ADVANCED EXCEL · LESSON 5 OF 12

Text Functions, Logical Functions & IF

Extract, clean, combine and reformat text with LEFT, RIGHT, MID, LEN, FIND, SEARCH, CONCAT, TEXTJOIN, TEXT and the new TEXTSPLIT/TEXTBEFORE/TEXTAFTER. Then make decisions with AND, OR, NOT, IF, nested IF, IFS, SWITCH and IFERROR.

● Live classes 3–4 ✦ Excel for Microsoft 365, 2026 Beginner ⏱ 120 min

By the end of this lesson you can

- Extract parts of codes, names and emails with LEFT, RIGHT, MID, FIND and SEARCH
- Combine text with &, CONCAT and TEXTJOIN and format numbers inside text with TEXT
- Split text with Text to Columns and the TEXTSPLIT, TEXTBEFORE and TEXTAFTER functions
- Build conditions with AND, OR, NOT and decisions with IF, nested IF, IFS and SWITCH
- Handle errors cleanly with IFERROR and IFNA

Datasets used

`superstore_sales.csv` `employees_small.csv`

Why text functions matter

Real data arrives as text: order IDs like `IN-2025-00042`, product codes, email addresses, "Last, First" names, addresses and free-text comments. Text functions let you pull out the part you need (the year, the region code, the domain) so you can analyse it.

Measuring and extracting text

Function	What it returns	Example	Result
`LEN(text)`	Number of characters	`=LEN("Pune")`	4
`LEFT(text, n)`	First n characters	`=LEFT("IN-2025-00042",2)`	IN
`RIGHT(text, n)`	Last n characters	`=RIGHT("IN-2025-00042",5)`	00042
`MID(text, start, n)`	n characters from position start	`=MID("IN-2025-00042",4,4)`	2025
`FIND(find, text, [start])`	Position of text (case-sensitive, no wildcards)	`=FIND("-","IN-2025-00042")`	3
`SEARCH(find, text, [start])`	Position (not case-sensitive, wildcards allowed)	`=SEARCH("pune","PUNE-411001")`	1

Extracting parts of an order ID

	A	B	C	D	E	F
1	Order ID	Country =LEFT(A2,2)	Year =MID(A2,4,4)	Order no. =RIGHT(A2,5)	Length	Year as number
2	IN-2025-00042	IN	2025	00042	13	2025
3	IN-2023-01519	IN	2023	01519	13	2023
4	IN-2024-02988	IN	2024	02988	13	2024

```
B2    =LEFT(A2,2)
C2    =MID(A2,4,4)
D2    =RIGHT(A2,5)
E2    =LEN(A2)
F2    =VALUE(MID(A2,4,4))
```

Each pattern is copied down/across to the other cells in its column.

Text functions always return **text**. `MID(A2,4,4)` returns the text `"2025"`, not the number 2025. Wrap with `VALUE()` (or multiply by 1) to get a number you can compare or add.

When the position changes: FIND + MID

Codes rarely have fixed lengths. Combine `FIND` with `LEFT`, `MID` and `RIGHT` to cut at a delimiter wherever it is.

Splitting emails at the @ sign

	A	B	C	D
1	Email	Position of @	User name	Domain
2	kavya.iyer@abc.in	11	kavya.iyer	abc.in
3	imran@datacorp.com	6	imran	datacorp.com
4	harpreet.k@skillnavora.in	11	harpreet.k	skillnavora.in

```
B2   =FIND("@",A2)
C2   =LEFT(A2,FIND("@",A2)-1)
D2   =MID(A2,FIND("@",A2)+1,100)
```
Each pattern is copied down/across to the other cells in its column.

Using a large number like 100 in `MID` simply means "take everything to the end". Alternatively use `=RIGHT(A2,LEN(A2)-FIND("@",A2))`.

First and last name from 'First Last'

	A	B	C	D
1	**Full name**	**First name**	**Last name**	**Initials**
2	Kavya Iyer	Kavya	Iyer	KI
3	Harpreet Kulkarni	Harpreet	Kulkarni	HK
4	Aarav Kulkarni	Aarav	Kulkarni	AK

```
B2   =LEFT(A2,FIND(" ",A2)-1)
C2   =MID(A2,FIND(" ",A2)+1,50)
D2   =LEFT(A2,1)&LEFT(C2,1)
```
Each pattern is copied down/across to the other cells in its column.

