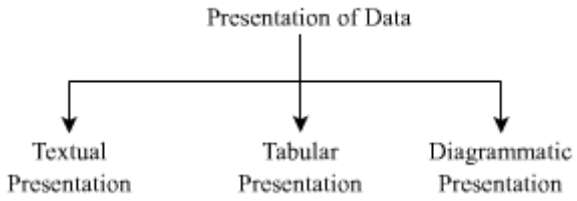
CHAPTER 4
PRESENTATION OF DATA

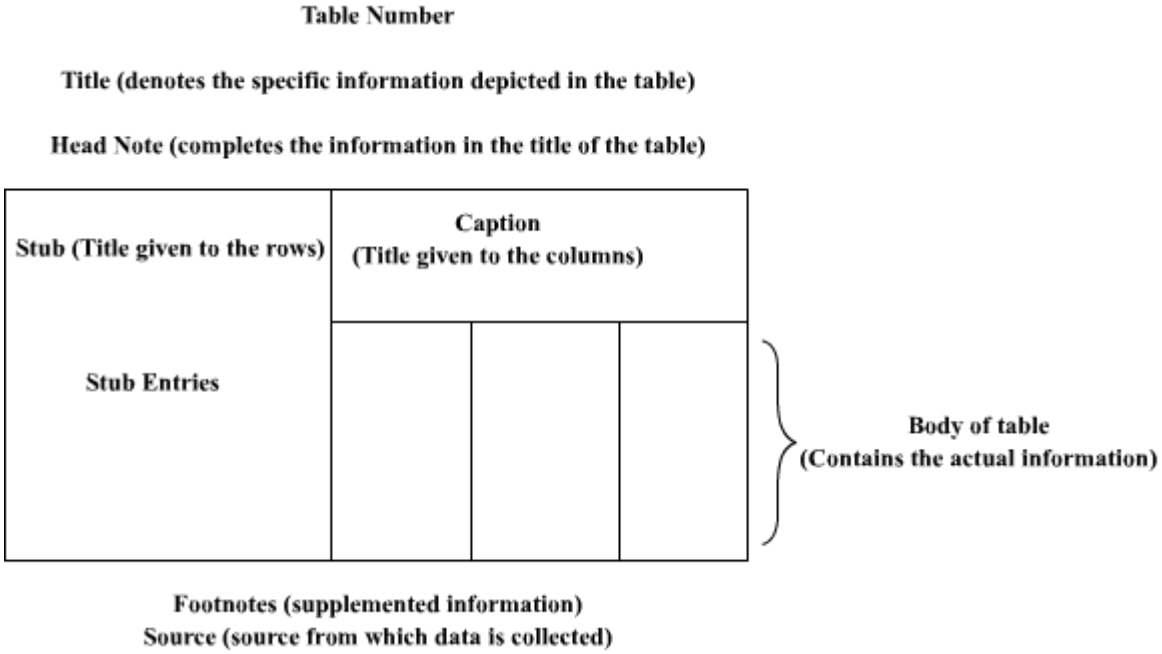
- **Presentation of Data-** The demonstration of data in a clear and attractive manner so that it can be easily understood and analysed by various statistical users is known as presentation of data.



- **Textual Presentation-** The presentation of data in the form of text is called **textual presentation** (also called as descriptive presentation) of data. It is commonly used when the quantity of data is not very large.

- **Tabular Presentation-** The systematic presentation of data in the form of rows and columns or a table is known as **tabular presentation of data**. The rows are read horizontally whereas, the columns are read vertically.

- **Parts of Table**
  - **Table number** denotes the number of the table in a chronological order
  - **Title of the Table** denotes the specific information depicted in the table.
  - **Head note** completes the information in the title of the table
  - **Stubs** are the titles given to the rows of the table.
  - **Caption** is the title given to the columns of the table.
  - **Body** is the most important part of the table containing the actual information regarding the data.
  - **Footnotes** are given when the information given in the table needs to be supplemented.
  - **Source** represents the source from where the data has been obtained.



