SuperNovaSchool®
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Computing

Grade 5

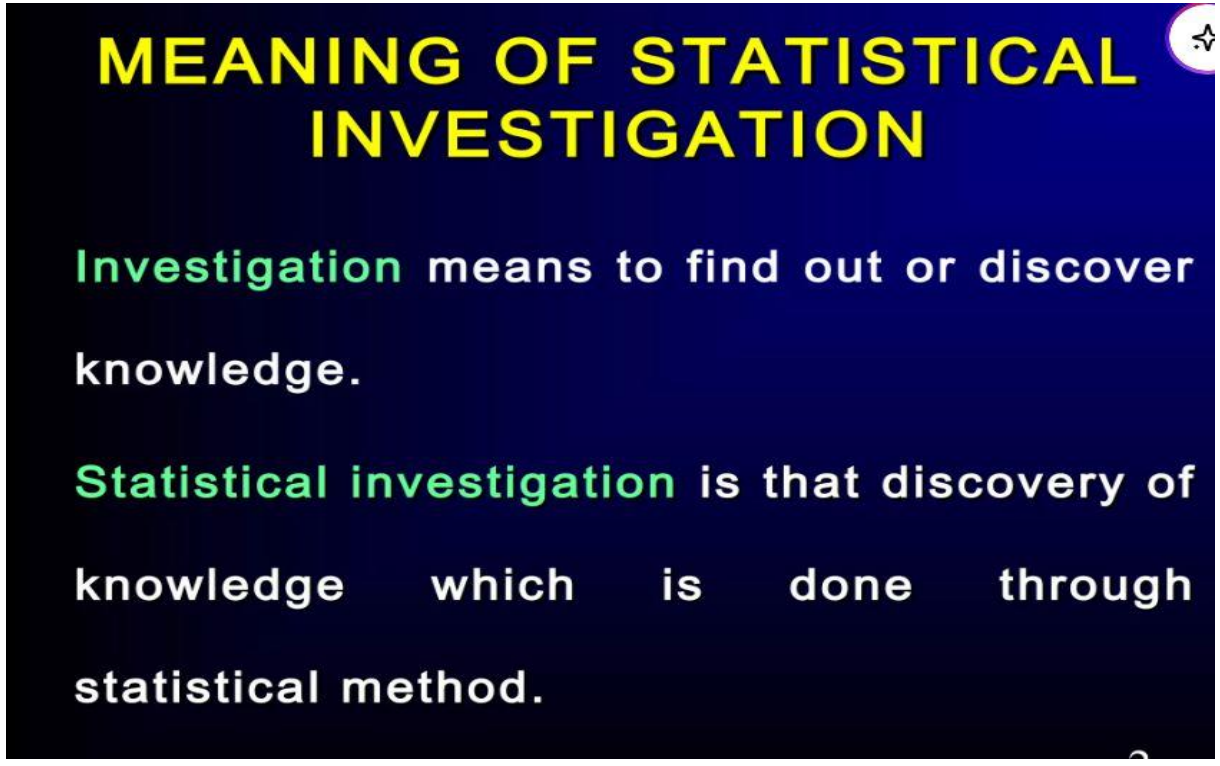
(Instructional Resource)

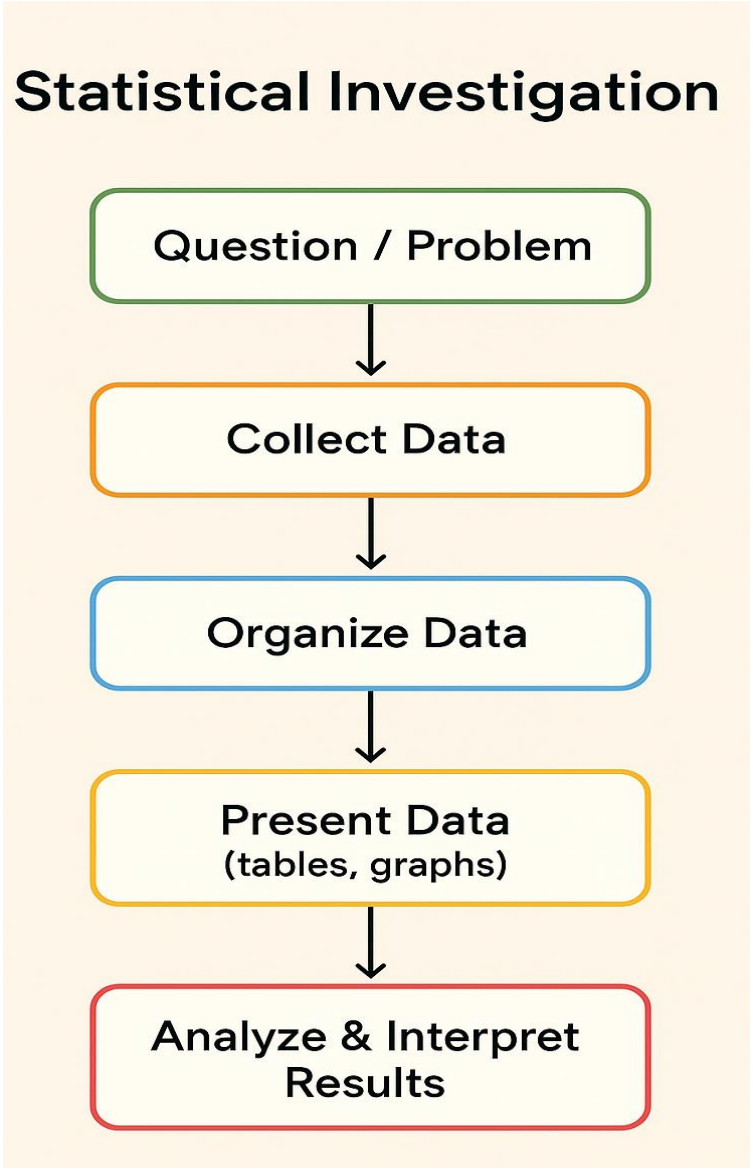
UNIT/STRAND	Unit 2 Managing Data
TOPIC	2.1 Collecting and Storing Data
Sub Topics	
Session	2025-26
Prepared By	Ms. Anooshay

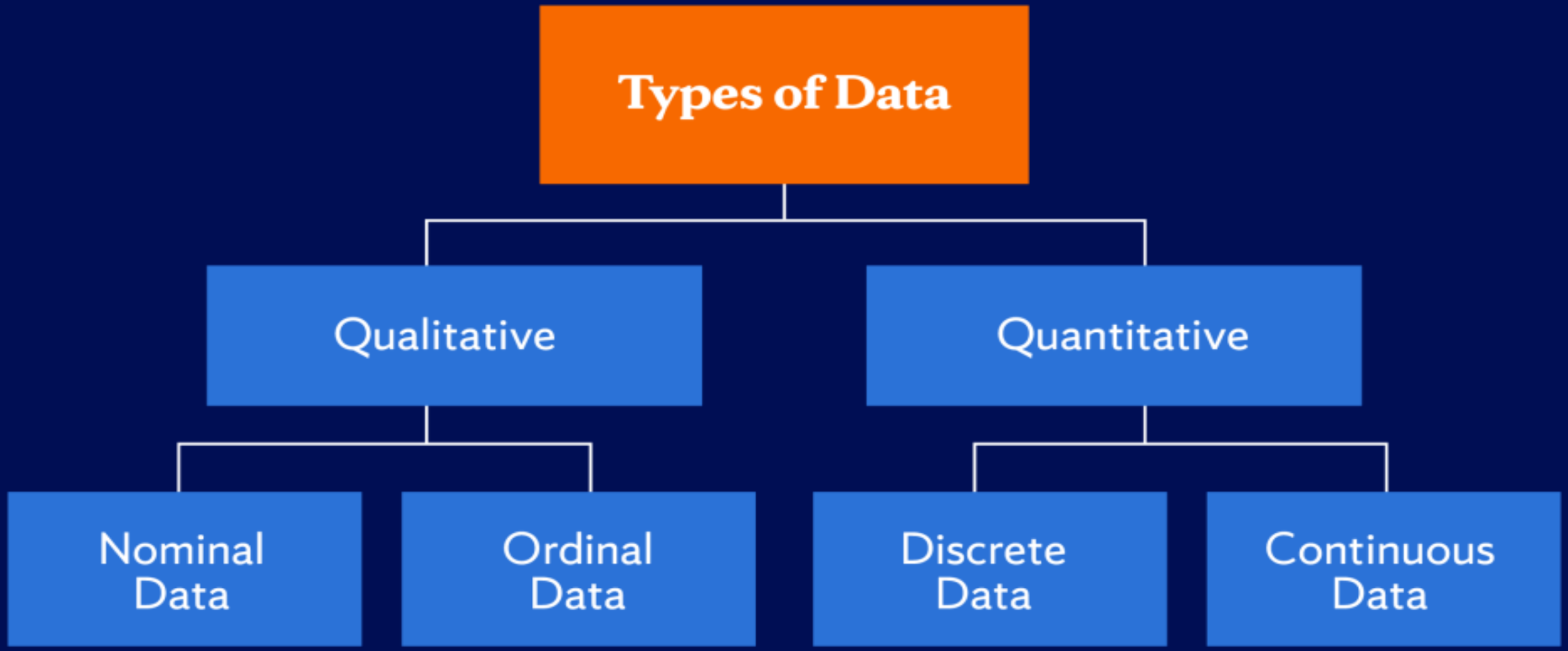
2.1 Collecting and Storing Data

What is statistical investigation?

