



Data and Information

LEVELS 7-8

Analyse and visualise data using a range of software to create information, and use structured data to model objects or events (ACTDIP026)

What type of career uses this knowledge?

Quantum Computing



Business Services

Analyse, design & apply technological solutions to solve business problems

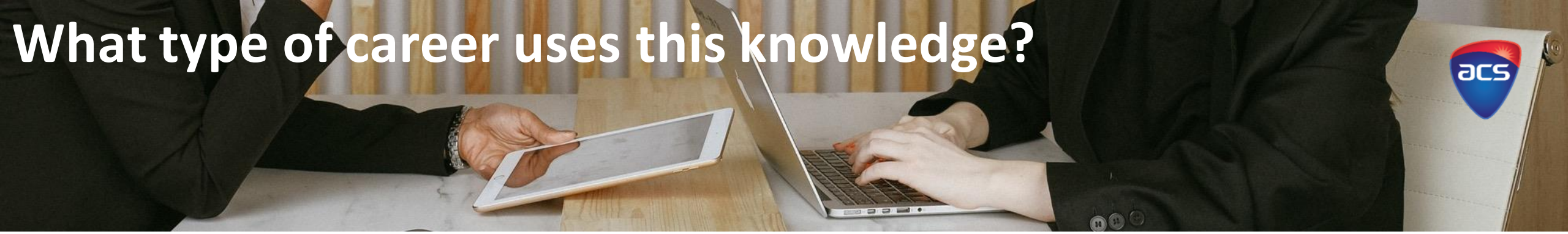
Database Administrator

Responsible for company databases that store business data, ensuring databases are operational, searchable and secure.

Quantum Computing

Quantum Computers perform calculations that classical computers cannot. Through the use of subatomic particles that exist in more than one state at any time, operations can be done more quickly with less energy than classical computers.

What type of career uses this knowledge?



Source: https://youtu.be/yAzCBH_o7OE

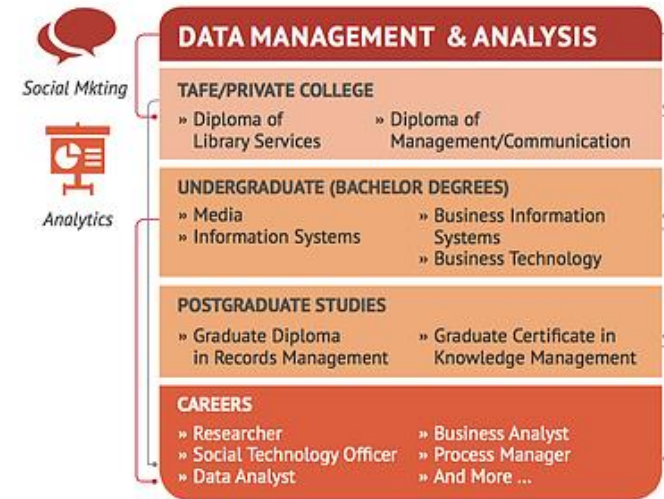
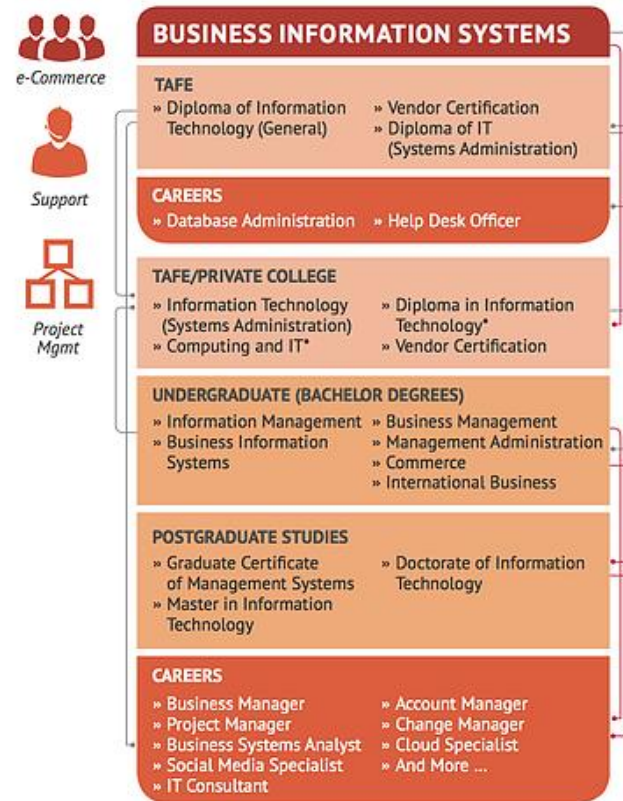
Database Administrator



