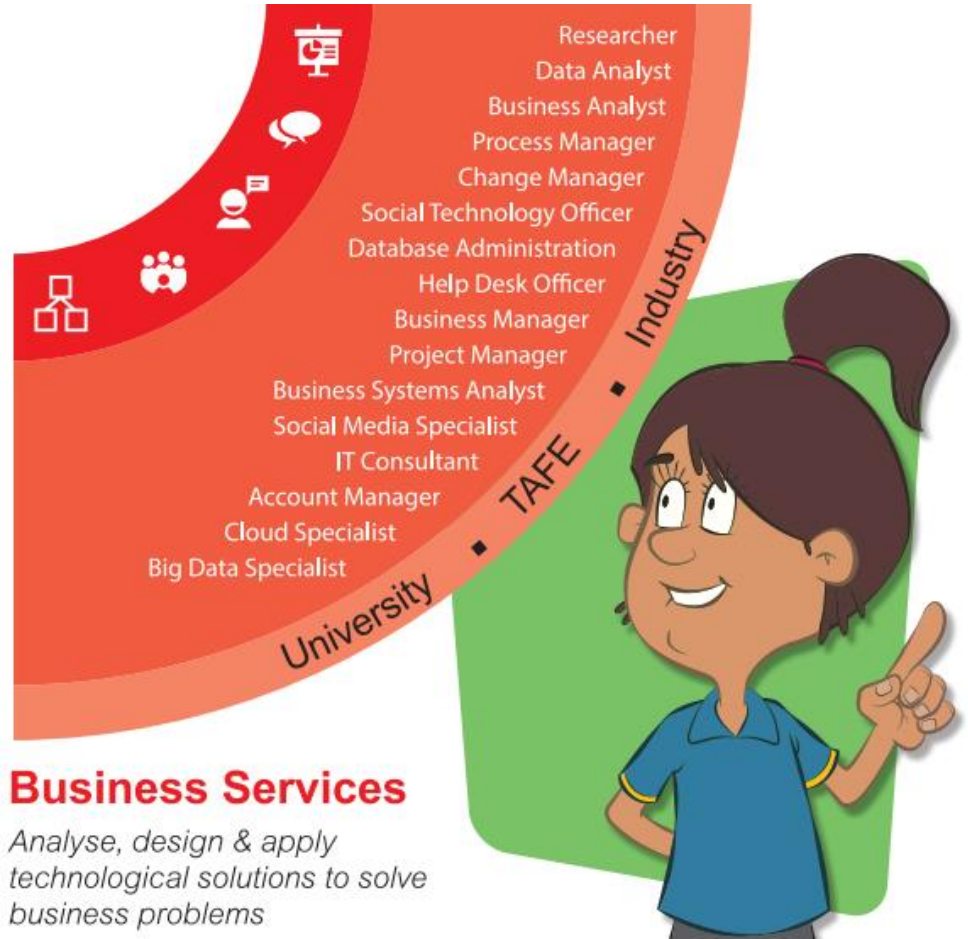
Data Sources

LEVELS 7-8

Acquire data from a range of sources and evaluate authenticity, accuracy and timeliness (ACTDIP025)

What type of career uses this knowledge?