- Statistical Investigation: A statistical investigation is the process of collecting and analyzing data to find useful information.






Types of Data
Qualitative
Quantitative
Nominal Data
Ordinal Data
Discrete Data
Continuous Data

2.1 Planning a Statistical Investigation

Qualitative data/ Categorical Data

Nominal Data	Ordinal Data
No order or ranking Not ordered	Has a specific order or ranking Ordered
Example: Gender (male, female) eye color (blue, brown) city (Lahore, Karachi) Dog breed	Example: Grades (A, B, C) satisfaction level (happy, neutral, sad) Ranking (1st, 2nd, 3rd)

2.1 Planning a Statistical Investigation

Quantitative Data/ Numerical Data

Discrete Data	Continuous Data
Data that can be **counted**	Data that can be **measured**
Only **whole numbers**	Can have **any value**, including decimals
Number of students, number of cars, goals scored	Height, weight, temperature, time

2.1 Collecting and Storing Data

Types of data

- 1. Categorical data: Information grouped into categories (e.g., colors, names of fruits).
- 2. Discrete data: Numerical and counted in whole numbers (e.g., number of books, students).
- 3. Continuous data: Numerical and measured, not counted (e.g., height, weight, temperature).

2.1 Planning a Statistical Investigation

Tools We Use When Working With Data

- We use various digital tools to collect, store, organize, and analyze data, including:
- 1. Data loggers
- 2. Spreadsheets
- 3. Databases
- 4. Forms
- 5. Document production tools

2.1 Collecting and Storing Data

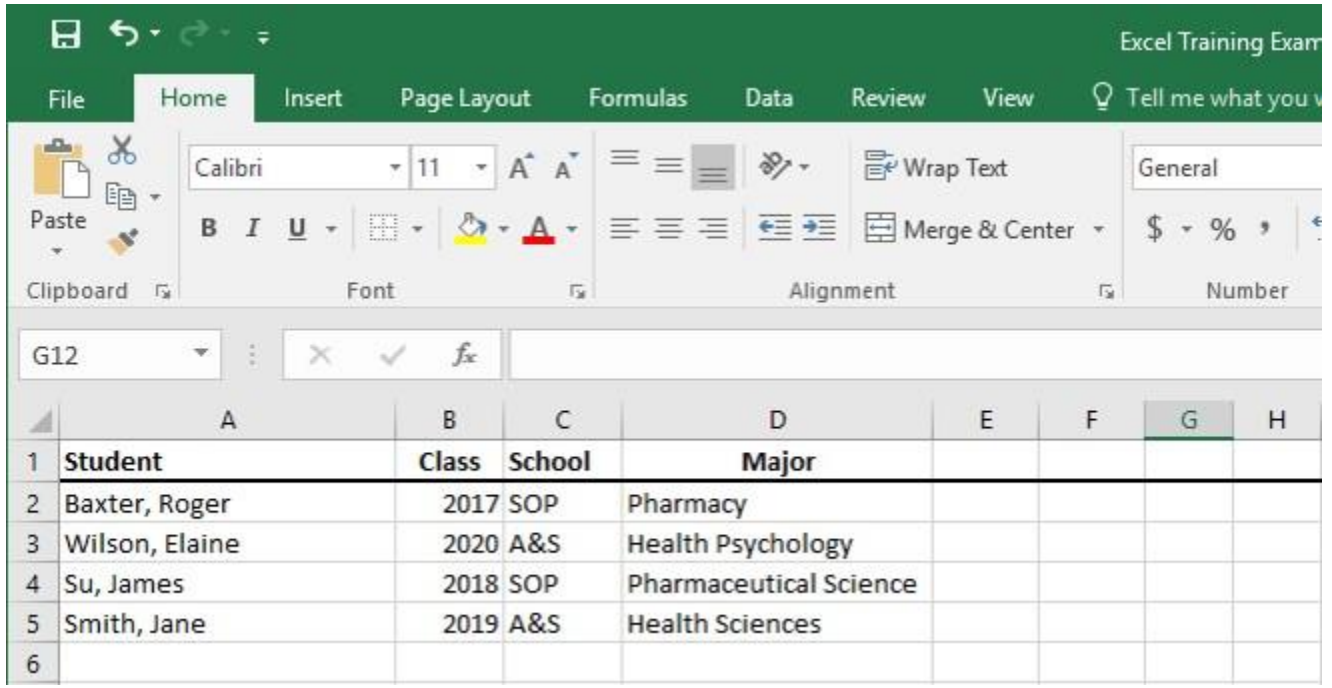
Data Loggers

- Data loggers are electronic tools that automatically collect information over time, often used in experiments to record temperature, light, or sound without human help.

2.1 Collecting and Storing Data

Spreadsheets

- Spreadsheets are digital tables for storing and calculating data. Programs like Microsoft Excel or Google Sheets help us organize data into rows and columns, performing calculations with formulas

