THE
ANALYST
PERSPECTIVE

Data Career Kickstarter

WITH MICROSOFT EXCEL
& POWER BI

THE
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PERSPECTIVE

Course Outline

Module 1 – Introduction to Data Analytics (2 hrs)

Module 2 – Excel for Data Analysts (8 hrs)

Module 3 – ETL with Power Query (4 hrs)

Module 4 – Data Modeling Concepts (4 hrs)

Module 5 – Data Analysis in Power BI with DAX (8 hrs)

Module 6 – Data visualization and report design (4 hrs)

Module 7 – Deploy and maintain Power BI Assets in Power BI Service (2 hr)

Module 8 – Introduction to SQL (4 hrs)

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Module 2 – Excel for Data Analysts

We will learn

- Data Types, Formatting Data, Worksheets
- Sorting and filtering data
- Formulas and Functions
- Pivot Tables
- Text, Date Time and Logical functions
- Nested logic formulas
- Lookup functions (VLOOKUP, INDEX)
- Bonus : Common issues in workplaces with excel

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Session 1 – Excel basics

Data types, formatting, worksheet management

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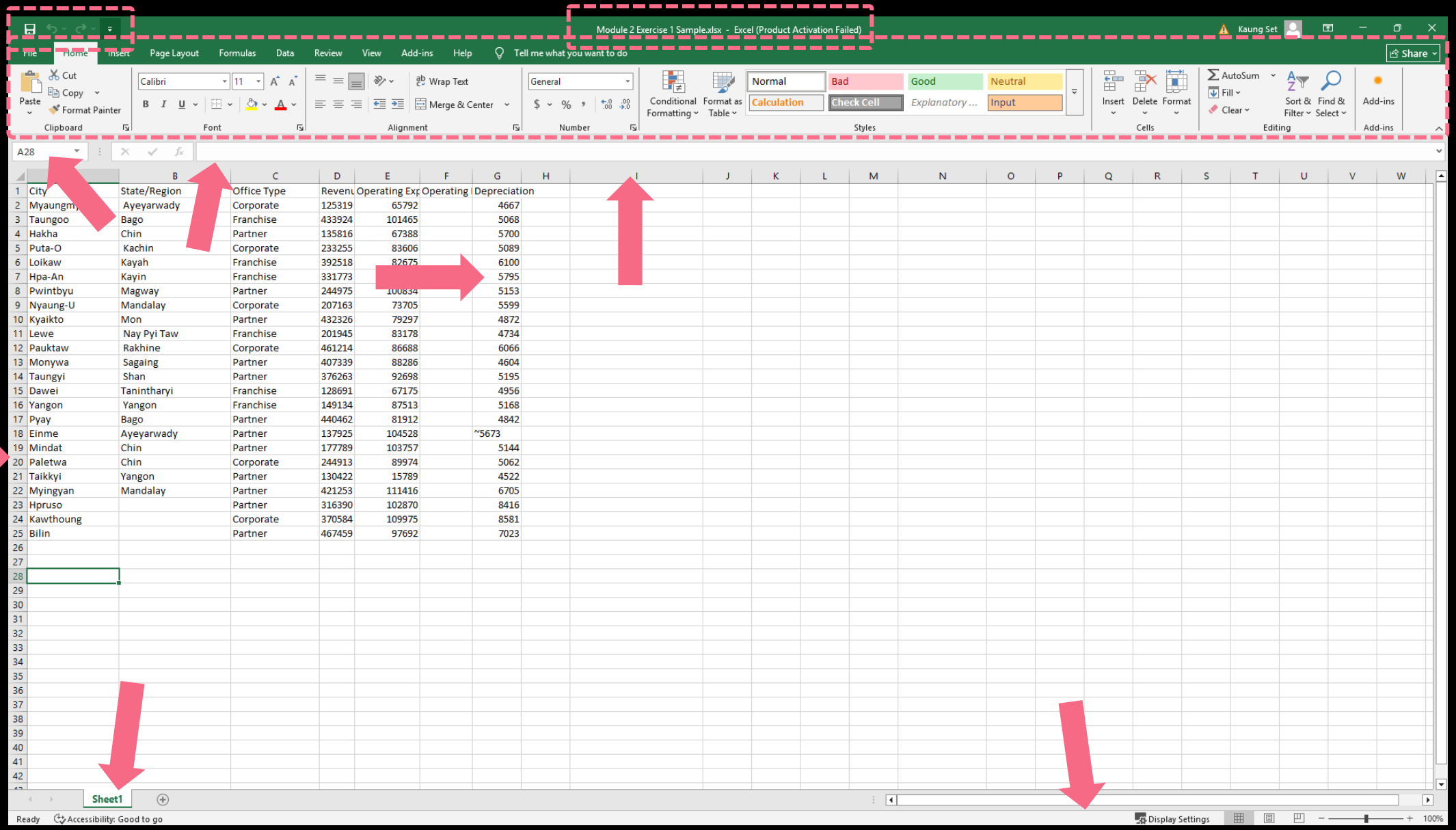
Excel UI Walkthrough



	City	State/Region	Office Type	Revenu	Operating Exp	Operating	Depreciation
2	Myaungm	Ayeyarwady	Corporate	125319	65792		4667
3	Taungoo	Bago	Franchise	433924	101465		5068
4	Hakha	Chin	Partner	135816	67388		5700
5	Puta-O	Kachin	Corporate	233255	83606		5089
6	Loikaw	Kayah	Franchise	392518	82675		6100
7	Hpa-An	Kayin	Franchise	331773			5795
8	Pwintbyu	Magway	Partner	244975	100834		5153
9	Nyaung-U	Mandalay	Corporate	207163	73705		5599
10	Kyaikto	Mon	Partner	432326	79297		4872
11	Lewe	Nay Pyi Taw	Franchise	201945	83178		4734
12	Pauktaw	Rakhine	Corporate	461214	86688		6066
13	Monywa	Sagaing	Partner	407339	88286		4604
14	Taungyi	Shan	Partner	376263	92698		5195
15	Dawei	Tanintharyi	Franchise	128691	67175		4956
16	Yangon	Yangon	Franchise	149134	87513		5168
17	Pyay	Bago	Partner	440462	81912		4842
18	Einme	Ayeyarwady	Partner	137925	104528		~5673
19	Mindat	Chin	Partner	177789	103757		5144
20	Paletwa	Chin	Corporate	244913	89974		5062
21	Taikkyi	Yangon	Partner	130422	15789		4522
22	Myingyan	Mandalay	Partner	421253	111416		6705
23	Hpruso		Partner	316390	102870		8416
24	Kawthoung		Corporate	370584	109975		8581
25	Bilin		Partner	467459	97692		7023

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Data Types in Excel

Numbers	Values used for calculations (e.g., 123, 45.67, -10). Can be formatted as Currency, Percentage, Date/Time, etc.
Text	Any sequence of characters not recognized as a number, date, or formula. Important: Numbers entered as text (e.g., leading zeros like 007, or numbers with special characters like 12-345) cannot be directly used in calculations.
Date&Time	Excel stores dates and times as serial numbers. January 1, 1900 = 1; January 2, 1900 = 2, and so on
Boolean	Logical values. TRUE or FALSE. Used in logical tests and functions

Why it matters? Data type affects sorting, filtering, and formulas!

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Basic Formatting

1. Number Formatting

General: Default
Number: Controls decimal places, comma separators
Currency/Accounting: Adds currency symbols, aligns decimals
Percentage: Displays as a percentage.
Date/Time: Various date/time display formats

2. Font Formatting

`Font Type`, Size, **Bold**, *Italic*, Underline.

Font Color.

3. Alignment

Horizontal: Left, Center, Right
Vertical: Top, Middle, Bottom
Wrap Text: Makes text fit within cell by increasing row height
Merge & Center: Combines cells and centers content (use with caution for data analysis!)

