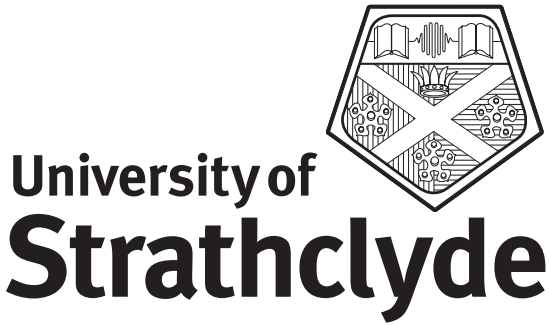

MM104/ MM106/ BM110

Topic 1: Data types, Central Location and Missing Values

Data Types

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Welcome to First Year Statistics

Before we begin let's formally define statistics

> Statistics is a mathematical science which includes methods of collecting, organizing and analysing data in such a way that meaningful conclusions can be drawn from them.

There are two main branches of statistics

- Descriptive Statistics
- Inferential Statistics

The first half of this course focuses on descriptive statistics and the second half focuses on inferential statistics.

Data

Any good statistician needs to be able to work with data.
As statistics begins with data collection, understanding data is important, as it will help apply the right statistical tests, make the appropriate assumptions and draw meaningful and robust conclusions.

Types of Data

There are two types of data

1. Qualitative data (also called categorical data)
2. Quantitative data (also called numerical data)

Qualitative data

Qualitative data is also called categorical data. This data type answers the question "What type" or "Which category".

Common examples of qualitative data are:

- Hair colour
- Eye colour
- Martial status

Qualitative Data

Qualitative data can be split into two sub-categories

- Nominal data
- Ordinal data

Nominal data is data that does not follow any particular natural pattern e.g. hair colour, eye colour

Ordinal data is data that can be put into an order e.g. pain level - low/moderate/high

Quantitative Data

Quantitative data is also called numerical data.

Common examples of quantitative data are:

- Number of children in a family
- Height
- Weight
- Blood pressure
- Number of school pupils in each local authority

Quantitative Data

Quantitative data can be split into two sub-categories

- Discrete numerical data
- Continuous numerical data

Discrete numerical data is counting data. This is data which can only take a finite amount of values e.g. number of children in a family, number of cars in a household.

Continuous numerical data is data which has been measured using a some apparatus. Since this data is being measured using a device there are infinite possibilities (dependent on the quality of the device). Examples of this data are weights and height.