

So far we have discussed frequency distributions using only quantitative data sets, but frequency distributions can also be used to summarize categorical (or qualitative or attribute) data, as illustrated in Example 2.

Example 2 East Haven Police Department Traffic Tickets

Table 2-3 summarizes the race/ethnic classifications recorded on traffic tickets issued by Connecticut's East Haven Police Department during a recent nine-month period. Here is an interesting and revealing fact about the data: Table 2-3 shows that 18 of those given tickets were classified by police as being Hispanic, but in fact, 209 of those given tickets had Hispanic names!

Table 2-3 East Haven Traffic Tickets

Race	Frequency
White	329
Black	15
Asian	0
Hispanic	18
White/Hispanic	4
Blank (no indication)	5

Relative Frequency Distribution

A variation of the basic frequency distribution is a **relative frequency distribution** or **percentage frequency distribution**, in which each class frequency is replaced by a relative frequency (or proportion) or a percentage. In this text we use the term “relative frequency distribution” whether we use relative frequencies or percentages. Relative frequencies and percentages are calculated as follows.

$$\text{Relative frequency for a class} = \frac{\text{frequency for a class}}{\text{sum of all frequencies}}$$

$$\text{Percentage for a class} = \frac{\text{frequency for a class}}{\text{sum of all frequencies}} \times 100\%$$

Table 2-4 is an example of a relative frequency distribution. It is a variation of Table 2-2 in which each class frequency is replaced by the corresponding percentage

Table 2-4 Relative Frequency Distribution of IQ Scores of Low Lead Group

IQ Score	Frequency
50–69	2.6%
70–89	42.3%
90–109	44.9%
110–129	9.0%
130–149	1.3%

Growth Charts Updated

Pediatricians typically use standardized growth charts

to compare their

patient's weight

and height to

a sample of

other children.

Children are

considered

to be in the

normal range

if their weight and height

fall between the 5th and 95th

percentiles. If they fall outside of

that range, they are often given

tests to ensure that there are no

serious medical problems. Pe-

diatricians became increasingly

aware of a major problem with

the charts: Because they were

based on children living between

1929 and 1975, the growth charts

had become inaccurate. To rectify

this problem, the charts were

updated in 2000 to reflect the cur-

rent measurements of millions of

children. The weights and heights

of children are good examples

of populations that change over

time. This is the reason for includ-

ing changing characteristics of

data over time as an important

consideration for a population.

