Histograms

Colby Community College

Definition

A **histogram** is a graph consisting of bars of equal width drawn adjacent to each other. The horizontal scale represents classes of quantitative data values, and the vertical scale represents frequencies. The heights of the bars correspond to the frequency values.

Definition

A **histogram** is a graph consisting of bars of equal width drawn adjacent to each other. The horizontal scale represents classes of quantitative data values, and the vertical scale represents frequencies. The heights of the bars correspond to the frequency values.

Important Uses

- Visually displays the shape of the distribution of the data.

Definition

A **histogram** is a graph consisting of bars of equal width drawn adjacent to each other. The horizontal scale represents classes of quantitative data values, and the vertical scale represents frequencies. The heights of the bars correspond to the frequency values.

Important Uses

- Visually displays the shape of the distribution of the data.
- Shows the location of the center of the data.

Definition

A **histogram** is a graph consisting of bars of equal width drawn adjacent to each other. The horizontal scale represents classes of quantitative data values, and the vertical scale represents frequencies. The heights of the bars correspond to the frequency values.

Important Uses

- Visually displays the shape of the distribution of the data.
- Shows the location of the center of the data.
- Shows the spread of the data.

Definition

A **histogram** is a graph consisting of bars of equal width drawn adjacent to each other. The horizontal scale represents classes of quantitative data values, and the vertical scale represents frequencies. The heights of the bars correspond to the frequency values.

Important Uses

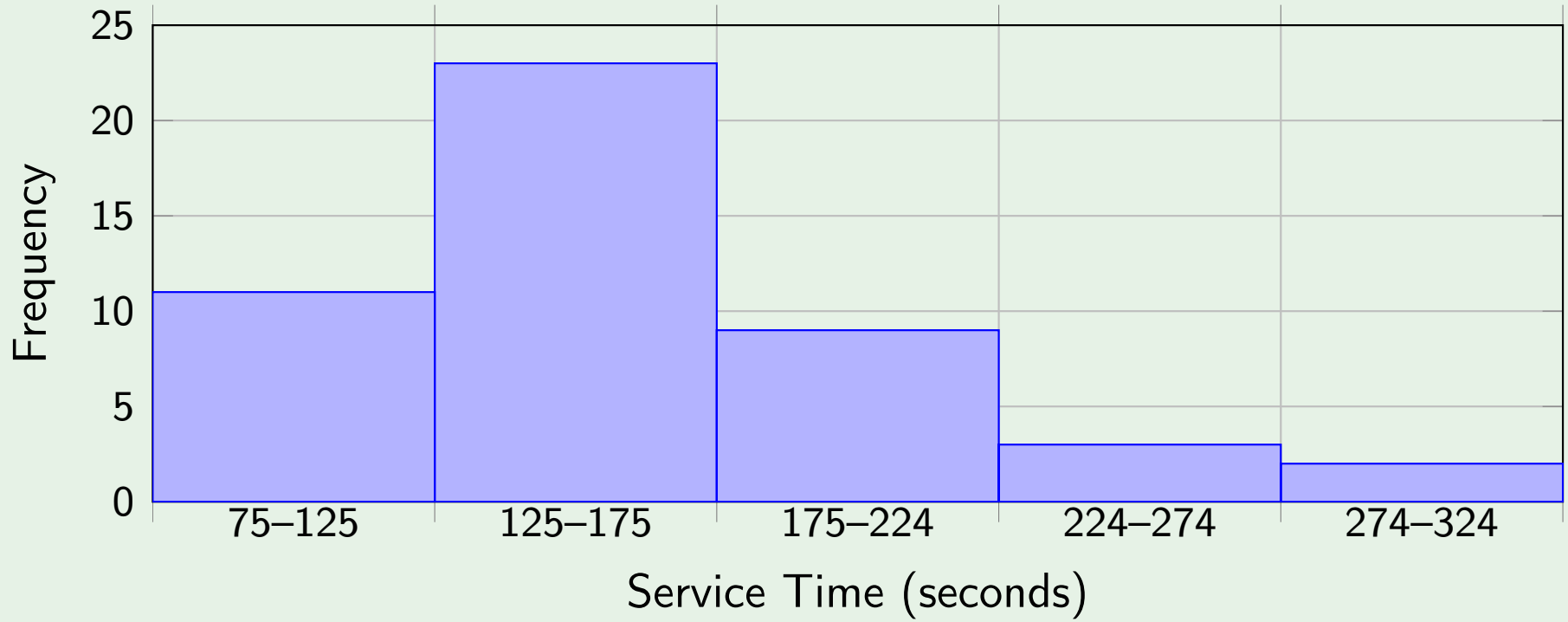
- Visually displays the shape of the distribution of the data.
- Shows the location of the center of the data.
- Shows the spread of the data.
- Identifies outliers.

