

## Histogram Analysis

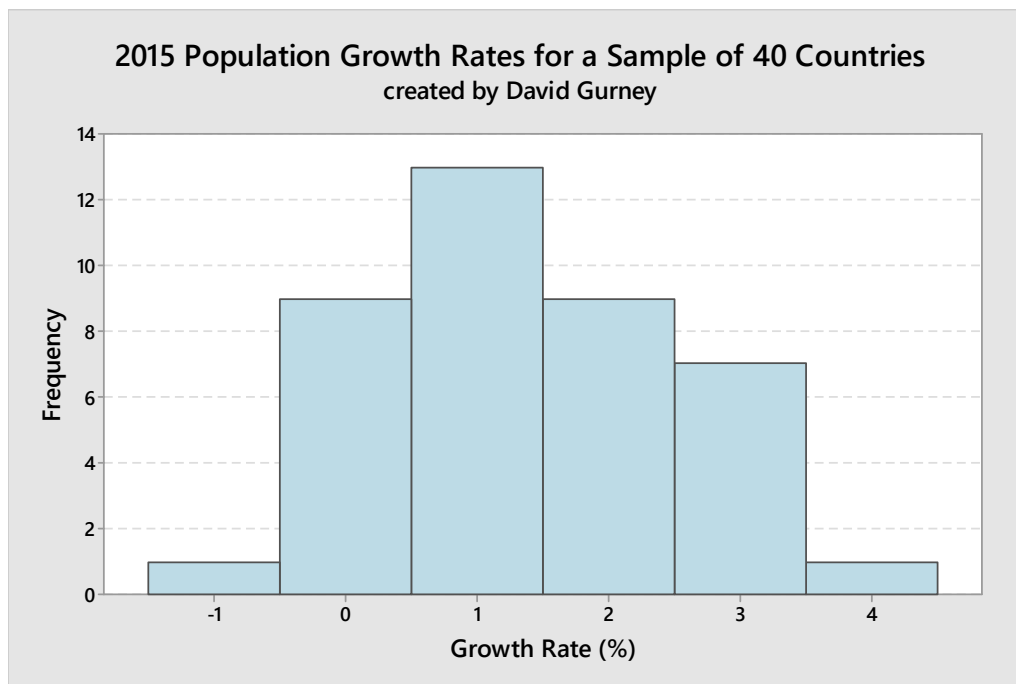
In this course, we will usually confine our analysis of histograms to answering the following six questions.

- What is the maximum value?
- What is the minimum value?
- How many peaks does the histogram have and where are they located?
- What is the general shape of the histogram?
- Does the histogram have any gaps? If so, where are they located?
- Does the histogram have any extreme values? If so, where are they located?

A peak is a bar that is taller than the neighboring bars. If two or more adjacent bars have the same height but are taller than the neighboring bars, they form a single peak or plateau. A gap is a class or classes having frequency zero, but with non-zero frequency classes on both sides. Extreme values are data values which are separated from other data values by a gap at least two classes wide.