Source: <https://youtu.be/z-J0YT3Y0v8>

Quantum Computing

What type of career uses this knowledge?





The Jobs of the Future ICT Career Wheel for students



The secret ingredient for landing your dream job is 'work experience'. When study is combined and integrated with an industry placement (such as an internship), more possibilities open up.

Definitions



Cell	Used to reference the data displayed in the spreadsheet or table. A cell name is created by the location of the row (number) and column (letter)
Conditions	'Rules' that you give data, so you are able to manipulate the data to make information
Data	Information (often numerical) that can be used by a computer and processed to be understood by humans. Data can be Structured (organised and formatted, easy to use) and Unstructured (no format or organisation, difficult to use)
Database	Organised collection of data, stored digitally on a computer and able to be queried (searched)
Dataset	Collection of data, often in table format (column = variable, row = a record of that variable)
Excel	Popular Microsoft Office software application used to collate numerical data
Functions	Programmable database objects that can perform operations like Sum, Average, Count, etc.
Information	Data that has been collated and manipulated so it is easy to understand. When we analyse data it becomes information
Spreadsheet	Digital files that are made up of cells organised in a table of rows and columns. A spreadsheet is used to arrange and sort data. A user can sort, filter, display in a chart and run functions with the data
SQL (Structured Query Language)	A language used in programming and designed for managing data held in a relational database management system

Analysing Data



Data can be acquired via a survey, compiled into a table or database and displayed in a visual way

Favourite Pet Type

* Required

1. What is your favourite pet type? *

- Cat
- Dog
- Bird
- Fish
- Emu

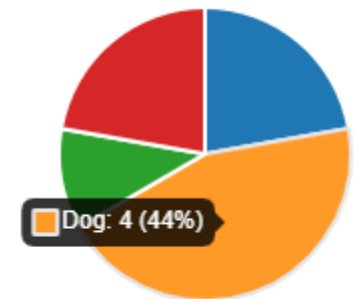
Submit

	A	B
1	ID	What is your favourite pet type?
2	1	Dog
3	2	Fish
4	3	Dog
5	4	Fish
6	5	Cat
7	6	Dog
8	7	Bird
9	8	Cat
10	9	Dog

1. What is your favourite pet type?

[More Details](#)

- Cat 2
- Dog 4
- Bird 1
- Fish 2
- Emu 0



Data

'Data refers to distinct pieces of information, usually formatted and stored in a way that is concordant with a specific purpose. Data can exist in various forms: as numbers or text recorded on paper, as bits or bytes stored in electronic memory, or as facts living in a person's mind.'

(Definition: Webopedia, What is Data?, <https://www.webopedia.com/definitions/data/>)

Data is the representation of information to find patterns and make conclusions. Processes need to be implemented to ensure data becomes meaningful information, such as collecting, storing, presenting, visualising, analysing and applying.



