

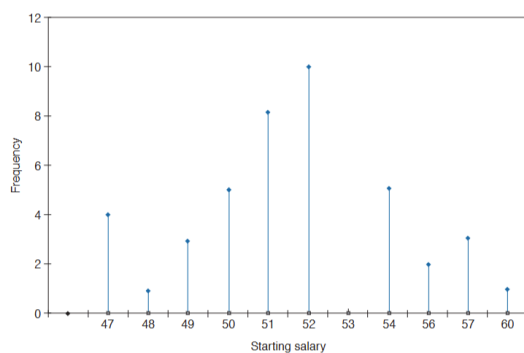
Frequency Tables and Graphs

Frequency table

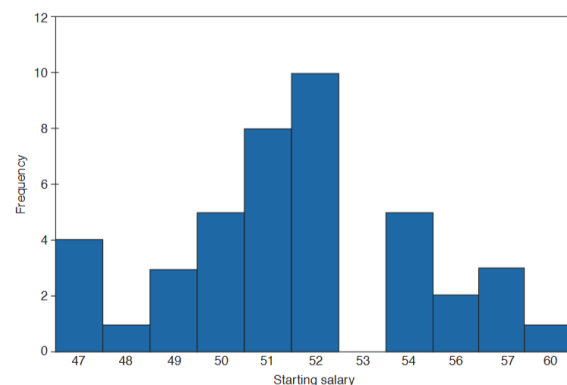
TABLE 2.1 *Starting Yearly Salaries*

Starting Salary	Frequency
47	4
48	1
49	3
50	5
51	8
52	10
53	0
54	5
56	2
57	3
60	1

