- ***Size:*** The size and portion of each component of a diagram should be such that all the relevant characteristics of the data are properly displayed and can be easily understood.
- ***Proportion of length and breadth:*** An appropriate proportion between the length and breadth of the diagram should be maintained. Lutz in his book *Graphic Presentation* suggested that a ratio of 1 or 1.414 (long side):1 (short side) may be adopted.
- ***Proper scale:*** There are no fixed rules for selection of scale. The scale for the diagram should be decided after taking into consideration the magnitude of data and the size of the paper used. The scale showing the values as far as possible should be in even numbers or in multiples of 5, 10, 20 and so on. The scale adopted should be indicated on both vertical and horizontal axes if different scales are used.
- ***Index:*** A brief index explaining the different types of lines, shades, designs or colours used in the construction of the diagram should be given to understand its contents.

2.6 TYPES OF DIAGRAMS

Variety of diagrams used to describe a data set are divided into the following categories:

1. **Dimensional Diagrams**
   (a) One-dimensional diagrams such as histograms, frequency polygons and pie charts.
   (b) Two-dimensional diagrams such as rectangles, squares or circles.
   (c) Three-dimensional diagrams such as cylinders and cubes.
2. **Pictograms or Ideographs**
3. **Cartographs or Statistical maps**

2.6.1 One-dimensional Diagrams

In one-dimensional diagrams, only the length (height) of the bar (not the width) is taken into consideration. Of course, width or thickness of the bar has no effect on the diagram. These diagrams provide a useful and quick understanding of the *shape* of the distribution and its characteristics. According to Calvin F. Schmid, *the simple bar chart with many variations is particularly appropriate for comparing the magnitude (or size) of coordinate items or of parts of a total. The basis of comparison in the bar is linear or one-dimensional'.*

Tips for Constructing a Diagram

1. Draw bars of same width with common base and keep uniform gap between bars.
2. Write the value of the variable represented by the bar at the top end so as to understand the value without looking at the scale.
3. Show frequency, relative frequency or per cent frequency of each class interval by drawing a rectangle whose base is the class interval on the horizontal axis and whose height is the corresponding frequency, relative frequency or per cent frequency.
4. Scaled the value of variables (or class boundaries in case of grouped data) under study along the horizontal axis, and the number of observations (frequencies, relative frequencies or percentage frequencies) along the vertical axis.

The one-dimensional diagrams (charts) used for graphical presentation of data sets are as follows:

- Histogram
- Frequency curve
- Pie diagram
- Frequency polygon
- Cumulative frequency distribution (Ogive)

Histograms (Bar Diagrams) The histograms are used for graphical presentation of both ungrouped and grouped data. For ungrouped data, values (characteristic to be measured) of the variable are scaled along the horizontal axis and the number of observations (or frequencies) along the vertical axis of the graph. The plotted points are then connected by straight lines. The height of such rectangles measures the number of observations in each of the classes.