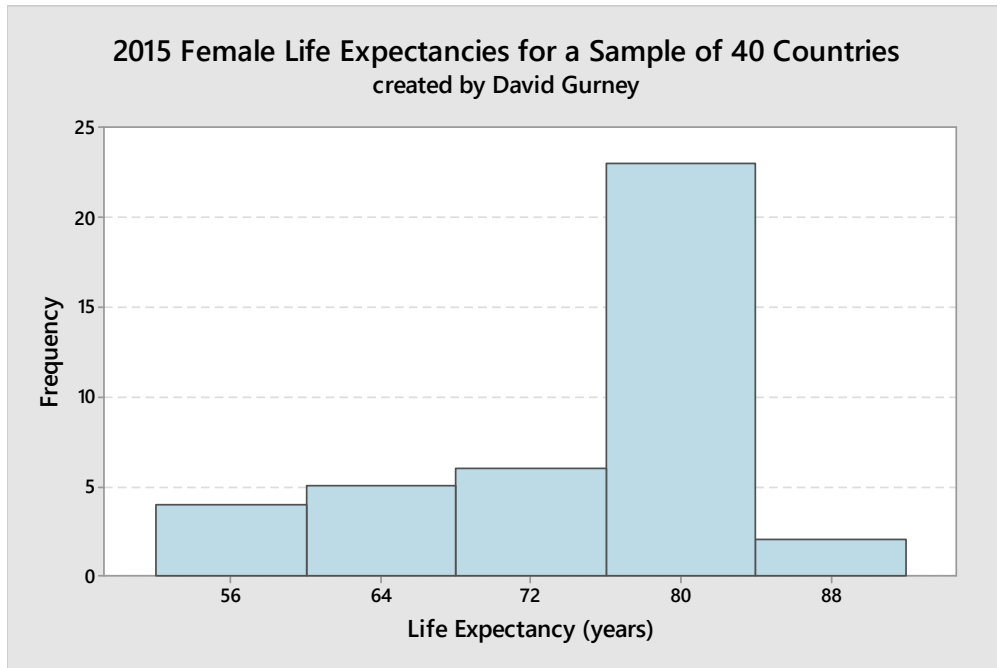
In this class, we will always put our answers to the above questions in paragraph form. The order of the questions is unimportant, but you should try to answer each question for each histogram you are analyzing. The following examples are intended to give a general idea of how to do this.

### Example 1



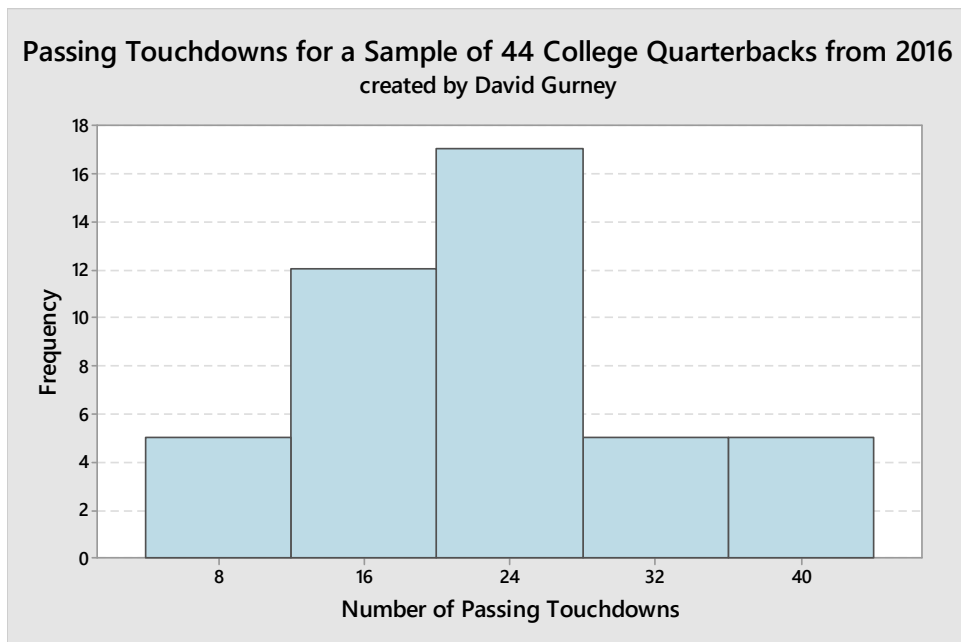
The lowest growth rate is about 1.5% and the highest growth rate is about 4.5%. The graph has a single peak at 1%. The graph is skewed to the right. There are no gaps or extreme values.