FIND vs SEARCH

	FIND	SEARCH
Case-sensitive	Yes: `FIND("a","Apple")` → #VALUE!	No: `SEARCH("a","Apple")` → `1`
Wildcards `*` `?`	No	Yes
Not found	`#VALUE!`	`#VALUE!`

A common pattern to test whether text **contains** a word: `=ISNUMBER(SEARCH("chair",B2))` returns TRUE or FALSE.

Changing and cleaning text

Function	Purpose	Example → Result
`UPPER, LOWER, PROPER`	Change case	`=PROPER("new delhi")` → New Delhi
`TRIM`	Remove extra spaces	`=TRIM(" a b ")` → a b
`CLEAN`	Remove non-printing characters	Line breaks from web data
`SUBSTITUTE(text, old, new, [n])`	Replace by content	`=SUBSTITUTE("2025-04-27","-","/")` → 2025/04/27
`REPLACE(text, start, n, new)`	Replace by position	`=REPLACE("E101",1,1,"EMP")` → EMP101
`REPT(text, n)`	Repeat text	`=REPT("★",4)` → ★★★★
`EXACT(a, b)`	Case-sensitive comparison	`=EXACT("abc","ABC")` → FALSE

> **TIP** **Count how many times a character appears**
>
> `=LEN(A2)-LEN(SUBSTITUTE(A2,",",""))` counts commas in A2 (the length difference after removing them). Add 1 to count items in a comma-separated list.

Joining text

Three ways to combine text

	A	B	C	D	E	F
1	First	Last	City	With &	CONCAT	TEXTJOIN
2	Kavya	Iyer	Mumbai	Kavya Iyer (Mumbai)	Kavya Iyer	Kavya, Iyer, Mumbai
3	Imran		Delhi	Imran (Delhi)	Imran	Imran, Delhi

```
D2   =A2&" "&B2&" ("&C2&")"
E2   =CONCAT(A2," ",B2)
F2   =TEXTJOIN(", ",TRUE,A2:C2)
D3   =A3&" "&B3&" ("&C3&")"
E3   =CONCAT(A3," ",B3)
F3   =TEXTJOIN(", ",TRUE,A3:C3)
```

- & is the quickest way to join a few pieces.
- `CONCAT` joins ranges as well as single cells (it replaces the older `CONCATENATE`).
- `TEXTJOIN(delimiter, ignore_empty, …)` puts a separator between items and can **skip blanks**, which is why row 3 shows "Imran, Delhi" without a double comma.

Numbers and dates inside text: TEXT

Joining a number or date directly shows its raw value: `="Sales: "&A2` gives `Sales: 1234567.891`, and a date shows as `46139`. Use `TEXT(value, format)` to control how it appears.

TEXT() inside labels

	A	B
1	**Value**	**Label formula result**
2	1,234,568	Revenue: ₹1,234,568
3	27-04-2026	Report date: 27 Apr 2026
4	0.1834	Growth: 18.3%
5	27-04-2026	Day: Monday

```
B2   ="Revenue: ₹"&TEXT(A2,"#,##0")
B3   ="Report date: "&TEXT(A3,"dd mmm yyyy")
B4   ="Growth: "&TEXT(A4,"0.0%")
B5   ="Day: "&TEXT(A5,"dddd")
```

Splitting text

Text to Columns (Lesson 2) splits once into static values. Microsoft 365 adds formula versions that update automatically:

Function	Example	Result
`TEXTBEFORE(text, delimiter, [instance])`	`=TEXTBEFORE("kavya.iyer@abc.in","@")`	kavya.iyer
`TEXTAFTER(text, delimiter, [instance])`	`=TEXTAFTER("IN-2025-00042","-",-1)`	00042 (−1 = last hyphen)
`TEXTSPLIT(text, col_delim, [row_delim])`	`=TEXTSPLIT("North,South,East",",")`	spills North / South / East across three cells

TEXTSPLIT spills into neighbouring cells (Microsoft 365)

	A	B	C	D	E
1	**Input**				
2	IN-2025-00042	IN			
3	Furniture	Chairs	Apex Chair 412		
4	Furniture > Chairs > Apex Chair 412				

```
B2   =TEXTSPLIT(A2,"-")
A4   =TEXTJOIN(" > ",TRUE,A3:C3)
```

The blue cells are a **spill range**: one formula fills several cells. If any of those cells already contain something, the formula shows `#SPILL!` (Lesson 6).

