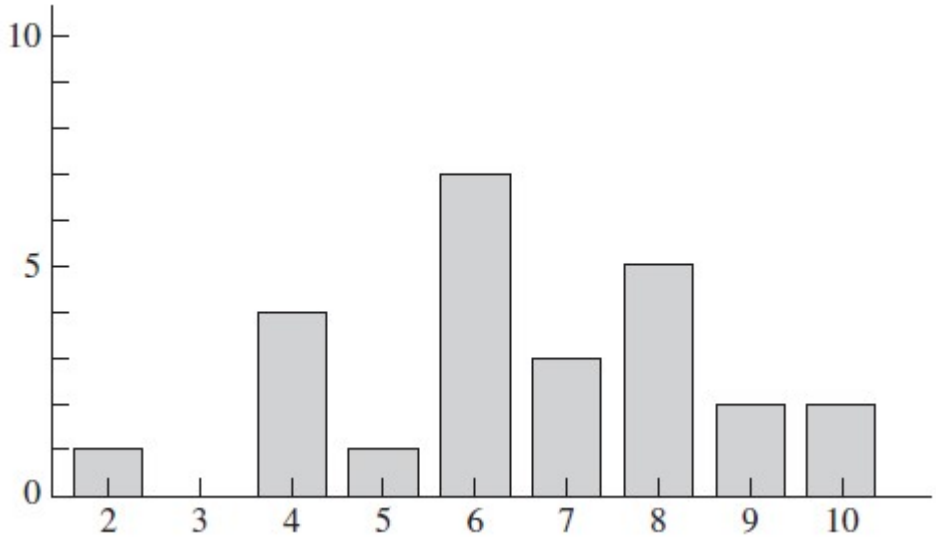
## Graphs

When graphing a frequency distribution, the variable of interest (e.g., quiz scores) is placed along the *X* axis, and distance (i.e., height) along the *Y* axis represents the frequency count for each variable.

## The Bar Graph

Rectangle, or bar, is erected above each value of X.




Bar graph is appropriate when the values of X come from a discrete rather than a continuous scale.

Bar graphs are also appropriate when the variable in question has been measured on a nominal or ordinal scale.

Notice that the bars do not touch; we wouldn't want to give the impression that the values come from a continuous scale—that there is not intermediate value.

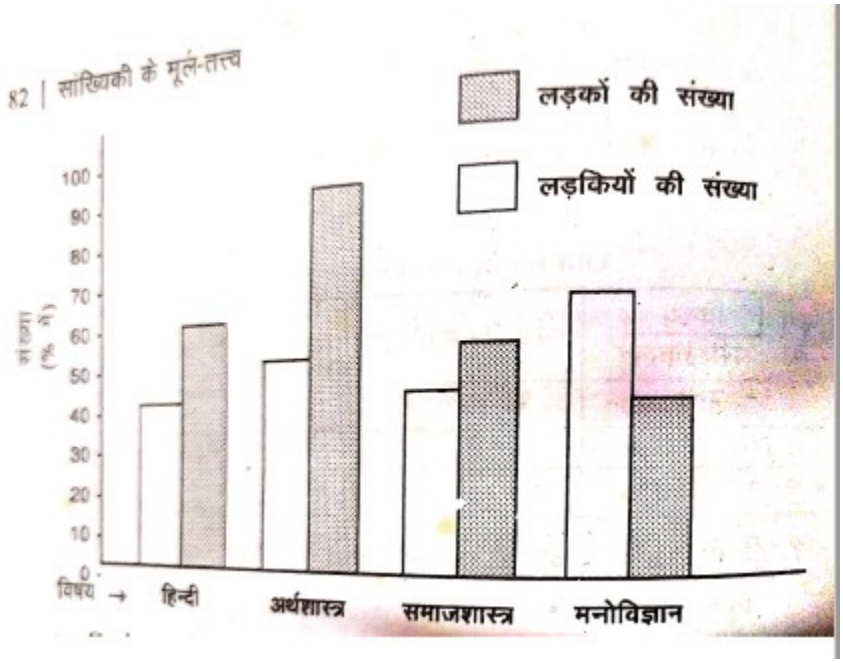
The height of each bar will be corresponding to the frequency or value of the variable.

The mode is the score on the X axis that is directly under the highest point of the bar.

However , width of the rectangles is immaterial but proper and uniform spacing should be between different bars.

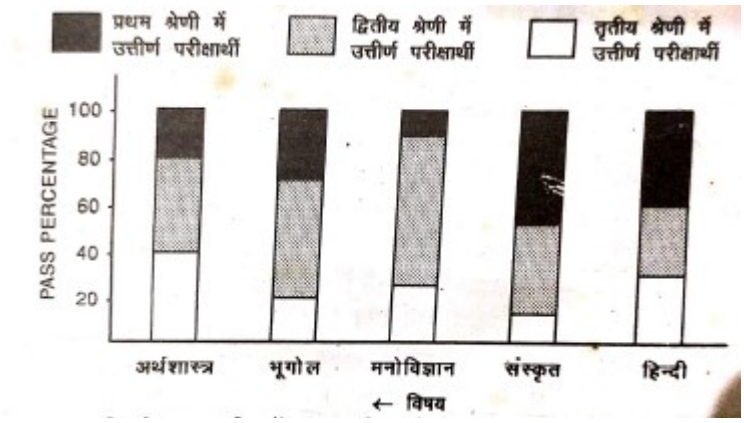
Multiple bar diagram

Use of multiple bar diagram is very useful in data presentation and comparative study. for example the comparative study of the number of boys and girls who got admission in different classes of m a in a college can be done easily with the help of multiple bar diagram




Sub divided bar diagram

Sometimes the representation of data is most simple and effective by subdivided bar diagram .this is often the case when many facts have to be represented in data, such as expressing the result of a college in different subject on the basis of different division



**The Histogram**

When constructing a bar graph that involves a continuous scale, the bar for each value is drawn wide enough so that it goes from the lower real limit to the upper real limit. Therefore, adjacent bars touch each other, is called a *frequency histogram.*

If you ask someone how tall she is, she might say, for example, but you know she is rounding off a bit. It is not likely that she is *exactly* 65 inches tall. You know that her height could be anywhere between 64.5 to 65.5

Because height is being measured on a continuous scale, a value like 65 inches generally stands for an interval that goes from 64.5 (the lower *real limit*) to 65.5 inches (the upper real limit).

Here the height is a variable which varies from one person to another. For example, if we want to measure 1/10th of inch. All values larger than 64.35 but not larger than 64.45 have been approximated and represented by 64.4. Although, conceivably the height could be any value on the continuous scale from zero to infinity, the limitation on the part of the measuring instrument invariably imposes an artificial discreteness in the data. This is due to limitations of measuring instruments. For instance, in this case the scale could measure only up to the first place of decimal; but, if we had a scale which could measure up to, say five places of decimals, the accuracy would have increased. No matter how fine the scale is, one would have to stop after a finite number of places after the decimal point and as such discreteness would any way creep in. But, theoretically, the variable under consideration is continuous in character as it can adopt any value over a specified interval, finite or otherwise.

The edge of a bar represents both the upper real limit for one interval and the lower real limit for the next higher interval

**Figure 2.2**

Frequency Histogram