**Frequency Distribution of a Discrete Variable**

Since, a discrete variable can take some or discrete values within its range of variation, it will be natural to take a separate class for each distinct value of the discrete variable as shown in the following example relating to the daily number of car accidents during 30 days of  a month.

3 4 4 5 5 3

4 3 5 7 6 4

4 3 4 5 5 5

5 5 3 5 6 4

5 4 4 6 5 6

**Table No. 2:**Showing frequency distribution for daily number of car accidents during a month.

|  |  |
| --- | --- |
| Number of car accidents | Frequency |
| 3 | 5 |
| 4 | 9 |
| 5 | 11 |
| 6 | 4 |
| 7 | 1 |
| Total | 30 |

**Frequency Distribution of a Continuous Variable**

For a continuous variable if we take a class for each distinct value of the variable, the number of classes will become unduly large, thus defeating the purpose of tabulation. In fact, since a continuous variable can assume an infinite number of values within its range of variation, the classification or sub-division of such data is necessarily artificial. Some guidelines that should be followed while dividing continuous data into classes are as follows:

1. The classes should be mutually exclusive, i.e., non-overlapping. No two classes should contain the same interval of values of the variable.
2. The classes should be exhaustive, i.e., they must cover the entire range of the data.
3. The number of classes and the width of each class should neither be too small nor too large. In other words, there should be relatively fewer classes if the difference between the least value of the variable and its highest value is small and relatively more classes if the same difference is large. This difference between the least value of the variable and the greatest value of the variable is called the range of the variable or the data set.
4. The classes should, preferably, be of equal width.

Let us consider the following example regarding daily maximum temperatures in ^{\circ}C  in a city for 50 days.

28 28 31 29 35 33 28 31 34 29

25 27 29 33 30 31 32 26 26 21

21 20 22 24 28 30 34 33 35 29

23 21 20 19 19 18 19 17 20 19

18 18 19 27 17 18 20 21 18 19

Minimum Value= 17

Maximum Value=35

Range=35-17=18

Number of classes=5 (say)

\therefore  width of each class=4

**Table No. 3:** Showing frequency distribution of temperature in a city for 50 days.

|  |  |
| --- | --- |
| Class Intervals(Temperatures in ^{\circ}C ) | Frequency |
| 17-20 | 17 |
| 21-24 | 7 |
| 25-28 | 10 |
| 29-32 | 9 |
| 33-36 | 7 |
| Total | 50 |

**Standard Deviation**

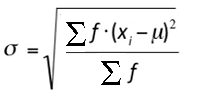
Random Sample

http://standard-deviation.appspot.com/images/standard-deviation-1.png

Calculate the standard deviation of the following numbers: 4, 2, 5, 8, 6.

**Example of Frequency Distribution Table**

Frequency Distribution



Calculate the standard deviation from the following:

