

DATA VISUALIZATION

Lab Assignment-4

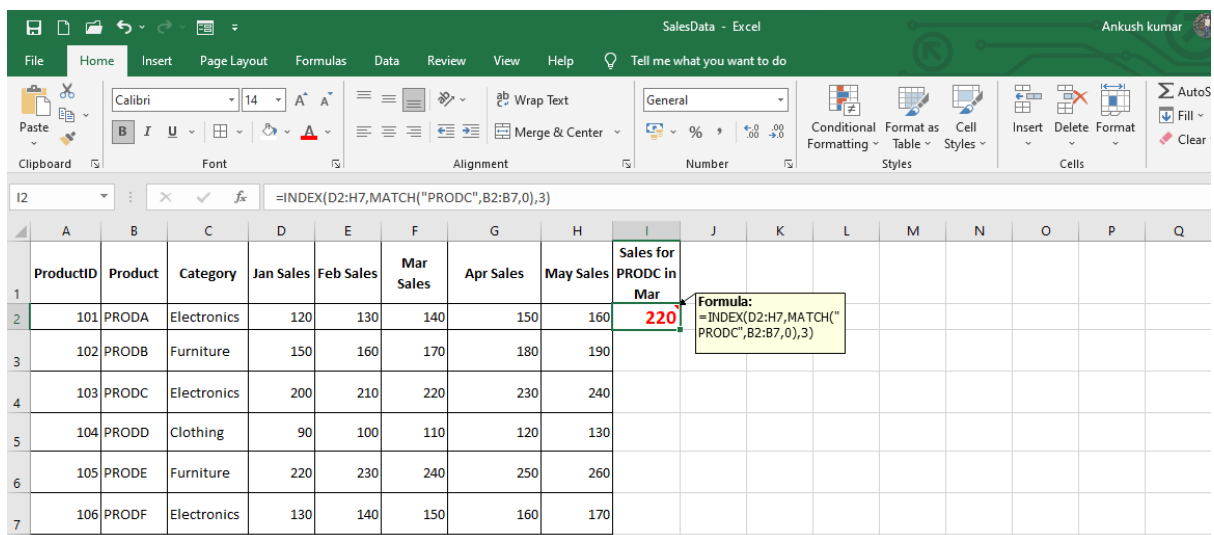
Topic – Index & Match Function

Assume you have the following dataset in an Excel worksheet starting from cell

Worksheet: Sales Data

1. Use INDEX and MATCH to find the sales for Product C in March.

Ans. ↓



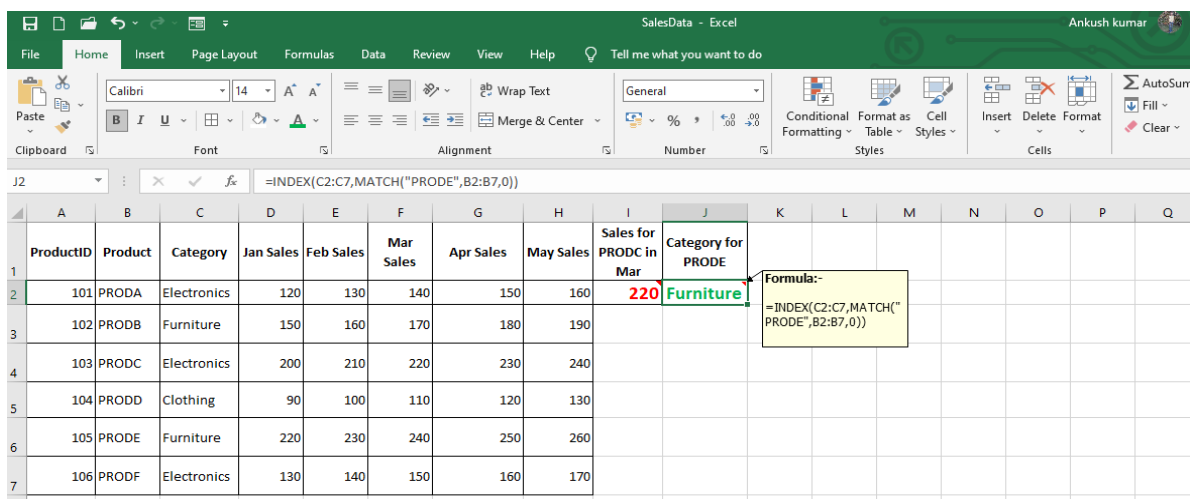
The screenshot shows an Excel worksheet titled "SalesData - Excel" with the following data:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
	ProductID	Product	Category	Jan Sales	Feb Sales	Mar Sales	Apr Sales	May Sales	Sales for PRODC in Mar								
1																	
2	101	PRODA	Electronics	120	130	140	150	160	220								
3	102	PRODB	Furniture	150	160	170	180	190									
4	103	PRODC	Electronics	200	210	220	230	240									
5	104	PRODD	Clothing	90	100	110	120	130									
6	105	PRODE	Furniture	220	230	240	250	260									
7	106	PRODF	Electronics	130	140	150	160	170									