### Example 2



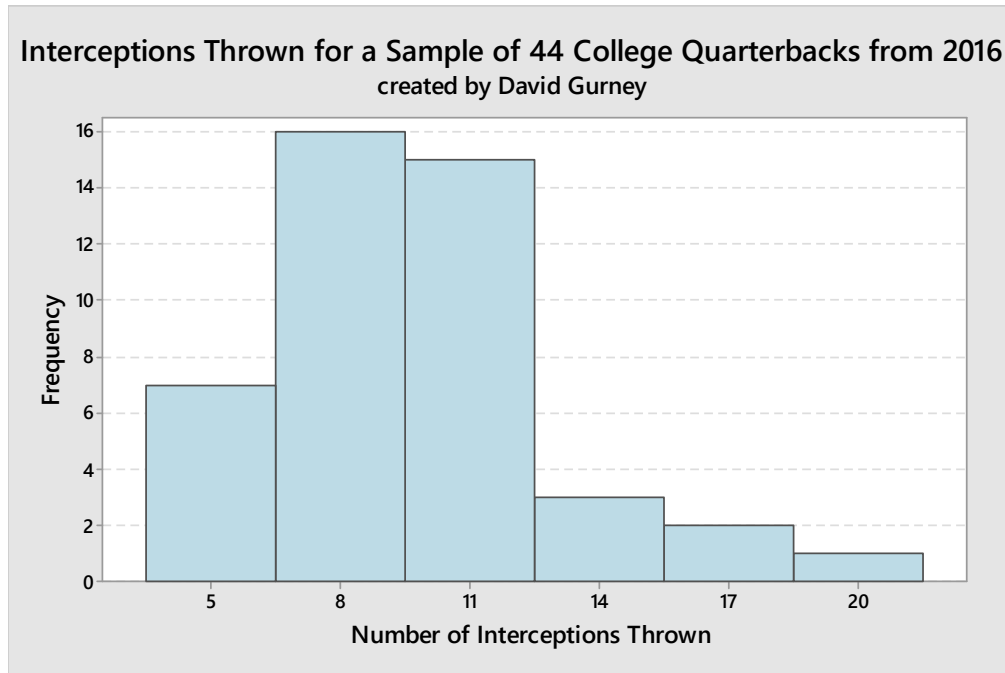
The lowest life expectancy is about 52 years. The highest is about 92 years. The graph has a single peak at 80 and is skewed to the left. There are no gaps or extreme values.

### Example 3



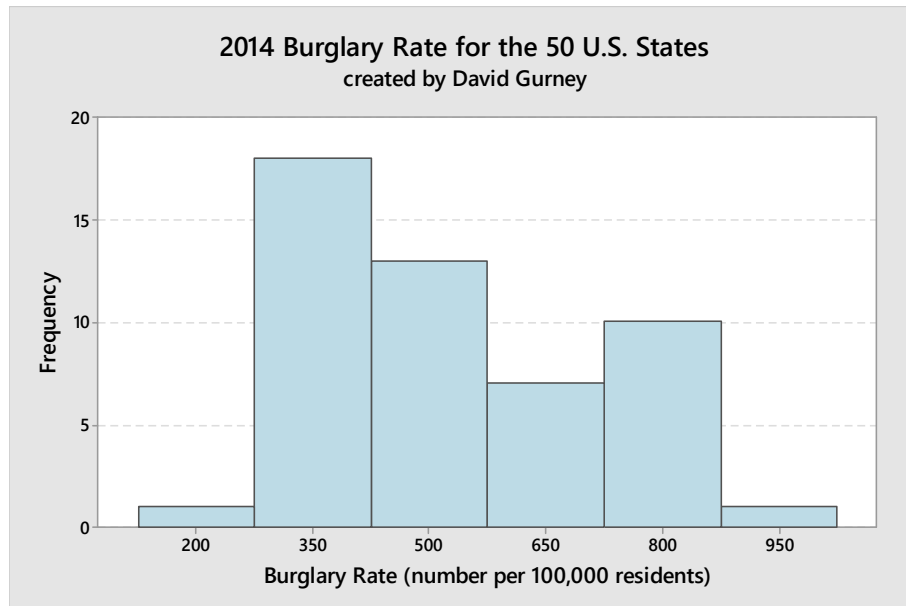
The minimum appears to be about 4 and the maximum appears to be about 44. There is a single peak at 24. The graph is skewed to the right. There are no gaps or extreme values.