2026 UPDATE **Regular expressions in Excel (2025)**

Microsoft 365 has added `REGEXTEST`, `REGEXEXTRACT` and `REGEXREPLACE`. For example `=REGEXEXTRACT(A2,"\d{6}")` pulls a 6-digit PIN code out of an address, and `=REGEXTEST(A2,"^[\w.]+@[\w.]+\.\w+$")` checks that an email looks valid. They are covered with Python regex in the Python track.

Logical functions: TRUE or FALSE

Comparisons such as `=B2>100` return TRUE or FALSE. Logical functions combine them:

Function	Returns TRUE when	Example
`AND(c1, c2, …)`	**All** conditions are TRUE	`=AND(B2⩾4, C2="Sales")`
`OR(c1, c2, …)`	**At least one** condition is TRUE	`=OR(D2="Delhi", D2="Mumbai")`
`NOT(c)`	The condition is FALSE	`=NOT(E2="Done")`
`XOR(c1, c2)`	An odd number of conditions are TRUE	Rarely needed

AND, OR and NOT on employee data

	A	B	C	D	E	F	G	H
1	Name	Department	City	Rating	Salary	Sales & rating≥4	Metro city	Not HR
2	Kavya Iyer	HR	Mumbai	4	97000	FALSE	TRUE	FALSE
3	Isha Mehta	Sales	Delhi	3	57000	FALSE	TRUE	TRUE
4	Aadhya Nair	Sales	Bengaluru	5	45000	TRUE	FALSE	TRUE
5	Krishna Khan	Sales	Mumbai	3	156000	FALSE	TRUE	TRUE

F2 `=AND(B2="Sales",D2⩾4)`

G2 `=OR(C2="Delhi",C2="Mumbai")`

H2 `=NOT(B2="HR")`

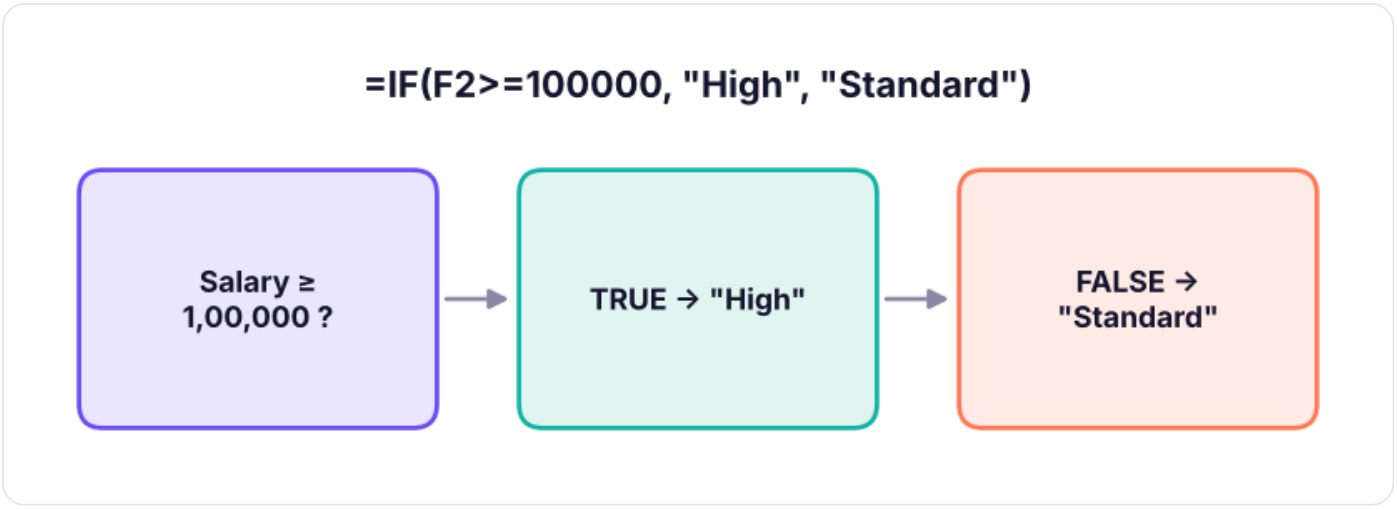
Each pattern is copied down/across to the other cells in its column.

