



## Topic 2 Fundamentals of Data Structures

### Data Structures

Data structures can be thought of as boxes used by computers to store information. There are many different types of data structures, each with advantages and disadvantages and best suited to storing different types of data.



### Arrays

An array is used to store related elements. They must contain a fixed number of elements, be indexed and can only contain elements with the same data type.

Each element within the array is given an index, usually starting at zero. The index is used to identify each element within the array, allowing them to be retrieved or edited.

Arrays can be either one dimensional or two dimensional. A one dimensional array is like a list, with one item after another. A two dimensional array is like a table, with values assigned two indexes depending on the column and row within the table.



### Files, Records and Fields

Computers organise stored information into files, files contain one or more records, and records contain one or more fields.

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