- **Four Types of Tabular Classification**
  - Qualitative Classification
  - Quantitative Classification
  - Temporal Classification
  - Spatial Classification

- **Qualitative Classification-** The data classified on the basis of the qualitative attributes or characteristics of the variables and presented in a tabular form is known as qualitative classification.

Table showing Number of males and females in Delhi

Sex	Rural	Urban
Male	25	20
Female	20	25

- **Quantitative Classification-** The data classified on the basis of the quantitative characteristics of the variables and presented in a tabular form is known as quantitative classification.

Table showing Marks scored by the students of class XI in Maths

Marks	No. of students
10 – 20	3
20 – 30	5
30 – 40	10
40 – 50	13
50 – 60	15
60 – 70	4

- **Temporal Classification-** The data classified according to their occurrence in different time periods is called temporal classification.

Table showing annual sales of clothes of a particular company

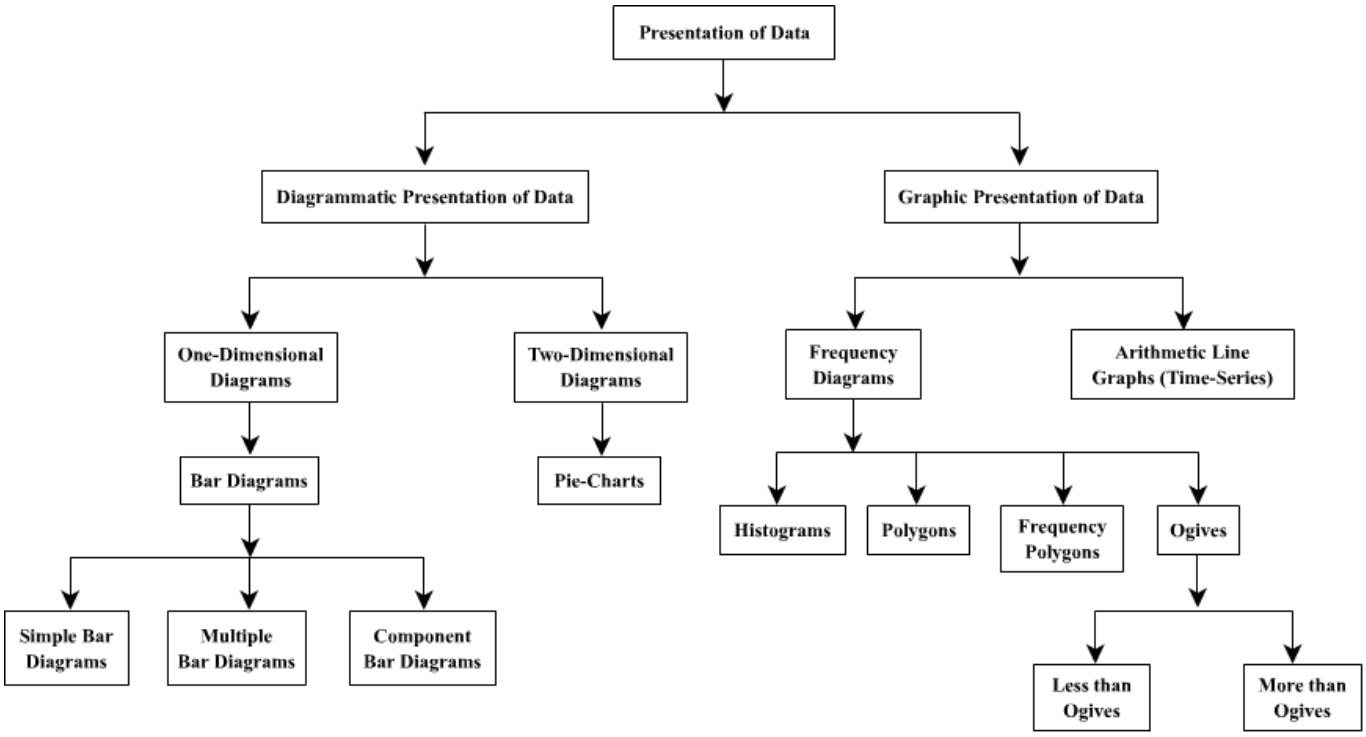
Year	Sales (in Rupees)
2005	50,000
2006	1,00,000
2007	1,20,000
2008	1,50,000

- **Spatial Classification-** The data classified as per their geographical location is called spatial classification.

