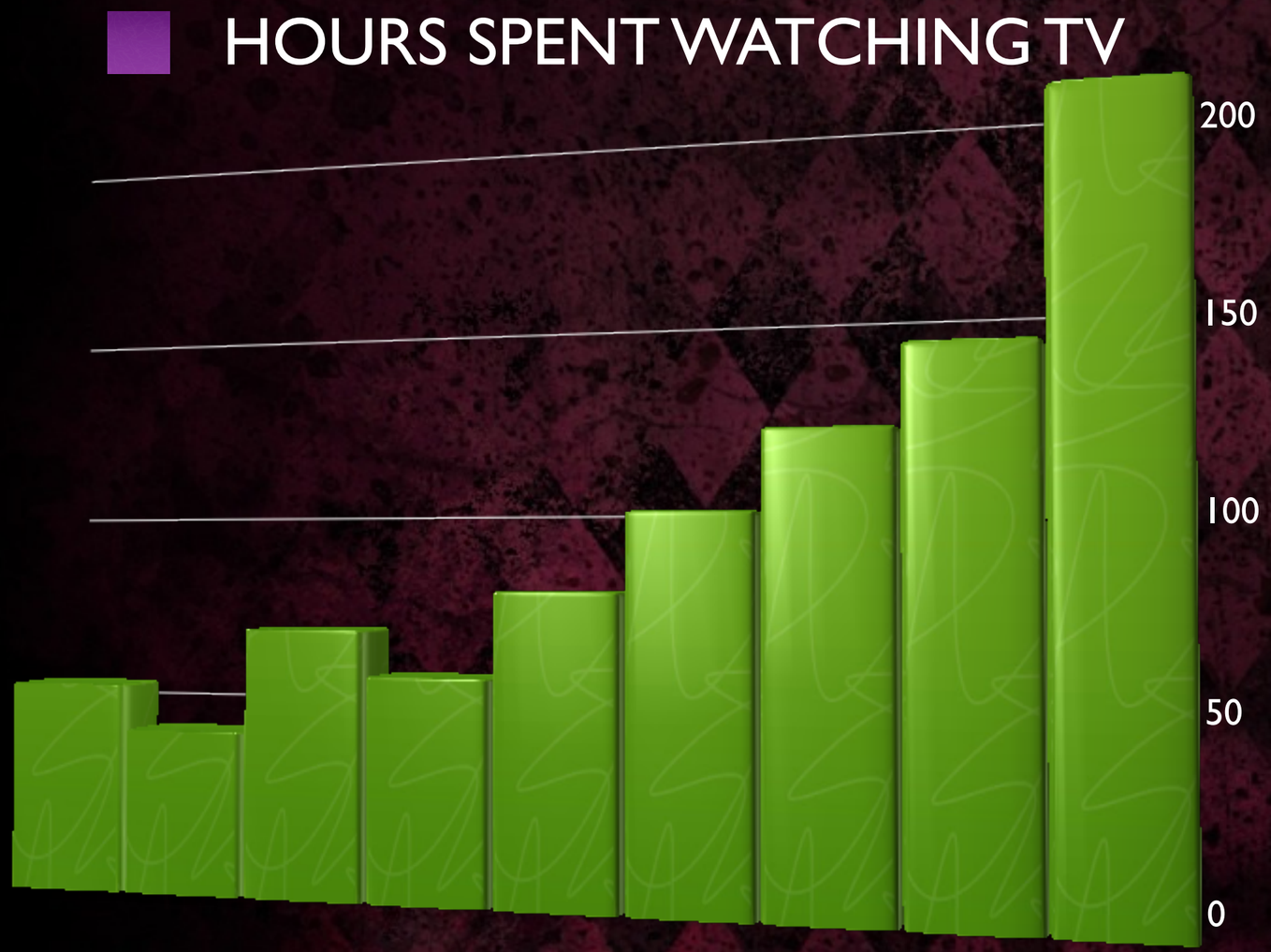
Shape



- Shape is exactly what it sounds like. Here are a few common vocabulary words.
- Skewed Right
- Symmetric

