

# W2 - Data Types

**Numeric** - quantitative only including numbers

**Non-numeric** - qualitative including characters

## Data Type

- **Continuous** - can be measured on a continuous scale
- **Discrete** - can't be broken down into smaller unit
- **Categorical** - grouped into some sort of category/ multiple categories. i.e seasons of the year

**Discrete** = Counting apples 🍏: 1, 2, 3, never 2.7 apples.

**Continuous** = Pouring water 💧: You can measure 1.5L, 1.53L, 1.532L... it never ends.

**Boolean** - system of logical thought that is used to create true/false statements. 0 or 1.

- conjunction (AND, &, \*)
- disjunction (OR, |, +)
- equivalence (EQV, =, ==)
- exclusive or/non-equivalence (XOR, NEQV, ^, !=)
- negation (NOT, ~, !).

**Key-Value Pairs** - set of 2 linked data items

- **Key** - unique identifier for some item of data
- **Value** - data that is identified or a pointer to the location of that. possible to have multiple values for one key.

key	value
firstName	Bugs
lastName	Bunny
location	Earth

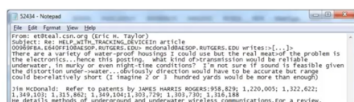
**Exercise:** Create some key-value pairs about your favourite film.

Key: title: WandaVision

Pre-requisite: Wanda, Vision Avengers show

## Data File formats

- **.txt** - standard text document containing unformatted text



- **.csv** - comma separated values - plain text file that contains a list of data



- **.xlsx** - spreadsheet file created by Microsoft Excel
- **.json** - JavaScript Object Notation, based on 2 structures (collection of key-value pairs, ordered list of values). Primarily used for transmitting data between a web app and a server
- **.yaml** - YAML Ain't Markup Language. Colon centered syntax used for expressing key-value pairs.
- **.xml** - extensible Markup Language. Human & Machine-readable

```
<SampleXML>
  <Colors>
    <Color>White</Color>
    <Color>Blue</Color>
    <Color>Black</Color>
    <Color Special="Light">Green</Color>
    <Color>Red</Color>
  </Colors>
  <Fruits>
    <Fruit>Apple</Fruit>
    <Fruit>Pineapple</Fruit>
    <Fruit>Grapes</Fruit>
    <Fruit>Melon</Fruit>
  </Fruits>
</SampleXML>
```

- **.dat** - generic data file that stored specific information relating to the program that created the file

- Using Notepad++
- Create small sets of data in the following file formats:
  - .txt
  - .csv
  - .json
  - .yaml (YAML)
  - .xml

