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1.3 Presentation of Data

LEARNING OBJECTIVE

1. To learn two ways that data will be presented in the text.

In this book we will use two formats for presenting data sets. The first is a **data list**, which is an explicit listing of all the individual measurements, either as a display with space between the individual measurements, or in set notation with individual measurements separated by commas.

EXAMPLE 1

The data obtained by measuring the age of 21 randomly selected students enrolled in freshman courses at a university could be presented as the data list

$$18\ \ 18\ \ 19\ \ 19\ \ 19\ \ 18\ \ 22\ \ 20\ \ 18\ \ 18\ \ 17$$
$$19\ \ 18\ \ 24\ \ 18\ \ 20\ \ 18\ \ 21\ \ 20\ \ 17\ \ 19$$

or in set notation as

$$\{18,18,19,19,19,18,22,20,18,18,17,19,18,24,18,20,18,21,20,17,19\}$$

A data set can also be presented by means of a **data frequency table**, a table in which each *distinct* value x is listed in the first row and its **frequency** f, which is the number of times the value x appears in the data set, is listed below it in the second row.

EXAMPLE 2

The data set of the previous example is represented by the data frequency table

x	17	18	19	20	21	22	24
f	2	8	5	3	1	1	1

The data frequency table is especially convenient when data sets are large and the number of distinct values is not too large.

KEY TAKEAWAY

- Data sets can be presented either by listing all the elements or by giving a table of values and frequencies.

EXERCISES

1. List all the measurements for the data set represented by the following data frequency table.

x	31	32	33	34	35
f	1	5	6	4	2

2. List all the measurements for the data set represented by the following data frequency table.

x	97	98	99	100	101	102	103	105
f	7	5	3	4	2	2	1	1

3. Construct the data frequency table for the following data set.

$$22\ \ 25\ \ 22\ \ 27\ \ 24\ \ 23$$
$$26\ \ 24\ \ 22\ \ 24\ \ 26$$

4. Construct the data frequency table for the following data set.

$$\{1,5,2,3,5,1,4,4,4,3,2,5,1,3,2,$$
$$1,1,1,2\}$$

ANSWERS

1. {31,32,32,32,32,32,33,33,33,33,33,33,34,34,34,34,35,35}.

3.

x	22	23	24	25	26	27
f	3	1	3	1	2	1

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