The formula bar shows: `=INDEX(D2:H7,MATCH("PRODC",B2:B7,0),3)`. A tooltip for cell I2 displays the formula: `=INDEX(D2:H7,MATCH("PRODC",B2:B7,0),3)`.

2. Use INDEX and MATCH to find the category for Product E.

Ans. ↓



The screenshot shows the same Excel worksheet with the following data:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
	ProductID	Product	Category	Jan Sales	Feb Sales	Mar Sales	Apr Sales	May Sales	Sales for PRODC in Mar	Category for PRODE							
1																	
2	101	PRODA	Electronics	120	130	140	150	160	220	Furniture							
3	102	PRODB	Furniture	150	160	170	180	190									
4	103	PRODC	Electronics	200	210	220	230	240									
5	104	PRODD	Clothing	90	100	110	120	130									
6	105	PRODE	Furniture	220	230	240	250	260									
7	106	PRODF	Electronics	130	140	150	160	170									

The formula bar shows: `=INDEX(C2:C7,MATCH("PRODE",B2:B7,0))`. A tooltip for cell J2 displays the formula: `=INDEX(C2:C7,MATCH("PRODE",B2:B7,0))`.

3. Use INDEX and MATCH to find the maximum sales for Product B across all months.

Ans. ↓

SalesData - Excel

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Formula bar: K3 =MAX(INDEX(D2:H7,MATCH("PRODB",B2:B7,0),0))

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	ProductID	Product	Category	Jan Sales	Feb Sales	Mar Sales	Apr Sales	May Sales	Sales for PRODC in Mar	Category for PRODE	Max sales for PRODB across all months				
1															
2	101	PRODA	Electronics	120	130	140	150	160	220	Furniture					
3	102	PRODB	Furniture	150	160	170	180	190			190				
4	103	PRODC	Electronics	200	210	220	230	240							
5	104	PRODD	Clothing	90	100	110	120	130							
6	105	PRODE	Furniture	220	230	240	250	260							
7	106	PRODF	Electronics	130	140	150	160	170							

Formula: =MAX(INDEX(D2:H7,MATCH("PRODB",B2:B7,0),0))

4. Use INDEX and MATCH to find the month with the maximum sales for Product A.

Ans. ↓

SalesData - Excel

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Formula bar: J2 =INDEX(D1:H1, MATCH(MAX(INDEX(D2:H7, MATCH("PRODA", B2:B7, 0)), INDEX(D2:H7, MATCH("PRODA", B2:B7, 0), 0)), INDEX(D2:H7, MATCH("PRODA", B2:B7, 0), 0))

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	ProductID	Product	Category	Jan Sales	Feb Sales	Mar Sales	Apr Sales	May Sales	Month with Max sales for PRODA	Sales for PRODC in Mar	Category for PRODE	Max sales for PRODB across all months			
1															
2	101	PRODA	Electronics	120	130	140	150	160	160	May Sales	220	Furniture			
3	102	PRODB	Furniture	150	160	170	180	190				190			
4	103	PRODC	Electronics	200	210	220	230	240							
5	104	PRODD	Clothing	90	100	110	120	130							
6	105	PRODE	Furniture	220	230	240	250	260							
7	106	PRODF	Electronics	130	140	150	160	170							

Formula: =INDEX(D1:H1, MATCH(MAX(INDEX(D2:H7, MATCH("PRODA", B2:B7, 0)), INDEX(D2:H7, MATCH("PRODA", B2:B7, 0), 0)), INDEX(D2:H7, MATCH("PRODA", B2:B7, 0), 0))

Formula: =MAX(INDEX(D2:H7, MATCH("PRODA", B2:B7, 0), 0))

5. Use INDEX, MATCH, and SUMIF to sum the sales for all products in the "Electronics" category for April

Ans. ↓

SalesData - Excel

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Formula Bar: `=SUMIF(C2:C7,"Electronics",INDEX(D2:H7,0,MATCH("Apr Sales",D1:H1,0)))`