4. Borders & Fill

Operating Expenses	Operating Profit	Depreciation
$ 65,792.00		$ 4,667.00
$ 101,465.00		$ 5,068.00
$ 67,388.00		$ 5,700.00
$ 83,606.00		$ 5,089.00
$ 82,675.00		$ 6,100.00
$ 85,288.00		$ 5,795.00

Conditional Formatting

Duplicate values

Data Bars

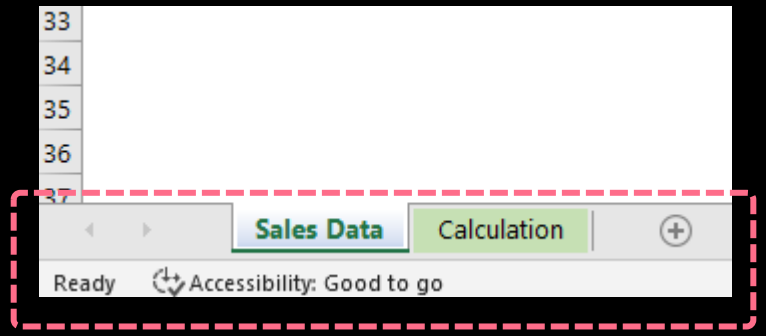
Greater than x

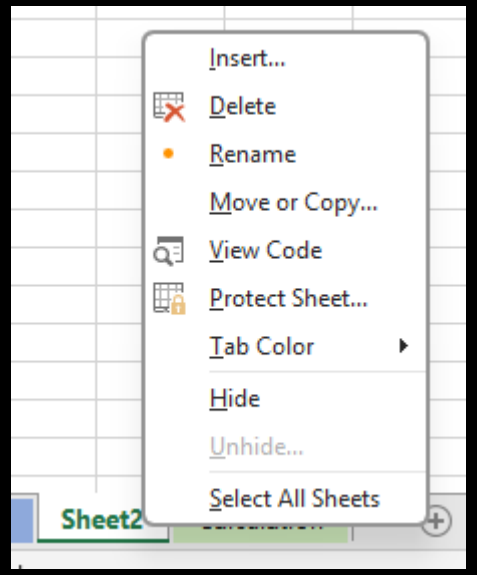
Top Values

State/Region	Office Type	Revenues	Operating Expenses	Operating Profit	Depreciation
Yangon	Partner	$ 149,134.00	$ 87,513.00		$ 5,168.00
Yangon	Partner	$ 130,422.00	$ 15,789.00		$ 4,522.00
Tanintharyi	Partner	$ 128,691.00	$ 67,175.00		$ 4,956.00
Tanintharyi	Partner	$ 370,584.00	$ 109,975.00		$ 8,581.00
Tanintharyi	Corporate	$ 467,459.00	$ 97,692.00		$ 7,023.00
Shan	Franchise	$ 376,263.00	$ 92,698.00		$ 5,195.00
Sagaing	Partner	$ 407,339.00	$ 88,286.00		$ 4,604.00
Rakhine	Partner	$ 461,214.00	$ 86,688.00		$ 6,066.00
Nay Pyi Taw	Franchise	$ 201,945.00	$ 83,178.00		$ 4,734.00
Mon	Corporate	$ 432,326.00	$ 79,297.00		$ 4,872.00

Great for quickly spotting trends, outliers, or important values

Working with Work Sheets





Key Worksheet Management Actions:

- **Insert New Sheet:** Click the + button next to existing tabs or Home tab > Cells group > Insert > Insert Sheet.
- **Rename Sheet:** Double-click the sheet tab, or right-click > Rename.
- **Move/Copy Sheet:** Drag and drop the tab, or right-click > Move or Copy... (check "Create a copy").
- **Delete Sheet:** Right-click the sheet tab > Delete (caution: irreversible!).
- **Tab Color:** Right-click the sheet tab > Tab Color.
- **Grouping Sheets:** Select multiple sheets (Ctrl + Click or Shift + Click) to perform actions on all selected sheets simultaneously (e.g., entering data, applying formatting).

Exercise 1 – Formatting

- Task 1 – Format the numbers in the “Sales” sheet to their appropriate formatting
- Task 2 – Format column headers to be more structured and professional
- Task 3 – Highlight duplicated values in State/Region column
- Task 4 – Find a way to visualize the Revenues column so that user can compare between cities easily
- Task 5 – Highlight Operating Expenses that exceeds 100,000 $
- Task 6 – Highlight Top 10 highest depreciation amounts

Session 1 Recap

Your foundation is built!

- We explored the Excel **Interface** and learned efficient **Navigation**.
- We understood different **Data Types** and their impact on analysis
- We mastered **Basic Formatting** to make data readable and professional
- We introduced **Conditional Formatting** for dynamic highlighting
- We learned to **Manage Worksheets** for better organization.

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Session 1 Recap

Started from here...

I8

	A	B	C	D	E	F	G
1	City	State/Region	Office Type	Revenu	Operating Exp	Operating	Depreciatio
2	Myaungmya	Ayeyarwady	Corporate	125319	65792		4667
3	Taungoo	Bago	Franchise	433924	101465		5068
4	Hakha	Chin	Partner	135816	67388		5700
5	Puta-O	Kachin	Corporate	233255	83606		5089
6	Loikaw	Kayah	Franchise	392518	82675		6100
7	Hpa-An	Kayin	Franchise	331773	85288		5795
8	Pwintbyu	Magway	Partner	244975	100834		5153
9	Nyaung-U	Mandalay	Corporate	207163	73705		5599
10	Kyaikto	Mon	Partner	432326	79297		4872
11	Lewe	Nay Pyi Taw	Franchise	201945	83178		4734
12	Pauktaw	Rakhine	Corporate	461214	86688		6066
13	Monywa	Sagaing	Partner	407339	88286		4604
14	Taungyi	Shan	Partner	376263	92698		5195
15	Dawei	Tanintharyi	Franchise	128691	67175		4956
16	Yangon	Yangon	Franchise	149134	87513		5168
17	Pyay	Bago	Partner	440462	81912		4842
18	Einme	Ayeyarwady	Partner	137925	104528		~5673
19	Mindat	Chin	Partner	177789	103757		5144
20	Paletwa	Chin	Corporate	244913	89974		5062
21	Taikkyi	Yangon	Partner	130422	15789		4522
22	Myingyan	Mandalay	Partner	421253	111416		6705
23	Hpruso		Partner	316390	102870		8416
24	Kawthoung		Corporate	370584	109975		8581
25	Bilin		Partner	467459	97692		7023

Now we are here...

H23

	A	B	C	D	E	F	G
1	City	State/Region	Office Type	Revenues	Operating Expenses	Operating Profit	Depreciation
2	Yangon	Yangon	Partner	$ 149,134.00	$ 87,513.00		$ 5,168.00
3	Taikkyi	Yangon	Partner	$ 130,422.00	$ 15,789.00		$ 4,522.00
4	Dawei	Tanintharyi	Partner	$ 128,691.00	$ 67,175.00		$ 4,956.00
5	Kawthoung	Tanintharyi	Partner	$ 370,584.00	$ 109,975.00		$ 8,581.00
6	Bilin	Tanintharyi	Corporate	$ 467,459.00	$ 97,692.00		$ 7,023.00
7	Taungyi	Shan	Franchise	$ 376,263.00	$ 92,698.00		$ 5,195.00
8	Monywa	Sagaing	Partner	$ 407,339.00	$ 88,286.00		$ 4,604.00
9	Pauktaw	Rakhine	Partner	$ 461,214.00	$ 86,688.00		$ 6,066.00
10	Lewe	Nay Pyi Taw	Franchise	$ 201,945.00	$ 83,178.00		$ 4,734.00
11	Kyaikto	Mon	Corporate	$ 432,326.00	$ 79,297.00		$ 4,872.00
12	Nyaung-U	Mandalay	Corporate	$ 207,163.00	$ 73,705.00		$ 5,599.00
13	Myingyan	Mandalay	Partner	$ 421,253.00	$ 111,416.00		$ 6,705.00
14	Pwintbyu	Magway	Franchise	$ 244,975.00	$ 100,834.00		$ 5,153.00
15	Hpa-An	Kayin	Franchise	$ 331,773.00	$ 85,288.00		$ 5,795.00
16	Loikaw	Kayah	Franchise	$ 392,518.00	$ 82,675.00		$ 6,100.00
17	Hpruso	Kayah	Partner	$ 316,390.00	$ 102,870.00		$ 8,416.00
18	Puta-O	Kachin	Corporate	$ 233,255.00	$ 83,606.00		$ 5,089.00
19	Hakha	Chin	Partner	$ 135,816.00	$ 67,388.00		$ 5,700.00
20	Mindat	Chin	Partner	$ 177,789.00	$ 103,757.00		$ 5,144.00
21	Paletwa	Chin	Partner	$ 244,913.00	$ 89,974.00		$ 5,062.00
22	Taungoo	Bago	Corporate	$ 433,924.00	$ 101,465.00		$ 5,068.00
23	Pyay	Bago	Partner	$ 440,462.00	$ 81,912.00		$ 4,842.00
24	Myaungmya	Ayeyarwady	Franchise	$ 125,319.00	$ 65,792.00		$ 4,667.00
25	Einme	Ayeyarwady	Corporate	$ 137,925.00	$ 104,528.00		$ 5,673.00

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Session 2 – Organizing and Calculating Data - Sorting, Filtering, Formulas, and Functions

