



# **Identify and Categorise Data Types.**

**Learner Guide**





# CONTENTS

How to use this workbook.....	3
Introduction .....	4
Objectives.....	4
Agenda .....	4
Identifying data types .....	5
Highlight data types. ....	6
TYPE function .....	6
Categorising data types .....	8
The IF function .....	8

## How to use this workbook



### Activity

Alongside this icon you'll find details of the group/individual activity or a point for everyone to discuss.



### Useful tool

This icon indicates a technique that will help you put what you learn into practice.



### Important Idea or Concept

Generally, this icon is used to draw your attention to ideas that you need to understand by this point in the course. Let your trainer know if you do not understand or see the relevance of this idea or concept.



### Helpful hint

This icon guides you to tips or hints that will help you avoid the standard pitfalls that await the unwary practitioner or to show you how you might increase your effectiveness or efficiency in practising what you have learnt.



### Key point

This icon is used to indicate something that practitioners in this field should know. It's likely to be one of the major things to remember from the course, so check you do understand these key points.



### Reference material

When we have only touched briefly on a topic, this icon highlights where to look for additional information on the subject. It may also be used to draw your attention to International or National Standards or Web addresses that have interesting collections of information.



### Definition

Where a word with a very specific definition (or one that could be described as jargon) is introduced, this will highlight that a definition is provided. (These words will also be found in the Glossary at the back of the workbook.)



### Warning

This icon is used to point out important information that may affect you and your use of the product or service in question.



# Introduction

Welcome to Data Mindset in a Digital World. During this course you will have the opportunity to complete independent activities.

The learner guide is designed to take you through some of the basic functions in Microsoft Excel, building on the topics covered in the first half of day 1.

In this guide, you will be guided with instructions on how to complete the activity in Excel.

We hope you enjoy the exercises.

## Objectives

- Apply Excel functions to identify and categorise various data types such as numeric and text data.

## Agenda

1. Use functions in a table.
2. Apply **ISTEXT**, **ISNUMBER**, **TYPE**, and **IF functions**.

# Identifying data types

In this section, you will use ISNUMBER, ISTEXT, and ISTYPE functions to identify data types. Let's begin with ISNUMBER and ISTEXT first.



## Guided activity:

### ISNUMBER and ISTEXT functions

ISNUMBER and ISTEXT checks if a cell in Excel contains a number or text respectively.

In this activity you will test the behaviour of the ISNUMBER and ISTEXT functions.

1. Open the Excel file titled: **Identify and Categorise data types.xlsx** and follow these steps to complete the **Identify Data Types** workbook.
2. Apply the ISNUMBER and ISTEXT functions in **tblNumberText1.1**.
3. Begin by identifying the number data.
4. Enter the function =ISNUMBER(B11) in column C row 11.
5. The function should automatically copy itself downwards to all rows in that column.
6. Repeat steps 3 to 5 in column D row 11 to identify the text data using the ISTEXT() function. Begin with ISTEXT(B11).



## Helpful hint

Functions applied in this section are listed:

- =ISNUMBER()
- =ISTEXT()

Both IS functions belong to the 'IS' family of functions.



## Reference material

Refer to the **Formulas List.xlsx** at any time to browse the list of functions available in Excel.



## Highlight data types.



### Independent activity:

#### Conditional formatting

In this activity you will use conditional formatting to highlight number and text data types using ISNUMBER and ISTEXT functions. Follow the below steps to support you.

1. Select the data array in **tblNumberText1.2** by dragging from column B row 23 through to column B row 30. Alternatively, you can select column B23 and hit **Ctrl + space bar** on your keyboard. This will select the data column.
2. Navigate to the **Home** tab and choose **Conditional Formatting** option from the **Styles** group.
3. Select **New Rule...** option from the drop-down list.
4. A window called **New Formatting Rule** will appear.
5. Select the **'Use a formula to determine which cells to format'** option.
6. Enter the function **=ISTEXT(B23:B30)** in the **Format values where this function is true:** box to search for the numeric value cells
7. Click the **Format...** button to specify the colour for the blank cells.
8. The **Format Cells** window will open.
9. In the **Fill** menu option, choose the **Background colour** and click **OK**.
10. The **Format Cells** window will close.
11. Click **OK** in the **New Formatting Rule** window.
12. The text cells will be highlighted in your chosen colour.
13. Repeat steps 1 - 12 using the ISNUMBER function to highlight the number cells.