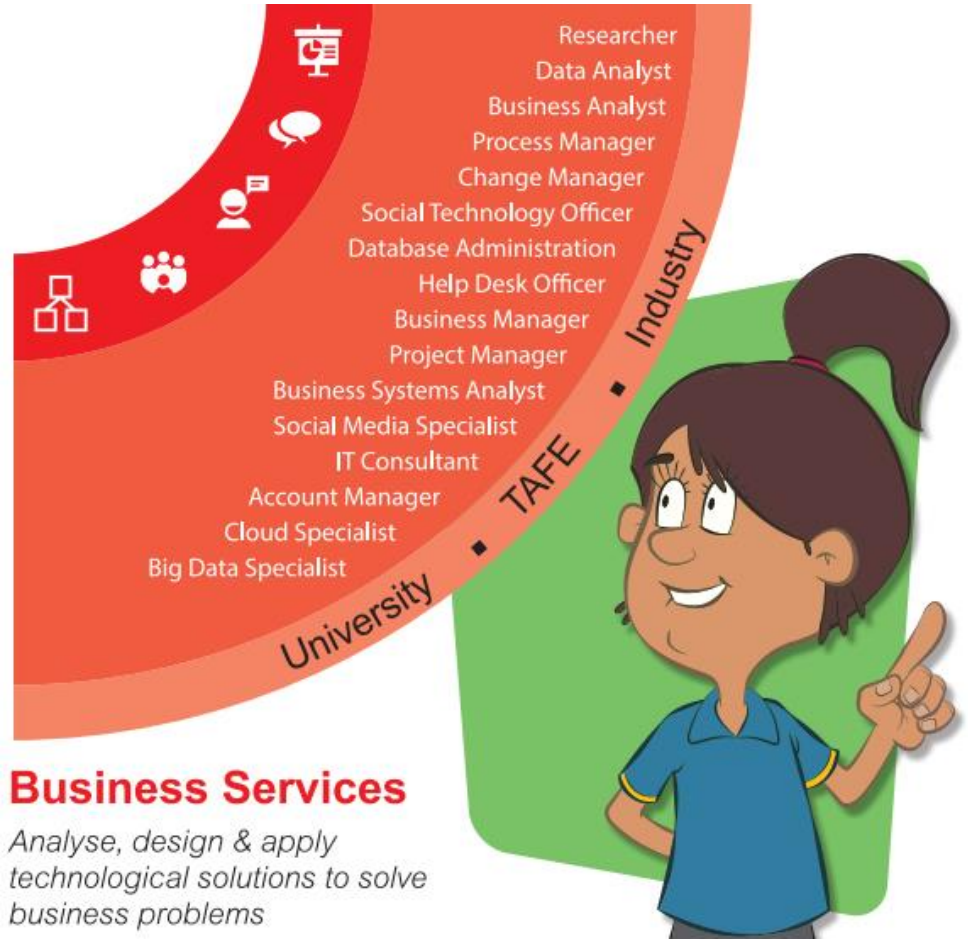


Business Services

Marketing / Consulting

Analyse, design and apply technological solutions to solve business problems

What type of career uses this knowledge?



Business Services

Social Media Specialist

Thinking strategically, Engaging and compelling communication skills, Web Design and Management, Content Creation, SEO and SEM to improve web user experience

What type of career uses this knowledge?

Business Services

Business Analyst

The focus of a business analyst is to review and analyse an organisation's business, including its business intentions, business services, business processes and information needs.

What type of career uses this knowledge?