TIP **TRUE = 1, FALSE = 0**

In arithmetic Excel treats TRUE as 1 and FALSE as 0. `=SUM(--(D2:D21⩾4))` counts ratings of 4 or more (the double minus converts TRUE/FALSE to 1/0). This trick powers `SUMPRODUCT` in Lesson 6.

IF: making decisions

```
=IF(logical_test, value_if_true, value_if_false)
```



IF checks a condition and returns one of two results.

IF in practice

	A	B	C	D	E	F
1	Name	Salary	Rating	Band	Bonus (10% if rating ≥ 4)	Pass/Fail target 80k
2	Kavya Iyer	97000	4	Standard	9,700	Pass
3	Imran Reddy	157000	3	High	0	Pass
4	Isha Mehta	57000	3	Standard	0	Fail
5	Vikram Joshi	75000	5	Standard	7,500	Fail

```
D2   =IF(B2≥100000,"High","Standard")
E2   =IF(C2≥4,B2*10%,0)
F2   =IF(B2≥80000,"Pass","Fail")
```

Each pattern is copied down/across to the other cells in its column.

IF can return text, numbers, another formula's result, or "" (an empty-looking cell).

Combining IF with AND and OR

IF + AND / OR

	A	B	C	D	E	F
1	Name	Dept	Rating	Years	Promotion: rating ≥4 AND years ≥3	Review: rating ≤2 OR years <1
2	Kavya Iyer	HR	4	10	Eligible	OK
3	Saanvi Rao	HR	4	1	Not yet	OK
4	Aarav Kulkarni	HR	2	1	Not yet	Review
5	Neha Menon	Sales	3	0	Not yet	Review

```
E2   =IF(AND(C2≥4,D2≥3),"Eligible","Not yet")
F2   =IF(OR(C2≤2,D2<1),"Review","OK")
```

Each pattern is copied down/across to the other cells in its column.

Nested IF vs IFS

For more than two outcomes, you can put an IF inside another IF (**nested IF**), or use **IFS**, which is easier to read.

Grading marks: nested IF and IFS give the same result

	A	B	C
1	Marks	Nested IF	IFS
2	92	A	A
3	78	B	B
4	60	C	C
5	41	Fail	Fail

```
B2   =IF(A2≥90,"A",IF(A2≥75,"B",IF(A2≥60,"C","Fail")))
C2   =IFS(A2≥90,"A",A2≥75,"B",A2≥60,"C",TRUE,"Fail")
```

Each pattern is copied down/across to the other cells in its column.

COMMON MISTAKES **Order matters in nested IF and IFS**

Excel stops at the **first** TRUE condition. If you test `A2≥60` first, a mark of 92 returns "C". Always test from the highest threshold to the lowest (or lowest to highest with <). In IFS, end with `TRUE, "default"` so values that match nothing do not return `#N/A`.

SWITCH: matching exact values

When you compare one value against a list of exact matches, `SWITCH` is cleaner than nested IFs.

SWITCH maps codes to names

	A	B
1	Region code	Region name
2	N	North
3	W	West
4	X	Unknown

```
B2   =SWITCH(A2,"N","North","S","South","E","East","W","West","Unknown")
B3   =SWITCH(A3,"N","North","S","South","E","East","W","West","Unknown")
B4   =SWITCH(A4,"N","North","S","South","E","East","W","West","Unknown")
```

For long mappings, a lookup table with XLOOKUP (Lesson 7) is better than a long formula, because the mapping can be edited without touching formulas.

