

Welcome To....



Data Presentation (part -2)

Learning outcomes

- Know the appropriate tool for data presentation
- Exploring fact from data

Contents

- Construction of Frequency Distribution for qualitative data
- Graphical presentation of qualitative data
- Time series data and Line graph
- Uses of Diagrams

Tabular presentation for qualitative data

The following data give the number of shoes in different sizes sold by a shop on last one week:
L, M, S, M,M, S, L, L, S, M,M S, L, M, M, S, L, S, M, M, M, M, S, L, S, S, S, S, M, M, M, L, S, M.

Construct a frequency distribution table for this qualitative data..

Solution:

There are 34 observations having 3 categories which are 'L'= Large, 'M'= Medium and 'S'=Small.
So the frequency table will be as follows:

Shoe size	No of shoes
S	12
M	15
L	7
Total	34

Graphical presentation of frequency distribution for qualitative data

Two types of graphical presentation for qualitative data are:

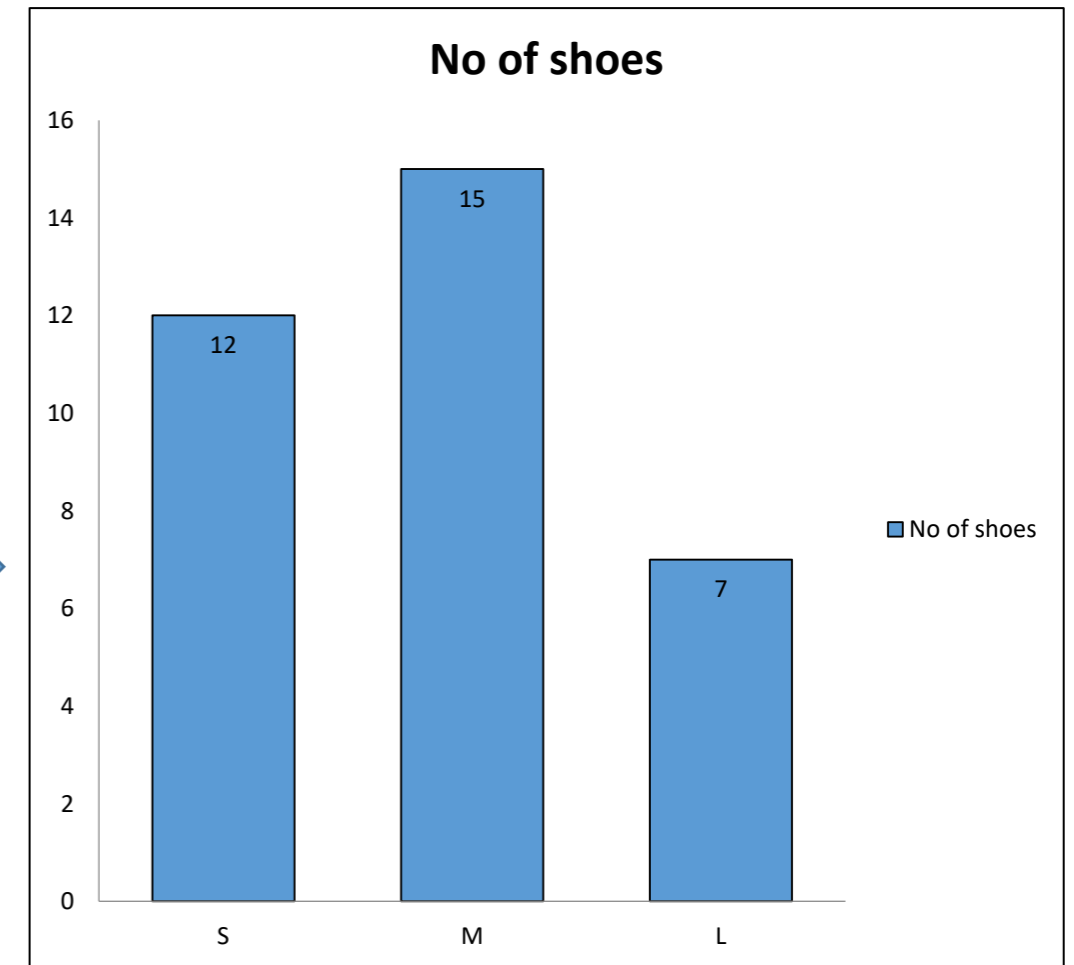
1. Bar Diagram
2. Pie chart

Graphical presentation of frequency distribution for qualitative data

Shoe size	No of shoes
S	12
M	15
L	7
Total	34

Steps to draw Bar diagram:

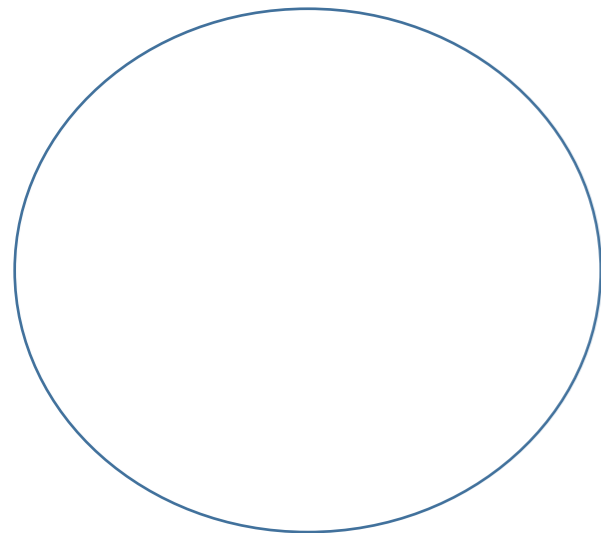
1. Show the categories on the horizontal axis.
2. Show the frequencies on the vertical axis.



Graphical presentation of frequency distribution for qualitative data

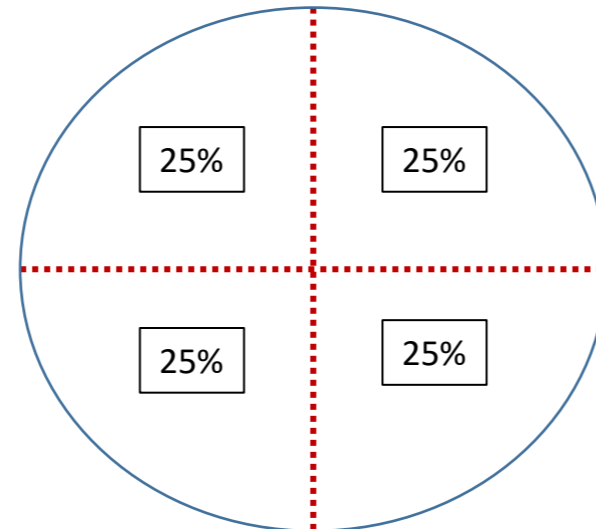
Shoe size	No of shoes	Percentages
S	12	35%
M	15	44%
L	7	21%
Total	34	100

Step 1:
Draw a circle.