Quantitative Data

Shape



- Shape is exactly what it sounds like. Here are a few common vocabulary words.
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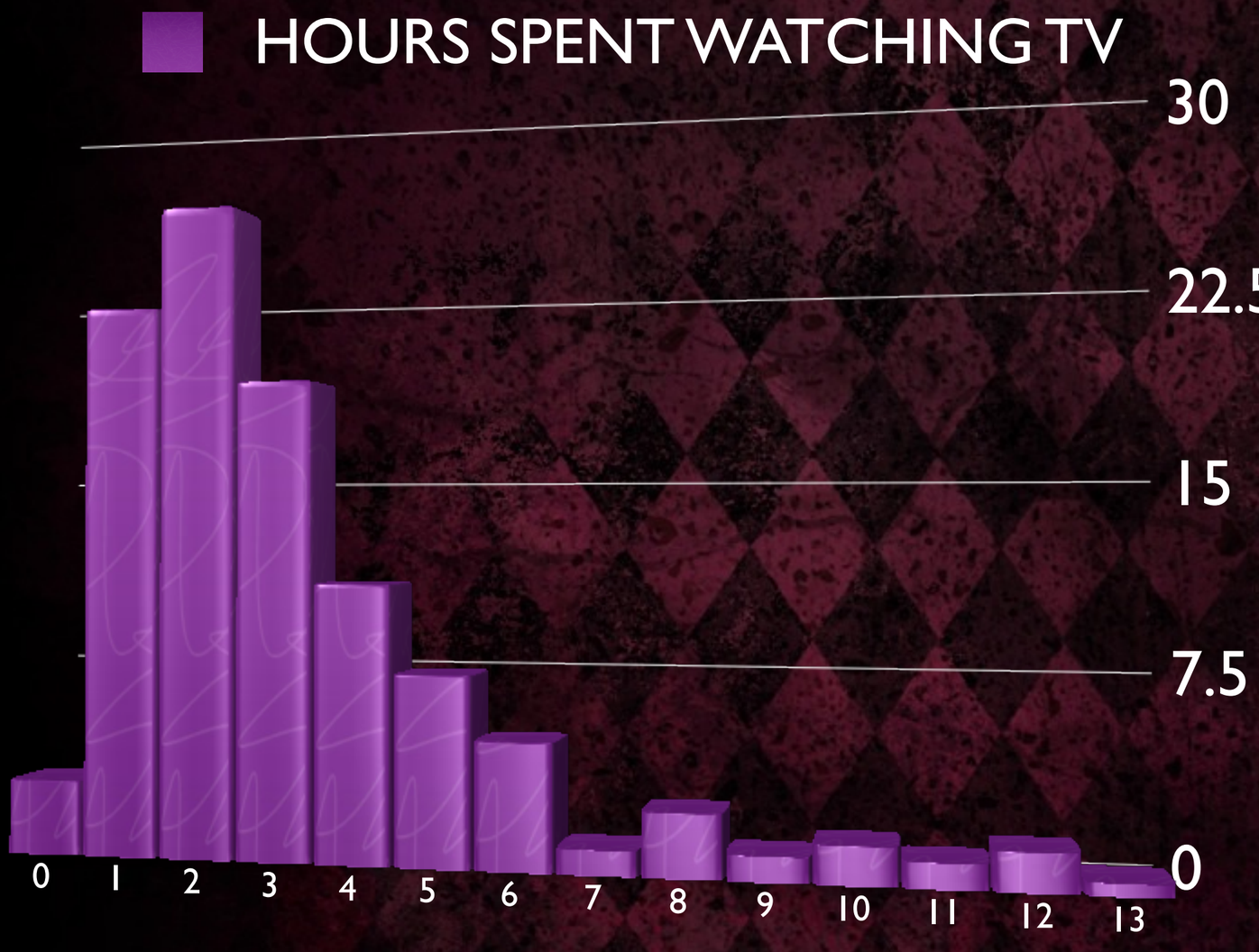
- Skewed Left