Data

Three examples of types of data that you would put into information:

1. Spreadsheets
2. Geodata
3. Structured data



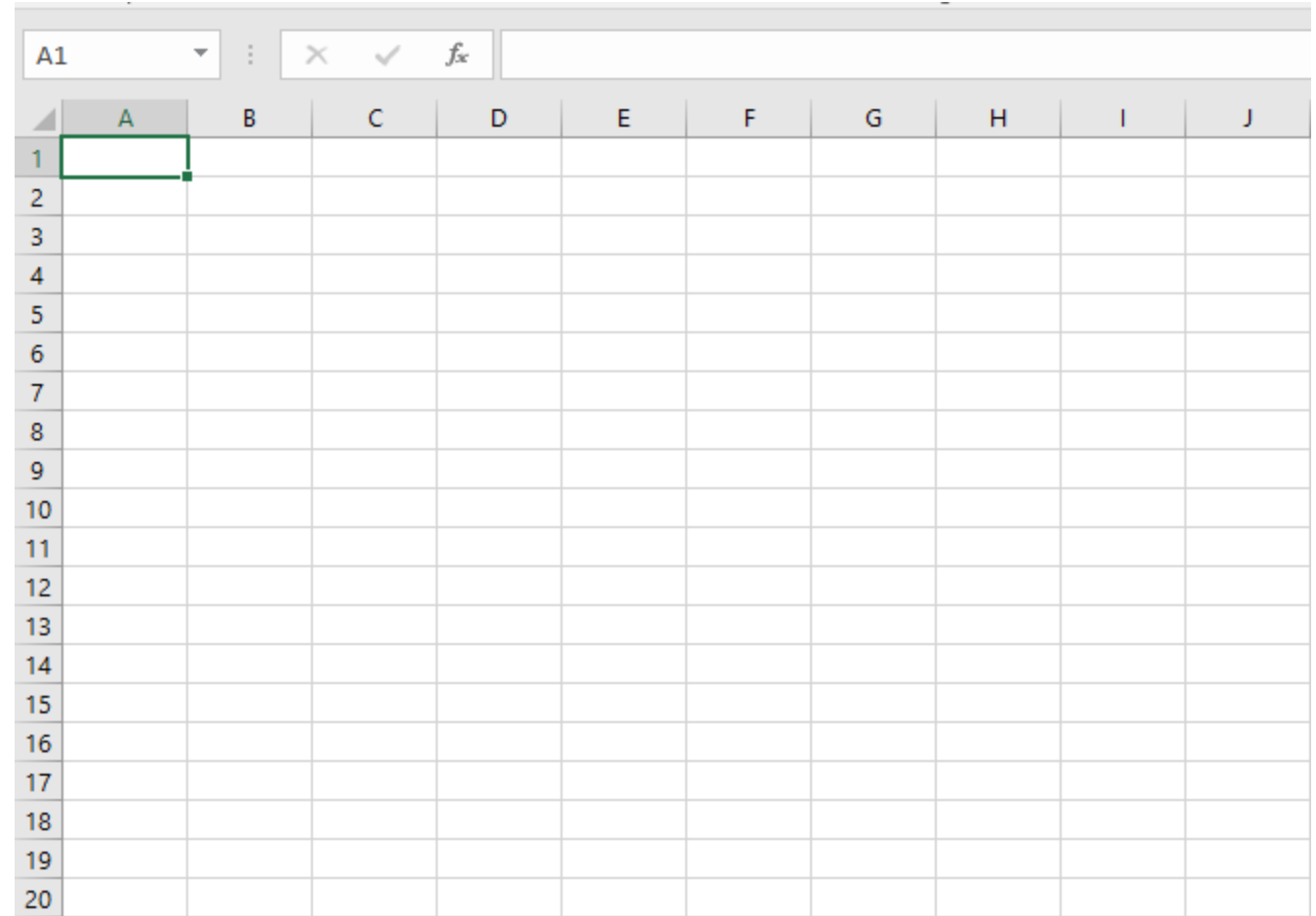
Understanding Spreadsheets



Spreadsheets are a common software tool that help sort and interpret numerical data. Data can be added into individual cells.

Imagine a spreadsheet is like a calculator. Think of all the different functions you can do within a calculator. You can do the same (and more) in a spreadsheet.