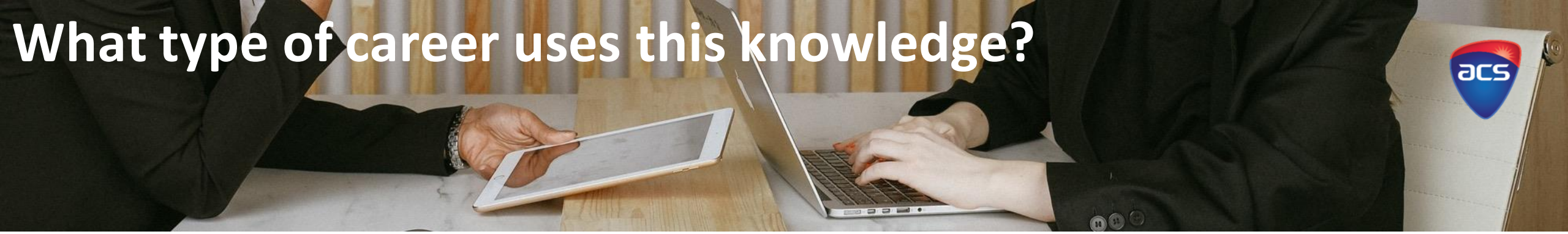
Social Media Specialist

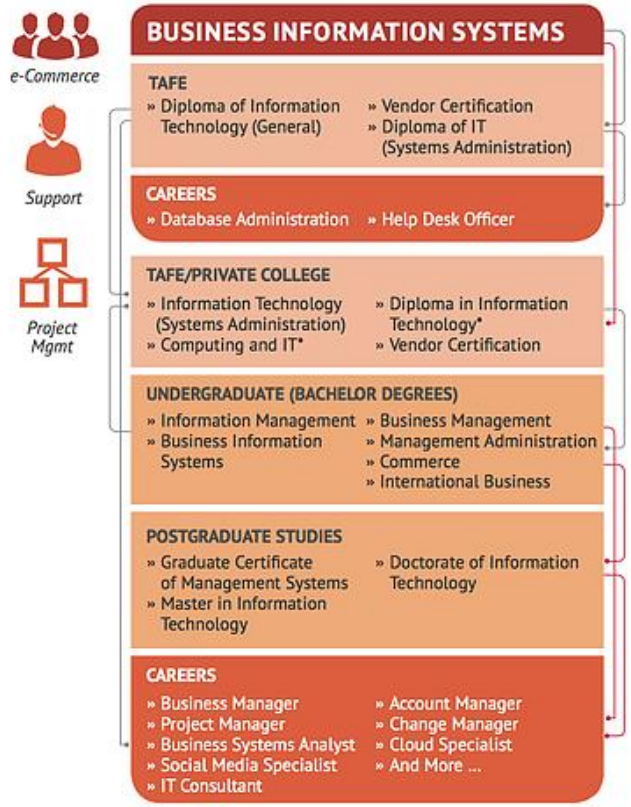
Source: https://youtu.be/nih-PCiLXTs

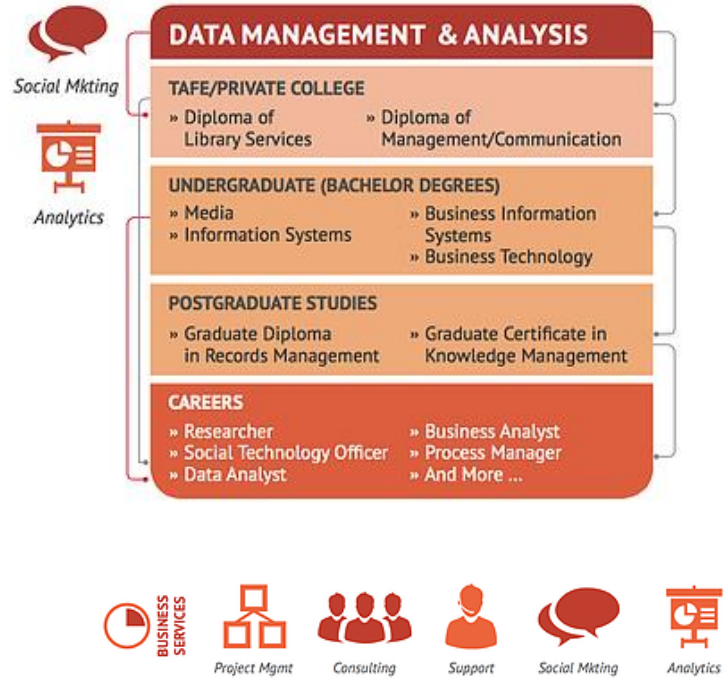
Business Analyst

Source: https://youtu.be/GKL2CZSZpBQ

What type of career uses this knowledge?







What type of career uses this knowledge?

The Jobs of the Future
ICT Career Wheel *for students*

High School
+
Tafe/Uni
+
Work Experience
=
Dream Job

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

Algorithm	A sequence or set of rules written as part of the code upon which software or processes are built
Browser	An application used to access information and sites on the internet (World Wide Web)
Data	Information (often numerical) that can be used by a computer, and processed to be understood by humans
Database	Organised collection of data, usually stored digitally on a computer and able to be queried (searched)
Dataset	A collection of data, often in table format from which conclusions can be inferred (column = variable, row = a record of that variable)
Datum	Singular example of data. Datum is a single value of a single variable
Digital	Electronic technology that generates, stores, and processes data in positive and non-positive (binary)
Hierarchy	Order or ranking related to importance
Indexing	The process of a search engine collecting, parsing and storing data
Omnibox	Text search field / address field at the top of a web browser that can be used for web searches
Query	Asking questions of data, using software, in order to output a specific answer
Search Engine	An application that searches the internet when a user types in a search term (powered by algorithms)
URL	Uniform Resource Locator or web address of a website or resource

What is a Search Engine?