#### Example 4



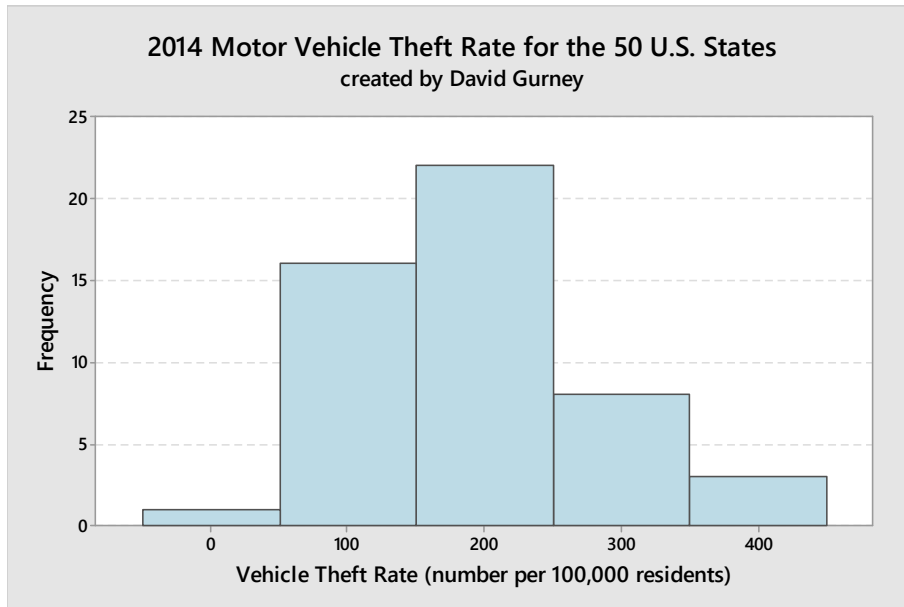
The minimum appears to be about 4 and the maximum appears to be about 21. There is a single peak at 8 and the graph is skewed to the right. There are no gaps or extreme values.

#### Example 5



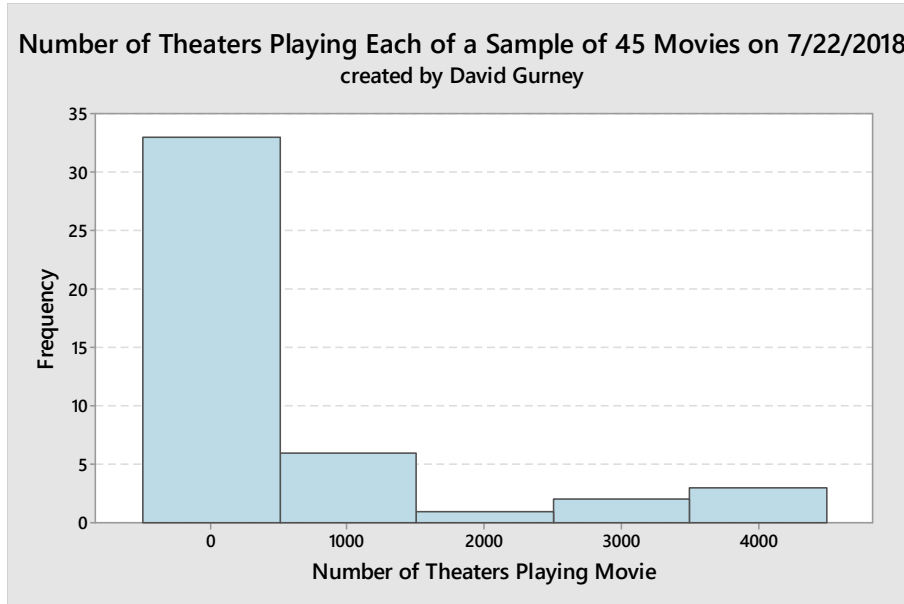
The minimum rate is about 125 per 100,000 people, and the maximum rate is about 1025 per 100,000. There are two peaks. The tallest one is at 350 and the shorter one is at 800. The graph is skewed right. There are no gaps or extreme values.