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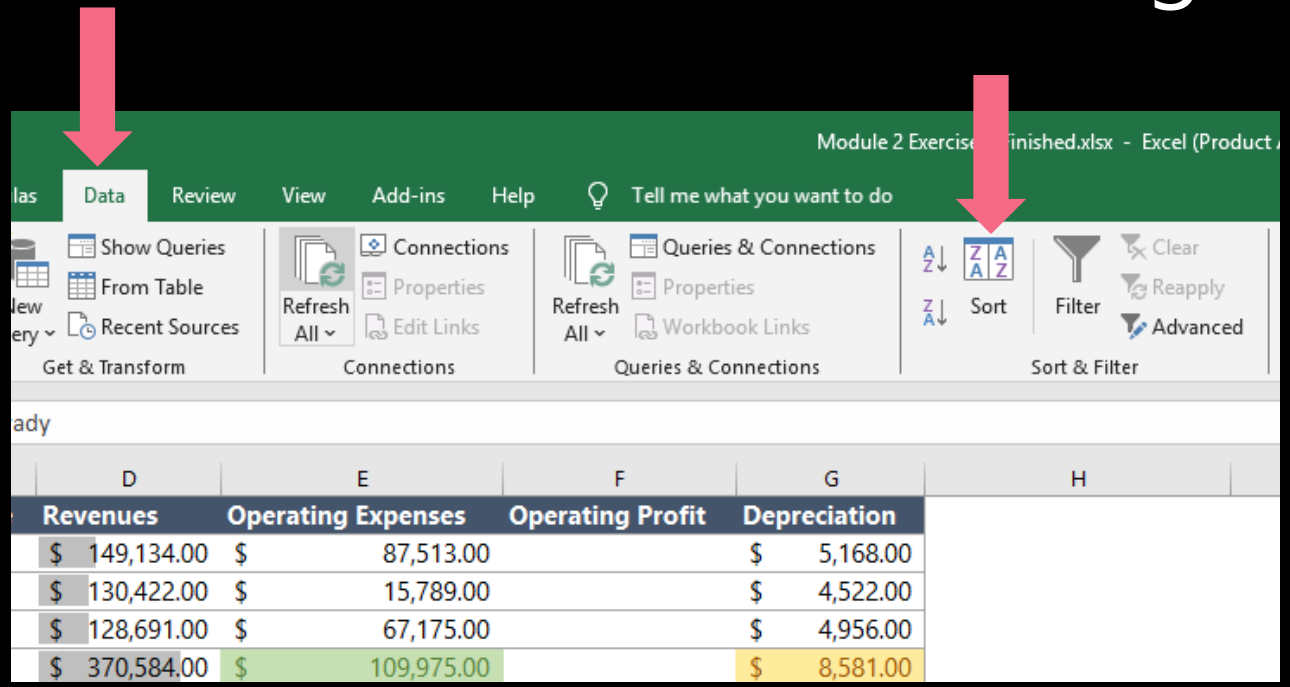
Sorting Data



Types of Sorts:

Alphabetical:

A to Z, Z to A (for text).

Numerical:

Smallest to Largest, Largest to Smallest (for numbers).

Chronological:

Oldest to Newest, Newest to Oldest (for dates/times).

Custom Lists:

Sort by your own defined order (e.g., Low, Medium, High; Jan, Feb, Mar).

It's crucial for finding trends, identifying highs/lows, or simply making data easier to read.

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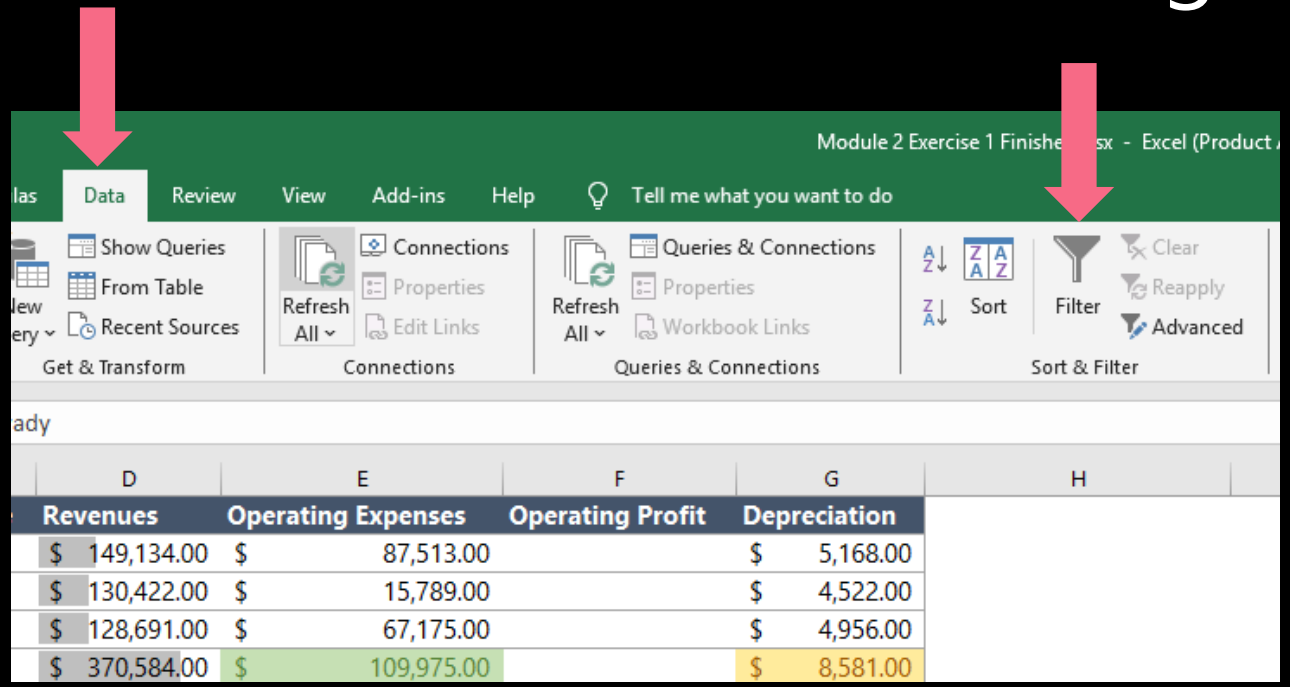
Filtering Data



- **Text Filters:** Equals, Does Not Equal, Contains, Begins With, Ends With. You can also select specific items from a list.
- **Number Filters:** Greater Than, Less Than, Between, Top 10, Above/Below Average.
- **Date Filters:** Equals, Before, After, Between, Next Week, This Month, Year to Date, All Dates in the Period.
- **Search Box:** Quickly type to find specific text or numbers within the filter dropdown.

Focusing on relevant information.

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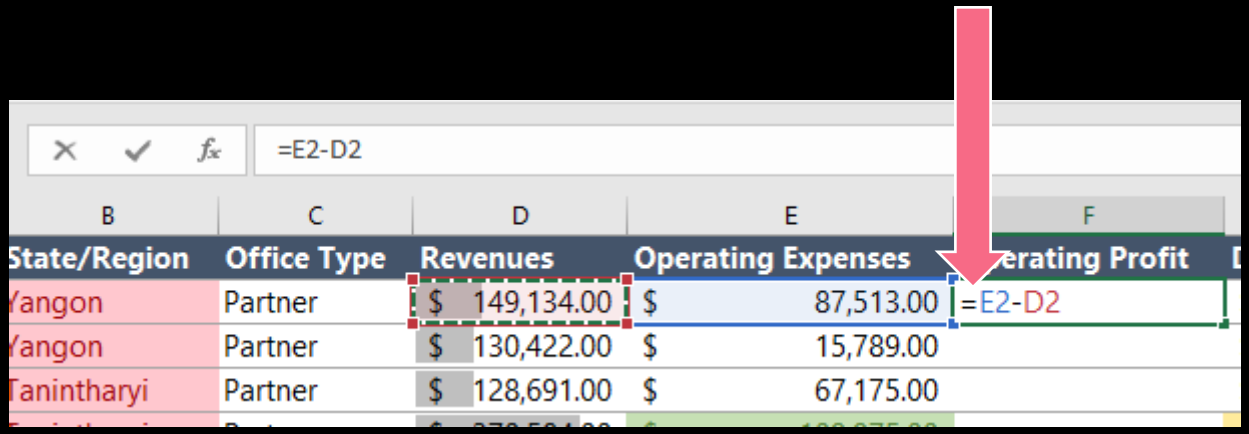
Calculations with Formulas

What is a formula?

Formulas are expressions that perform calculations, return information, or modify cell contents.

All formulas start with an equals sign (=)



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Calculations with Formulas

Basic Arithmetic Operators

+ (Addition)

- (Subtraction)

* (Multiplication)

/ (Division)

^ (Exponentiation)

Order of Operations

1. Parentheses () (expressions inside are calculated first)
2. Exponents ^
3. Multiplication * and Division / (from left to right)
4. Addition + and Subtraction - (from left to right)

Calculations with Formulas

Understanding Cell References

Relative (A1): Changes when copied.

Absolute (A1): Stays fixed when copied.

