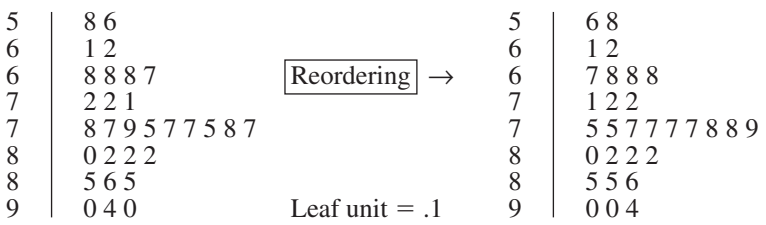
If you use the decimal point as the dividing line between the stem and the leaf, you have only five stems, which does not produce a very good picture. When you divide each stem into two lines, there are eight stems, since the first line of stem 5 and the second line of stem 9 are empty! This produces a more descriptive plot, as shown in Figure 1.11. For these data, the leaf unit is .1, and the reader can infer that the stem and leaf 8 and 2, for example, represent the measurement $x = 8.2$.

FIGURE 1.11
Stem and leaf plot for the data in Table 1.8



If you turn the stem and leaf plot sideways, so that the vertical line is now a horizontal axis, you can see that the data have "piled up" or been "distributed" along the axis in a pattern that can be described as "mound-shaped"—much like a pile of sand on the beach. This plot again shows that the weights of these 30 newborns range between 5.6 and 9.4; many weights are between 7.5 and 8.0 pounds.

Interpreting Graphs with a Critical Eye

Once you have created a graph or graphs for a set of data, what should you look for as you attempt to describe the data?

- First, check the horizontal and vertical **scales,** so that you are clear about what is being measured.
- Examine the **location** of the data distribution. Where on the horizontal axis is the center of the distribution? If you are comparing two distributions, are they both centered in the same place?
- Examine the **shape** of the distribution. Does the distribution have one "peak," a point that is higher than any other? If so, this is the most frequently occurring measurement or category. Is there more than one peak? Are there an approximately equal number of measurements to the left and right of the peak?
- Look for any unusual measurements or **outliers.** That is, are any measurements much bigger or smaller than all of the others? These outliers may not be representative of the other values in the set.

Distributions are often described according to their shapes.

Definition A distribution is **symmetric** if the left and right sides of the distribution, when divided at the middle value, form mirror images.

A distribution is **skewed to the right** if a greater proportion of the measurements lie to the right of the peak value. Distributions that are **skewed right** contain a few unusually large measurements.