2.7 EXPLORATORY DATA ANALYSIS

This technique is used for describing and summarizing a data set using simple arithmetic and diagrams (having certain features of histogram). The presentation of data values reveals the distribution of values within the interval maintaining their rank order.

2.7.1 Stem-and-Leaf Displays

One of the useful techniques of exploratory data analysis is *stem-and-leaf displays* (*or diagrams*) technique. It is a graphical display of the numerical values in an effective and condensed form. The advantage of this technique over a frequency distribution is that each observation retains its identity. This technique provides the rank order of numerical values from lowest to highest in the data set and reveals at a glance view of the center, spread, shape and outliers (extremes) of a distribution. In other words, we may identify gaps where no value exist, area where values are cluster or outliers that differ from given values in the data set.

The stem-and-leaf displays separate values in the data set into *leading digits (or stem)* and *trailing digits (or leaves)*. The steps required for stem-and-leaf display are as follows:

1. (a) Arrange numerical values in the order and then put the first digits of each numerical value to the left of a vertical line.

   (b) Put the last digit (the unit position 1.0) for each value to the right of the vertical line. Ignore the digit to the right of the decimal point.