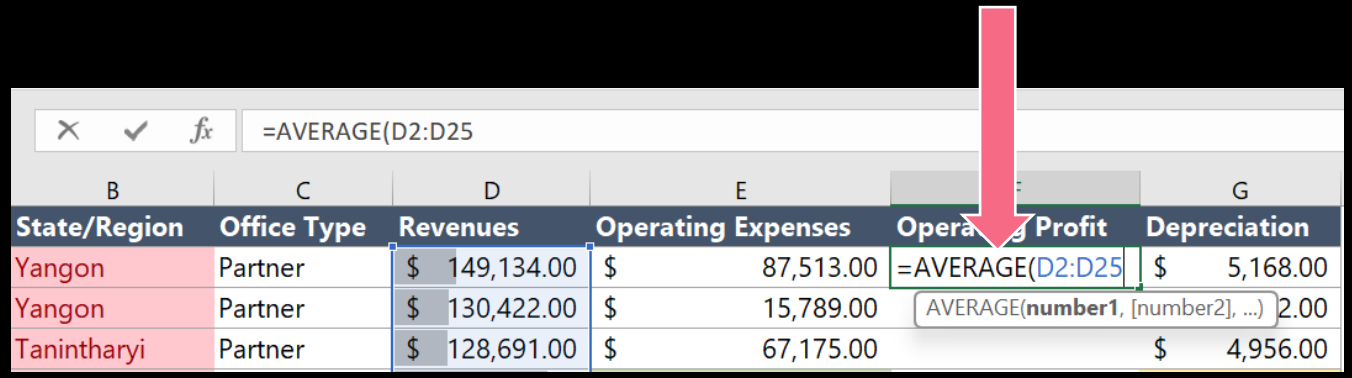
Mixed ($A1, A$1): Partially fixed when copied.

Introduction to Functions

What is a function?

Pre-defined formulas by excel that perform specific calculations.

Function syntax:
FUNCTIONNAME(argument1, argument2, ...)



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Introduction to Functions

Basic Functions
SUM
AVERAGE
COUNT
MIN
MX

Exercise 2 – Formula and Functions

- Task 1 – Sort the data to show highest to lowest Revenues
- Task 2 – Use a formula to calculate “Operating Profit” (Profit = Revenue – Expenses)
- Task 3 – Calculate values of Total Revenues, Average Operating Expenses, Highest Revenues, Lowest Revenues, and number of cities in the report
- Task 4 – Create a new column that shows total revenues converted to MMK
- Task 5 – Filter the data to only show “Partner” office type

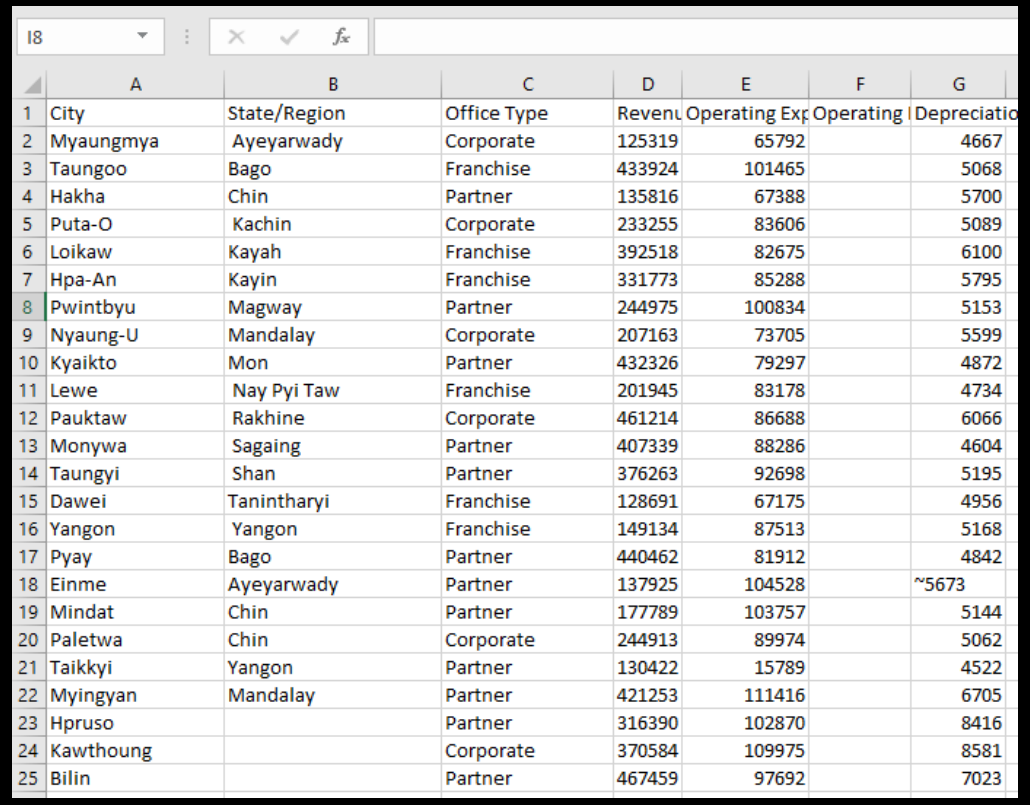
Session 2 Recap

You're Mastering Your Data!

- We learned how to **Sort** data for effective organization.
- We mastered **Filtering** to focus on specific data subsets.
- We built **Formulas** with arithmetic operators and understood the **Order of Operations**
- We learned about **Cell References** (relative, absolute)
- We started using common **Functions** (SUM, AVERAGE, COUNT, MIN, MAX) for quick analysis

Session 2 Recap

Started from here...



	A	B	C	D	E	F	G
1	City	State/Region	Office Type	Revenu	Operating Exp	Operating	Depreciatio
2	Myaungmya	Ayeyarwady	Corporate	125319	65792		4667
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4	Hakha	Chin	Partner	135816	67388		5700
5	Puta-O	Kachin	Corporate	233255	83606		5089
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9	Nyaung-U	Mandalay	Corporate	207163	73705		5599
10	Kyaikto	Mon	Partner	432326	79297		4872
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15	Dawei	Tanintharyi	Franchise	128691	67175		4956
16	Yangon	Yangon	Franchise	149134	87513		5168
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18	Einme	Ayeyarwady	Partner	137925	104528		~5673
19	Mindat	Chin	Partner	177789	103757		5144
20	Paletwa	Chin	Corporate	244913	89974		5062
21	Taikkyi	Yangon	Partner	130422	15789		4522
22	Myingyan	Mandalay	Partner	421253	111416		6705
23	Hpruso		Partner	316390	102870		8416
24	Kawthoung		Corporate	370584	109975		8581
25	Bilin		Partner	467459	97692		7023

Now we are here...

	A	B	C	D	E	F	G	H
1	City	State/Region	Office Type	Revenues	Revenues in MMK	Operating Expenses	Operating Profit	Depreciation
2	Yangon	Yangon	Partner	$ 149,134.00	$ 596,536,000.00	$ 87,513.00	$ 61,621.00	$ 5,168.00
3	Taikkyi	Yangon	Partner	$ 130,422.00	$ 521,688,000.00	$ 15,789.00	$ 114,633.00	$ 4,522.00
4	Dawei	Tanintharyi	Partner	$ 128,691.00	$ 514,764,000.00	$ 67,175.00	$ 61,516.00	$ 4,956.00
5	Kawthoung	Tanintharyi	Partner	$ 370,584.00	$ 1,482,336,000.00	$ 109,975.00	$ 260,609.00	$ 8,581.00
8	Monywa	Sagaing	Partner	$ 407,339.00	$ 1,629,356,000.00	$ 88,286.00	$ 319,053.00	$ 4,604.00
9	Pauktaw	Rakhine	Partner	$ 461,214.00	$ 1,844,856,000.00	$ 86,688.00	$ 374,526.00	$ 6,066.00
13	Myingyan	Mandalay	Partner	$ 421,253.00	$ 1,685,012,000.00	$ 111,416.00	$ 309,837.00	$ 6,705.00
17	Hpruso	Kayah	Partner	$ 316,390.00	$ 1,265,560,000.00	$ 102,870.00	$ 213,520.00	$ 8,416.00
19	Hakha	Chin	Partner	$ 135,816.00	$ 543,264,000.00	$ 67,388.00	$ 68,428.00	$ 5,700.00
20	Mindat	Chin	Partner	$ 177,789.00	$ 711,156,000.00	$ 103,757.00	$ 74,032.00	$ 5,144.00
21	Paletwa	Chin	Partner	$ 244,913.00	$ 979,652,000.00	$ 89,974.00	$ 154,939.00	$ 5,062.00
23	Pyay	Bago	Partner	$ 440,462.00	$ 1,761,848,000.00	$ 81,912.00	$ 358,550.00	$ 4,842.00
26								
27								
28								
29								
30			**Exchange Rate**	4000				
31			**Total Revenues**	$ 6,968,852.00				
32			**Average Expenses**	$ 85,979.21				
33			**Highest Revenues**	$ 467,459.00				
34			**Lowest Revenues**	$ 125,319.00				
35			**Number of Cities**	24				
36								

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Session 3 – Advanced Data Analysis

Pivot Tables, Text, Date/Time, and Logical Functions

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Text Functions

TRIM (text)

- Removes extra spaces from text, except for single spaces between words.

