Bar Graphs

When the data are qualitative or categorical, bar graphs can be used to represent the data. A bar graph can be drawn using either horizontal or vertical bars.

A **bar graph** represents the data by using vertical or horizontal bars whose heights or lengths represent the frequencies of the data.

### Example 2–8

College Spending for First-Year Students

The table shows the average money spent by first-year college students. Draw a horizontal and vertical bar graph for the data.

Electronics	$728
Dorm decor	344
Clothing	141
Shoes	72

Source: The National Retail Federation.

Solution

1. Draw and label the x and y axes. For the horizontal bar graph place the frequency scale on the x axis, and for the vertical bar graph place the frequency scale on the y axis.
2. Draw the bars corresponding to the frequencies. See Figure 2–10.
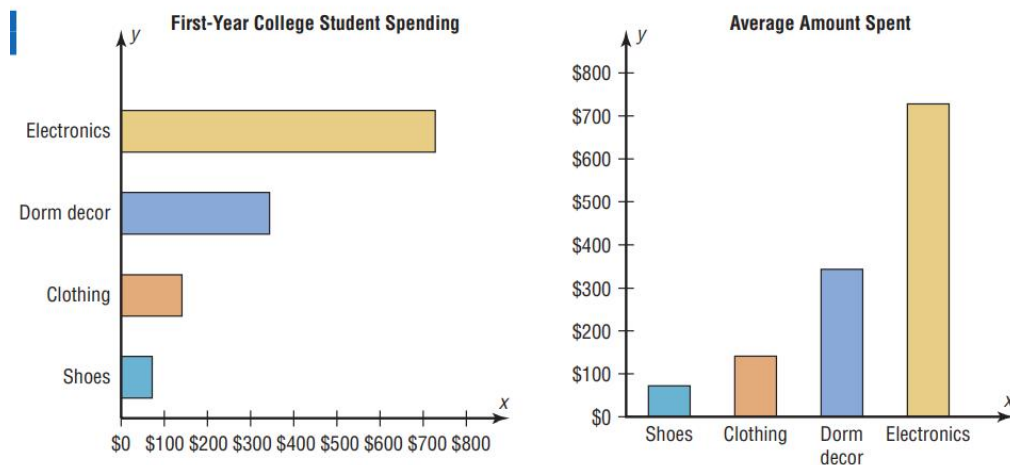
The graphs show that first-year college students spend the most on electronic equipment including computers.

Q.1 For the given two data sets:

- Determine a Frequency Distribution.
- Obtain a Relative Frequency Distribution.
- Construct a Bar Chart by taking Data Values at X-axis and Frequencies on Y-axis. Also see referred Example above.

First Data:

SO	WE	WE	MW	NE	WE	WE	SO	MW	SO
WE	NE	WE	SO	MW	MW	NE	WE	SO	WE
WE	SO	MW	SO	MW	WE	SO	NE	SO	SO
SO	SO	MW	NE	SO	NE	MW	NE	WE	MW
WE	SO	MW	SO	MW	NE	MW	SO	NE	WE

Second Data:

Color	Frequency
Brown	152
Yellow	114
Red	106
Orange	51
Green	43
Blue	43

Q.2 For the given two data sets:

a. determine a frequency distribution.
b. obtain a relative-frequency distribution.
c. construct a frequency histogram based on your result from part (a).
d. construct a relative-frequency histogram based on your result from part (b).
e. Also plot their frequency polygons (not relative frequency polygon) and plot ogive too for **GROUPED DATA** only.

First data:

. Use single-value grouping. *(Ungrouped Data)*

4	10	4	7	4	4	5	10	6
8	6	9	7	5	4	5	6	9
7	5	3	4	9	5	4	4	7
8	4	9	8	5	9	1	3	2
8	6	4	4	4	10	7	9	3

Second Data:

44	27	31	36	40	38	32
31	30	34	26	45	24	40
34	30	43	22	37	26	31
42	31	24	35	25	29	34
35	35	34	20	42	34	27

Third Data:

millions of BTUs. Use limit grouping with a first class of 40–49 and a class width of 10.

130	55	45	64	155	66	60	80	102	62
58	101	75	111	151	139	81	55	66	90
97	77	51	67	125	50	136	55	83	91
54	86	100	78	93	113	111	104	96	113
96	87	129	109	69	94	99	97	83	97

Q.3 Construct a Stem and Leaf Plot:

First Data:

210	209	212	208
217	207	210	203
208	210	210	199
215	221	213	218
202	218	200	214

Second Data:

70	64	99	55	64	89	87	65
62	38	67	70	60	69	78	39
75	56	71	51	99	68	95	86
57	53	47	50	55	81	80	98
51	36	63	66	85	79	83	70

_____ BEST OF LUCK _____