Handling errors: IFERROR and IFNA

IFERROR replaces any error with a value you choose

	A	B	C	D
1	Sales	Orders	Average order	With IFERROR
2	120000	40	3,000	3,000
3	0	0	#DIV/0!	0
4	95000	25	3,800	3,800

```
C2   =A2/B2
D2   =IFERROR(A2/B2,0)
C3   =A3/B3
D3   =IFERROR(A3/B3,0)
C4   =A4/B4
D4   =IFERROR(A4/B4,0)
```

- `IFERROR(value, value_if_error)` catches **every** error type.
- `IFNA(value, value_if_na)` catches only `#N/A`, typically from lookups, so real problems such as `#REF!` stay visible.

WATCH OUT **Do not hide problems**

Wrapping every formula in IFERROR can hide genuine mistakes (a deleted column, a typo). Use it where an error is expected and meaningful (division by zero, value not found), and prefer IFNA for lookups.

Case: building columns for the Superstore data

Here is how analysts typically enrich the Superstore order table with text and logical formulas before analysis. The same logic in pandas gives us the real results on all 6,323 rows:

Python

```python
import pandas as pd
s = pd.read_csv("superstore_sales.csv")
s["order_year"] = s["order_id"].str[3:7].astype(int)            # =VALUE(MID(A2,4,4))
s["product_brand"] = s["product_name"].str.split(" ").str[0]     # =TEXTBEFORE(N2," ")
s["profit_flag"] = s["profit"].apply(lambda p: "Loss" if p < 0 else "Profit")       #
=IF(R2<0,"Loss","Profit")
s["discount_band"] = pd.cut(s["discount"], [-0.01, 0, 0.2, 1], labels=["No discount", "Up to
20%", "Above 20%"])  # =IFS(...)
s[["order_id", "order_year", "product_name", "product_brand", "discount", "discount_band",
"profit", "profit_flag"]].head(6)
```

OUTPUT

	order_id	order_year	product_name	product_brand	discount	discount_band	profit
0	IN-2023-00001	2023	Nova Phone 223	Nova	0.0	No discount	3,472.5
1	IN-2023-00001	2023	Orbit Appliance 798	Orbit	0.0	No discount	1,169.5
2	IN-2023-00001	2023	Orbit Table 248	Orbit	0.0	No discount	6,044.4
3	IN-2023-00002	2023	Crest Storage 946	Crest	0.2	Up to 20%	450.16
4	IN-2023-00003	2023	Crest Bookcase 170	Crest	0.3	Above 20%	-5,512.3
5	IN-2023-00003	2023	Zenith Table 111	Zenith	0.3	Above 20%	-1,598.4

6 rows × 8 columns

Python

```
pd.crosstab(s["discount_band"], s["profit_flag"], margins=True)
```

OUTPUT

profit_flag	Loss	Profit	All
discount_band			
No discount	8	3472	3480
Up to 20%	776	1167	1943
Above 20%	898	2	900
All	1682	4641	6323

4 rows × 3 columns

The crosstab already tells a business story: almost every order-line with a discount above 20% makes a loss. You will build this same view as a pivot table in Lesson 8.

New column	Excel formula (row 2)
Order year	`=VALUE(MID(B2,4,4))`
Brand	`=TEXTBEFORE(N2," ")` or `=LEFT(N2,FIND(" ",N2)-1)`
Profit flag	`=IF(S2<0,"Loss","Profit")`
Discount band	`=IFS(Q2=0,"No discount",Q2⩽0.2,"Up to 20%",TRUE,"Above 20%")`

DO IT WITH AI

Do it with AI

Prompt: *"Column B has order IDs like IN-2025-00042. Write an Excel formula to extract the year as a number, and another to flag orders where discount (Q) is above 20% and profit (S) is negative as 'Review'. Explain each part."* Expected answer: `=VALUE(MID(B2,4,4))` and `=IF(AND(Q2>0.2,S2<0),"Review","")`.