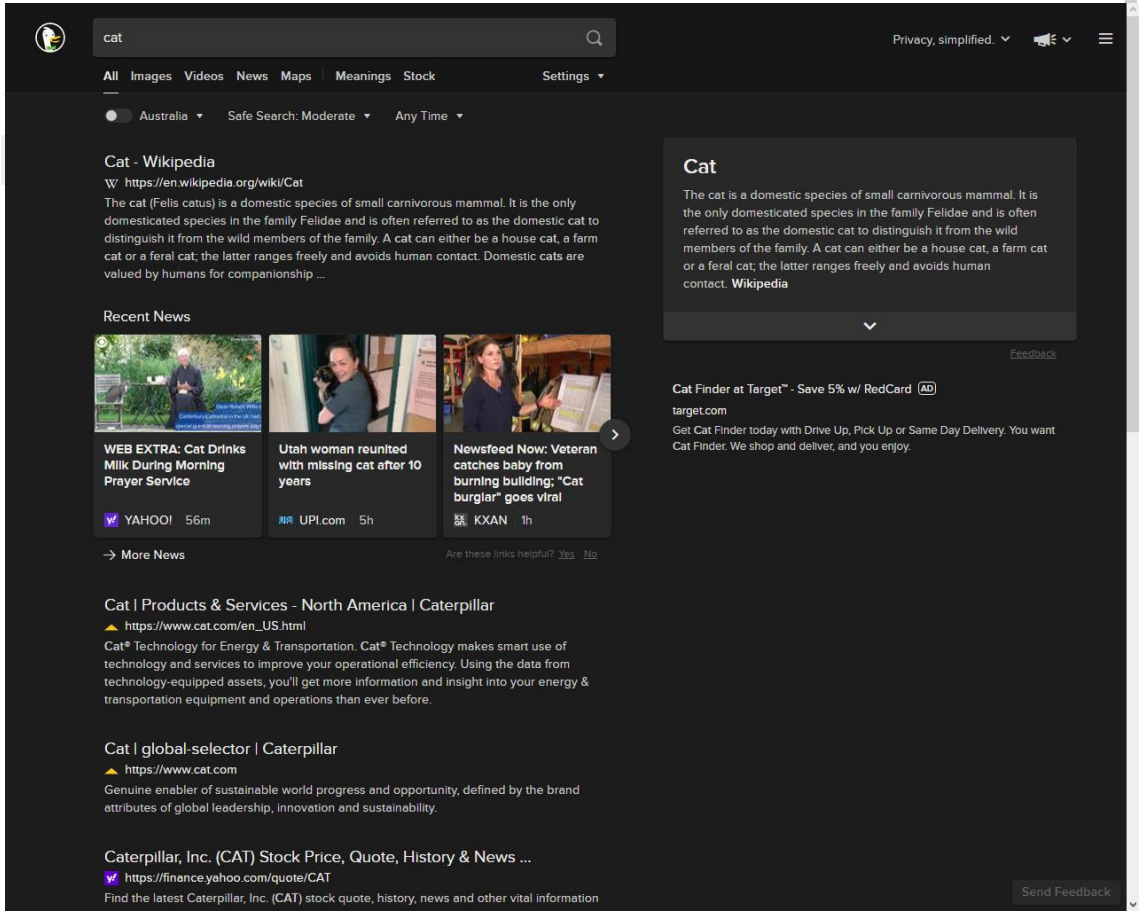
A search engine is an application that works inside a browser

You type in a search term (query) and the engine will search the internet webpages for that term (words, phrases, sentences, etc)

As you can see in the images, different search engines like Google, Bing and Duck Duck Go can return different results on the same query

Some search engines use your email and internet history to determine the results

Search engines can even search for images and sounds



How does a Search Engine Work?