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	ProductID	Product	Category	Jan Sales	Feb Sales	Mar Sales	Apr Sales	May Sales	Sum the sales for all products in the "Electronics" category for April.							
1	101	PRODA	Electronics	120	130	140	150	160	540							
2	102	PRODB	Furniture	150	160	170	180	190								
3	103	PRODC	Electronics	200	210	220	230	240								
4	104	PRODD	Clothing	90	100	110	120	130								
5	105	PRODE	Furniture	220	230	240	250	260								
6	106	PRODF	Electronics	130	140	150	160	170								

Formula:-
`=SUMIF(C2:C7,"Electronics",INDEX(D2:H7,0,MATCH("Apr Sales",D1:H1,0)))`

6. Use INDEX and MATCH to calculate the average sales for Product D across all months.

SalesData - Excel

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Formula Bar: `=AVERAGE(INDEX(D2:H7,MATCH("PRODD",B2:B7,0),0))`

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	ProductID	Product	Category	Jan Sales	Feb Sales	Mar Sales	Apr Sales	May Sales	Average sales for Product D across all months.							
1	101	PRODA	Electronics	120	130	140	150	160								
2	102	PRODB	Furniture	150	160	170	180	190								
3	103	PRODC	Electronics	200	210	220	230	240								
4	104	PRODD	Clothing	90	100	110	120	130	110							
5	105	PRODE	Furniture	220	230	240	250	260								
6	106	PRODF	Electronics	130	140	150	160	170								

Formula:-
`=AVERAGE(INDEX(D2:H7,MATCH("PRODD",B2:B7,0),0))`
 Product D:
 $90+100+110+120+130=550$
 $550/5=110$

7. Use INDEX and MATCH to find the sales for Product ID 105 in May.

SalesData - Excel

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Formula Bar: =INDEX(D2:H7, MATCH(105, A2:A7, 0), MATCH("May Sales", D1:H1, 0))

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	ProductID	Product	Category	Jan Sales	Feb Sales	Mar Sales	Apr Sales	May Sales	Sales for Product ID 105 in May.							
1																
2	101	PRODA	Electronics	120	130	140	150	160								
3	102	PRODB	Furniture	150	160	170	180	190								
4	103	PRODC	Electronics	200	210	220	230	240								
5	104	PRODD	Clothing	90	100	110	120	130								
6	105	PRODE	Furniture	220	230	240	250	260	260							
7	106	PRODF	Electronics	130	140	150	160	170								
8																

Ankush:
=INDEX(D2:H7,
MATCH(105, A2:A7, 0),
MATCH("May Sales",
D1:H1, 0))

8. Use INDEX and MATCH to create a dynamic lookup where the user can input a product and a month, and the formula returns the corresponding sales. I give you two example that show different user output which is given by user.

SalesData - Excel

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Formula Bar: =INDEX(D2:H7,MATCH(I1,B2:B7,0),MATCH(I2,D1:H1,0))

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	ProductID	Product	Category	Jan Sales	Feb Sales	Mar Sales	Apr Sales	May Sales								
1									PRODE	230						
2	101	PRODA	Electronics	120	130	140	150	160	Feb Sales							
3	102	PRODB	Furniture	150	160	170	180	190								
4	103	PRODC	Electronics	200	210	220	230	240								
5	104	PRODD	Clothing	90	100	110	120	130								
6	105	PRODE	Furniture	220	230	240	250	260								
7	106	PRODF	Electronics	130	140	150	160	170								
8																

Formula:-
=INDEX(D2:H7,MATCH(I1,
B2:B7,0),MATCH(I2,D1:H1,
0))

Note:-
Input any Product from
user which is given in the
list.

Note:-
Input here any month
which you seen the total
sales.

SalesData - Excel

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Formula Bar: =INDEX(D2:H7,MATCH(I1,B2:B7,0),MATCH(I2,D1:H1,0))

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	ProductID	Product	Category	Jan Sales	Feb Sales	Mar Sales	Apr Sales	May Sales								
1									PRODA	160						
2	101	PRODA	Electronics	120	130	140	150	160	May Sales							
3	102	PRODB	Furniture	150	160	170	180	190								
4	103	PRODC	Electronics	200	210	220	230	240								
5	104	PRODD	Clothing	90	100	110	120	130								
6	105	PRODE	Furniture	220	230	240	250	260								
7	106	PRODF	Electronics	130	140	150	160	170								
8																

Formula:-
=INDEX(D2:H7,MATCH(I1,
B2:B7,0),MATCH(I2,D1:H1,
0))