**Graphs and Charts**

Graphs and charts give visual representations of magnitude, groupings, trends, and patterns in the data. Diagrams also show comparisons between two or more sets of data.

**Simple bar chart:** This chart consist of vertical or horizontal bars of equal width. Vertical bars are used to represent data classified on quantitative basis while horizontal bars are used to represent data classified on qualitative basis.

**Component Bar chart:** This chart consists of horizontal or vertical bars which are sub-divided into two or more parts. This chart is used when it is desired to present data which are sub-divisions of totals.

**Percentage component bar chart: It** is drawn on percentage basis by expressing the components as percentage of their respective totals. To construct such a chart, bars of length equal to 100 are drawn. These bars are then subdivided in the proportion of percentage of their components.

**Pie chart:** Pie chart can be used to compare the relation between the whole and its components. In case of pie chart the area of the sector of a circle is used.

**Charts types and their uses**

Different sets of data are particularly suited to a certain chart type. The following are main chart types and their most common uses.

**Bar chart:**

A bar chart (also known as column chart) displays or compares several sets of data. It is used for qualitative data. Present few data over a nominal or interval scale. The useful bar charts are rectangular bar chart, multiple bar charts and component bar chart.

**Multiple bar charts:**

A multiple bar chart is a different way of showing the relationship between two variables. This chart consists of groups of two or more adjacent bars separated from the next group by a gap having ideally a different width to the bars themselves.

**Component bar chart:**

In a component bar chart the length of the complete bar signifies 100% of the population. The bar is subdivided into sections that show the relative sizes of components of population. By comparing the sizes of the subdivisions of two parallel component bars, differences can be seen between the compositions of separate populations.

**Line graph:**

A line chart displays data as a series of points connected by a line. This type of chart is best suited for showing data for a large number of groups (for example total sales over the past several years). It is used to compare different graphs, to recognize correlations and co variations between variables and to display interactions over two levels on the X axis.

**Pie chart:**

A pie chart displays data as a pie, split and filled with color or patterns. Pie charts are typically used for one group of data (for example, the percentage of sales for the entire inventory). It conveys approximate proportional relationships at a point in time, compare part of a whole at a given point in time.

**Scatter plot:**

Scatter plot is used to show measurements over time (one-dimensional scatter plot). It

Convey an overall impression of the relation between two variables (two- dimensional scatter plot). It is not used for determining and comparing trends, recognition and comparison of change rates.

**Histogram and Historigram:**

Histogram and Historigram are used for quantitative data or for measurable data. Histogram is useful for larger sets of data points, typically used for frequency distributions. Historigram is the graph of time series.

**Stem and Leaf Display**

Disadvantage of using a frequency table is that the identity of individual observation is lost in grouping process. Each number is the data set is divided into two parts a stem and a leaf.

**Stem:** Leading digit of the figure

**Leaf:** Remaining digit of the figure

12, 18, 26, 27, 29, 30,31, 35, 37, 39, 40, 42, 43, 48, 48, 49, 51, 52, 53, 54, 57, 58, 61, 62, 64, 65, 67, 68, 71, 74

|  |  |
| --- | --- |
| **Stem** | **Leaf** |
| 1 | 2 8 |
| 2 | 6 7 9 |
| 3 | 0 1 5 7 9 |
| 4 | 0 2 3 8 8 9 |
| 5 | 1 2 3 4 7 8 |
| 6 | 1 2 4 5 7 8 |
| 7 | 1 4 |

**Construct a stem and leaf display of the data.**

138, 164, 150, 132, 144, 125, 149, 157, 146, 158, 140, 147, 136, 148, 152, 144, 168, 126, 138, 176, 163, 119, 154, 165, 146, 173, 142, 147, 135, 153, 140, 135, 161, 145, 135, 142, 150, 156, 145, 128

|  |  |
| --- | --- |
| **Stem** | **Leaf** |
| 11 | 9 |
| 12 | 5 6 8 |
| 13 | 8 2 6 8 5 5 5 |
| 14 | 4 9 6 0 7 8 4 6 2 7 0 5 2 5 |
| 15 | 0 7 8 2 4 3 0 6 |
| 16 | 4 8 3 5 1 |
| 17 | 6 3 |