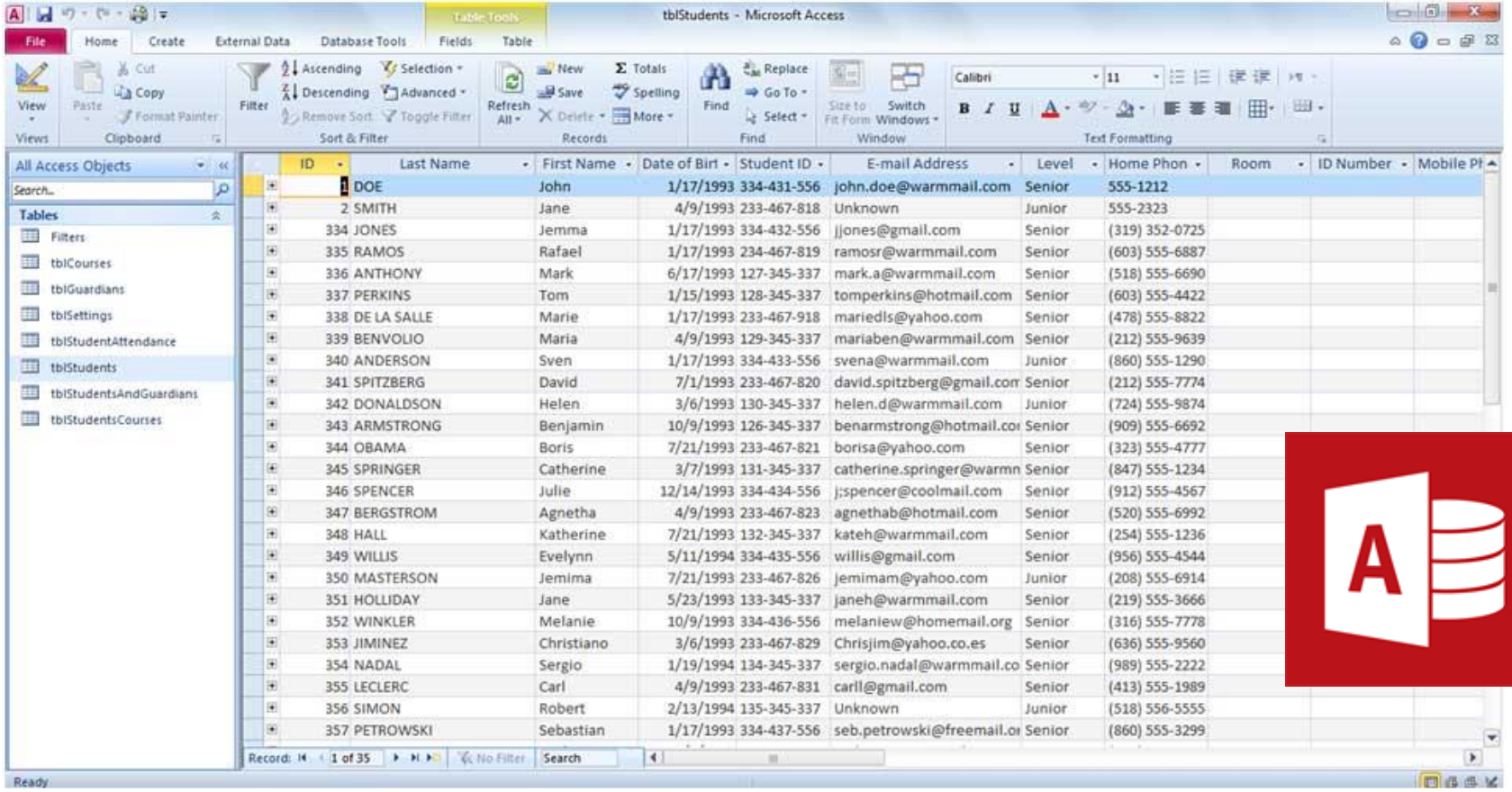


	A	B	C	D	E	F	G	H
1	**Student**	**Class**	**School**	**Major**				
2	Baxter, Roger	2017	SOP	Pharmacy				
3	Wilson, Elaine	2020	A&S	Health Psychology				
4	Su, James	2018	SOP	Pharmaceutical Science				
5	Smith, Jane	2019	A&S	Health Sciences				
6								

2.1 Collecting and Storing Data

Databases

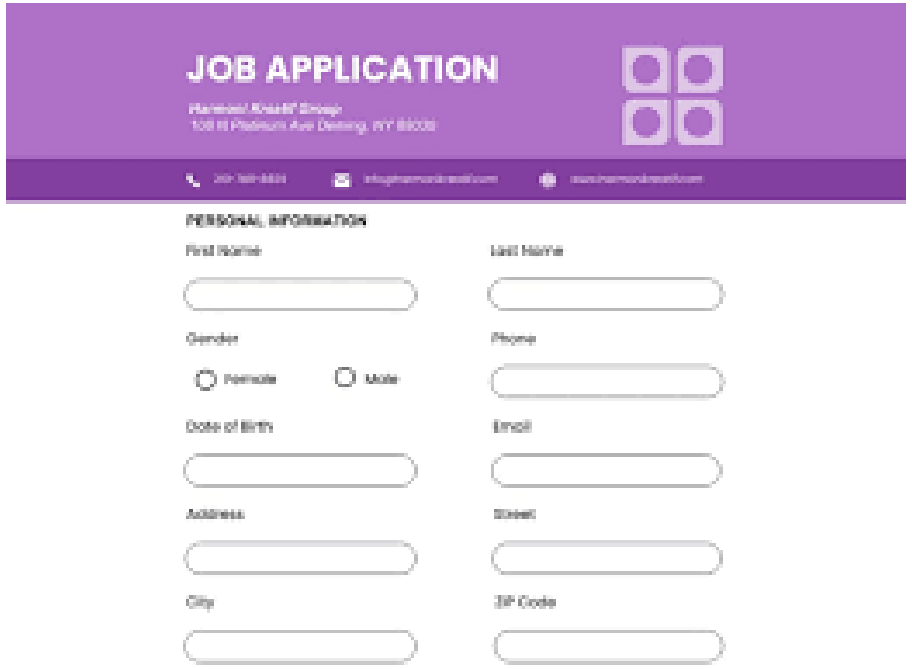
- Databases store large amounts of organized data. They are used in schools, libraries, and businesses. A database contains tables, each with fields (columns) and records (rows).

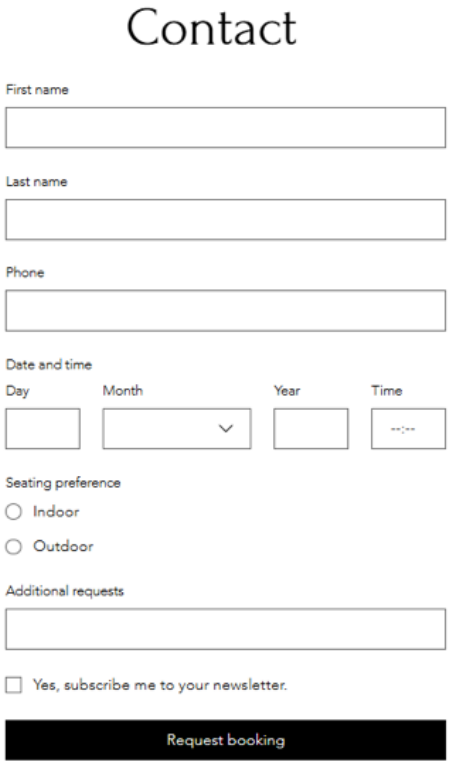


2.1 Collecting and Storing Data

Forms

- A form is a list of questions with spaces for people to mark or write their responses. Forms can be on paper or on a screen.
- Instead of entering data into a table, users fill out a digital form, which sends the data to a spreadsheet or database.





Google Forms

2.1 Collecting and Storing Data

Document production tool

- Document production tools are programs that allow us to put text and pictures together to create a report or presentation. Examples of this kind of software includes word processing and presentation software.

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UNIT/STRAND	Unit 2 Managing Data
TOPIC	2.2 Representing Data
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2.2 Representing Data

Representing Data

- Data can be represented in many forms, such as tables, charts, and graphs. Choosing the right method makes data easier to understand

2.2 Representing Data

Tables

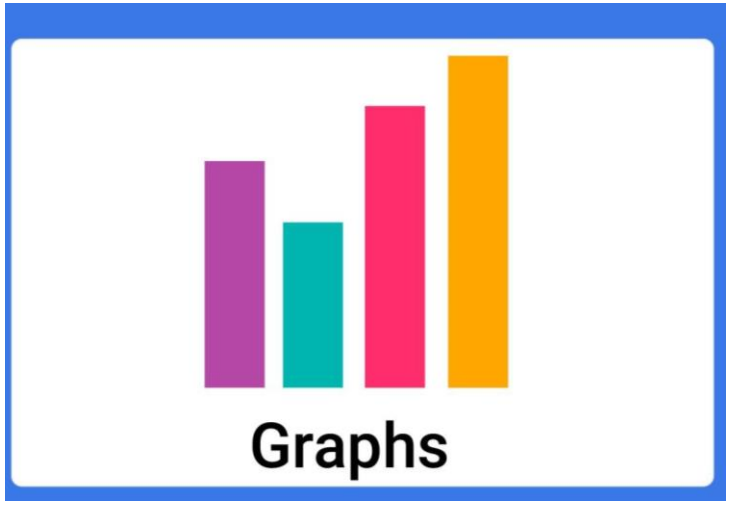
- Tables organize data into rows and columns. They help in listing and comparing information.