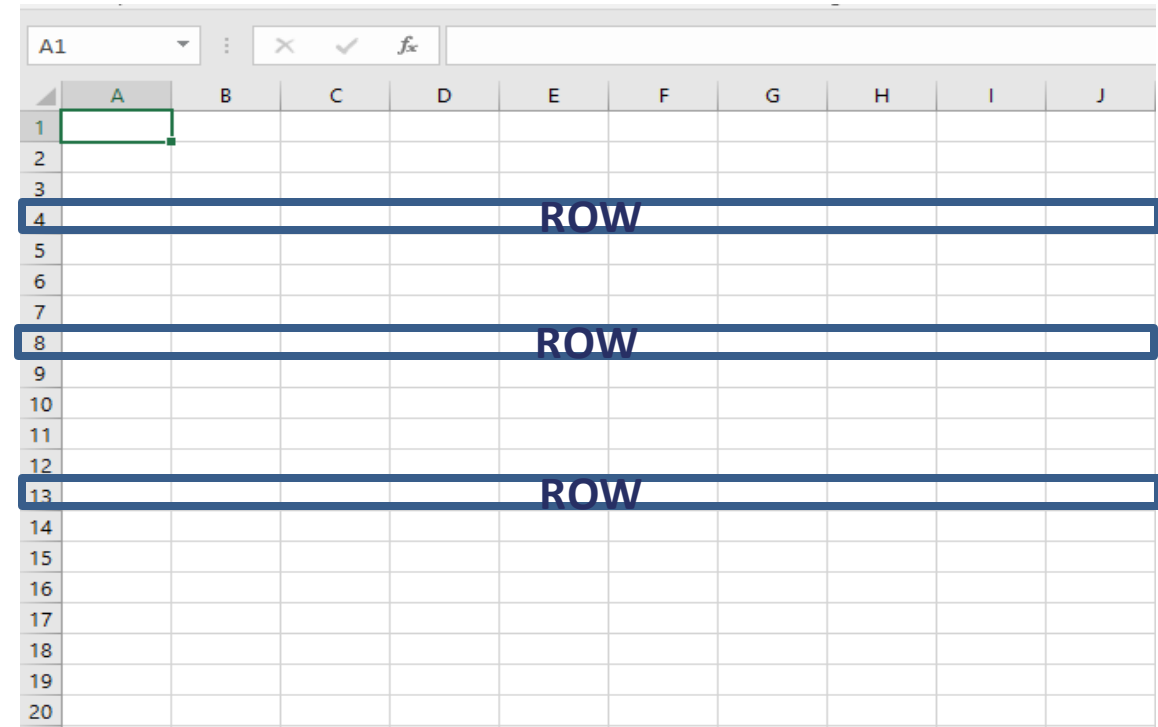
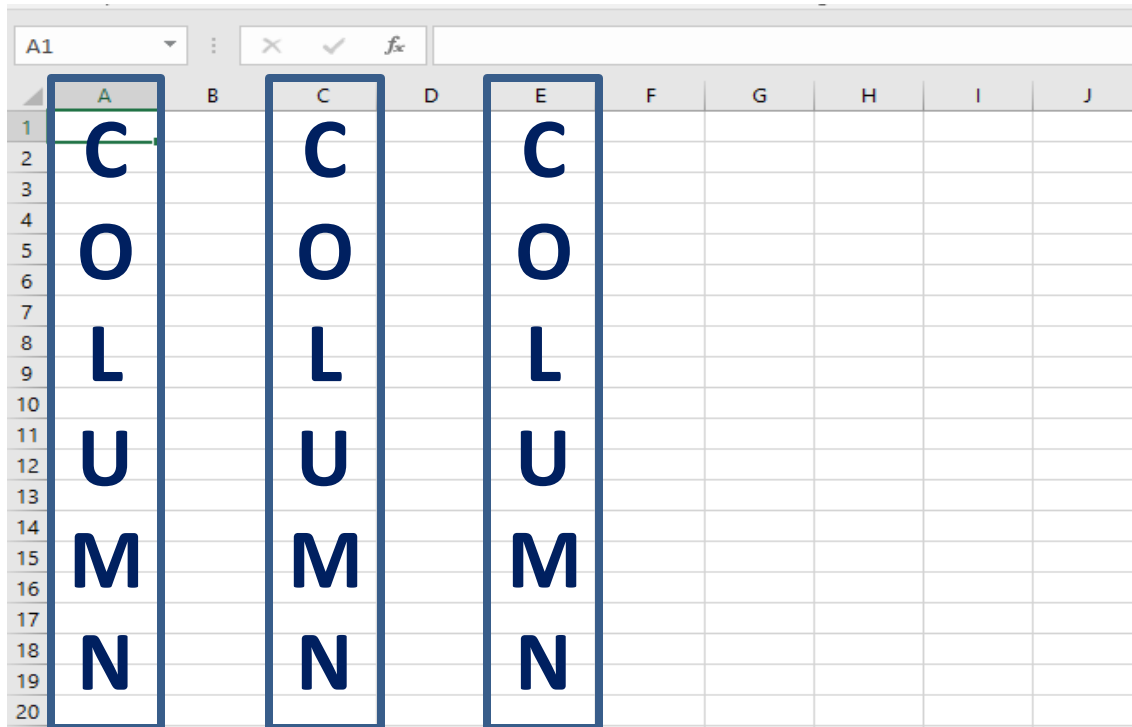
Regardless of what software you use to manipulate the data, the following are common features in all spreadsheets.