Table showing number of Indian students working in different countries

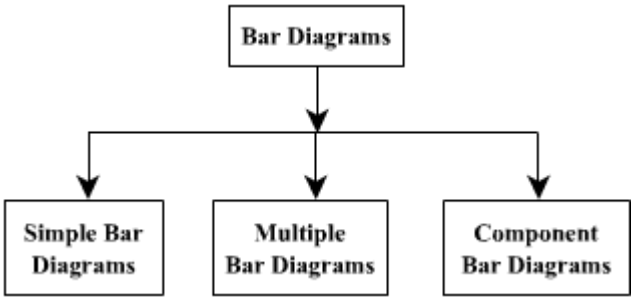
Countries	No. of Indian Students
USA	20,000
UK	15,000
Russia	10,000
Australia	8,000
Japan	5,000

- **Diagrammatic Presentation-** The data presented in a simple and attractive manner in the form of a diagram is known as **diagrammatic presentation of data**.

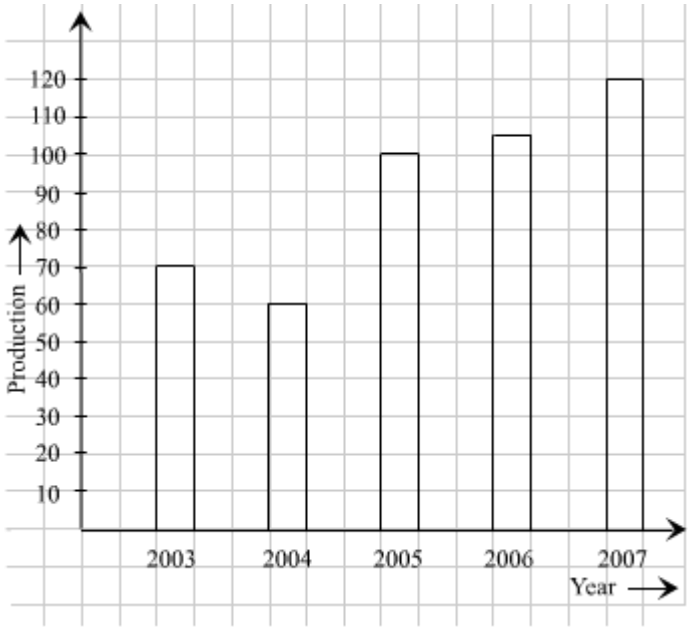


- **Bar diagrams** are such diagrams in which the data is presented in the form of bars or rectangles.

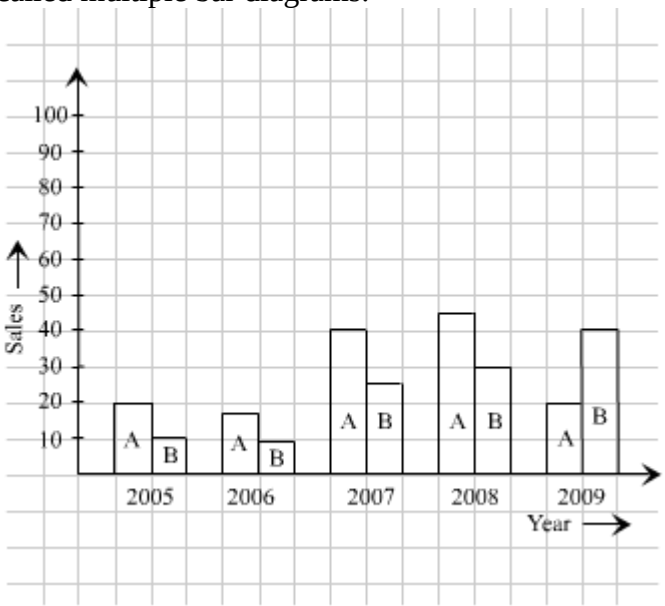
- **Types of Bar Diagram**
  - Simple Bar Diagram
  - Multiple Bar Diagram
  - Component Bar Diagram or Subdivided or Differential Bar Diagram