LEFT (text, num_chars)

- Extracts a specified number of characters from the beginning (left) of a text string

RIGHT (text, num_chars)

- Extracts a specified number of characters from the end (right) of a text string.

CONCATENATE (text1, text2,…)

- Joins several text strings into one.

LEN (text)

- Returns the number of characters in a text string.

UPPER, LOWER, PROPER (text)

- Change text to all uppercase, all lowercase, or proper case (first letter capitalized).

Text functions operate on cells containing text, or numbers treated as text

Exercise 3 – Text Functions

- Task 1 – Fill the “PaymentType” Column with the data from transaction type, but only take the text after the comma (,) sign.
- Task 2 – Clean up white spaces and fill the data in “AccountLevel” column
- Task 3 – Change city names into the style that only has the initial character in capital letter
- Task 4 – Combine “ProductCategory” and “Channel” under “CategoryandChannel” column with a (_) in between.

Date/Time Functions

Serial Numbers for Calculations

- Excel stores dates as **sequential serial numbers**, starting from January 1, 1900, as 1.
- Times are stored as **fractions of a day**.
- This serial number system allows you to perform arithmetic operations on dates (e.g., Date1 - Date2 gives days between).

B
TransactionDate
45748
45749
45750
45751
45752
45753

Date/Time Functions

TODAY()

- Returns the current date (updates automatically).

NOW()

- Returns the current date and time (updates automatically).

DAY (date_serial)

- Extracts the day of the month (1-31).

MONTH (date_serial)

- Extracts the Month number (1-12).

YEAR (date_serial)

- Extract the year.

WEEKDAY (date_serial)

- Returns the day of the week (1-7).

Remember to change the date data locale into English (United Kingdom)

Exercise 4 – Date Functions

- Task 1 – In cell B1, fill the current date as the reporting date
- Task 2 – Find out how many days each supplier take to fill the stock after getting the order in Lead Time column
- Task 3 – Extract Order Year and fill for each supplier
- Task 4 – Extract Order Month and fill for each supplier

Break Time – (5 Minutes)

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Logical Functions

Uses **comparison operators**:

= (Equals)

> (Greater Than)

< (Less Than)

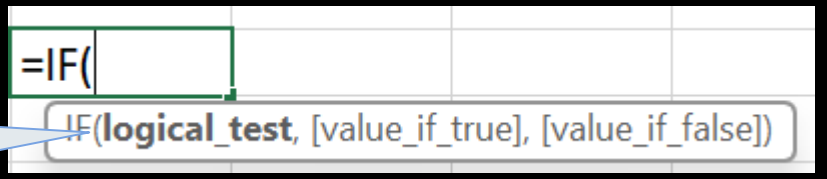
>= (Greater Than or Equal To)

<= (Less Than or Equal To)

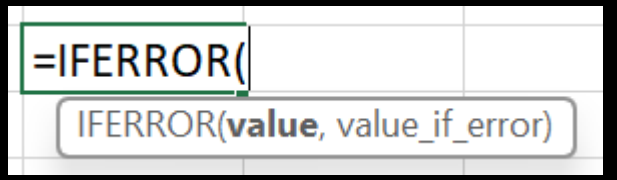
<> (Not Equal To)

3 Logical Functions in Excel

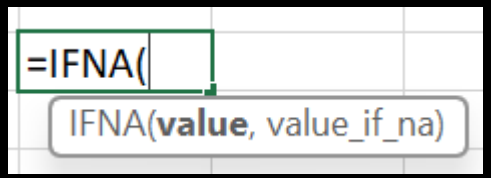
IF



IFERROR



IFNA



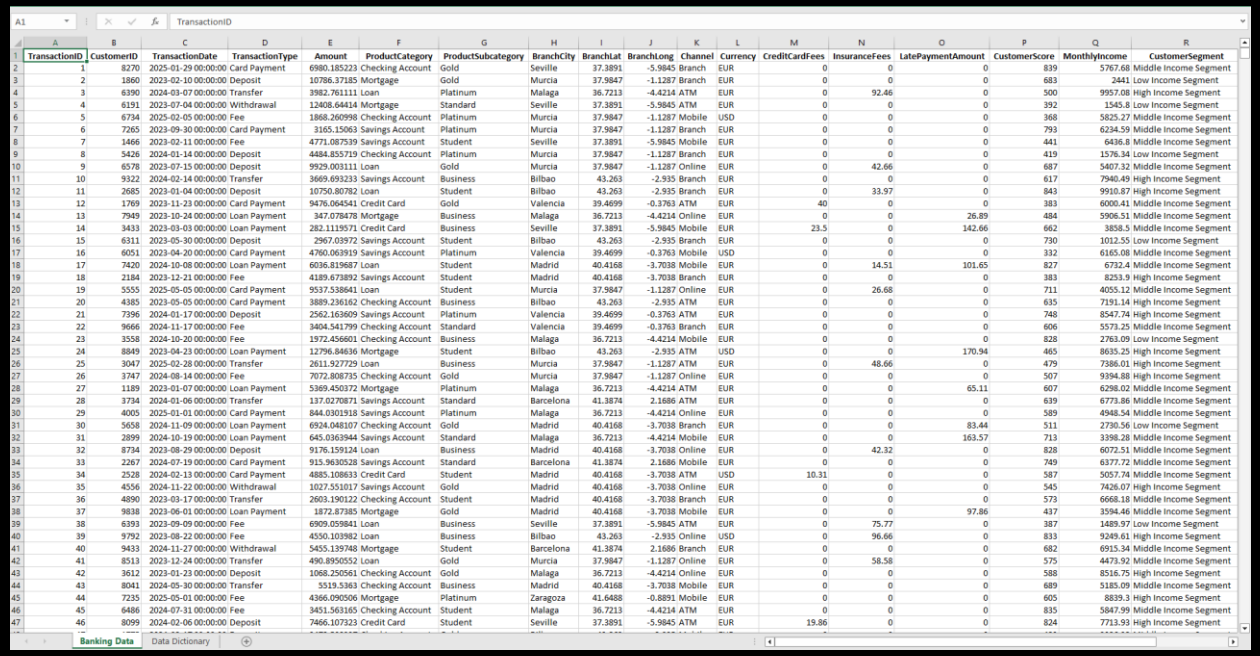
THE ANALYST PERSPECTIVE

Exercise 5 – Logical Functions

- Task 1 – Add a new column called “Order Period” , and fill the cells with “H1” if Order Month is within the first half of the year and “H2” if Order Month is in the second half
- Task 2 – Add a new column called “Lead Time Category” , and fill the cells with “Normal” if the lead time is less than 20 days and “Slow” if the lead time is higher than 20 days
- Task 3 – Format the new columns to be consistent with “Lead Time” , “Order Year” and “Order Month” columns

Pivot Tables

Your gateway to Power BI!