Example 1

The table contains drive-through service times, in seconds, for McDonald's.

107	139	197	209	281	254	163	150	127	308	206	187
169	83	127	133	140	143	130	144	91	113	153	255
252	200	117	167	148	184	123	153	155	154	100	117
101	138	186	196	146	90	144	119	135	151	197	171

The histogram for this data is:



Definition

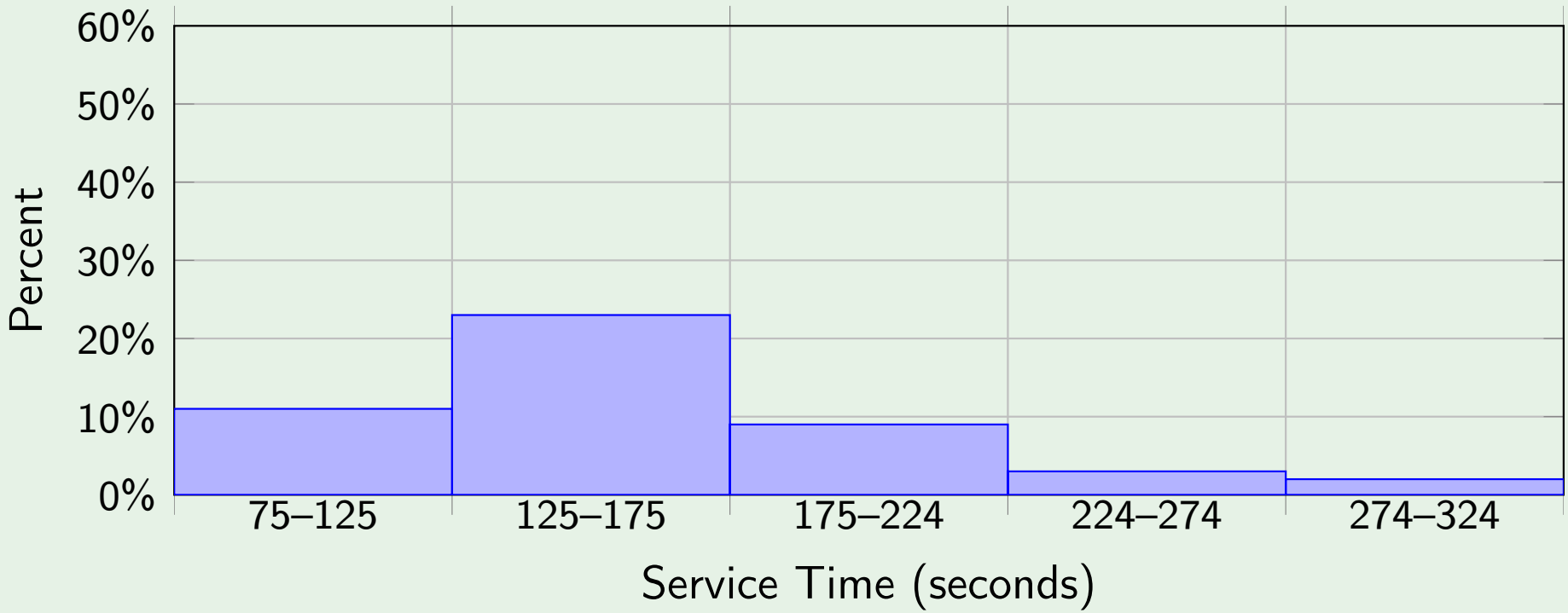
A **relative frequency histogram** has the same shape and scale as a histogram, but the vertical scales uses relative frequency instead of actual frequencies.

Definition

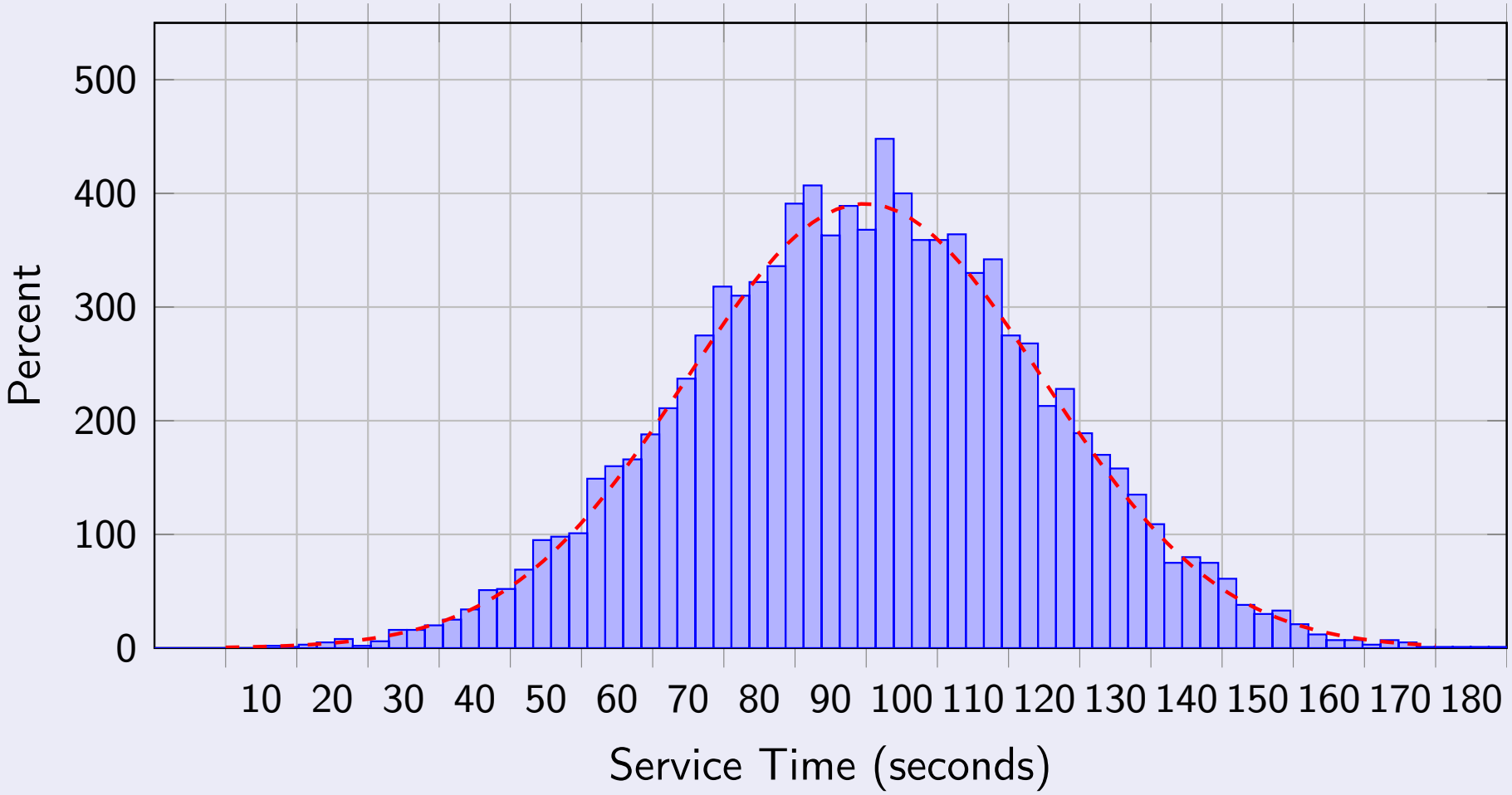
A **relative frequency histogram** has the same shape and scale as a histogram, but the vertical scales uses relative frequency instead of actual frequencies.