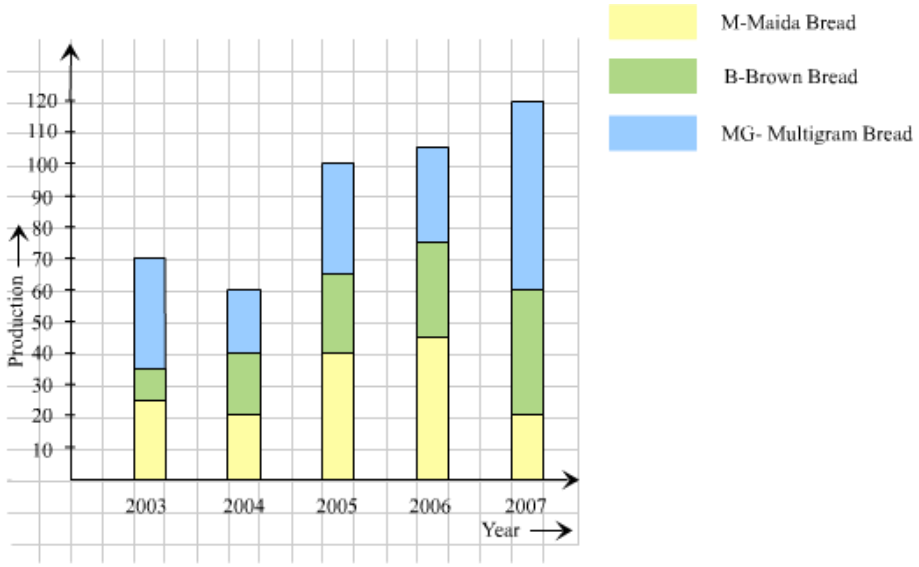
- **Simple Bar Diagrams-** A one-dimensional diagram that presents only one type of variable is called a simple bar diagram. In the figure below, production of cars by a company is plotted against different time periods (years).



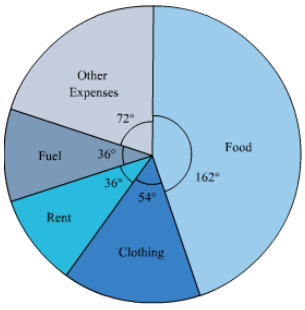
- **Multiple Bar Diagrams-** A one-dimensional diagram that present two or more types of variable are called multiple bar diagrams.



- **Component Bar Diagrams-** Component bar diagrams are those bar diagrams that simultaneously present total as well as part values of a set of data. The area of a bar occupied by each component denotes its share in the total variable. They are also known as ***staked charts***. For example, in the figure below, the production of *maida* bread, brown bread and multi-gram bread are depicted simultaneously in one bar and in different time periods (years). The height of each bar denotes the total production of bread in that particular year.