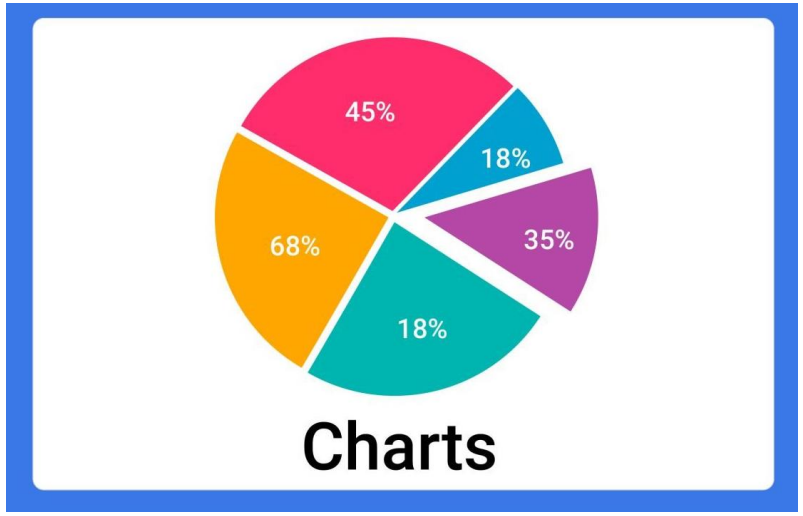
	Total defects	A	B	C	D	E
A4636	131	37	21	28		45
A2524	86	20	24	21	1	20
A3713	75	17	13	18		27
A4452	73	5	33	17		18
A4088	72	14	16	12	2	28
A2103	68	14	13	14	1	26
A2156	68	16	13	19	2	18
A3681	66	12	16	9	1	28
A1366	50	11	15	12		12
A2610	39	5	7	12		15
Total	**728**	**151**	**171**	**162**	**7**	**237**

2.2 Representing Data

Chart and Graphs

- Charts and graphs turn numbers into visual representations.
- Bar charts show comparisons
- Pie charts show parts of a whole
- Line graphs show changes over time.

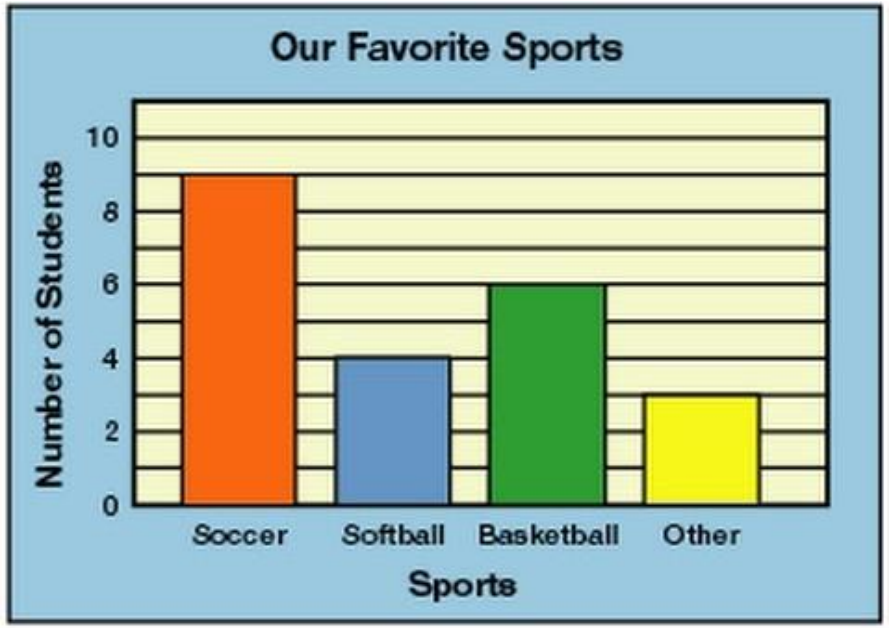




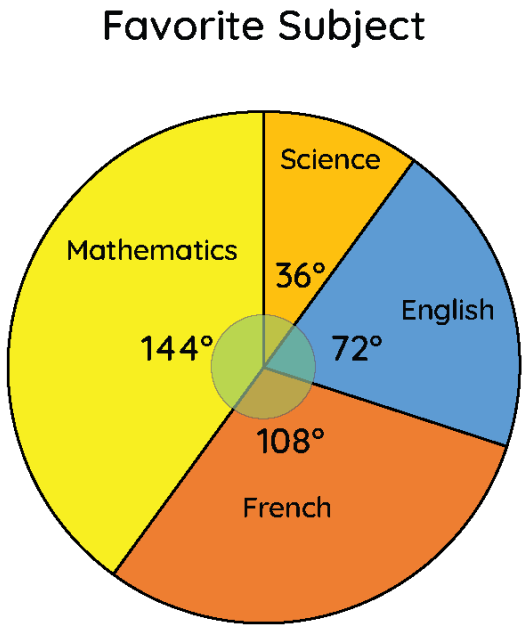
2.2 Representing Data

Representing Categorical and discrete data

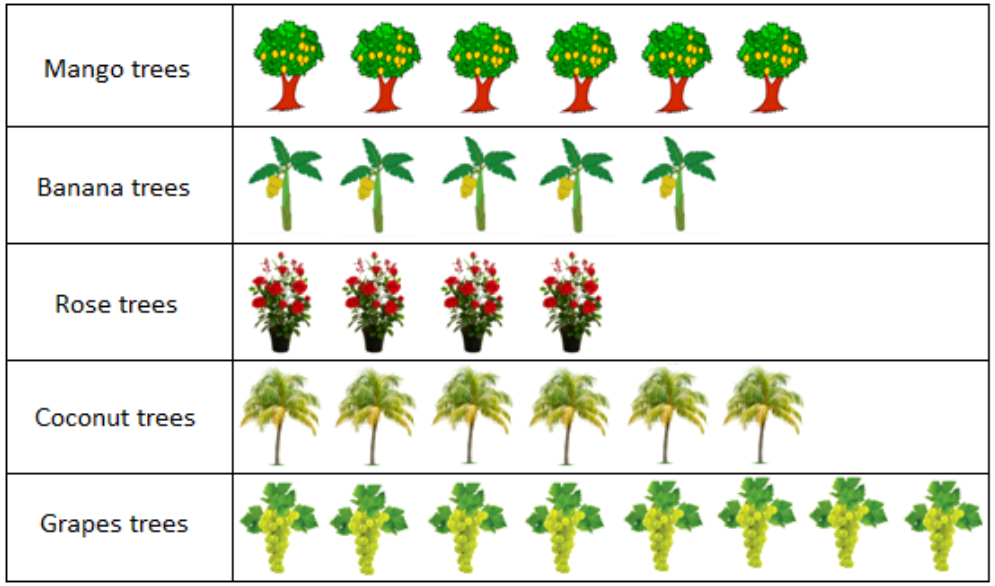
- Categorical and discrete data can be shown **using bar graphs, pie charts or pictographs**, making it easier to compare categories or countable items.



