Chapter- 22

Data Handling

Organizing Data

Any data which is available in the unorganized form is called **Raw Data**.
This raw data is arranged or grouped in a systematic manner to make it meaningful which is called the **Presentation of Data**.

Terms Related to Data Organizing

1. Frequency

Frequency tells us the no. of times a particular quantity repeats itself.

2. Frequency Distribution Table

Frequency can be represented by the frequency distribution table.

Frequency of Colors in a Bag of Skittles		
Color Choices	Tally Marks	Frequency
Purple	IIII	4
Yellow	𝍸 II	7
Red	𝍸 II	7
Green	𝍸 I	6
Blue	𝍸	5
Orange	IIII	4

The above table shows the no. of times a particular colour repeat in the bag of skittles.

Frequency can also be shown by the tally marks. A cut over four lines represents the number 5.

1. Grouping Data

If we have a large number of quantities then we need to group the observation and then make the table. Such a table is called a **Grouped Frequency Distribution Table**.

Some Important terms related to grouped Frequency Distribution Table

- **Class Interval or Class:** When all the observations are classified in several groups according to their size then these groups are called **Class Interval**
- **Lower-class Limit:** The lowest number in every class interval is known as its **Lower-class Limit**.
- **Upper-class Limit:** The highest number in every class interval is known as its **Upper-class Limit**.
- **Width or Size or Magnitude of the Class Interval:** The difference between the upper-class limit and the lower class limit is called the **Size of the Class Interval**.

Example

There is a list of marks of 40 students in a school. Arrange this in grouped frequency distribution table.

55	63	44	37	50	57	44	57	42	46	33	44
58	40	54	65	39	27	28	56	38	45	70	60
30	35	56	78	55	27	50	28	44	28	60	61
39	37	65	43								

Solution

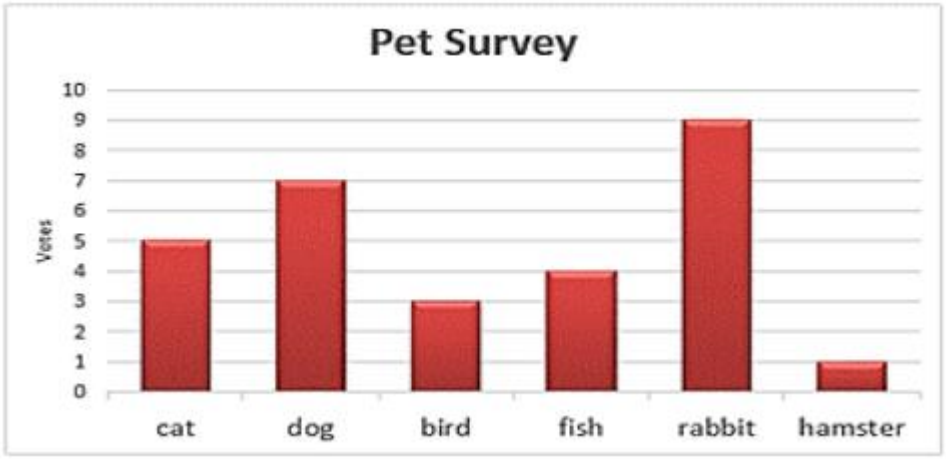
As we can see that the lowest number in the above data is 27 and the highest number is 78, so we can make intervals if 20 - 30, 30 - 40 so on.

Class (Rs.)	Tally Marks	Frequency Students
20 - 30	𝍸	5
30 - 40	𝍸 |||	8
40 - 50	𝍸 ||||	9
50 - 60	𝍸 𝍸	10
60 - 70	𝍸 |	6
70 - 80	||	2
Total		**40**

Remark: As number 30 comes in two class interval but we cannot count it in both the intervals. So it is to remember that the common observation will always be counted in the higher class. Hence 30 will come in 30-40, not in 20-30.