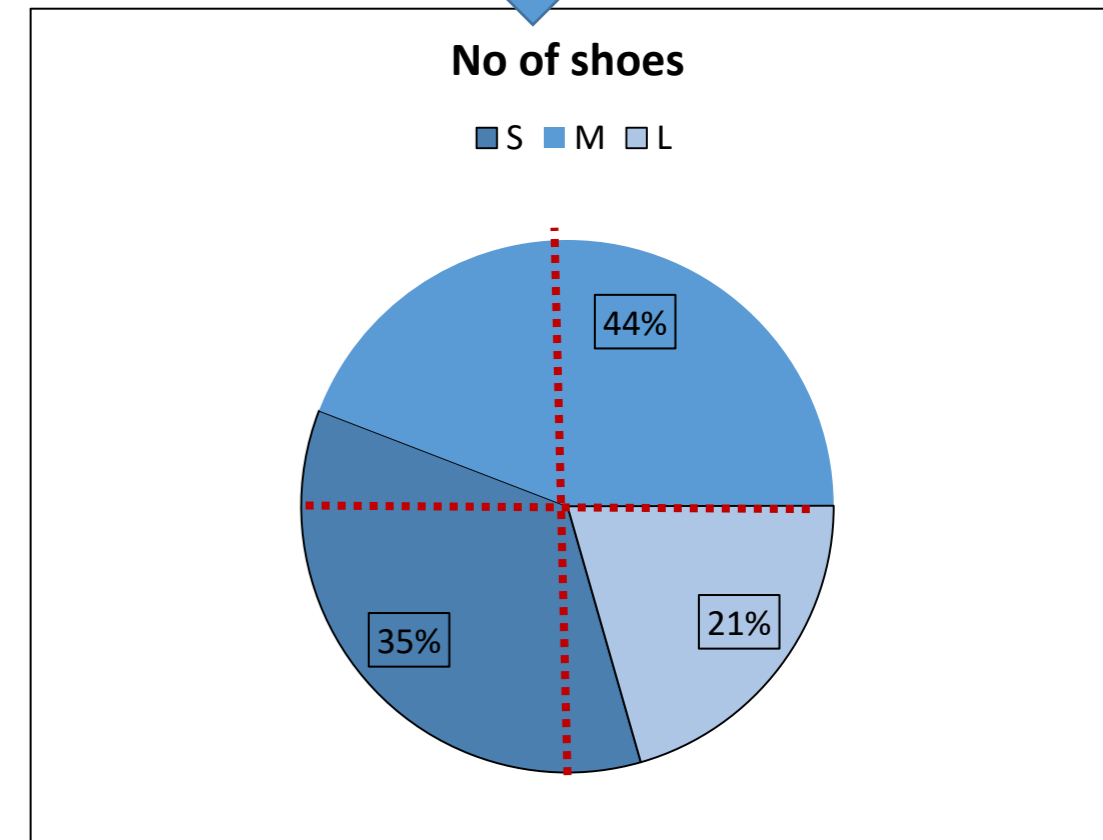


Steps to draw Pie chart:

Step 2:
Divide the whole circle into 4 parts by using dash lines so that each portion is of 25%.



Step 3:
Divide the whole circle proportional to the percentage of each of the categories approximately.



Graphical presentation of frequency distribution for qualitative data

Example

The table shown here displays the number of crimes investigated by law enforcement officers in U.S. national parks during 1995. Construct a Bar chart for the data.

Type	Number
Homicide	13
Rape	34
Robbery	29
Assault	164

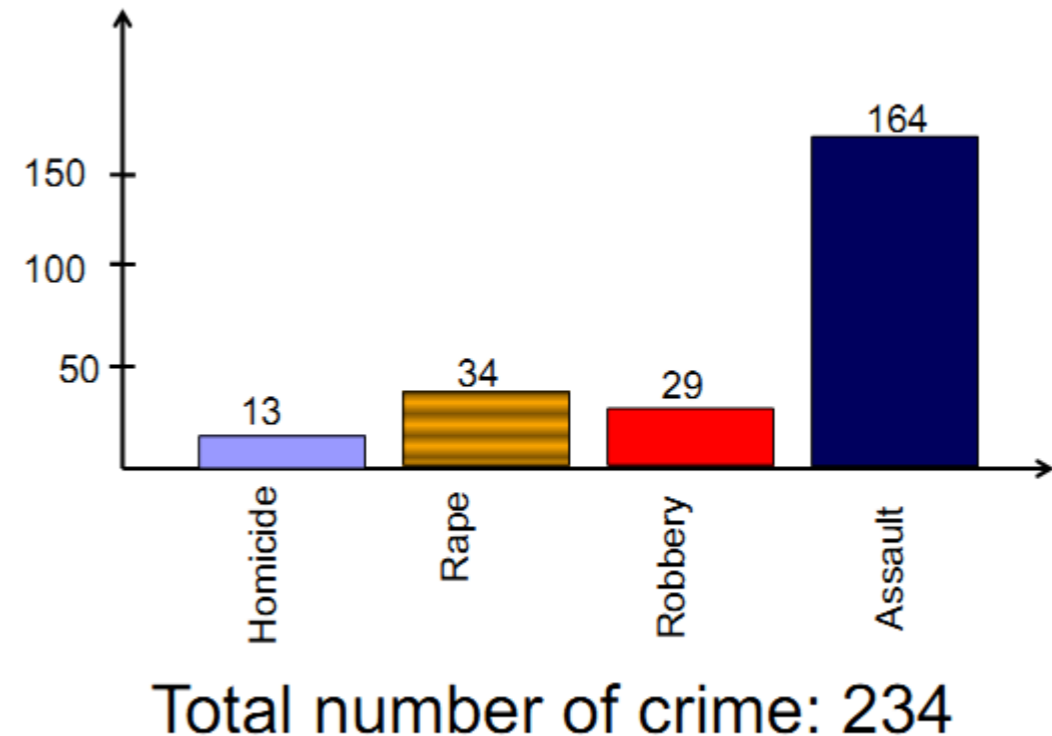


Figure: Bar Diagram

Graphical presentation of frequency distribution for qualitative data

We need to find percentages for each category and then compute the corresponding sectors so that we divide the circle proportionally.