Bar charts



Pie charts

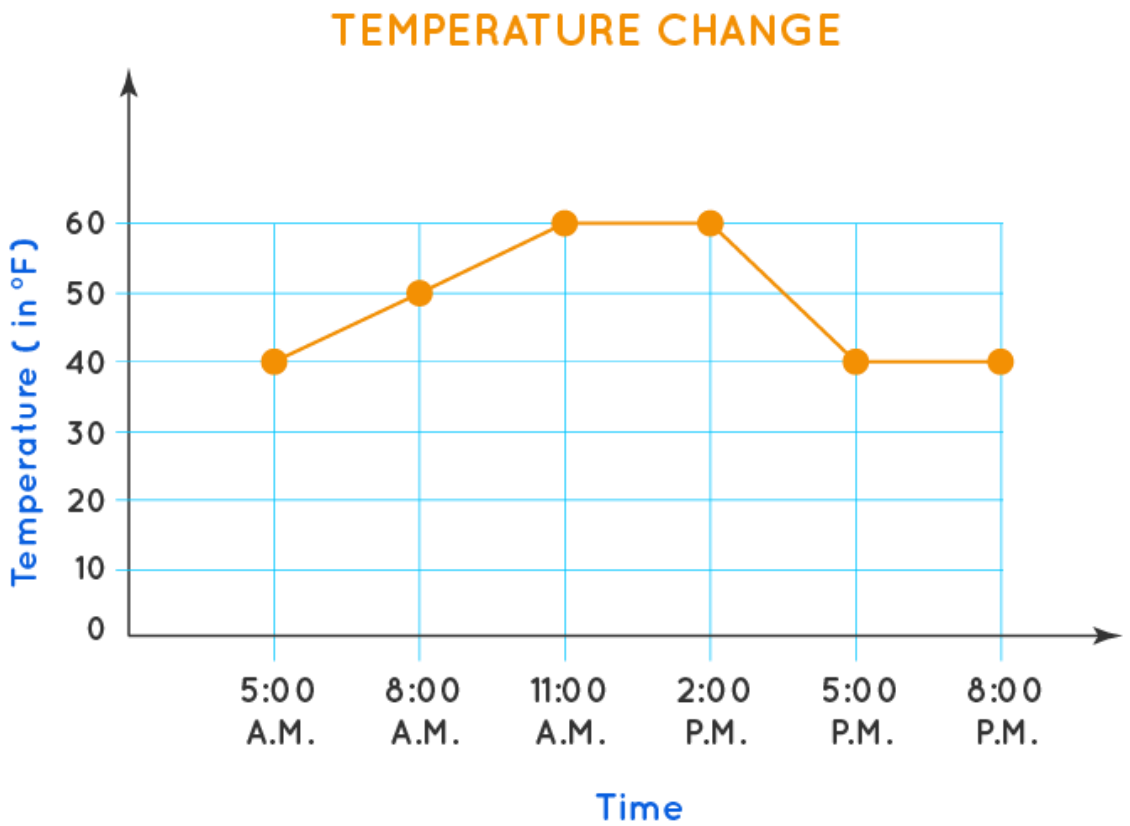


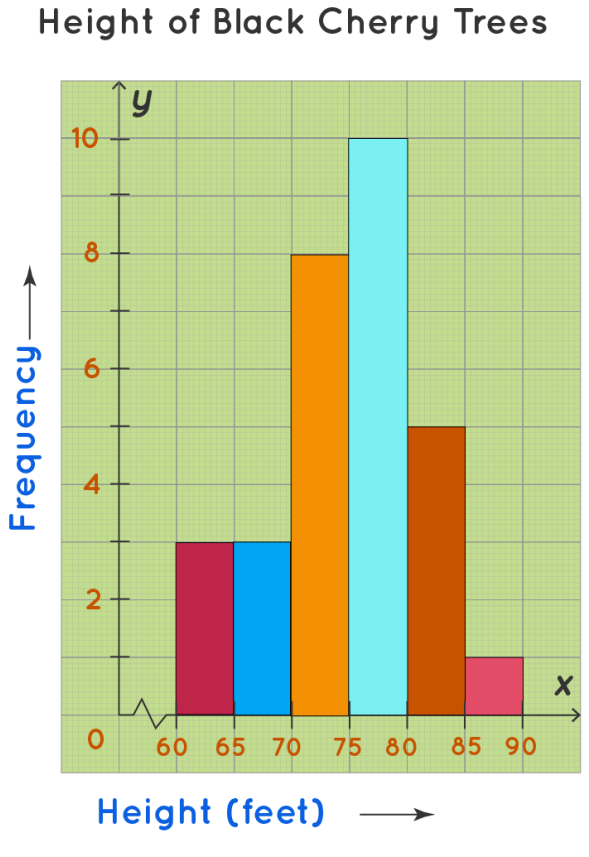
Histogram

2.2 Representing Data

Representing continuous data

- Continuous data is best shown **using line graphs or histograms**, as these show gradual changes over time or within ranges.





2.2 Representing Data

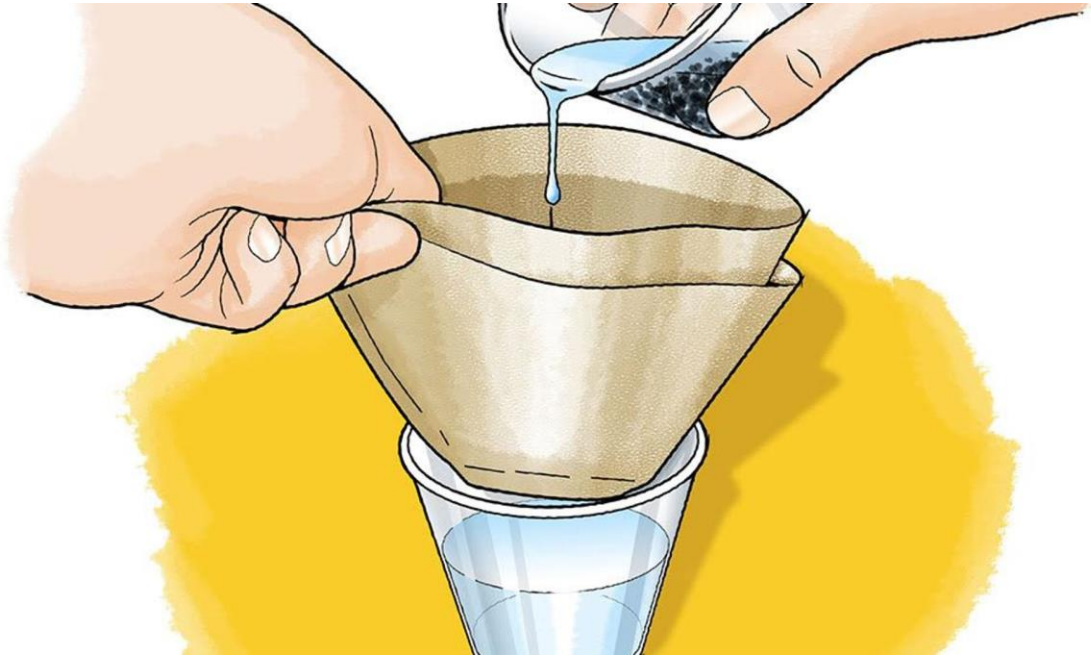
Modifying data for different criteria's

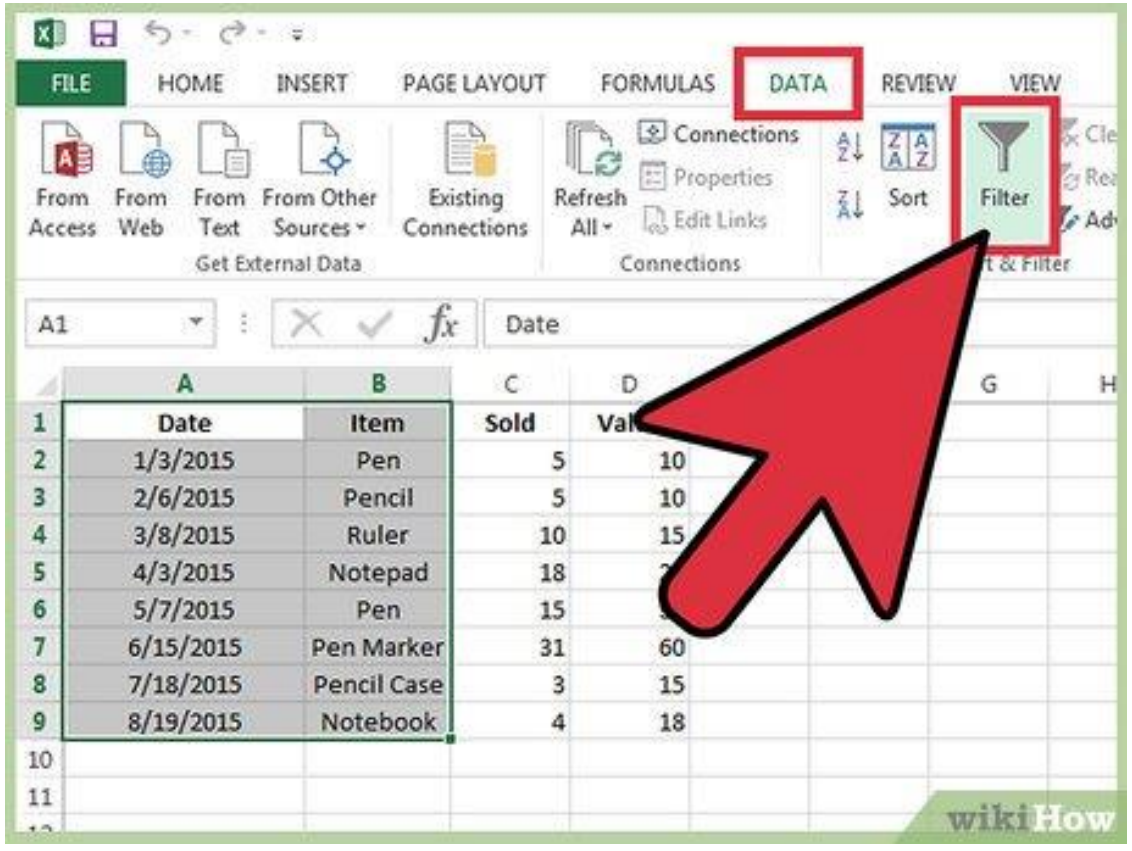
- We may need to change how data is shown depending on the audience or the question being asked. For example, we could choose a different type of chart or highlight specific parts of the data

2.2 Representing Data

Filtering

- Filtering shows only the data that meets certain conditions. For example, in a student list, we could filter to show only students with scores above 80.