Summary

KEY TAKEAWAYS

- `LEFT`, `RIGHT`, `MID` extract text; `FIND`/`SEARCH` locate a character so you can cut at a delimiter.
- Text functions return text: wrap with `VALUE()` to get numbers.
- Join with &, `CONCAT` or `TEXTJOIN` (which can skip blanks); format numbers inside labels with `TEXT`.
- `TEXTSPLIT`, `TEXTBEFORE` and `TEXTAFTER` split text with formulas that update.
- `AND` needs all conditions, `OR` needs any; `TRUE` counts as 1 in arithmetic.
- Use `IFS` (with a final `TRUE`) instead of deep nested IFs; order conditions from strictest to loosest.
- Use `IFERROR` for expected errors and `IFNA` for lookups.

Quick quiz

6 questions · tap an answer to check it

1. What does `=MID("SKU-7781-BLU",5,4)` return?

A SKU-

B 7781

C 781-

D BLU

Answer: B. MID starts at position 5 ("7") and takes 4 characters: 7781.

2. A2 contains `ravi.verma@xyz.com`. Which formula returns `ravi.verma`?

A `=LEFT(A2,FIND("@",A2)-1)`

B `=LEFT(A2,FIND("@",A2))`

C `=RIGHT(A2,FIND("@",A2))`

D `=MID(A2,1,FIND(".",A2))`

Answer: A. FIND returns 11 (the @ position); take 10 characters from the left.

3. Which function joins A2:D2 with ", " and skips empty cells?

A `=CONCAT(A2:D2)`

B `=TEXTJOIN(", ",TRUE,A2:D2)`

C `=A2&", "&B2&", "&C2&", "&D2`

D `=TEXT(A2:D2,", ")`

Answer: B. TEXTJOIN's second argument TRUE ignores empty cells.

4. `=IF(A2⩾60,"C",IF(A2⩾75,"B","A"))` is used to grade a mark of 85. What is the result?

A C

B B

C A

D **VALUE!**

Answer: A. The first test (85 >= 60) is TRUE, so "C" is returned immediately. The conditions are in the wrong order.

5. Why end an IFS formula with `TRUE,"Other"`?

A It makes IFS case-insensitive

B It returns a default value instead of #N/A when no condition matches

C It is required syntax

D It speeds up the calculation

Answer: B. TRUE always matches, so it acts as the "else" branch.

6. What does `="Total: "&TEXT(1234.5,"#,##0")` return?

A Total: 1234.5

B Total: 1,235

C Total: 1,234

D Total: #,##0

Answer: B. TEXT formats the number with separators and no decimals, rounding 1234.5 to 1,235.

EXERCISE **Product codes**

Codes look like `FUR-CH-10001234` (category-subcategory-number). Write formulas for: (a) the category code; (b) the sub-category code; (c) the number as a value; (d) a flag "Furniture" when the category is FUR, otherwise "Other".

Show solution (worked answer)

(a) `=LEFT(A2,3)` or `=TEXTBEFORE(A2,"-")` (b) `=MID(A2,5,2)` or `=TEXTBEFORE(TEXTAFTER(A2,"-"),"-")` (c) `=VALUE(RIGHT(A2,8))` or `=VALUE(TEXTAFTER(A2,"-",-1))` (d) `=IF(LEFT(A2,3)="FUR","Furniture","Other")`

EXERCISE **Commission rules**

Sales reps get: 10% commission if sales ≥ 5,00,000; 7% if ≥ 3,00,000; 4% if ≥ 1,00,000; otherwise 0. Reps in the "Trainee" grade get half. Write one formula (sales in B2, grade in C2).

Show solution (worked answer)

`=B2*IFS(B2≥500000,10%,B2≥300000,7%,B2≥100000,4%,TRUE,0)*IF(C2="Trainee",0.5,1)`

INTERVIEW CORNER **Questions you may be asked**

Q: Difference between FIND and SEARCH? FIND is case-sensitive and does not allow wildcards; SEARCH is not case-sensitive and supports `*` and `?`. Both return `#VALUE!` when the text is not found.

Q: How would you extract the domain from an email address? `=MID(A2,FIND("@",A2)+1,LEN(A2))` or, in Microsoft 365, `=TEXTAFTER(A2,"@")`.

Q: Nested IF or IFS? IFS for readability when testing several conditions in order; SWITCH for exact matches of one value; a lookup table when the mapping is long or changes often.

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