There are trillions of webpages on the internet
A search engine ranks pages when it displays the search query results
Web search algorithms determine the hierarchy of returned search results
Even before a search, web crawlers collect information from many billions of pages on the internet
This data is processed and indexed, and each page ranked in a hierarchy of relevance to the search term
The relevance is determined by the search algorithms and things like location, page popularity and search history

Search Engine Optimisation

SEOs analyse a website and implement changes to optimize it for search engines and to increase web traffic.

Degree
TAFE: Diploma of Digital Marketing
Undergraduate:

- Bachelor of Information Technology
- Bachelor of Communications
- Bachelor of Marketing

Skills: Online marketing, Programming, Web design and Content Production.

How does a Search Engine work?

Data Analyst

Compile and analyse information and statistics for businesses, identify problems and suggest possible solutions, design and build databases to house data while ensuring data accuracy.

Degree
Undergraduate:
- Bachelor of Information Technology
- Bachelor of Statistics

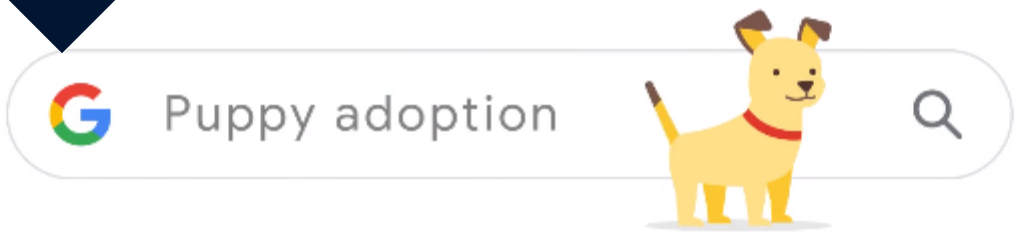
Postgraduate:
- Master of Information Technology

Skills: Programming, Statistic Analysis Techniques, Data Visualisation, Database Systems

How Google Search works

Every time you search, there are thousands, sometimes millions, of webpages with helpful information. How Google figures out which results to show starts long before you even type, and is guided by a commitment to you to provide the best information.

Click the search bar to learn about how Google searches the internet



Searching more effectively with modifiers

You can use a modifier technique to make your search more effective

Search for an exact phrase using “”

“we’ve golden soil and wealth for toil”

Use “and” so both queries appear

“Wally Lewis” and “rugby league”

Use “or” to search multiple terms

“fish” chips or potato cakes

Use Site: to search for a term in a specific site

SITE:acs.org.au "educator"

InURL: will only return Web pages that have your query in the actual URL

- InURL:animal

Intitle: will refine search to only pages that have your query within the title

- Intitle:computer

Filetype: will search for that file type

- spaceship filetype:pdf

Data Sources

	A	B	C	D	E	F
1	**Order ID**	**Product**	**Category**	**Amount**	**Date**	**Country**
2	1	Carrots	Vegetables	$4,270	1/6/2012	United States
3	2	Broccoli	Vegetables	$8,239	1/7/2012	United Kingdom
4	3	Banana	Fruit	$617	1/8/2012	United States
5	4	Banana	Fruit	$8,384	1/10/2012	Canada
6	5	Beans	Vegetables	$2,626	1/10/2012	Germany
7	6	Orange	Fruit	$3,610	1/11/2012	United States
8	7	Broccoli	Vegetables	$9,062	1/11/2012	Australia
9	8	Banana	Fruit	$6,906	1/16/2012	New Zealand
10	9	Apple	Fruit	$2,417	1/16/2012	France
11	10	Apple	Fruit	$7,431	1/16/2012	Canada
12	11	Banana	Fruit	$8,250	1/16/2012	Germany
13	12	Broccoli	Vegetables	$7,012	1/18/2012	United States
14	13	Carrots	Vegetables	$1,903	1/20/2012	Germany