TransactionID	CustomerID	TransactionDate	TransactionType	Amount	ProductCategory	ProductSubcategory	BranchCity	BranchLat	BranchLong	Channel	Currency	CreditCardFees	InsuranceFees	LatePaymentAmount	CustomerScore	MonthlyIncome	CustomerSegment
1	8270	2025-01-29 00:00:00	Card Payment	6980.185223	Checking Account	Gold	Seville	37.3891	-5.9845	Branch	EUR	0	0	0	839	5767.68	Middle Income Segment
2	1860	2023-02-10 00:00:00	Deposit	10786.37185	Mortgage	Gold	Murcia	37.9847	-1.1287	Branch	EUR	0	0	0	683	2441	Low Income Segment
3	6390	2024-03-07 00:00:00	Transfer	3982.761111	Loan	Platinum	Malaga	36.7213	-4.4214	ATM	EUR	0	92.46	0	500	9957.08	High Income Segment
4	6191	2023-07-04 00:00:00	Withdrawal	12408.64414	Mortgage	Standard	Seville	37.3891	-5.9845	ATM	EUR	0	0	0	392	1545.8	Low Income Segment
5	6734	2025-02-05 00:00:00	Fee	1868.260998	Checking Account	Platinum	Murcia	37.9847	-1.1287	Mobile	USD	0	0	0	368	5825.27	Middle Income Segment
6	7265	2023-09-30 00:00:00	Card Payment	3165.15063	Savings Account	Platinum	Murcia	37.9847	-1.1287	Branch	EUR	0	0	0	793	6234.59	Middle Income Segment
7	1466	2023-02-11 00:00:00	Fee	4771.087539	Savings Account	Student	Seville	37.3891	-5.9845	Mobile	EUR	0	0	0	441	6436.8	Middle Income Segment
8	5426	2024-01-14 00:00:00	Deposit	4484.855719	Checking Account	Platinum	Murcia	37.9847	-1.1287	Branch	EUR	0	0	0	419	1576.34	Low Income Segment
9	6578	2023-07-15 00:00:00	Deposit	9929.003111	Loan	Gold	Murcia	37.9847	-1.1287	Online	EUR	0	42.66	0	687	5407.32	Middle Income Segment
10	9322	2024-02-14 00:00:00	Transfer	3669.693233	Savings Account	Business	Bilbao	43.263	-2.935	Branch	EUR	0	0	0	617	7940.49	High Income Segment
11	2685	2023-01-04 00:00:00	Deposit	10750.80782	Loan	Student	Bilbao	43.263	-2.935	Branch	EUR	0	33.97	0	843	9910.87	High Income Segment
12	1769	2023-11-23 00:00:00	Card Payment	9476.064541	Credit Card	Gold	Valencia	39.4699	-0.3763	ATM	EUR	40	0	0	383	6000.41	Middle Income Segment
13	7949	2023-10-24 00:00:00	Loan Payment	347.078478	Mortgage	Business	Malaga	36.7213	-4.4214	Online	EUR	0	0	26.89	484	5906.51	Middle Income Segment
14	3433	2023-03-03 00:00:00	Loan Payment	282.1119571	Credit Card	Business	Seville	37.3891	-5.9845	Mobile	EUR	23.5	0	142.66	662	3858.5	Middle Income Segment
15	6311	2023-05-30 00:00:00	Deposit	2967.03972	Savings Account	Student	Bilbao	43.263	-2.935	Branch	EUR	0	0	0	730	1012.55	Low Income Segment
16	6051	2023-04-20 00:00:00	Card Payment	4760.063919	Savings Account	Platinum	Valencia	39.4699	-0.3763	Mobile	USD	0	0	0	332	6165.08	Middle Income Segment
17	7420	2024-10-08 00:00:00	Loan Payment	6036.819687	Loan	Student	Madrid	40.4168	-3.7038	Mobile	EUR	0	14.51	101.65	827	6732.4	Middle Income Segment
18	2184	2023-12-21 00:00:00	Fee	4189.673892	Savings Account	Student	Madrid	40.4168	-3.7038	Branch	EUR	0	0	0	383	8253.9	High Income Segment
19	5555	2025-05-05 00:00:00	Card Payment	9537.538641	Loan	Student	Murcia	37.9847	-1.1287	Online	EUR	0	26.68	0	711	4055.12	Middle Income Segment
20	4385	2023-05-05 00:00:00	Card Payment	3889.236162	Checking Account	Business	Bilbao	43.263	-2.935	ATM	EUR	0	0	0	635	7191.14	High Income Segment
21	7396	2024-01-17 00:00:00	Deposit	2562.163609	Savings Account	Platinum	Valencia	39.4699	-0.3763	ATM	EUR	0	0	0	748	8547.74	High Income Segment
22	9666	2024-11-17 00:00:00	Fee	3404.541799	Checking Account	Standard	Valencia	39.4699	-0.3763	Branch	EUR	0	0	0	606	5573.25	Middle Income Segment
23	3558	2024-10-20 00:00:00	Fee	1972.456601	Checking Account	Business	Malaga	36.7213	-4.4214	Mobile	EUR	0	0	0	828	2763.09	Low Income Segment
24	8849	2023-04-23 00:00:00	Loan Payment	12796.84636	Mortgage	Student	Bilbao	43.263	-2.935	ATM	USD	0	0	170.94	465	8635.25	High Income Segment
25	3047	2025-02-28 00:00:00	Transfer	2611.927729	Loan	Business	Murcia	37.9847	-1.1287	ATM	EUR	0	48.66	0	479	7386.01	High Income Segment
26	3747	2024-08-14 00:00:00	Fee	7072.808735	Checking Account	Gold	Murcia	37.9847	-1.1287	Online	EUR	0	0	0	507	9394.88	High Income Segment
27	1189	2023-01-07 00:00:00	Loan Payment	5369.450372	Mortgage	Platinum	Malaga	36.7213	-4.4214	ATM	EUR	0	0	65.11	607	6298.02	Middle Income Segment
28	3734	2024-01-06 00:00:00	Transfer	137.0270871	Savings Account	Standard	Barcelona	41.3874	2.1686	ATM	EUR	0	0	0	639	6773.86	Middle Income Segment
29	4005	2025-01-01 00:00:00	Card Payment	844.0301918	Savings Account	Platinum	Malaga	36.7213	-4.4214	Online	EUR	0	0	0	589	4948.54	Middle Income Segment
30	5658	2024-11-09 00:00:00	Loan Payment	6924.048107	Checking Account	Gold	Madrid	40.4168	-3.7038	Branch	EUR	0	0	83.44	511	2730.56	Low Income Segment
31	2899	2024-10-19 00:00:00	Loan Payment	645.0363944	Savings Account	Standard	Malaga	36.7213	-4.4214	Mobile	EUR	0	0	163.57	713	3398.28	Middle Income Segment
32	8734	2023-08-29 00:00:00	Deposit	9176.159124	Loan	Business	Madrid	40.4168	-3.7038	Online	EUR	0	42.32	0	828	6072.51	Middle Income Segment
33	2267	2024-07-19 00:00:00	Card Payment	915.9630528	Savings Account	Standard	Barcelona	41.3874	2.1686	Mobile	EUR	0	0	0	749	6377.72	Middle Income Segment
34	2528	2024-02-13 00:00:00	Card Payment	4885.108633	Credit Card	Student	Madrid	40.4168	-3.7038	ATM	USD	10.31	0	0	587	5057.74	Middle Income Segment
35	4556	2024-11-22 00:00:00	Withdrawal	1027.551017	Savings Account	Gold	Madrid	40.4168	-3.7038	Online	EUR	0	0	0	545	7426.07	High Income Segment
36	4890	2023-03-17 00:00:00	Transfer	2603.190122	Checking Account	Student	Madrid	40.4168	-3.7038	Branch	EUR	0	0	0	573	6668.18	Middle Income Segment
37	9838	2023-06-01 00:00:00	Loan Payment	1872.87385	Mortgage	Gold	Madrid	40.4168	-3.7038	Mobile	EUR	0	0	97.86	437	3594.46	Middle Income Segment
38	6393	2023-09-09 00:00:00	Fee	6909.059841	Loan	Business	Seville	37.3891	-5.9845	ATM	EUR	0	75.77	0	387	1489.97	Low Income Segment
39	9792	2023-08-22 00:00:00	Fee	4550.103982	Loan	Business	Bilbao	43.263	-2.935	Online	USD	0	96.66	0	833	9249.61	High Income Segment
40	9433	2024-11-27 00:00:00	Withdrawal	5455.139748	Mortgage	Student	Barcelona	41.3874	2.1686	Branch	EUR	0	0	0	682	6915.34	Middle Income Segment
41	8513	2023-12-24 00:00:00	Transfer	490.8950552	Loan	Gold	Murcia	37.9847	-1.1287	Online	EUR	0	58.58	0	575	4473.92	Middle Income Segment
42	3612	2023-01-23 00:00:00	Deposit	1068.250561	Checking Account	Gold	Malaga	36.7213	-4.4214	Online	EUR	0	0	0	588	8516.75	High Income Segment
43	8041	2024-05-30 00:00:00	Transfer	5519.5363	Checking Account	Business	Madrid	40.4168	-3.7038	Mobile	EUR	0	0	0	689	5185.09	Middle Income Segment
44	7235	2025-05-01 00:00:00	Fee	4366.090506	Mortgage	Platinum	Zaragoza	41.6488	-0.8891	Mobile	EUR	0	0	0	605	8839.3	High Income Segment
45	6486	2024-07-31 00:00:00	Fee	3451.563165	Checking Account	Student	Malaga	36.7213	-4.4214	ATM	EUR	0	0	0	835	5847.99	Middle Income Segment
46	8099	2024-02-06 00:00:00	Deposit	7466.107323	Credit Card	Student	Seville	37.3891	-5.9845	ATM	EUR	19.86	0	0	824	7713.93	Middle Income Segment

From This

Sum of Amount	Column Labels					
Row Labels	Checking Account	Credit Card	Loan	Mortgage	Savings Account	Grand Total
Barcelona	1.86%	2.75%	3.19%	3.92%	1.19%	12.90%
Bilbao	1.89%	2.44%	2.96%	3.55%	1.26%	12.10%
Madrid	1.81%	2.34%	3.14%	3.44%	1.32%	12.06%
Malaga	1.84%	2.49%	3.10%	3.97%	1.38%	12.79%
Murcia	1.87%	2.65%	3.41%	3.64%	1.21%	12.77%
Seville	1.93%	2.56%	2.84%	3.99%	1.23%	12.55%
Valencia	1.78%	2.39%	3.15%	3.79%	1.23%	12.33%
Zaragoza	2.02%	2.38%	3.22%	3.69%	1.18%	12.50%
Grand Total	**15.00%**	**20.00%**	**25.00%**	**30.00%**	**10.00%**	**100.00%**