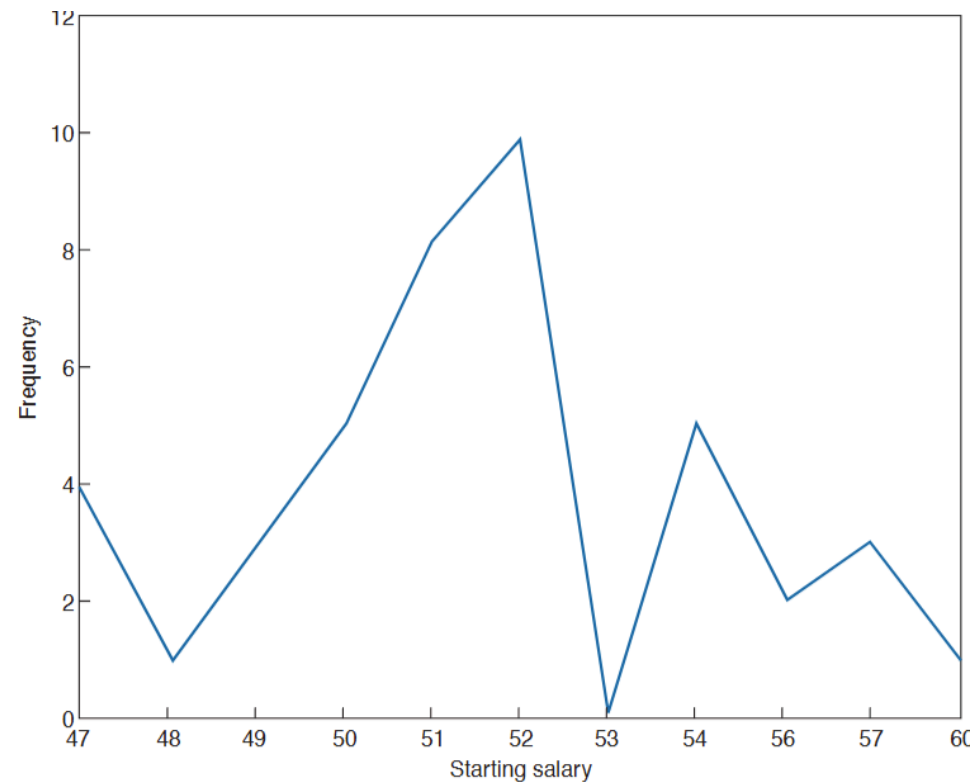
Line graph



Bar graph



Frequency Polygon



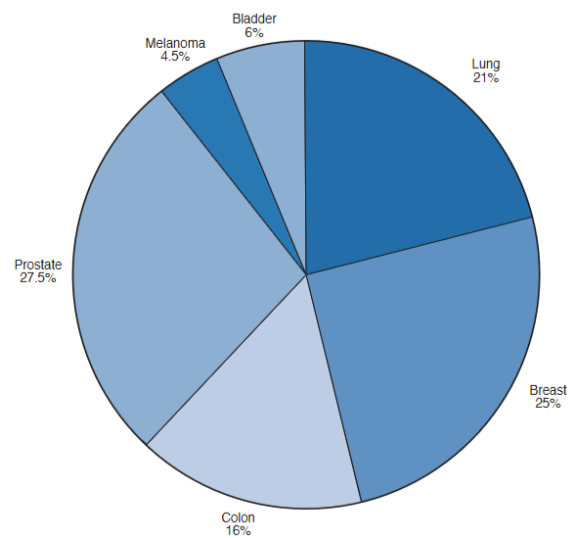
Relative frequency

Relative frequency is the proportion or percentage of times a specific value or category appears in a dataset. The formula for relative frequency is given below in the diagram

$$\text{Relative Frequency} = \frac{\text{Frequency}}{\text{Total Number of Data Points in Dataset}}$$

Pie charts

Type of Cancer	Number of New Cases	Relative Frequency
Lung	42	.21
Breast	50	.25
Colon	32	.16
Prostate	55	.275
Melanoma	9	.045
Bladder	12	.06



Class frequency table

A class frequency table is a table that summarizes a set of data by grouping it into class intervals and recording the frequency of each interval.

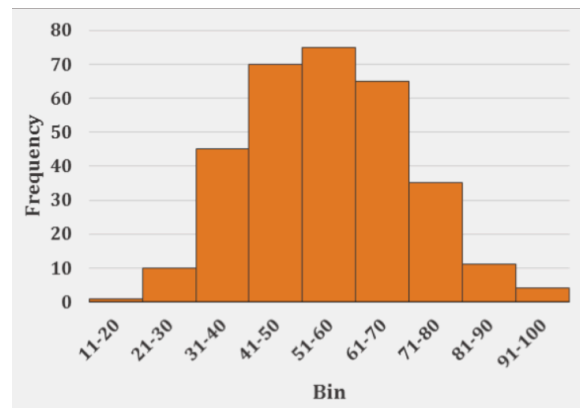
Marks	Frequency
1 to 10	10
11 to 20	15
21 to 30	16
31 to 40	13
41 to 50	11

How it works

- The data is divided into class intervals of the same width. For example, 0–10, 10–20, 20–30, and so on.
- The frequency of each interval is recorded in the table.
- The frequency of a class interval is the number of data values that fall within that interval.

Grouped Data: Histogram

A grouped data histogram is **a graph that shows the frequency of data that has been grouped into classes**

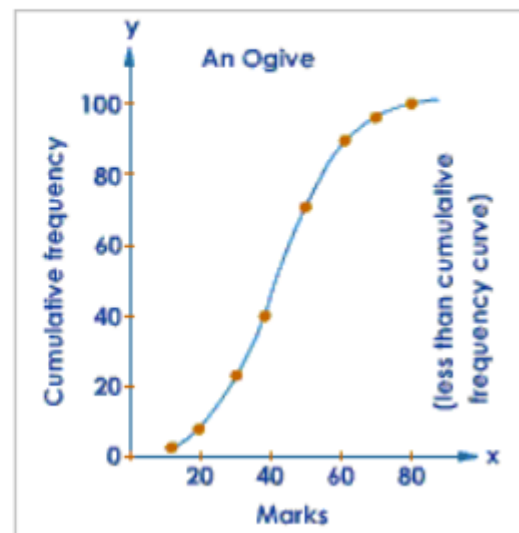


Cumulative frequency is defined as the running total of frequencies. It is the sum of all the previous frequencies up to the current point.