Structured and Unstructured Data

Source: https://youtu.be/xo1cUDdVI9M

Quantitative Data - Structured

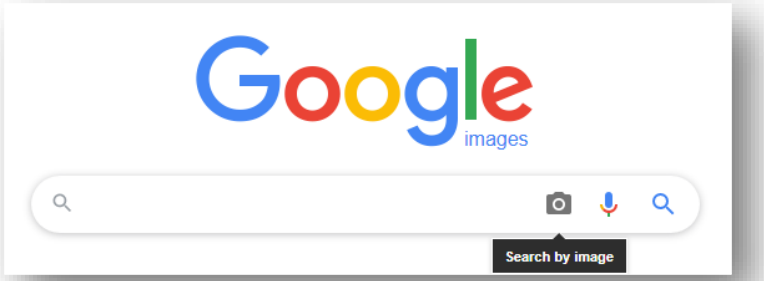
- Highly organised and formatted
- Easily searchable
- Measurements, Numerical data, Survey data and polls

Qualitative Data - Unstructured

- No pre-defined organisation or format
- Text, Images, Audio, Descriptions and Interviews

Acquiring Data

Computers are now able to search for unstructured data like images and sound



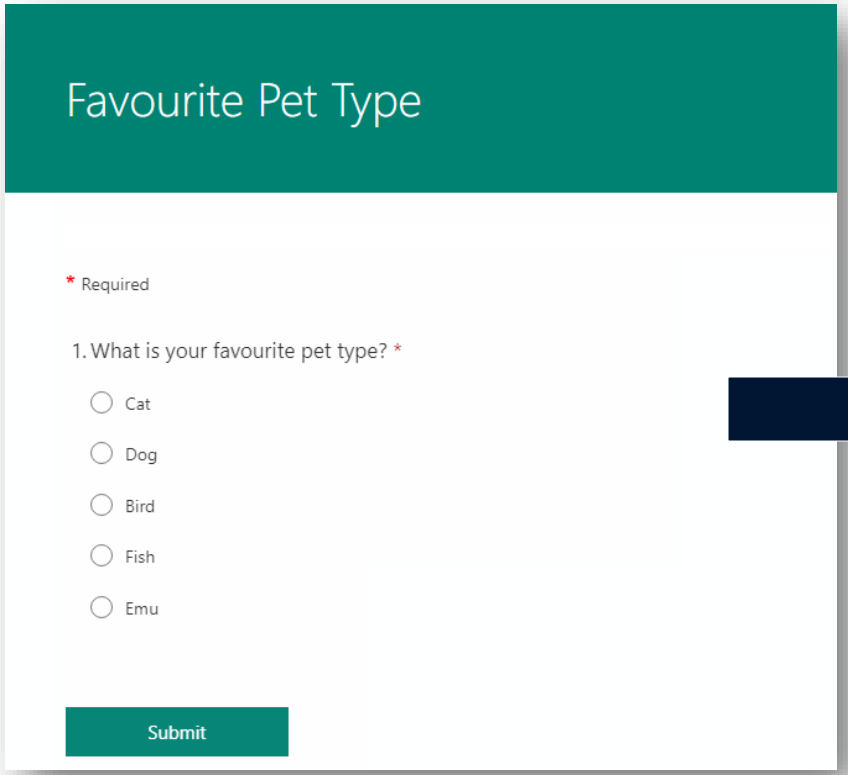
DATA

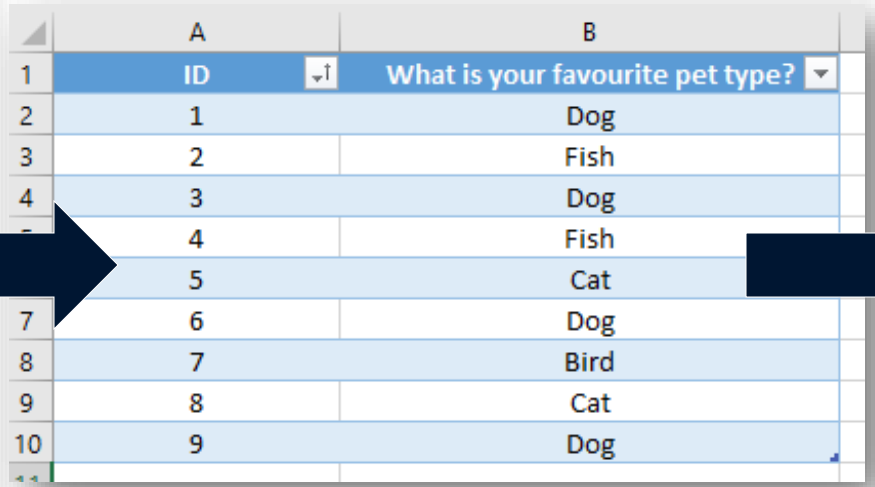
Acquire & analyse data based on criteria and requirements