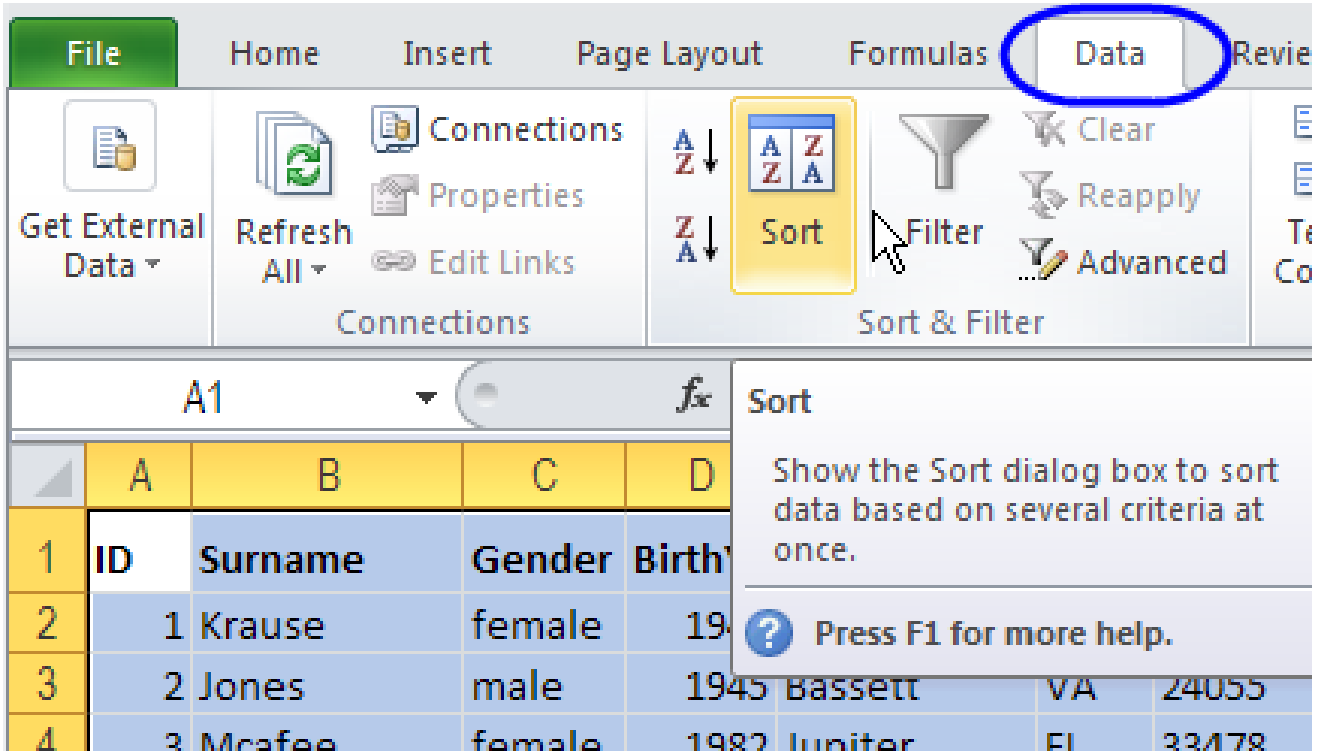




2.2 Representing Data

Sorting

- Sorting arranges data in a specific order, like smallest to largest or alphabetically. It helps us find information quickly.



2.2 Representing Data

What Programs Can We Use to Create Charts?

- Programs like Excel, Google Sheets, and online graph tools are user-friendly and allow us to create and modify various types of charts easily.

2.2 Representing Data

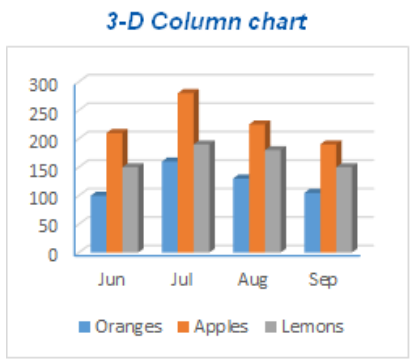
Changing the way we display data

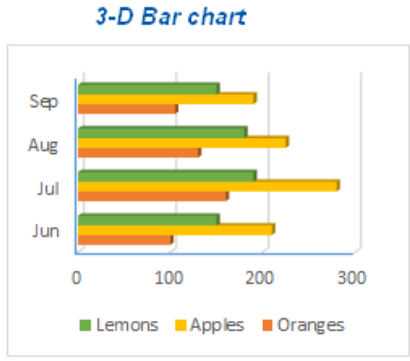
- Sometimes we need to change how data is presented. For example, changing from a bar chart to a pie chart might make the data clearer and easier to understand.

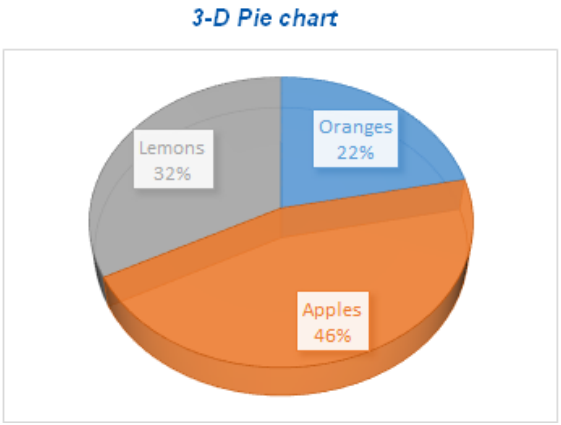
2.2 Representing Data

Changing the chart type

- Different chart types are chosen based on the data and the information we want to show. It's important to pick the type that best represents the data.