Snack	Million pounds	percentage	Degree
Potato Chips	11.2	37.33%	$\approx 134^\circ$
Tortilla Chips	8.2	27.33%	$\approx 98^\circ$
Pretzels	4.3	14.33%	$\approx 41^\circ$
Popcorn	3.8	12.67%	$\approx 46^\circ$
Snack nuts	2.5	8.33%	$\approx 30^\circ$

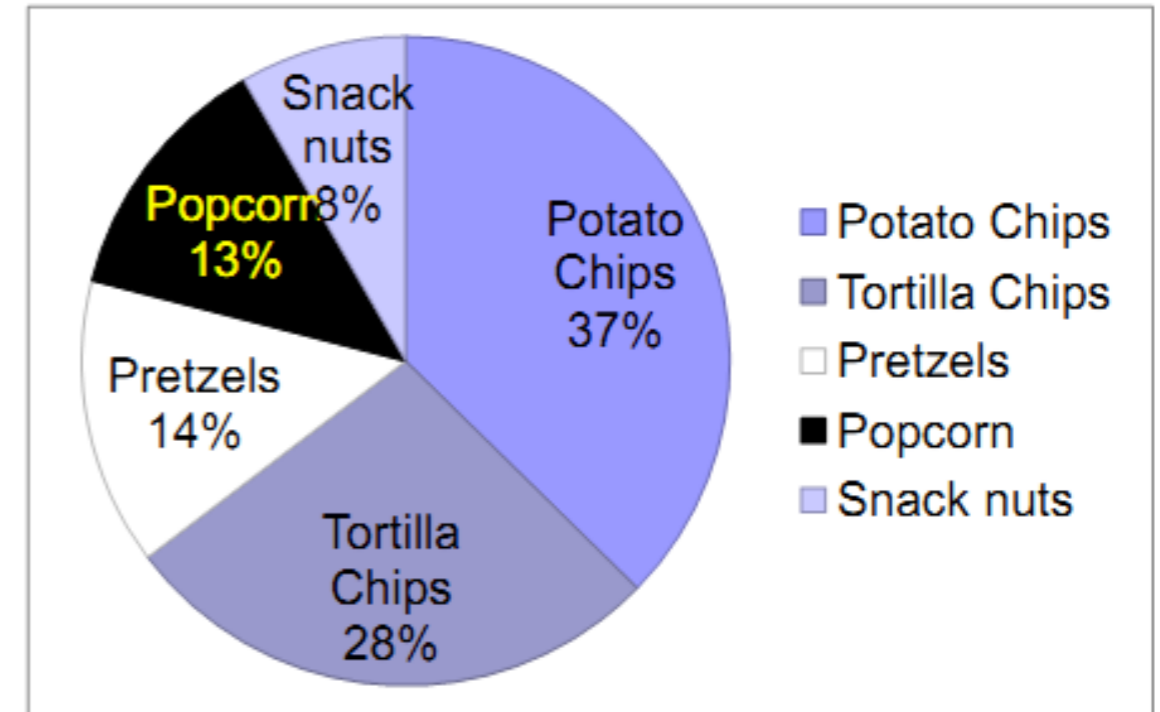


Figure: Pie chart

Time series data and Line Graph

Time Series Data:

A **time series** data is simply a series of **data** points ordered in time. Most commonly, a time series is a sequence taken at successive equally spaced points in time. Thus it is a sequence of discrete-time data.

Line Graph:

A **line graph** is a type of chart used to show information that changes over time. So Time series data can be drawn by Line Graph.