To This

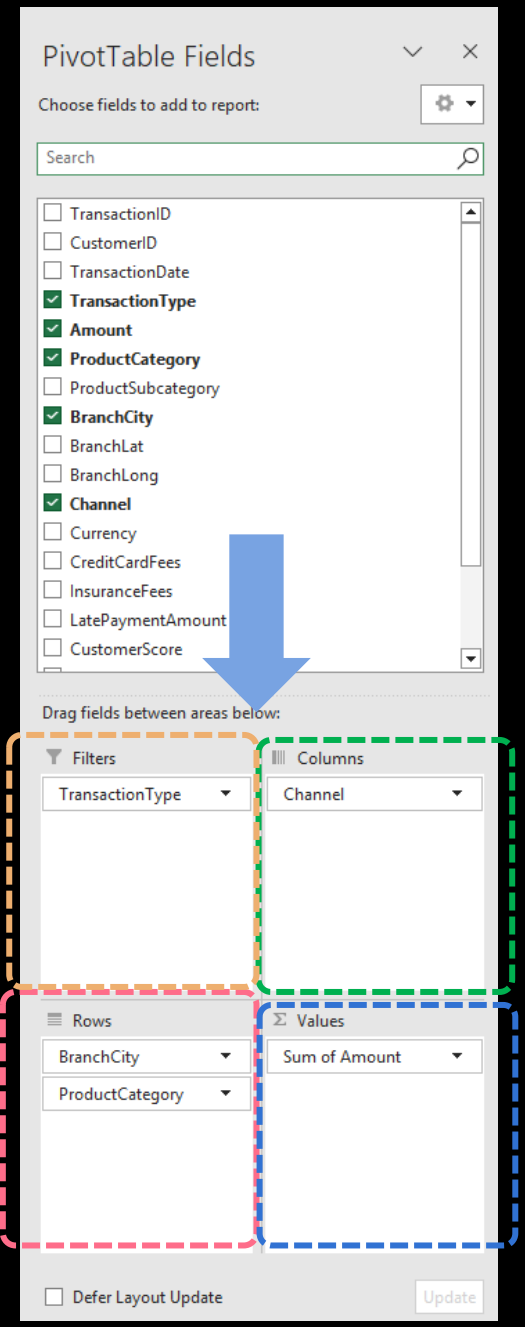
In 1 minute! (or less...)

THE ANALYST PERSPECTIVE

Components of A Pivot Table

TransactionType	(All)

Sum of Amount	Column Labels				
Row Labels	ATM	Branch	Mobile	Online	Grand Total
Barcelona	**2.81%**	**3.36%**	**3.35%**	**3.39%**	**12.90%**
Checking Account	0.39%	0.51%	0.48%	0.48%	1.86%
Credit Card	0.58%	0.74%	0.77%	0.65%	2.75%
Loan	0.66%	0.83%	0.92%	0.78%	3.19%
Mortgage	0.88%	0.99%	0.89%	1.16%	3.92%
Savings Account	0.30%	0.28%	0.28%	0.33%	1.19%
Bilbao	**2.91%**	**2.97%**	**3.22%**	**3.01%**	**12.10%**
Madrid	**3.27%**	**3.09%**	**2.99%**	**2.71%**	**12.06%**
Malaga	**3.20%**	**3.19%**	**3.25%**	**3.15%**	**12.79%**
Murcia	**3.38%**	**3.07%**	**3.06%**	**3.26%**	**12.77%**
Seville	**3.31%**	**3.19%**	**3.18%**	**2.87%**	**12.55%**
Valencia	**2.91%**	**2.97%**	**3.49%**	**2.96%**	**12.33%**
Zaragoza	**3.06%**	**3.23%**	**3.29%**	**2.91%**	**12.50%**
Grand Total	**24.86%**	**25.05%**	**25.84%**	**24.25%**	**100.00%**



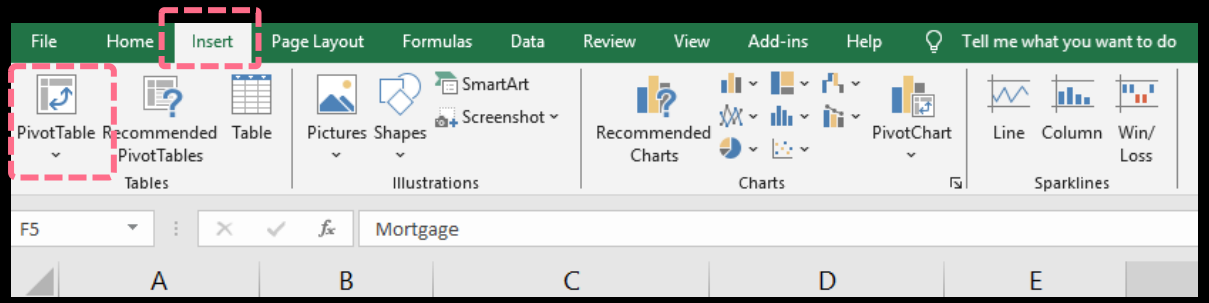
Building A Pivot Table

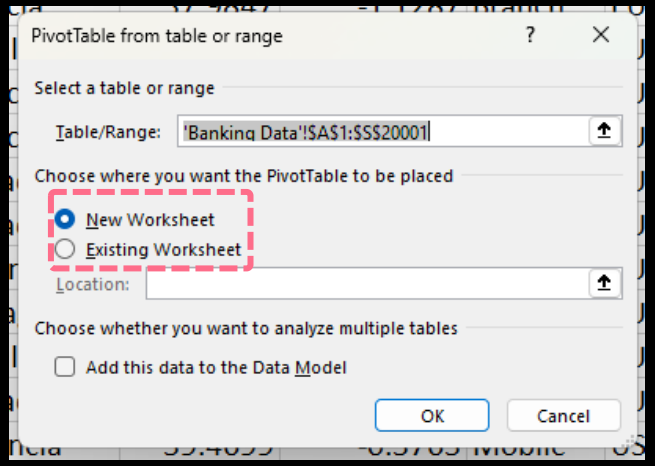
1. Select your data

2. Insert >> PivotTable

3. Choose Destination

	A	B	C	D	E	F	G
1	TransactionID	CustomerID	TransactionDate	TransactionType	Amount	ProductCategory	ProductSubcategory
2	1	8270	2025-01-29 00:00:00	Card Payment	6980.185223	Checking Account	Gold
3	2	1860	2023-02-10 00:00:00	Deposit	10786.37185	Mortgage	Gold
4	3	6390	2024-03-07 00:00:00	Transfer	3982.761111	Loan	Platinum
5	4	6191	2023-07-04 00:00:00	Withdrawal	12408.64414	Mortgage	Standard
6	5	6734	2025-02-05 00:00:00	Fee	1868.260998	Checking Account	Platinum
7	6	7265	2023-09-30 00:00:00	Card Payment	3165.15063	Savings Account	Platinum
8	7	1466	2023-02-11 00:00:00	Fee	4771.087539	Savings Account	Student
9	8	5426	2024-01-14 00:00:00	Deposit	4484.855719	Checking Account	Platinum
10	9	6578	2023-07-15 00:00:00	Deposit	9929.003111	Loan	Gold