Bar Graphs

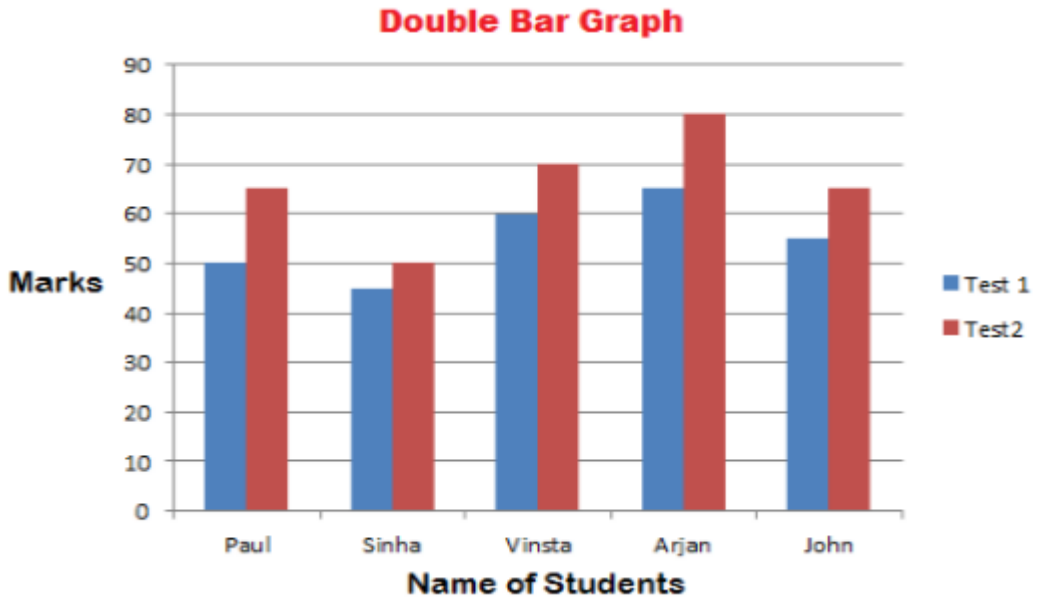
In the bar graph, the information represented by the bars of the same width with equal gaps but the height of the bars represent the respective values.



Here, the names of pets are represented on the horizontal line and the values of the respective pets are shown by the height of the bars. There is an equal gap between each bar.

3. Double Bar Graph

To compare some data we can use the double bar graph as it shows the information of two quantities simultaneously.



Here, in the above graph, it represents the marks of the students in two different tests altogether. So we can compare the marks easily.

Circle Graph or Pie Chart

If we represent the data in a circle form then it is said to be a pie chart. This graph shows the relationship between the whole and its part. We have to divide the circle into sectors and each sector is proportional to its respective activity.

We use it when we have information on percentage or fraction.

Drawing of a Pie Chart

If we have the information in percentage then we need to calculate the respective angles to show them in the pie chart.

As we know that a complete circle is of 360°, so we need to calculate the fraction of 360° for every sector.

Example

Draw a pie chart of the following percentage of genres of movies liked by the public.

Genres of Movie	Percentage of the no. of people
Comedy	27%

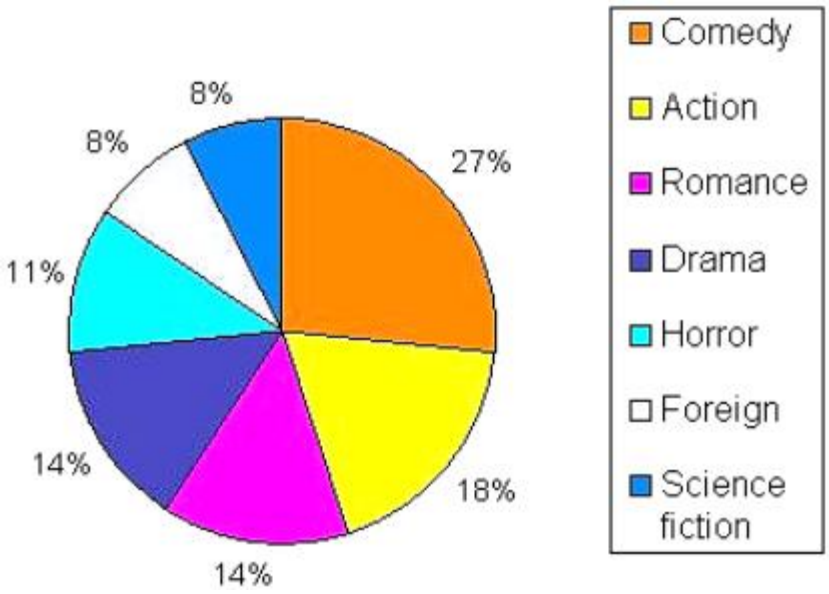
Action	18%
Romance	14%
Drama	14%
Horror	11%
Foreign	8%
Science fiction	8%

Solution

To draw the pie chart first we need to calculate the angle by taking the fraction of 360°.

Genres of Movie	Percentage of the no. of people	In fractions	Fraction of 360°
Comedy	27%	27/100	27/100 × 360° = 97.2°
Action	18%	18/100	18/100 × 360° = 64.8°
Romance	14%	14/100	14/100 × 360° = 50.4°
Drama	14%	14/100	14/100 × 360° = 50.4°
Horror	11%	11/100	11/100 × 360° = 39.6°
Foreign	8%	8/100	8/100 × 360° = 28.8°
Science fiction	8%	8/100	8/100 × 360° = 28.8°

By using these angles draw a pie chart.


8%
8%
27%
11%
14%
18%
14%
Comedy
Action
Romance
Drama
Horror
Foreign
Science fiction