Year	Males	Females
1992	30.5	32.9
1993	30.8	33.2
1994	31.1	33.5
1995	31.4	33.8
1996	31.6	34.0
1997	31.9	34.3
1998	32.2	34.6
1999	32.5	34.9
2000	32.8	35.2
2001	33.2	35.5
2002	33.5	35.8

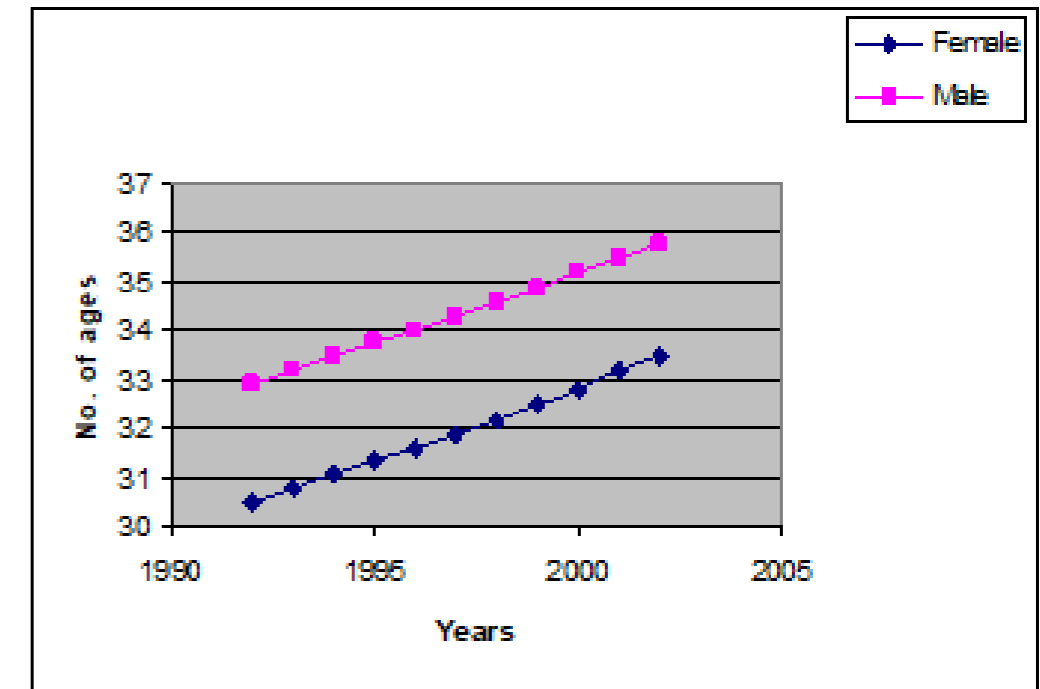


Figure: Line Diagram

Use of Diagrams & Differences between Histogram and Bar Diagram

Use of Diagrams:

Uses of bar chart:

- It is useful to represent discrete or qualitative data.
- Useful to compare several sets of data.

Uses of histogram:

- Useful for representing continuous data sets.

Uses Pie Chart:

- Shows the portioning of a total into component parts.
- Helps to compare part of a whole at a given point in time.

Uses of Cumulative frequency curve:

- To determine the number or proportion of cases above or below a given value
- To compare 2 or more frequency distributions.

Uses of line graph:

- For analyzing the changes at different points of time.

Difference between Histogram and bar diagram:

1. A histogram is constructed for a continuous frequency distribution while a bar diagram is usually constructed for categorical/ qualitative data.
2. In a histogram the areas of the rectangles represents the frequencies but in a bar diagram heights of bars represent the frequencies.
3. A histogram is a two dimensional figure, while a bar diagram is a unidimensional figure.
4. The rectangles of a histogram are adjacent whereas the rectangles of a bar diagram may or may not be adjacent.

Some exercise Problems to solve

A country has four political parties say A, B ,C, D. An opinion survey was conducted on 30 people randomly. The data were obtained as follows:

B, C, A, B, A, C, D, A, A, B, C, A, B, C, D, A, A, B, C, A, B, D, A, A, A, D, C, D, B, A.

- Construct a frequency distribution table.
- Which one is the most popular party based on the survey?
- What is the percentage of people liked party B?
- Construct an appropriate graph.

The table given below gives population of Bangladesh in million for the period 1988 to 1993:

Year	1988	1989	1990	1991	1992	1993
Population (in million)	103	105	107	109	111	113

- Construct an appropriate graph and specify the reasons of using it.

Some exercise Problems to solve

SkiLodges.com is test marketing its new website and is interested in how easy its Web page design is to navigate. It randomly selected 200 regular internet users and asked them to perform a search task on the Web page. Each person was asked to rate the relative ease of navigation as poor, good, excellent or awesome. The results are shown in the following table:

Ease of Navigation	Awesome	Excellent	Good	Poor
No of person	102	58	30	10

- What type of measurement level can be used for the variable “Ease of Navigation”?
- Draw a bar chart for the survey results.
- Draw a pie chart for the survey results.