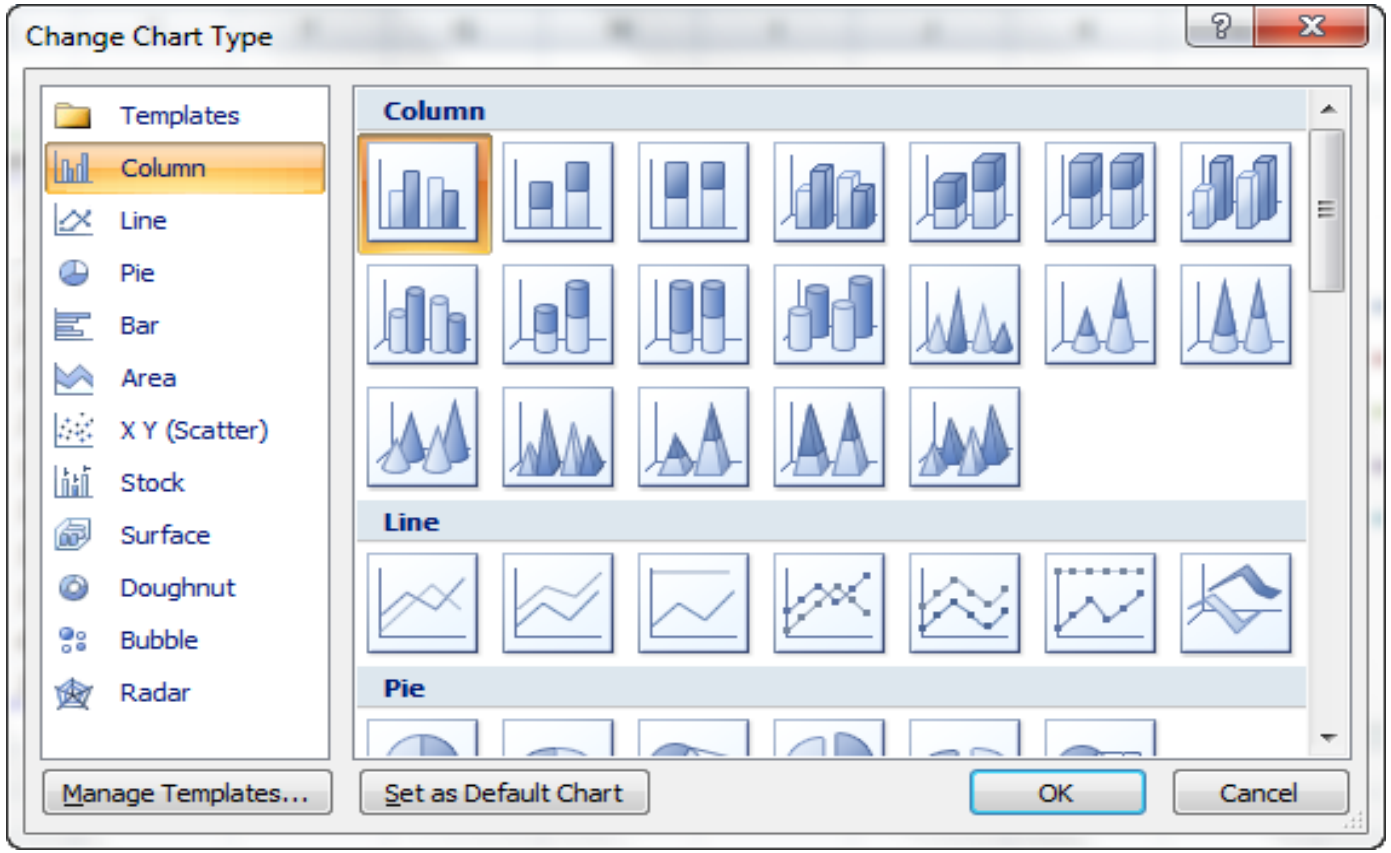




2.2 Representing Data

Changing the chart style and labels

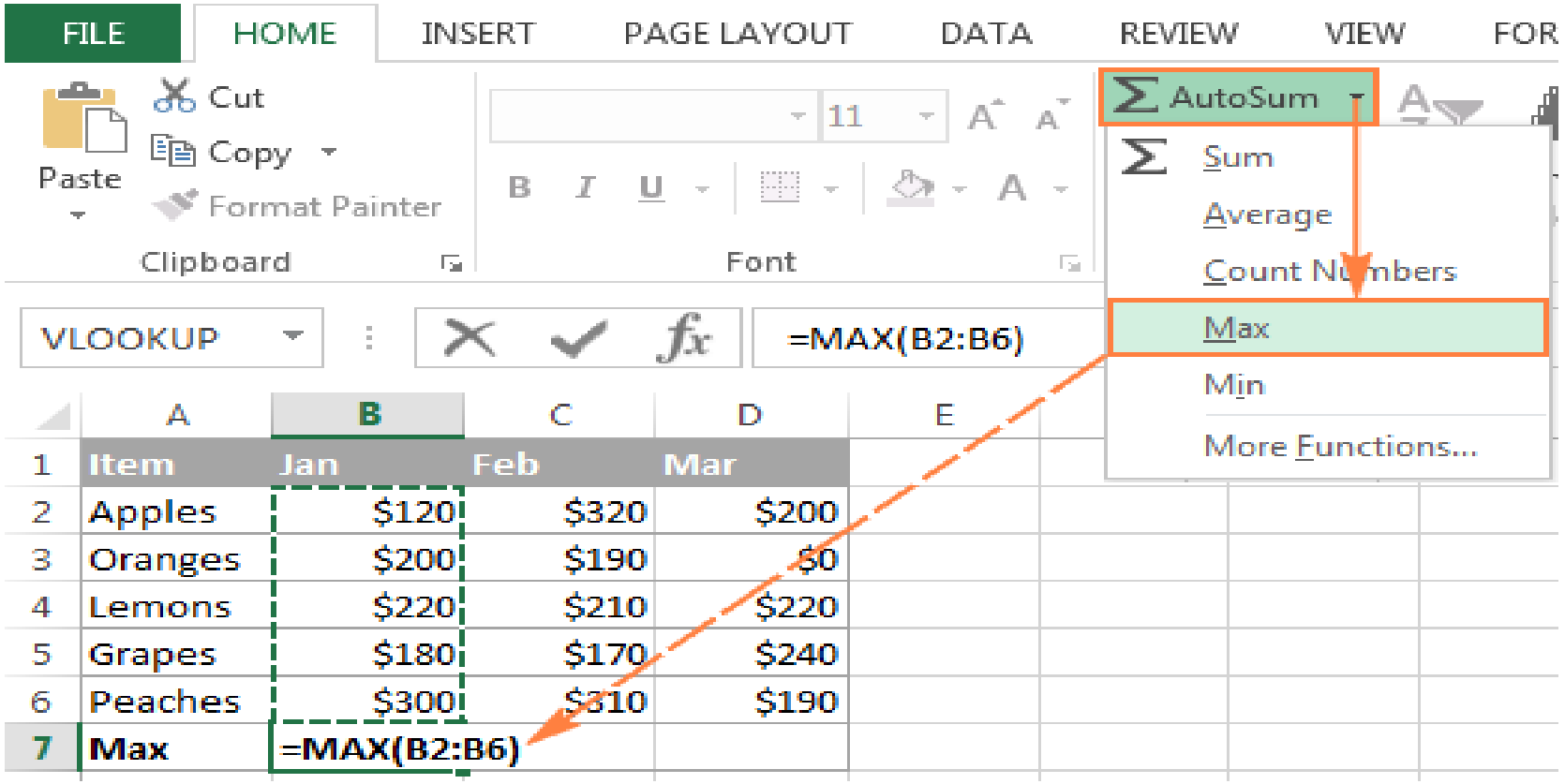
- We can modify chart colors, fonts, and labels to make charts more attractive and clear. Labels help the reader understand what each part of the chart represents



2.2 Representing Data

Doing Calculations in spreadsheet

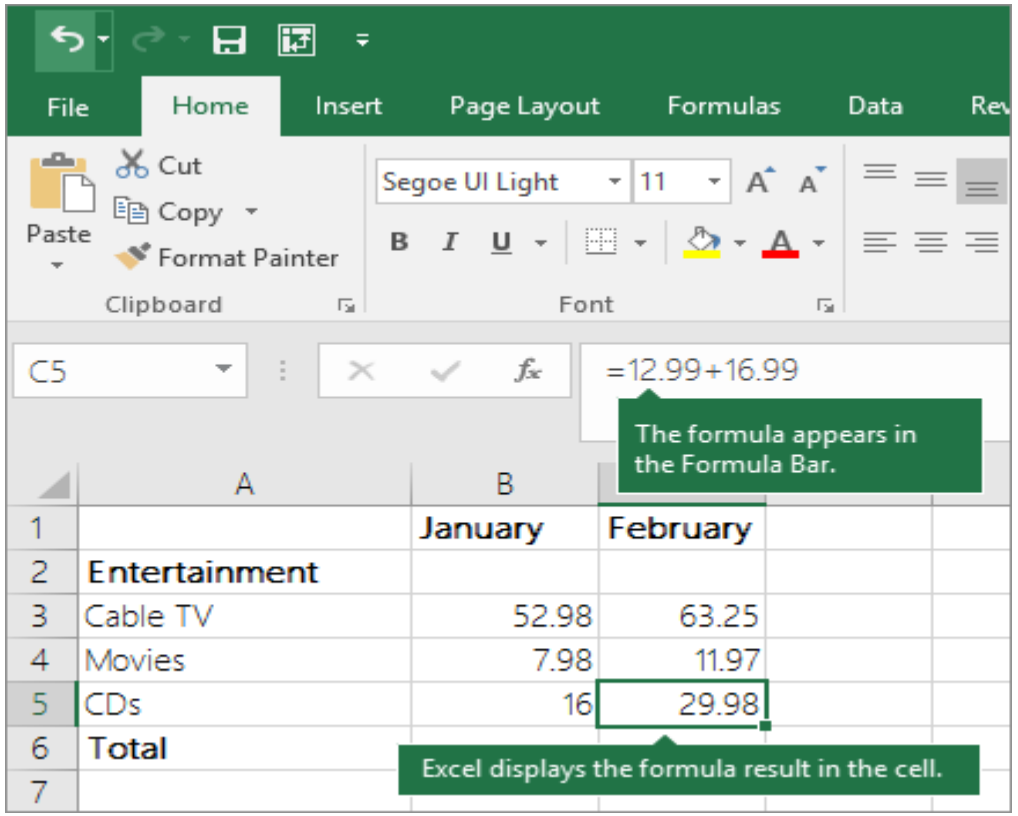
- Spreadsheets can perform calculations such as addition, subtraction, multiplication, or division using simple formulas to find totals or averages.