Example 2

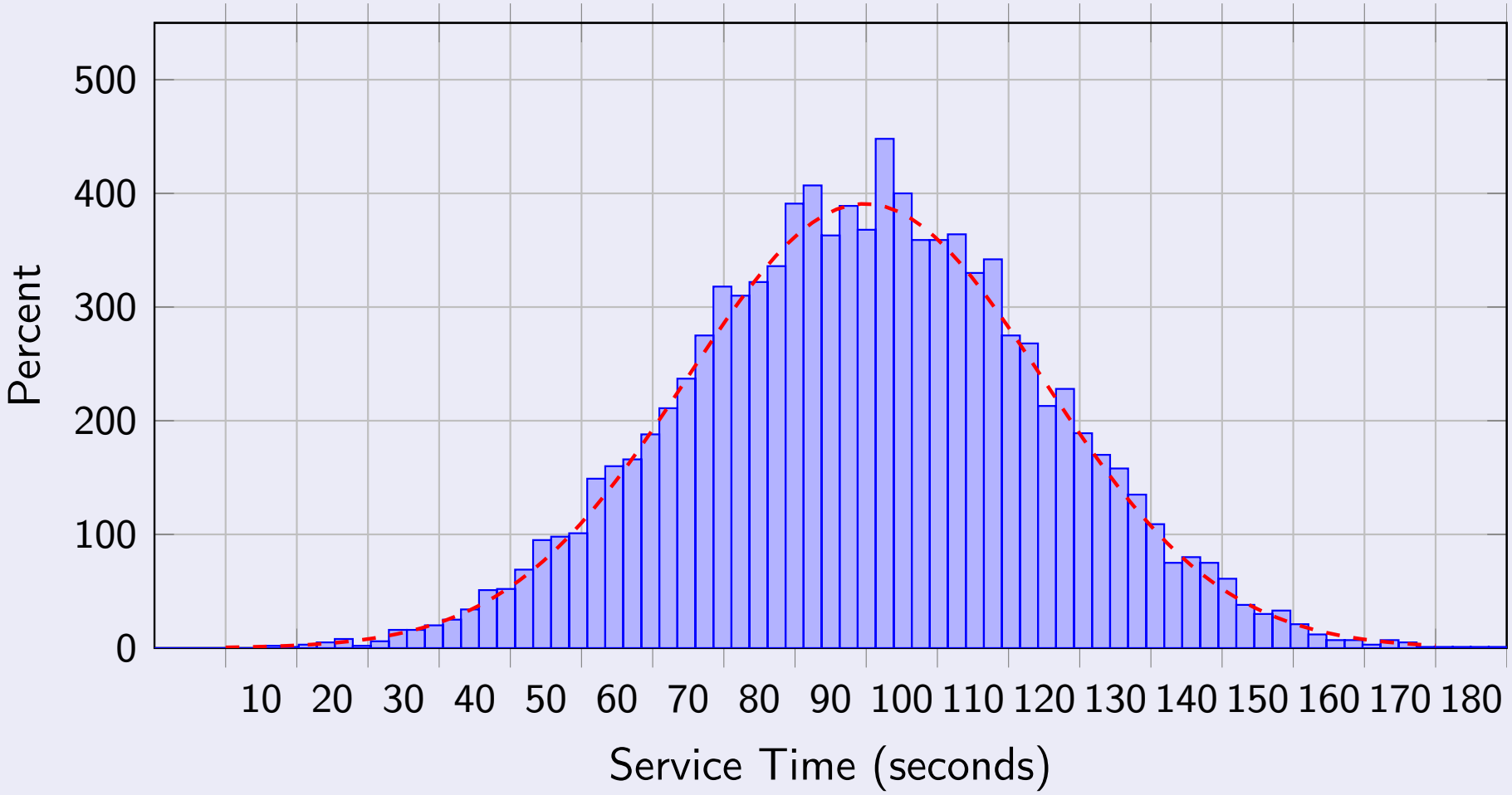
The relative frequency histogram for the McDonald's data is:



Normal Distribution



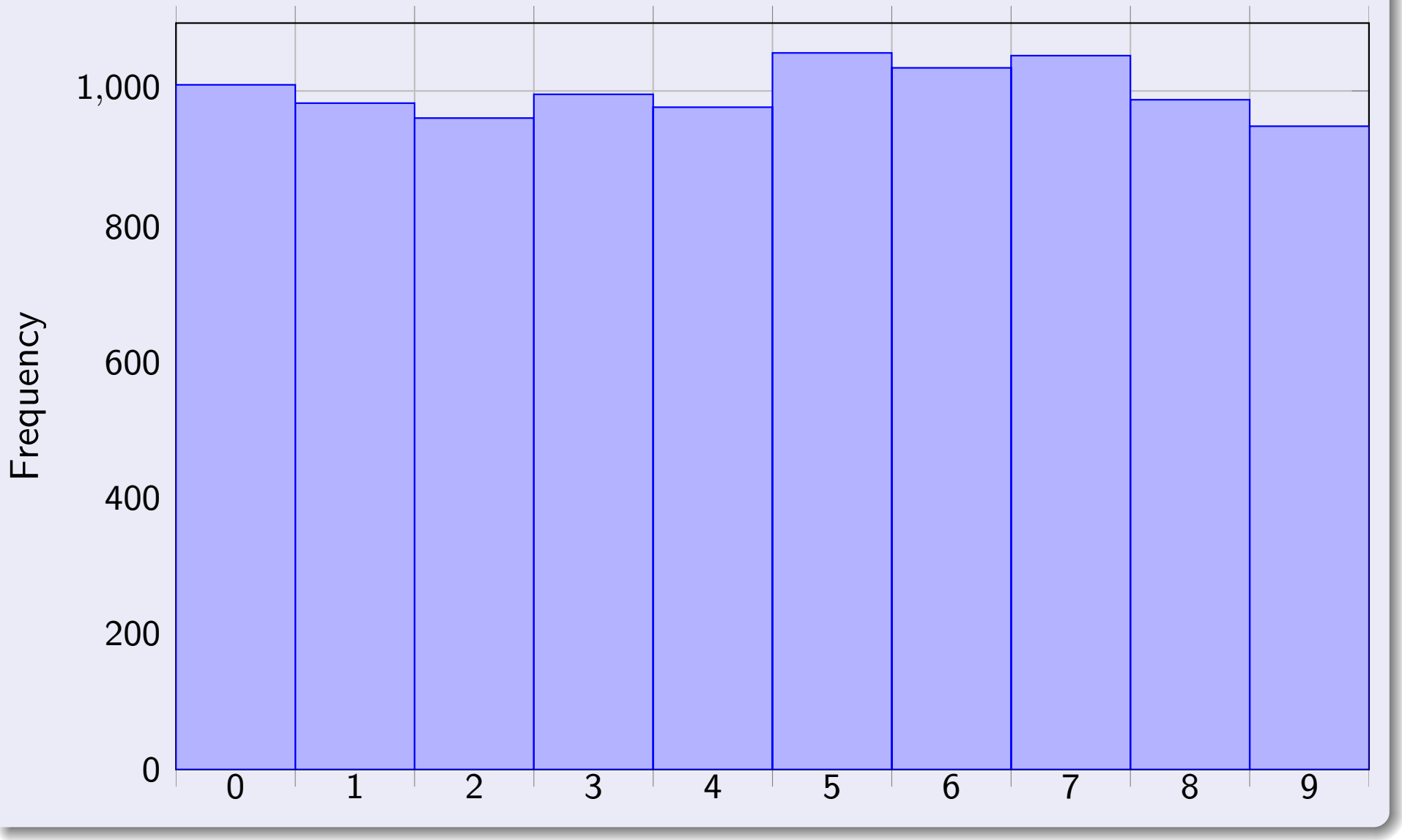
Normal Distribution



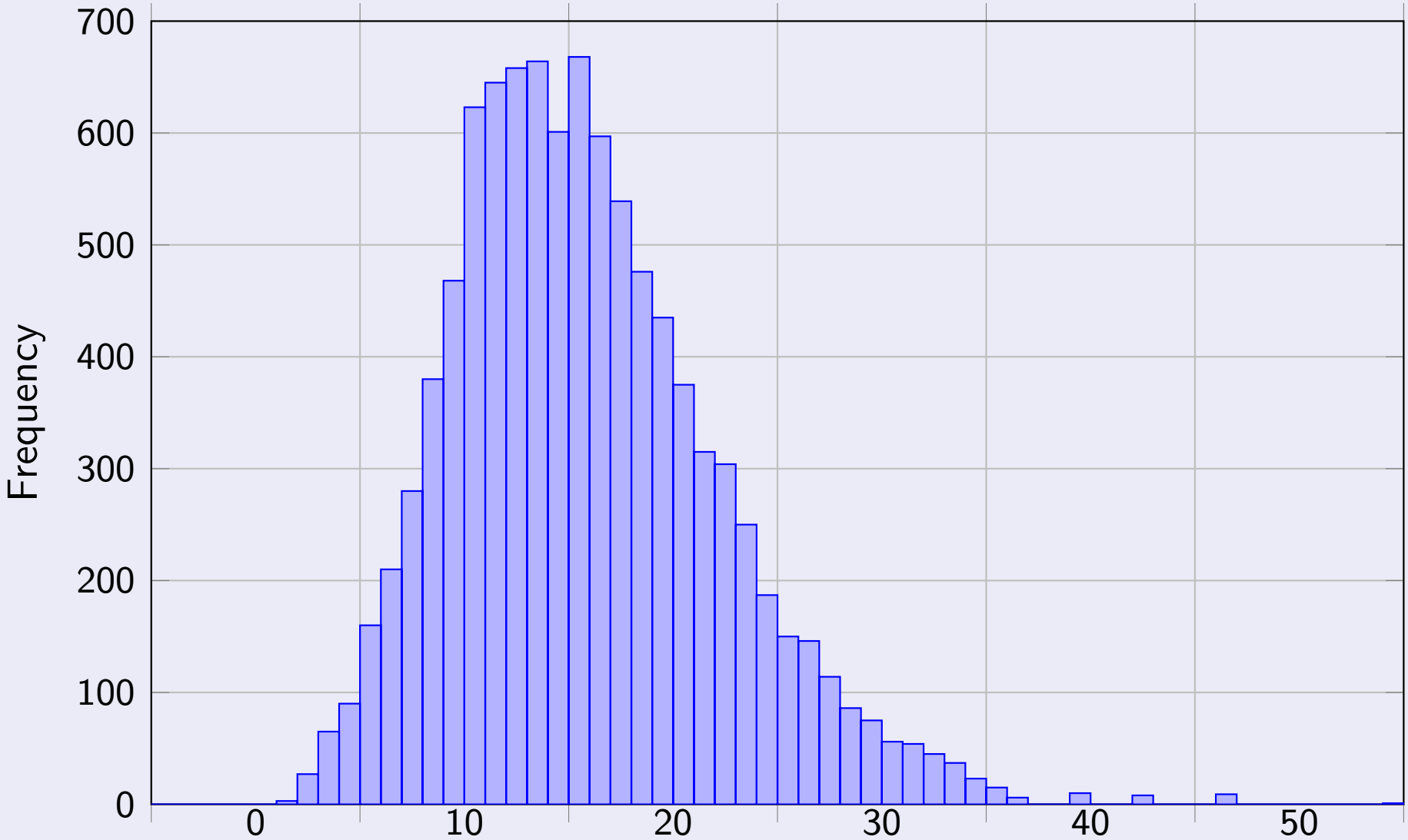
Note

Many statistical methods require that sample data come from a population having a distribution that is approximately a normal distribution.

