Univariate Datasets

**Formula Sheet**

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| **Name** | **Definition** | **Formula** |
| Dot Plot | A visual representation of data that consists of individual data points plotted as dots on a graph. | An unlabeled dot plot. |
| Histogram | A representation of a frequency distribution by means of rectangles whose widths represent class intervals and whose areas are proportional to the corresponding frequencies. | A bar graph titled Number of Classes has 5 bars. The horizontal axis is labeled Number of Classes, and the vertical axis is labeled Frequency.  |
| Box Plot | A visual representation that shows the five-number summary of a dataset. |  |
| Interquartile Range | The measure of variability of a dataset that is the difference between the first quartile and third quartile. | * $$Q1 $$is the first quartile
* $$Q3  $$is the third quartile
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| Mean | A measure of the center of a dataset found by adding all items in a set and dividing by the total number of items. | $$\frac{\left(x\_{1}+x\_{2}+x\_{3}+…\right)}{n}$$$$x\_{n}$$ is the value of the data point$$n $$is the total number of values in the data set |
| Median | The middle value in an ordered set of data, or the mean of the two middle numbers. | Odd number of data points:* The median is the exact middle number.
* 2, 6, **9**, 16, 20

Even number of data points:* Take the average of the two middle numbers.
* 2, 6, **9**, **11**, 16, 20
* Median = $$\frac{\left(9+11\right)}{2}=10$$
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| Symmetrical Distribution | A distribution in which the left and right sides mirror each other. | The mean and median are the same in symmetric distributions. |
| Skewed Distribution | A distribution in which the chart's tail is longer on one side than the other. | Left-Skewed:* Tail on the left
* Data clustered to the right

Right-Skewed:* Tail on the right
* Data clustered to the left

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| Standard Deviation | A measure of variation whose calculation is based on the distance between each data value and the mean. | $$s=\frac{\sqrt{Σ\left(Χ−\overline{x}\right)^{2}}}{n−1}$$$$Χ $$is the data point value$$\overline{x}$$ is the mean$$n $$is the number of values in the data set |