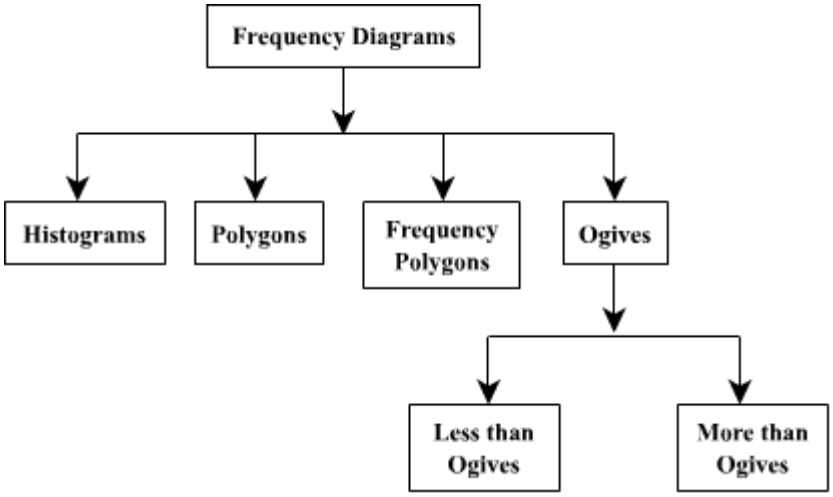


- **Pie diagram or pie-chart** depicts a circle that is divided into various segments showing the values of different items (components) in percentage terms. In the figure below, food accounting for 45% in the total (162°), depicts the largest segment of the pie-chart.

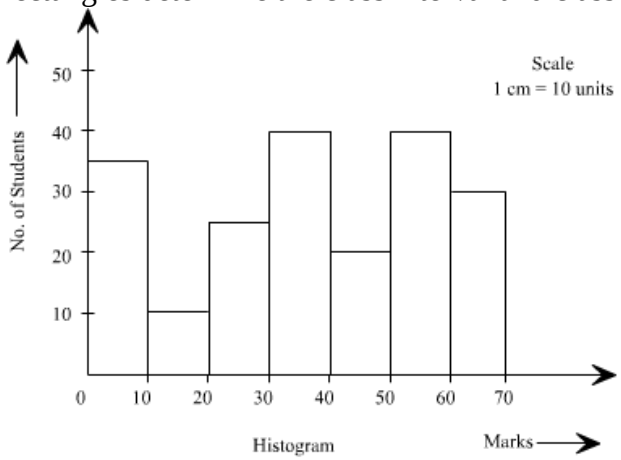


Items	Monthly Expenditure (in %)	Expenditure (in degree)
Food	45	45 × 3.6 = 162°
Clothing	15	15 × 3.6 = 54°
Rent	10	10 × 3.6 = 36°
Fuel	10	10 × 3.6 = 36°
Other Expenses	20	20 × 3.6 = 72°
Total	**100**	**360°**

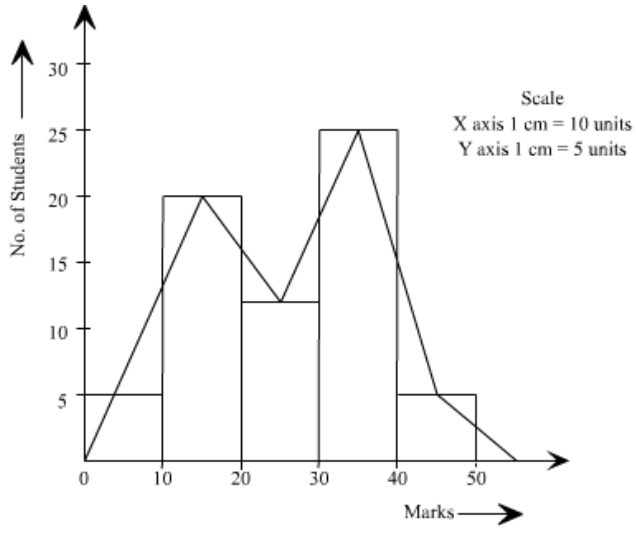
- **Frequency Diagrams** are the diagrammatic presentation of frequency distributions. Such diagrams depict values of the variables and their frequencies. Histograms, Polygons and Ogives are the common types of frequency diagrams.



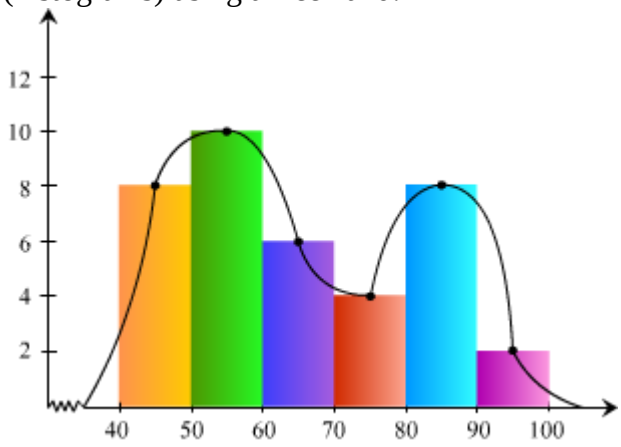
- **Histograms**- The two-dimensional diagrams that depict the frequency distribution of a continuous series by the means of rectangles are called histograms. The width and height of rectangles determine the class interval and class frequency respectively.



- **Frequency Polygon**- A closed figure that is formed by joining the top midpoints of all the rectangles of histograms using a foot rule. It can also be created without the help of histograms, wherein the midpoints of class intervals are directly plotted and are joined by a straight line.



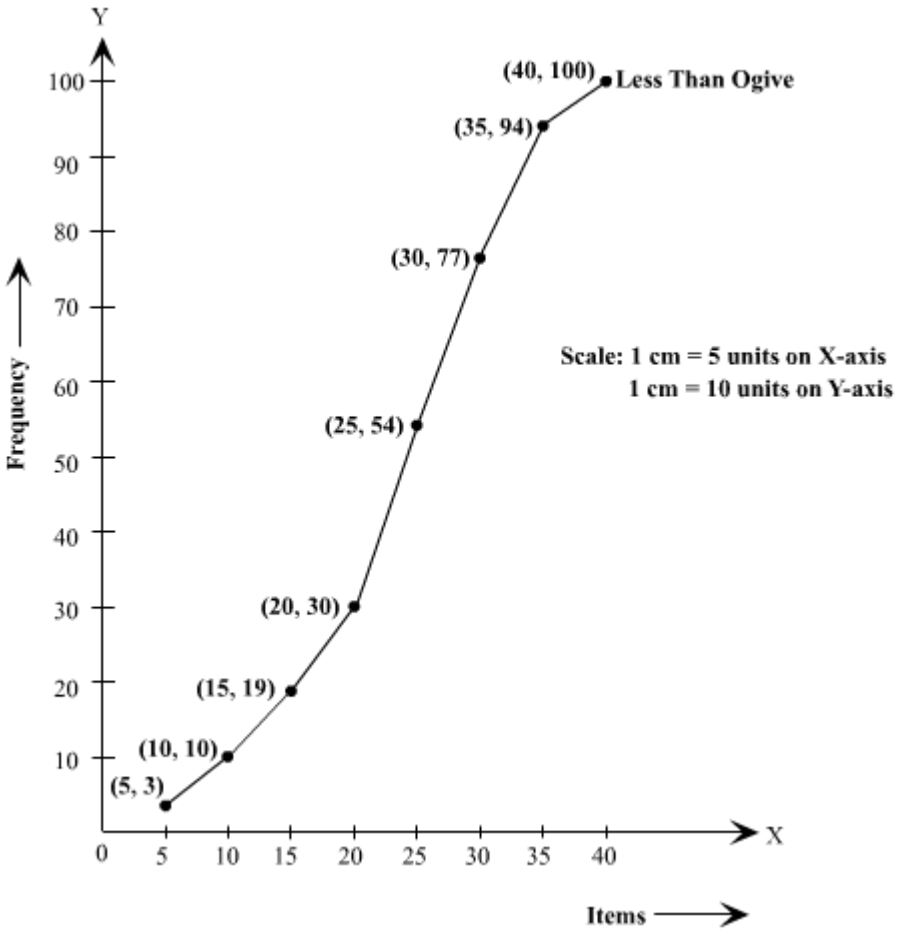
- **Frequency curve-** A curve that is plotted by joining the top midpoints of all rectangles (histograms) using a free hand.



- **Ogives** or **Cumulative Frequency Curve** is a smooth distribution curve that depicts cumulative frequency data on a graph paper.