2.2 Representing Data

Calculations using formula

- A formula is an equation used to perform calculations. It starts with an equals sign (=). For example, =A1+B1 adds the values in cells A1 and B1 together.



2.2 Representing Data

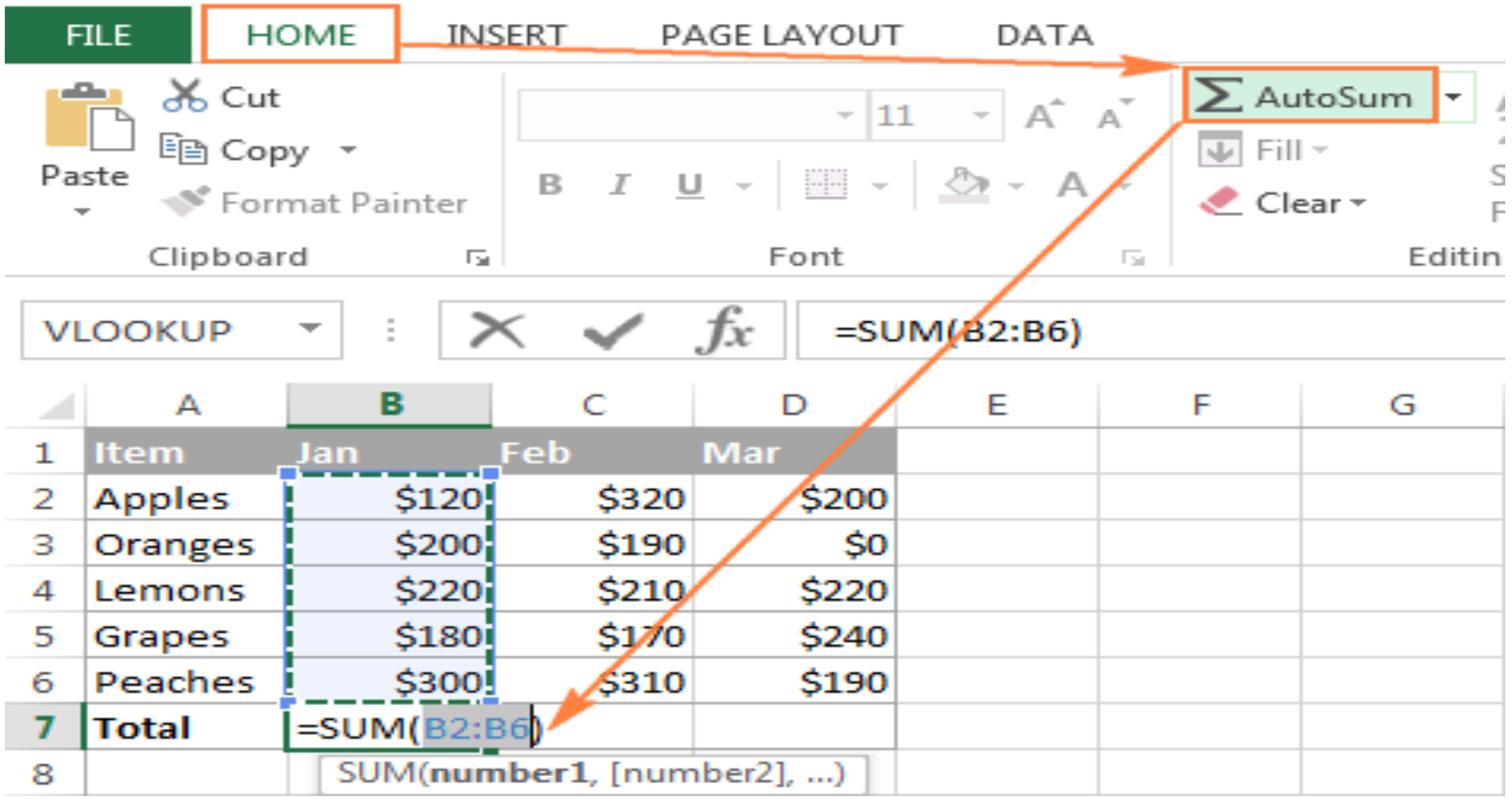
Calculations using functions

- Functions are built-in formulas that simplify calculations. For example, the SUM function can quickly add up many cells instead of doing it manually.

2.2 Representing Data

The SUM Function

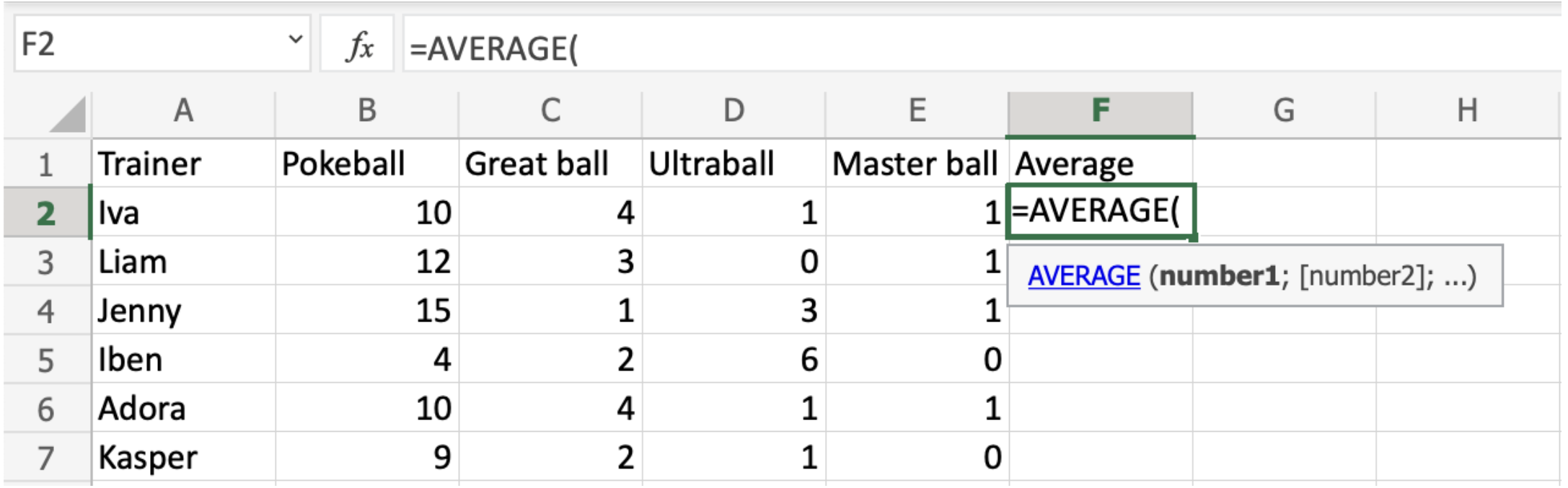
- The SUM function adds all the numbers in a range of cells. Example: =SUM(A1:A5) adds the values from cells A1 to A5.



2.2 Representing Data

The AVERAGE function

- The AVERAGE function calculates the mean (average) of selected numbers. Example: =AVERAGE(B1:B4) finds the average of the numbers in B1 to B4.



	A	B	C	D	E	F	G	H
1	Trainer	Pokeball	Great ball	Ultraball	Master ball	Average		
2	Iva	10	4	1	1	=AVERAGE(		
3	Liam	12	3	0	1			
4	Jenny	15	1	3	1			
5	Iben	4	2	6	0			
6	Adora	10	4	1	1			
7	Kasper	9	2	1	0			

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TOPIC	2.3 Using Data
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2.3 Using Data

What happens when we change data?

- When we change a number in a spreadsheet, the results, such as totals or charts, can also change. This is why accuracy is important.

2.3 Using Data

How changing data affects calculations?

- Formulas update automatically when the data changes. This ensures we get the correct new results without needing to redo everything.

2.3 Using Data

How changing data affects charts?

- If data in a spreadsheet is updated, the chart linked to it will also update, ensuring visuals reflect the latest information.

2.3 Using Data

Finding specific data in spreadsheet

- We can search for specific values in a spreadsheet using tools like the 'Find' feature in Excel or Google Sheets. This helps us quickly locate information.

2.3 Using Data

Search using Find tool

- The 'Find' tool is a search feature that allows you to look through your spreadsheet for specific values or keywords quickly and efficiently.