### Example 6



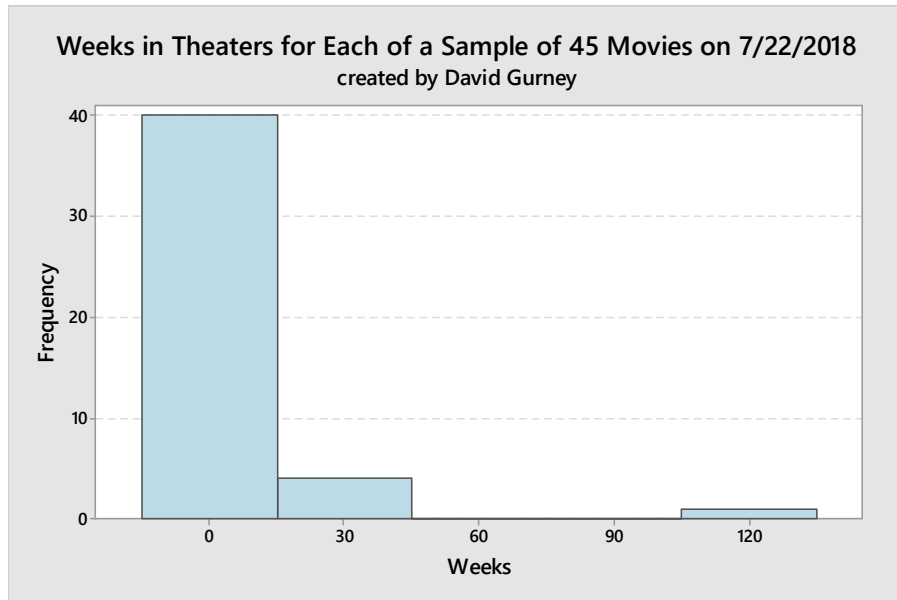
The minimum rate is about 0 thefts per 100,000 people, and the maximum rate is about 450 thefts per 100,000. There is a single peak at 200. The graph is skewed to the right. There are no gaps or extreme values.

### Example 7



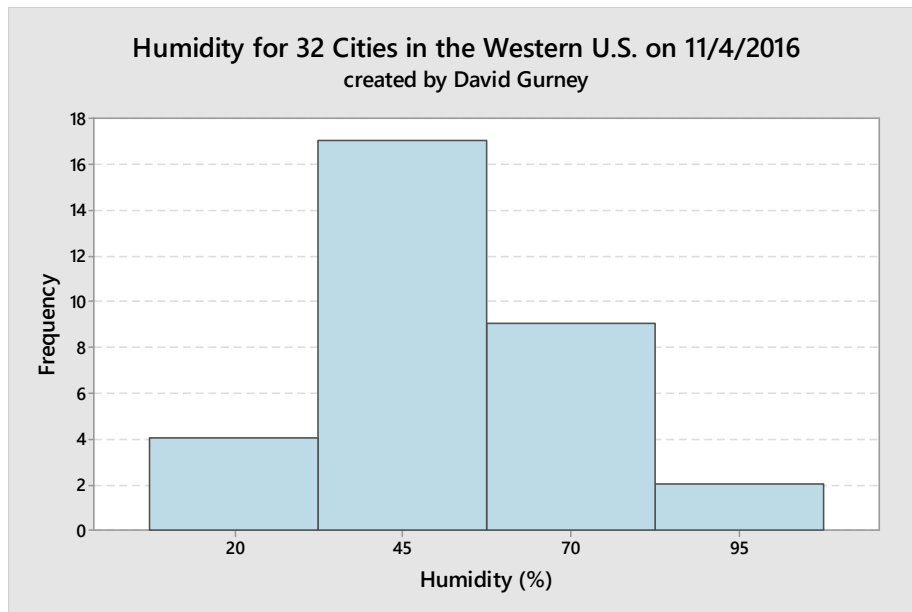
The minimum is close to zero, but positive. The maximum is about 4500. There is a single peak at 0. The graph is skewed to the right. There are no gaps or extreme values.

