LESSON HANDOUT

Data Types

Knowing data types help us understand the limitations and opportunities which our data present and ensures that we measure our data appropriately. There are two main data types - **categorical and numerical**

- **Categorical**- data that may be divided into groups. Alternatively, we can call this type of data **qualitative** data.
- **Numerical** - Data that is measurable, often referred to as **quantitative** data.

Categorical data

Categorical data can be further broken down into two main categories: **Nominal** & **Ordinal.**

- **Nominal data.** Nominal data is categorical data that has no natural order and no numerical value.
    - Example - the categories of gender or race. Neither gender nor race has any meaning other than the labels which they represent. One cannot multiply gender values together nor do these values have any natural order. This makes them **Nominal**.

- **Ordinal data**. Ordinal data, on the other hand, has an important and natural order.
    - Example - in a survey result the questions might be labelled 1. Bad, 2. Acceptable and 3. Good. This means that this data has a natural order of 1 through to 3. Remember **Ordinal** equals Order.

Numerical data

Numerical or quantitative data can also be divided into two groups: **Discrete** and **Continuous**.

- **Discrete data.** Discrete data is data that can be counted, but has a finite number of possibilities and cannot be divided into smaller units.
    - Example - the number of attendants at a conference. There are a finite number of results available for the count of attendants - a count of 12 ½ attendants for, for example, is not possible.

- **Continuous data.** Continuous data are **measurements** which can be infinitely precise.
    - Example - the measurement of time can be infinitely precise with the option to measure hours, seconds, and an infinite fraction of milliseconds.

Summary

Understanding data types ensures that we treat, measure and interpret data correctly.