Quantitative Data

Shape

- Shape is exactly what it sounds like. Here are a few common vocabulary words.
- Skewed Right
- Symmetric
- Skewed Left
- Uniform

Center



- Center is where most of the data is located.
- Mode
- Mean
- Median

Quantitative Data

Wednesday, May 26, 2010

The first graph has a mode of 2. Judging means or medians from a graph is difficult even for experienced eyes.

Center

- The following is a list of prices for PC World's top 10 All-Purpose Laptops.

- Find the mean and median price for these laptops.

Rank	Product	Price
1	HP EliteBook	$1425.00
2	HP Envy 13	$1449.99
3	Lenovo ThinkPad SL510	$899.00
4	Apple 15in MacBook Pro	$1999.99
5	Acer Aspire	$749.99
6	Dell Inspirion 15	$634.00
7	Lenovo ThinkPad T400x	$829.00
8	Dell Studio XPS 16	$949.00
9	Toshiba Satellite	$992.00
10	ASUS UL80Vt	$942.52

Wednesday, May 26, 2010

Explain the formula for mean and median with a short simple example.

Spread

- How spread out are the data? We can describe spread in several ways.
- Range = Max - Min
- Interquartile Range (IQR)= Q3 -Q1
  - Q1 and Q3 are the first and third quartile.
- Standard Deviation (M&M lab)
- Use the laptop data for this exercise.

To find Q1 and Q3, we must first find Q2, which is the Median. The median will divide up the data into two equal parts. (it divides the data into 50%/50%)

One More Graph for Quantitative Data

- Box plots
- We must find the **5-Number Summary** before we can create the box plot.
- **Min - Q1 - Med - Q3 - Max** (find the missing ones for the laptop data)
- 634 - 829 - 945.76 - 1425 - 1999.99

Wednesday, May 26, 2010

Make sure that you have actually found the quartiles by hand at this point.

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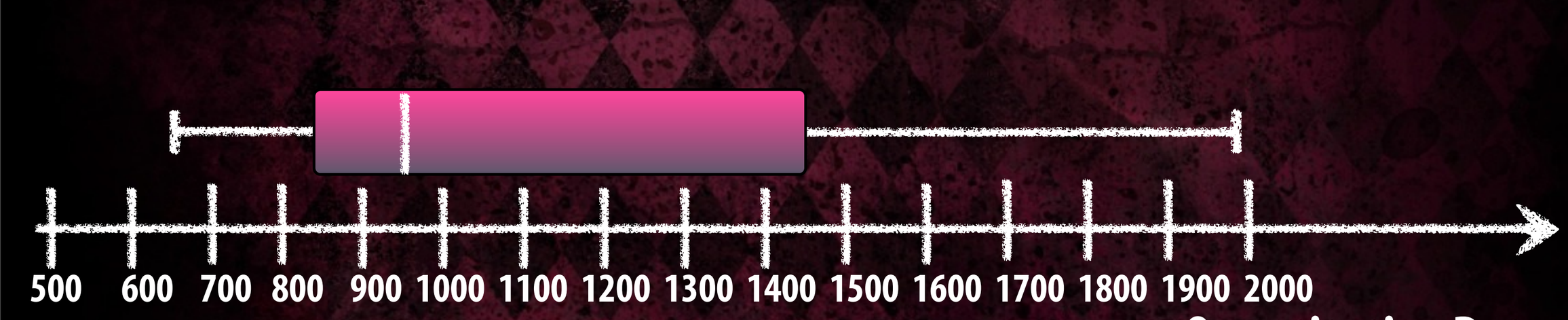