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Cumulative Frequency Curve



DATA

Facts or figures, which are numerical or otherwise, collected with a definite purpose are called data.

Types Of Data

Quantitative Data

These represent numerical value.

These can be numerically computed.

Qualitative Data

These represent some characteristics or attributes.

These depict descriptions that may be observed but cannot be computed.

Primary Data

Data collected for first time.

Secondary Data

Data that is sourced by someone other than the user.

Discrete Data

These are the data that can take only specific value.

Continuous Data

These are the data that can take values from a given range.

Frequency Distribution Table

A list, table or graph that displays the frequency of various outcomes in a sample of data.

Frequency Distribution Table

Ungrouped

It is used for small data set.
For eg.

Marks Obtained	Frequency
16	3
17	4
18	8
19	10
20	12
21	6
22	3

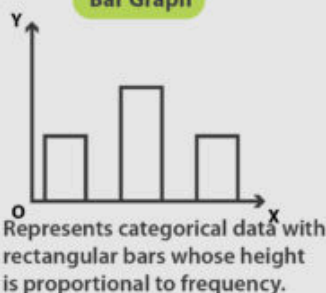
Grouped

It is used for large data set.
For eg.

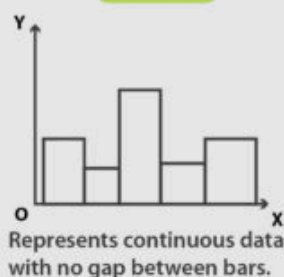
Class Interval	Frequency
0-5	3
5-10	11
10-16	14
15-20	2

Graphical Representation of Frequency Distribution Table

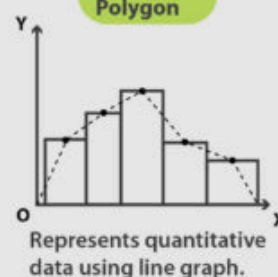
Bar Graph



Histogram



Frequency Polygon



Mean for Ungrouped Data

Let the data set be $x_1, x_2, x_3, \dots, x_n$

$$\text{mean} = \frac{x_1 + x_2 + x_3 + \dots + x_n}{n}$$

Mean for Grouped Data

(1) Direct Method

$$\text{mean} = \frac{\sum x_i f_i}{\sum f_i}$$

Where

x_i = Corresponding class mark

f_i = Corresponding frequency

(2) Assumed mean method

$$\text{mean} = a + \frac{\sum d_i f_i}{\sum f_i}$$

Where

a = Assumed mean for the given data

d_i = deviation = $x_i - a$

x_i = Corresponding class mark

f_i = Corresponding frequency

(3) Step Deviation method

$$\text{mean} = a + \frac{\sum f_i u_i}{\sum f_i} \times h$$

Where

a = Assumed mean for the given data

$$u_i = \frac{x_i - a}{h}$$

h = Class width

x_i = Corresponding class mark

f_i = Corresponding frequency

Stem and Leaf

Each number in the data is broken down into a stem and a leaf, thus the name. The stem of the number includes all but the last digit. The leaf of the number will always be a single digit.

stem	leaf
0	1, 1, 2, 2, 3, 4, 4, 4, 4, 5, 8
1	0, 0, 0, 1, 1, 3, 7, 9
2	5, 5, 7, 7, 8, 8, 9, 9
3	0, 1, 1, 1, 2, 2, 2, 4, 5
4	0, 4, 8, 9
5	2, 6, 7, 7, 8
6	3, 6

Key: 6 | 3 = 63 years old

- **Tables and graphs help summarize data efficiently.**
- **Frequency tables, histograms, and bar graphs** are useful for showing distributions.
- **Stem-and-leaf plots** retain original values for better insights.
- **Scatter plots** reveal relationships between two variables.