### Example 8



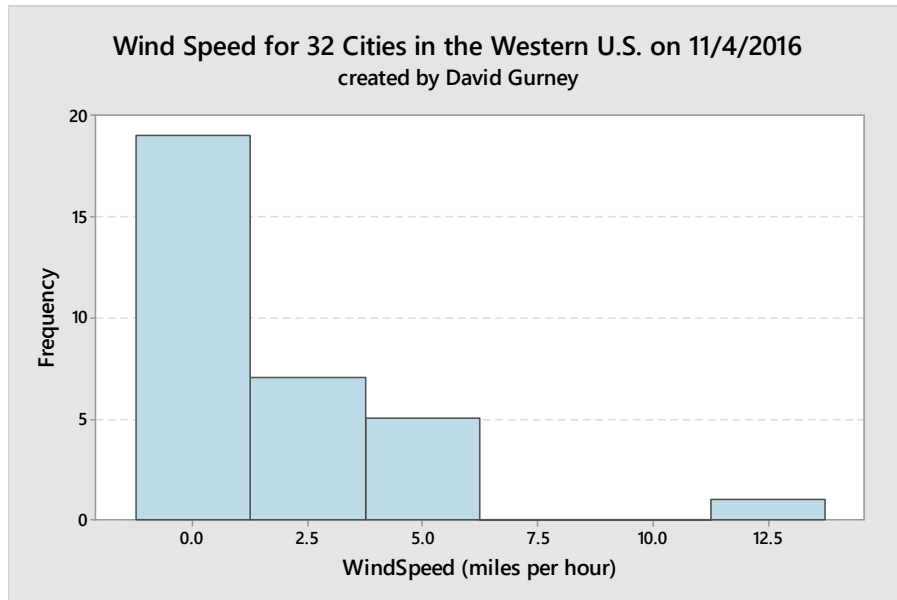
The minimum is close to zero, but positive. The maximum is around 130 weeks. There is a single peak at zero. The graph is skewed to the right. There is a large gap from 45 to 105. Consequently, the maximum value is an extreme value.

### Example 9



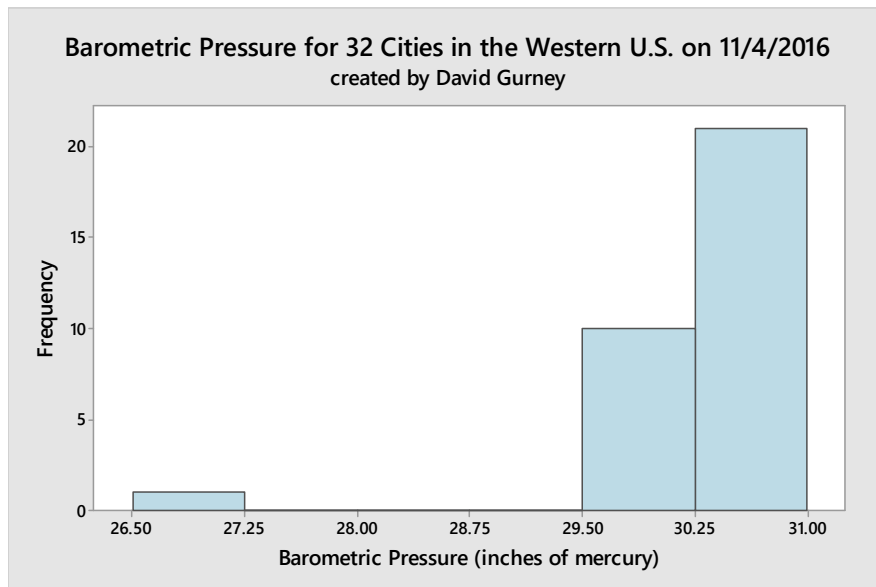
The minimum value is about 8%. The maximum value is close to 100%. There is a single peak at 45%. The graph is skewed to the right. There are no gaps or extreme values.

### Example 10



The minimum wind speed is 0 miles per hour. The maximum wind speed is close to 13 miles per hour. There is a single peak at 0 miles per hour. The graph is skewed to the right. There is a large gap from 6.25 to 11.25 miles per hour. Consequently, the maximum value near 13 miles per hour, is an extreme value.

### Example 11



The minimum barometric pressure around 26.5 inches and the maximum is closer to 31 inches. The graph has one peak between 30.25 and 31 inches. The graph is skewed left and has a large gap between 29.5 inches and 27.25 inches. The value between 26.5 and 27.25 inches is an extreme value.