

1.1 What is data?

- A collection of numbers, letters and symbols without structure or meaning.
- Data is raw and unprocessed
- Example:
 - Dubai,1,24,12,2,25,16,3,29,18,4,33,21,5,38,25

1.1 What is information?

- Processed data which gives it structure, context and meaning.
- Processing may include performing calculations upon the data.
 - Such as summary totals, averages, maximum and minimum values.

Data

Dubai,1,24,12,2,25,16,3,29,18,4,33,21,5,38,25

Processing

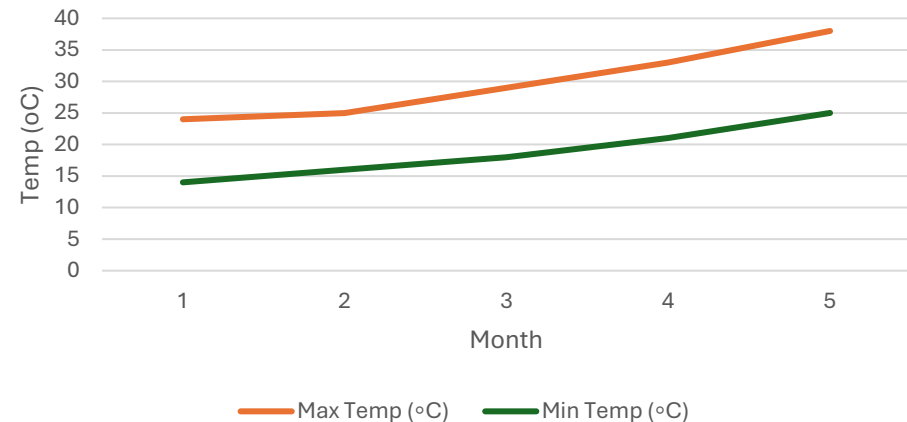
Information that can be obtained:

- The highest temperature of a certain month
- The lowest temperature of a certain month
- The hottest month
- The coldest month

Information

Location	Month	Max Temp (°C)	Min Temp (°C)
Dubai	1	24	14
Dubai	2	25	16
Dubai	3	29	18
Dubai	4	33	21
Dubai	5	38	25

Maximum and Minimum temperatures in Dubai from January to May



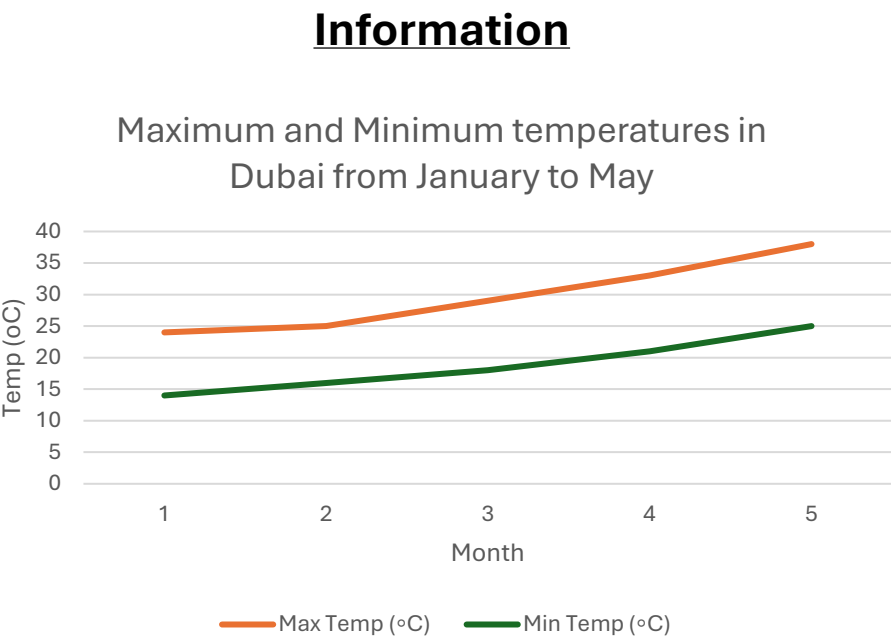
1.1 What is knowledge?

- The understanding that we gain from the information.
- The application of information.

Example

The temperate increases consistently from January to May.

If I travel to Dubai in May I need to pack for warm weather.



Location	Month	Max Temp (°C)	Min Temp (°C)
Dubai	1	24	14
Dubai	2	25	16
Dubai	3	29	18
Dubai	4	33	21
Dubai	5	38	25

Relationship between data, information and knowledge

- You can't have knowledge without information, and you get produce information without data.
- Data is useless unless it is processed as it has no meaning.
- Processing data to become information makes it meaningful.
- Using the information makes it useful.

1.1 Sources of data - Sensors

- Can collect readings and send them to a microprocess to be processed into information.

Robot paint spraying

- Collects data about the position of the robotic arm.
- Performs calculations to upon the data to determine where the arm needs to move to next.
- It can collect data upon the amount of paint left and notify the human supervisor when it is getting low.

Shop checkout till (POS)

- Collects data from a barcode scanner about the product the shop is buying.
- The barcode number is looked up in a database which contains additional information about the product such as the price, description. These are returned to the till.
- The number in stock is updated once the transaction is completed.
- The data presented upon the receipt is information. It will include calculations of the total amount paid for each individual item.
- Items that reach a set level of stock are added to reorder list. This is information as it notifies the owner of the stock that must be reordered.
- The owner can use the information of recent sales to know what items are sell best and ensure that they always have stock of these items.

1.1 Sources of data – Other sources

- Can collect readings and send them to a microprocess to be processed into information.

- People
 - Obtaining information from family, friends and teachers.
 - People communicate with using information rather than data.
- Books
- The Media
 - Newspapers, Magazines, TV, Radio, streamed content.
- The Internet
 - Vast amount of information available.
 - Some information might be inaccurate or false.

1.1 Impacts of data on society

Positives

- Storing data digitally makes it quicker and easier to exchange data than traditional methods (e.g. post).
- Businesses can use data to improve their services, efficiency.
- Collecting and analysing medical data can help develop treatments and cures to illnesses.

Negatives

- Privacy
 - Data is collected about every aspect of own lives. Data can be misused which could be an evasion of privacy.
- Security issues
 - Data can be stolen, and this could result in identify theft or fraud
- The digital divide
 - The gap between those who have access to technology and those who don't.
 - Those who don't have access are unable to gain the benefits from using the information the technology provides.