ACQUIRING DATA	ANALYSING DATA
Gather data from different sources.	Present the data in a meaningful way to interpret
Evaluate the quality of the data based on: Authenticity, accuracy, timeliness	Use different software programs to visual the data to create information.

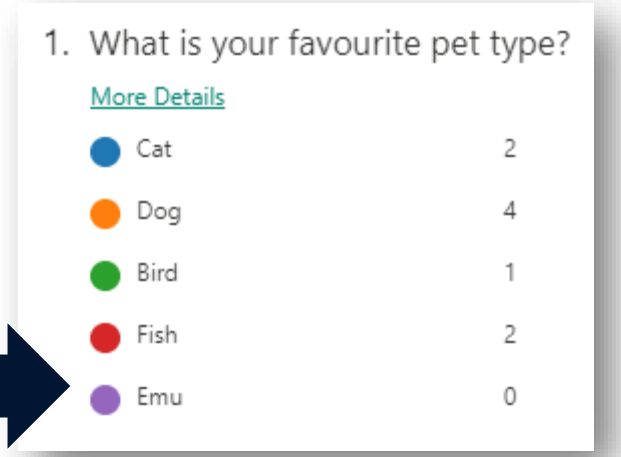
Analysing Data

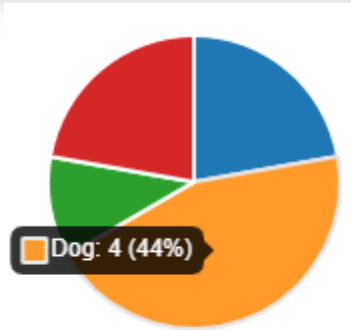
Data can be acquired via a survey, compiled into a table or database and displayed in a visual way





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





Fake News! Authenticating Data

There are a few things to recognise when using online resources. Always determine:

Authors and Publishers	Who wrote and published the content?
	Are they trying to make you think a certain way?
	Can you trust them?
	Where was it published?
	Is the publisher an expert or pushing an agenda?
	Look for .org, .edu and .gov in the URL
Relevance and Date	When was it published?
	Is the information up to date?
Accuracy	Are the facts truthful and from primary sources?
	Is the writing accurate or full of errors?
Purpose and Objectivity	Why was it written?
	Is the writer trying to tell you how to think?
Links and sources	Does the writer cite the information sources?
	Are the sources factual and truthful?

(Source: Hosting Facts, The Complete Guide to Evaluating Online Resources, https://hostingfacts.com/evaluating-online-resources/, viewed July 2020)

Technical Advisor

Ash Raina, *from* Knowledge Partner Professionals (KPPro), is the founder of the Brisbane headquartered IT and Digital services company. KPPro is a global business technology services provider, catering to Australia, New Zealand, Dubai and other parts of globe. KPPro has its development eco-system locally as well as in India. KPPro offers end-to-end development services including design, development, customization and integration into the client's business and legacy applications, as well as digital solutions and services.

With a Bachelor of Engineering in Computer Science from the prestigious Pune University (India), Ash has lived and worked with clients in different regions like the US, Europe, ASEAN and ANZ and brings his expertise in growing business and managing regions with diverse cultures.

Ash's philosophy ***"Spread Passion with Respect and Compassion"*** is the hallmark he believes in passionately, in professional and personal spheres of life.

Ash regularly mentors interns and students and has also been involved in the National Seniors / Be Connected program. Ash's expertise and oversight have guided the publication of the resource and the ACS thanks Ash for his partnership in the ICT Gateway to Industry Schools program.

KPPRO
Your IT & Digital Partner

Acknowledgements

About ACS

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

The Department of Employment, Small Business and Training funds this Gateway to Industry Schools Program initiative

Acknowledgements