Understanding Spreadsheets



Spreadsheets are made of **columns** and **rows**.



Understanding Spreadsheets



Spreadsheets are made **columns** and **rows**.

The columns are represented by **letters**. Notice how they are in alphabetical order.

The rows are represented by numbers.

A screenshot of a spreadsheet application. The interface shows a grid of cells. The columns are labeled with letters A through J at the top, and the rows are labeled with numbers 1 through 20 on the left. The cell at the intersection of column A and row 1 is selected, indicated by a green border. The formula bar at the top shows 'A1' and contains a blank space. There are also icons for undo, redo, and insert functions.

Understanding Spreadsheets



Spreadsheets are made **columns** and **rows**.

The columns are represented by **letters**. Notice how they are in alphabetical order.

The rows are represented by numbers.

The rectangles that you see are called **cells**.

They are individually identified by using the letter and number.

A screenshot of a spreadsheet interface. The grid shows columns labeled A through J and rows labeled 1 through 20. Several cells are highlighted with blue boxes and labeled:

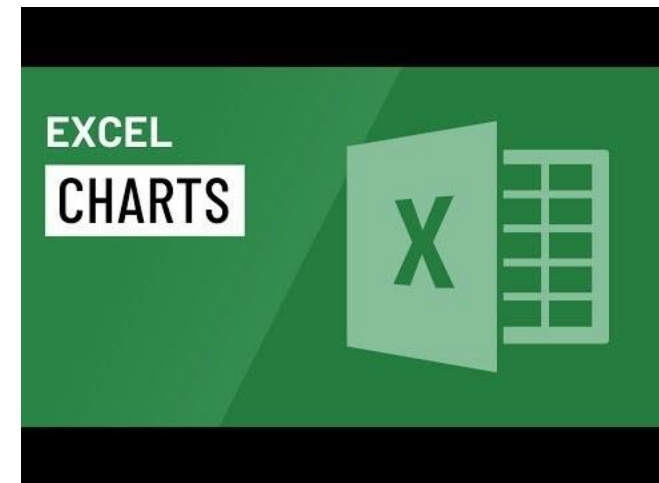
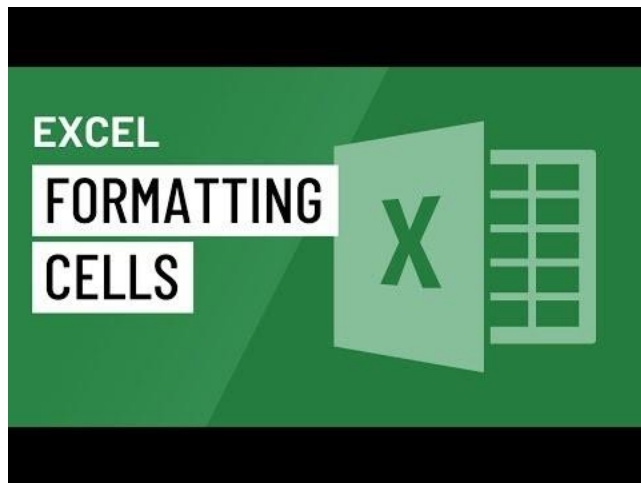
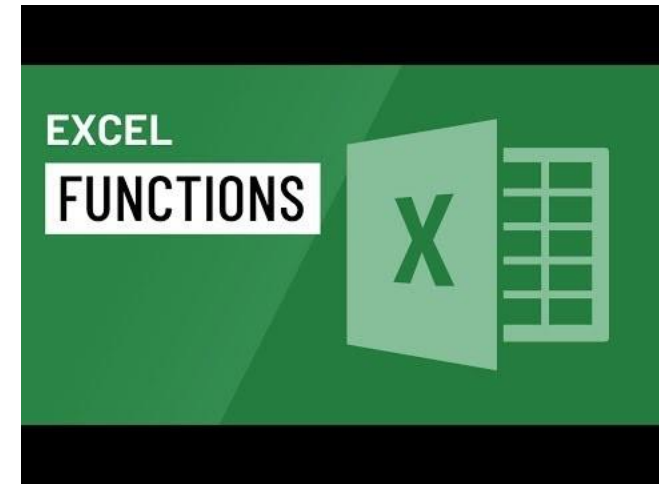
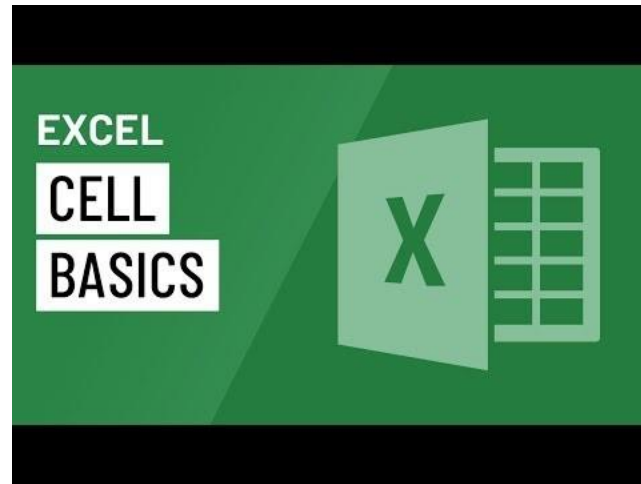
- Cell A1 is highlighted with a green border.
- Cell H3 is labeled "H3".
- Cell E5 is labeled "CELL".
- Cell B10 is labeled "CELL".
- Cell J13 is labeled "CELL".
- Cell C15 is labeled "C15".
- Cell E19 is labeled "E19".

Excel Videos



These introductory videos explain basic functions of Microsoft Excel. This information can be transferred to other spreadsheet software programs.