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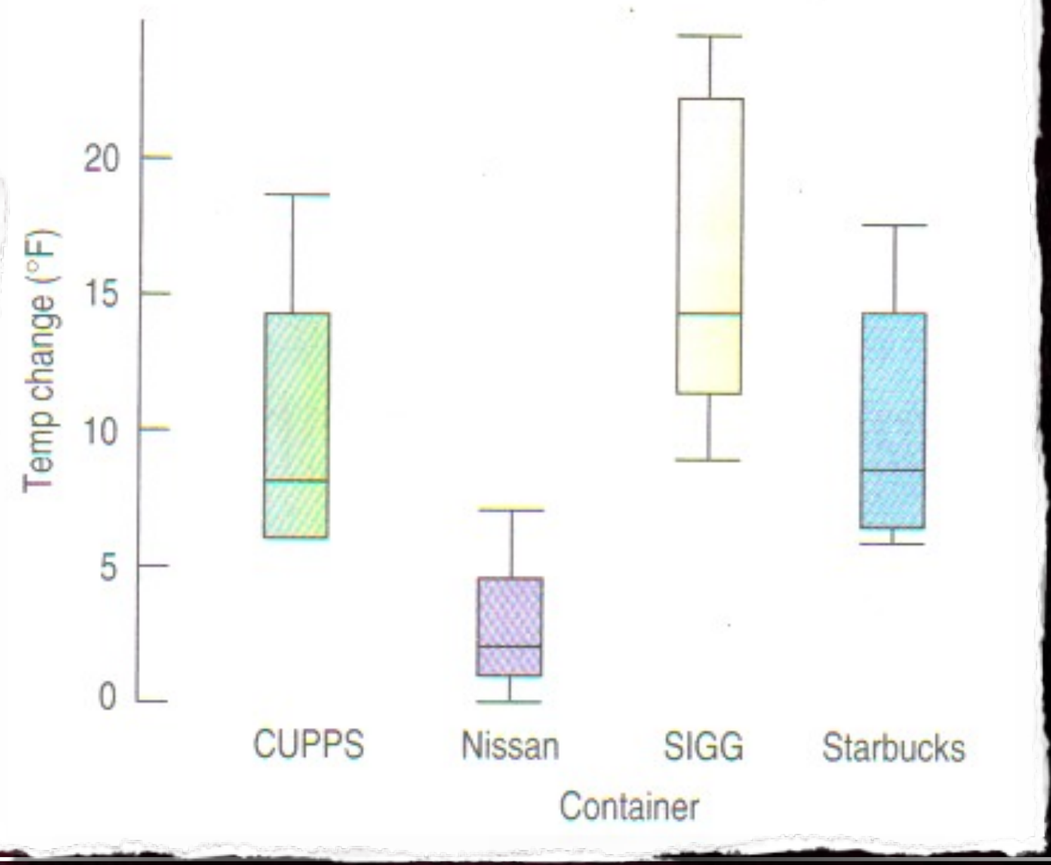
Comparing Box plots

- Here are a few box plots from a study on coffee containers.
- Use what you know (shape, center, spread) to describe the distributions.

	Min	Q1	Median	Q3	Max	IQR
CUPPS	6 °F	6	8.25	14.25	18.50	8.25
Nissan	0	1	2	4.50	7	3.50
SIGG	9	11.50	14.25	21.75	24.50	10.25
Starbucks	6	6.50	8.50	14.25	17.50	7.75



Comparing Box plots-Explanation

•The individual distributions are all slightly skewed to the high end. The Nissan cup does the best job keeping liquids hot, with a median loss of only 2º F, and the SIGG cup does the worst, typically losing 14º F. The difference is large enough to be important: a coffee drinker would be likely to notice a 14º drop in temperature. 75% of the Nissan Tests show less heat loss than any of the other mugs in the study. The IQR of the Nissan cup is also the smallest of these test cups, indicating that is a consistent performer.