## TYPE function



### Guided activity:

#### Identifying data types using the TYPE function

Consider the data in table **'tblEmployee'**. The data includes a mix of text, integer, currency, date, Boolean, and date time data type. It's a common representation of employee related information often found in HR systems.



The 'Salary' column for each employee is calculated as 110% of the employee's base salary using a function; salary multiplied by 1.1 . However, in column E row 40, there's a deliberate function error **#VALUE!** because it attempts to multiply a string (Sam Robinson) by a number (salary 30,000) which is not a valid operation.

Complete the following steps to determine different data types using the TYPE function.

1. Ensure the **Identifying and Categorising data types.xlsx** workbook is still open from the previous activity.
2. In table **tblEmployeeResult**, column C row 44 enter the function =TYPE(B44). The function should automatically copy itself downwards to all rows in that column.
3. Repeat step 2 for **Name.Type, Age.Type, Salary.Type and Active.Type** and select the required data cell. For example, in the **Name.Type** column, in column E row 44 enter =TYPE(D44) and enter.
4. Explain your TYPE function results for each column in the provided user input in the workbook, row 51.

# Categorising data types

In this section, you will use the IF function to categorise data types.

## The IF function

The IF function is one of the most popular functions in Excel, and it allows you to make logical comparisons between a value and what you expect.

So, an IF statement can have two results.

- The first result is if your comparison is True
- The second if your comparison is False.

Let's practice simple IF function examples, please navigate to the Excel workbook, '**Categorise Data Types**':



### Guided activity:

**Use the IF function, one of the logical functions to return one value if a condition is true and another value if it's false.**

### Example 1:

1. Enter `=IF(B3="Yes",1, 2)` in column D row 3, **Outcome 1**. Let's break this down; in this example, in cell D3 says: IF(B3 = Yes, then return a 1, otherwise return a 2).

### Example 2:

2. Enter `=IF(B7=1,"Yes","NO")` in column D row 7 **Outcome 2**. In this example, the function in cell D7 says: IF(B7 = 1, then return Yes, otherwise return No).



### Key point

As you see, the IF function can be used to evaluate both text and values. You are not limited to only checking if one thing is equal to another and returning a single result, you can also use mathematical operators and perform additional calculations depending on your criteria. You can also nest multiple IF functions together to perform multiple comparisons.





### Independent activity:

Using THE IF function to categorise data by comparing values in a cell to what you are expecting.

Let's put the IF function into practise. In the Excel workbook, '**Categorise Data Types**' we have an example of a **Budget dataset**. The dataset consists of the following in columns B to E.

- **Category** – List of different expense categories
- **Planned Budget** – Displays the budgeted amounts of each category
- **Actual Expenses** – Contains the actual amounts spent in each category
- **Status** – Use the IF function to compare the planned budget with the actual expenses. If the **Actual Expenses** are less than or equal to the planned budget, it shows '**Within Budget**', otherwise '**Over Budget**'.

Let's use the IF function to categorise the category based on the planned budget and actual expenses. The function will categorize status into '**Within Budget**', otherwise '**Over Budget**'.

1. Select column E row 11 in the **Status** column.
2. Enter =IF(C11>=D11, "Within Budget", "Over Budget").
3. The function should automatically copy itself downwards to all rows in that column.
4. The IF function in the **Status** column is saying, IF (C11 is Greater than D11, then return '**Within Budget**' or else '**Over Budget**'.



### Key Point

- The 'if true' value is Within Budget
- The 'if false' value is Over Budget

In the above steps, instead of returning a text result, we are going to return a mathematical calculation.

5. In column F row 11, enter =IF(D11>=C11,D11-C11,0). The formula is saying IF(Budget is Greater than actual, then Subtract the Budget amount from the Actual amount, otherwise return nothing).

Further activity on IF functions can be found on the 'Guide to Microsoft Excel' on pages 66 – 69, 'Logical Functions'.