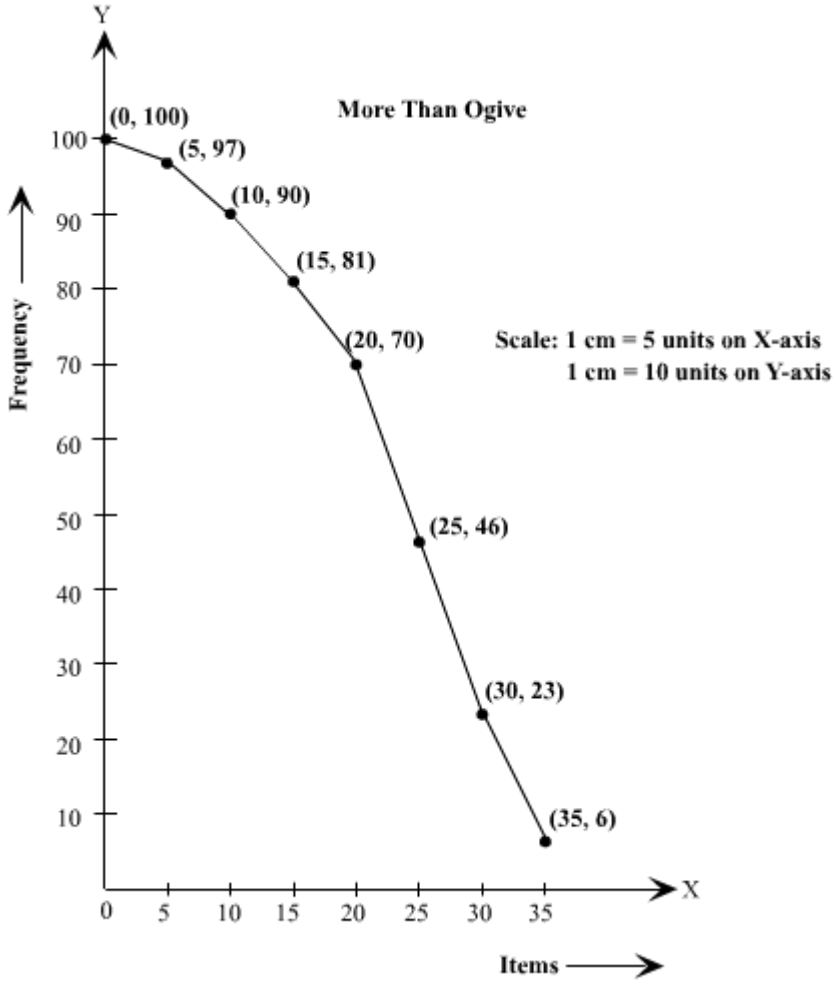
- Ogives can be constructed in two ways:

  - **Less than Method**: In this method, frequencies are added starting from the upper limit of the first class interval to the upper limit of the last class interval of the frequency distribution.



Class Interval	Frequency	Items	Less than C.F	Coordinates of Less Than Ogive
0 – 5	3	Less than 5	3	(5, 3)
5 – 10	7	Less than 10	10	(10, 10)
10 – 15	9	Less than 15	19	(15, 19)
15 – 20	11	Less than 20	30	(20, 30)
20 – 25	24	Less than 25	54	(25, 54)
25 – 30	23	Less than 30	77	(30, 77)
30 – 35	17	Less than 35	94	(35, 94)
35 – 40	6	Less than 40	100	(40, 100)

- **More than Method**: In this method, frequencies are added starting from the lower limit of the first class interval to the lower limit of the last class interval of the frequency distribution.



Class Interval	Frequency	Items	More than C.F	Coordinates of More Than Ogive
0 – 5	3	More than 0	100	(0,100)
5 – 10	7	More than 5	97	(5, 97)
10 – 15	9	More than 10	90	(10, 90)

15 – 20	11	More than 15	81	(15, 81)
20 – 25	24	More than 20	70	(20, 70)
25 – 30	23	More than 25	46	(25, 46)
30 – 35	17	More than 30	23	(30, 23)
35 – 40	6	More than 35	6	(35, 6)

- A graph formed by joining the points of data with straight lines is called line graph. This graph is usually used to denote changes in the variable over a period of time. The horizontal axis depicts time factor such as weeks, months or years.