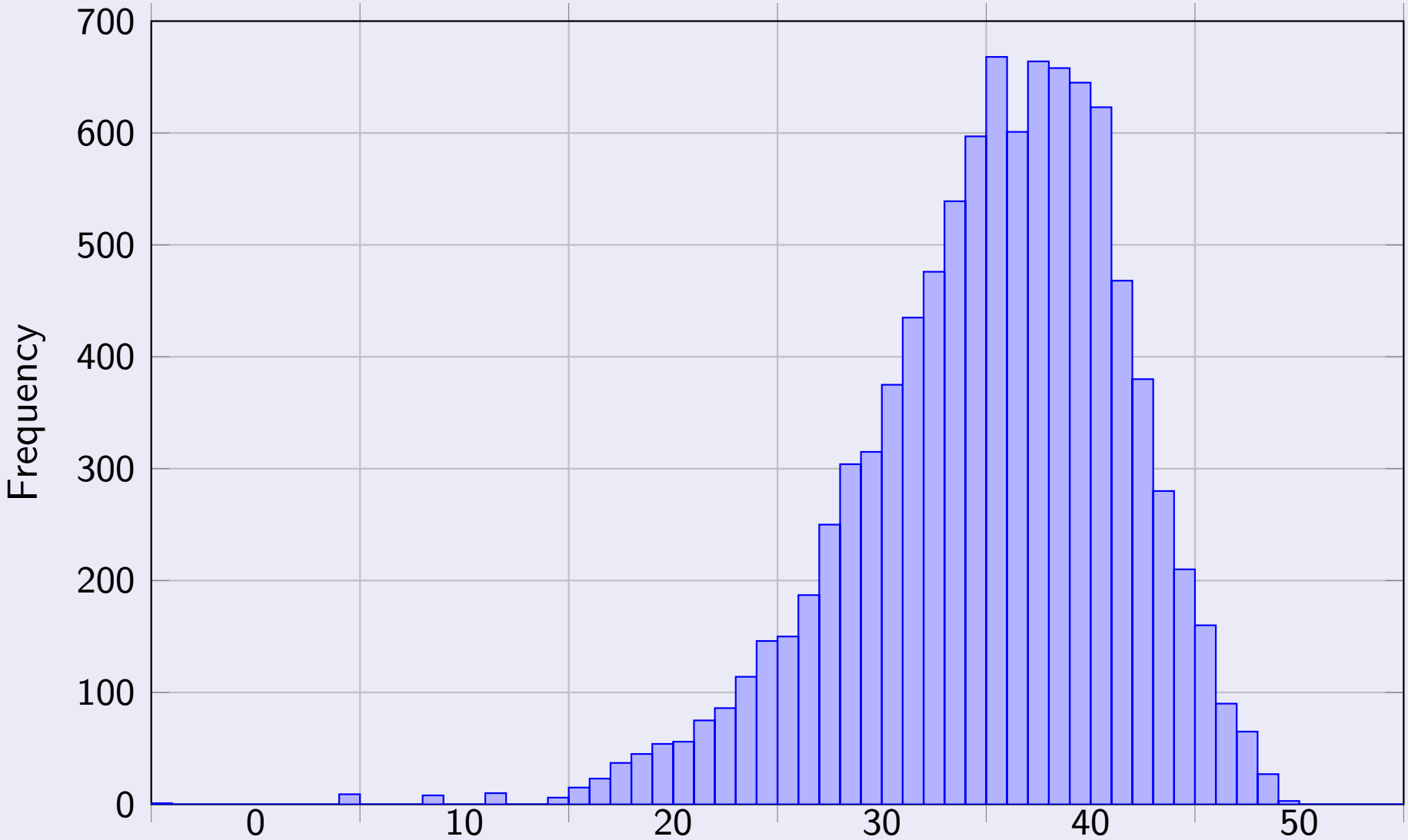
Uniform Distribution



Skew Right



Skew Right



Note

Skewed to the left resembles the toes on your left foot.

Skewed to the right resembles the toes on your right foot.

Note

Skewed to the left resembles the toes on your left foot.

Skewed to the right resembles the toes on your right foot.

Definition

If the distribution of data is skewed to the left or skewed to the right, it is called **skewed**.