Video Source:
GCFLearnFree.org

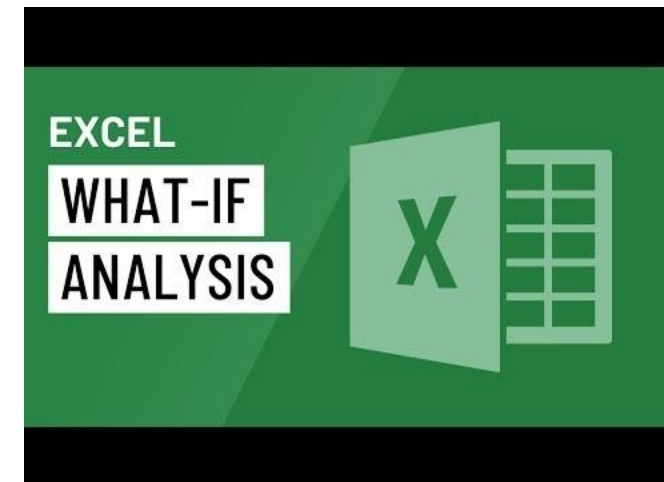
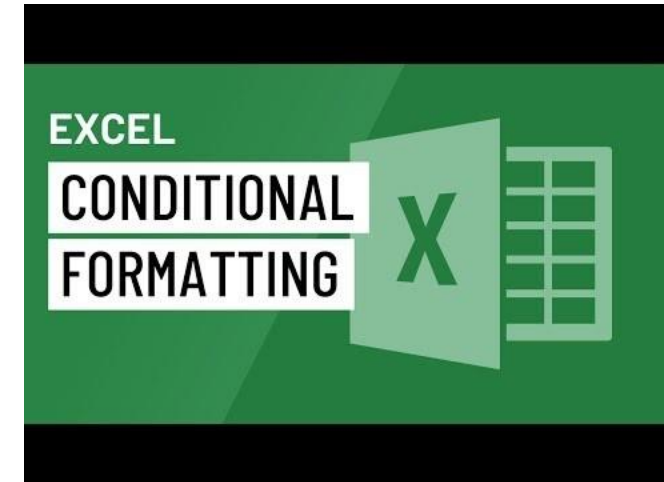
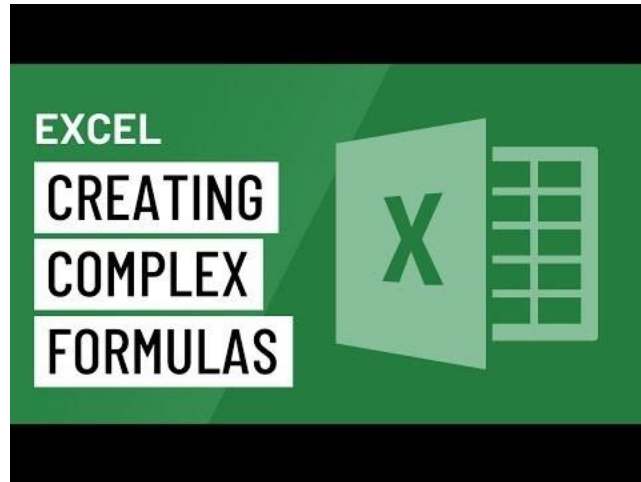


Excel Videos



These videos dive a little deeper into Excel and the functions that are available.

Video Source:
GCFLearnFree.org



SQL – Structured Query Languages

SQL is a language used to work with Relational Databases. A Relational Database stores and gives access to data points that are related to one another. SQL can be used to insert, search, update, and delete database records. SQL is short for 'Structured Query Language' and is pronounced as 'S-Q-L' or 'See-Quel'.



Video Source: Danielle Thé

Acknowledgements



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ACS is the professional association for Australia's technology sector. More than 48,000 ACS members work in business, education, government and the community. ACS exists to create the environment and provide the opportunities for members and partners to succeed.

ACS strives for technology professionals to be recognised as drivers of innovation in our society, relevant across all sectors, and to promote the formulation of effective policies on technology and related matters. Visit www.acs.org.au for more information.

About the ICT GISP

The Information and Communications Technology Gateway to Industry Schools program encourages partnerships between industry, government, schools and their communities to build Queensland's future information technology workforce. The program provides an important opportunity to address the significant shortfall of young, emerging ICT talent in Queensland. Access more information and ICT teaching resources below:

ICT GISP Website - <https://qldictgisp.acs.org.au/home.html>

ICT Educators Community of Practice - <https://www.acs.org.au/ict-educators.html>

The Big Day In ICT Careers - <https://www.thebigdayin.com.au/>

ICT Careers Wheel - <https://qldictgisp.acs.org.au/career-pathways.html>



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