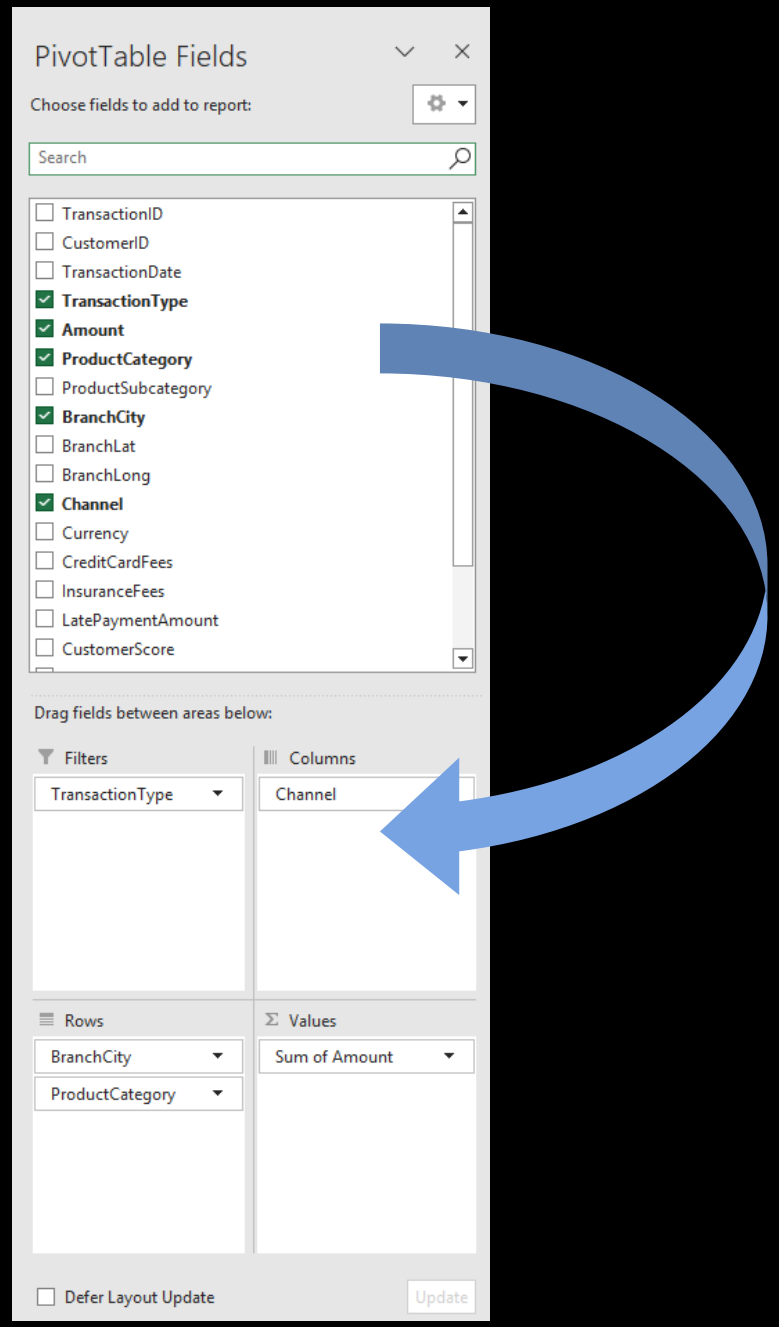
THE ANALYST PERSPECTIVE

Building A Pivot Table

4. Drag Fields to Areas

Customizing Value Fields

- By Default, Excel often SUMs numbers and COUNTs text/numbers.
- To change this: Click the dropdown arrow next to the field in the Values area > Value Field Settings.
- Choose Sum, Count, Average, Max, Min, etc.



Exercise 6 – Pivot Table

- Task 1 – Create a new Pivot Table on a new worksheet.
- Task 2 – Show the total **Amount** (in *Values*) for each **Product Category** (in *Rows*).
- Task 3 – Modify the Pivot Table: Add **Currency** (in *Columns*) area to see amount by Product Category and Currency.
- Task 4 – Change the **Amount** in the *Values* area to show the **Average Amount** instead of the Sum.
- Task 5 – Add **BranchCity** to the *Filters* area and filter the Pivot Table to show data only for a specific city – (e.g. Barcelona)

Session 3 Recap

Your Excel toolkit for Data Analyst is growing!

- We learned to clean and manipulate text using **Text Functions** like **TRIM, LEFT, RIGHT, CONCAT**.
- We explored **Date and Time Functions** to perform duration calculations and extract components.
- We started making categorization according to conditions using the **IF Function**.
- We unlocked the power of **Pivot Tables** for interactive data summarization.

Session 3 Recap

Started from here...

I8

	A	B	C	D	E	F	G
1	City	State/Region	Office Type	Revenu	Operating Exp	Operating	Depreciatio
2	Myaungmya	Ayeyarwady	Corporate	125319	65792		4667
3	Taungoo	Bago	Franchise	433924	101465		5068
4	Hakha	Chin	Partner	135816	67388		5700
5	Puta-O	Kachin	Corporate	233255	83606		5089
6	Loikaw	Kayah	Franchise	392518	82675		6100
7	Hpa-An	Kayin	Franchise	331773	85288		5795
8	Pwintbyu	Magway	Partner	244975	100834		5153
9	Nyaung-U	Mandalay	Corporate	207163	73705		5599
10	Kyaikto	Mon	Partner	432326	79297		4872
11	Lewe	Nay Pyi Taw	Franchise	201945	83178		4734
12	Pauktaw	Rakhine	Corporate	461214	86688		6066
13	Monywa	Sagaing	Partner	407339	88286		4604
14	Taungyi	Shan	Partner	376263	92698		5195
15	Dawei	Tanintharyi	Franchise	128691	67175		4956
16	Yangon	Yangon	Franchise	149134	87513		5168
17	Pyay	Bago	Partner	440462	81912		4842
18	Einme	Ayeyarwady	Partner	137925	104528		~5673
19	Mindat	Chin	Partner	177789	103757		5144
20	Paletwa	Chin	Corporate	244913	89974		5062
21	Taikkyi	Yangon	Partner	130422	15789		4522
22	Myingyan	Mandalay	Partner	421253	111416		6705
23	Hpruso		Partner	316390	102870		8416
24	Kawthoung		Corporate	370584	109975		8581
25	Bilin		Partner	467459	97692		7023

Now we are here...

	A	B	C	D	E
1	BranchCity	Barcelona			
2					
3	**Average of Amount**	**Column Labels**			
4	**Row Labels**	**EUR**	**USD**	**Grand Total**	
5	Checking Account	4030.034718	3936.67115	4016.070081	
6	Credit Card	4902.218191	4686.296826	4867.746535	
7	Loan	6041.039116	6653.019512	6140.310745	
8	Mortgage	7490.367518	8299.128819	7602.134915	
9	Savings Account	2479.668967	2593.433313	2497.40769	
10	**Grand Total**	**5054.837918**	**5240.639755**	**5083.316904**	
11					
12					

THE ANALYST PERSPECTIVE

Session 4 – Advanced Formulas

Nested Logic, Lookup Functions

Bonus : Excel Common Issues and trouble shooting

THE ANALYST PERSPECTIVE

Nested IF Functions

When One IF Isn't Enough!

- Sometimes your decision needs to check multiple criteria simultaneously.
- Excel's **AND** and **OR** functions help you build complex logical tests within an IF statement.

The **AND** Function:

- AND(logical1, [logical2], ...)
- Returns **TRUE** only if **ALL** of its arguments are **TRUE**.
- Example: AND(Sales > 10000, Region = "North")

The **OR** Function:

- OR(logical1, [logical2], ...)
- Returns **TRUE** only if **ANY** of its arguments are **TRUE**.
- Example: OR(Unit Sold < 50, Product Status = “Discontinued”)

THE ANALYST PERSPECTIVE

Nested IF Functions

Combining IF with AND/OR:

=IF(AND(condition1, condition2), value_if_true, value_if_false)

=IF(OR(condition1, condition2), value_if_true, value_if_false)

Multiple Checks , Two Output!

Nested IF Statements:

•When you have more than two possible outcomes (e.g., A, B, C instead of just True/False).

•You put another IF function inside the value_if_false (or value_if_true) argument of the first IF.

•Syntax: =IF(condition1, outcome1, IF(condition2, outcome2, outcome3))

Multiple Checks , Multiple Outputs!

THE ANALYST PERSPECTIVE

Conditional Aggregation

SUMIF

Only sums values that meet your condition.

COUNTIF

Perfect for tracking how many times something appears.

AVERAGEIF

Only averages values that meet your condition.

Exercise 7 – Nested IF and SUMIF

- Task 1 – Use an **IF** function to create a formula in cell **H7**. This formula must check the subtotal amount in column G7. If the amount is greater than $10,000 then the formula should display the result 10%. If the amount is less than $10,000, then the formula should display the result as 0.
- Task 2 – Create a formula in cell L7 using the **Nested IF** function to calculate the delivery charges. The delivery charges are mentioned in Cell C2 to D4.
- Task 3 – Create a formula in cell **M7** that adds together the total (excluding the delivery amount) in **K7** and the delivery charge in **L7**.
- Task 4 – Create a SUMIF formula in cells **H2, H3 and H4** that calculates a sales total (excluding delivery) for **Region A, B and C** respectively

Look Up Functions

VLOOKUP

- Can only search left to right
- Breaks if you insert or delete columns
- Slower on large datasets

INDEX MATCH

- Can search both left and right
- Doesn’t break with structural changes
- More efficient and faster for large datasets

Exercise 8 – VLOOPUP and INDEX + MATCH

- Task 1 – Search and insert Cost per Units values for each Category using **VLOOKUP**
- Task 2 – Search and insert Cost per Units values for each Category using **INDEX + MATCH**

Common Excel Issues & Troubleshooting

Common Error Messages

#DIV/0!	➢ Attempting to divide by zero (e.g., 5/0)
#NAME?	➢ Typo in a function name (=AVERAE())
#VALUE!	➢ Formula contains a type mismatch (e.g., 100+"abc")
#REF!	➢ Formula refers to a cell that is deleted
#N/A	➢ Lookup value not found
########	➢ Column is too narrow to display the number
1.35E+16	➢ Not an error, but the reason for many

THE ANALYST PERSPECTIVE

Session 4 Recap

Congratulations! You have obtained 1 ingredient in the analyst recipe.

- We built **Complex Logic** with **IF and Nested IF.**
- We mastered **VLOOKUP and INDEX MATCH** for powerful data retrieval.
- We used **Conditional Aggregations (SUMIF, COUNTIF, AVERAGEIF)** for precise data summarization
- We learned to **Troubleshoot Common Issues** and understand Excel error messages.

THE
ANALYST
PERSPECTIVE

"Exceptional results almost exclusively happen when you work hard on an area where you have some natural aptitude. Play to your strengths"

JAMES CLEAR

THE
ANALYST
PERSPECTIVE