Elevating your lookup game!

ADVANCED EXCEL FUNCTIONS

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From Excel - to leading a data team!

Hi there! 👋

- Excel lover!
- DataCamp believer!
- Data passionate!

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The power of LOOKUP functions

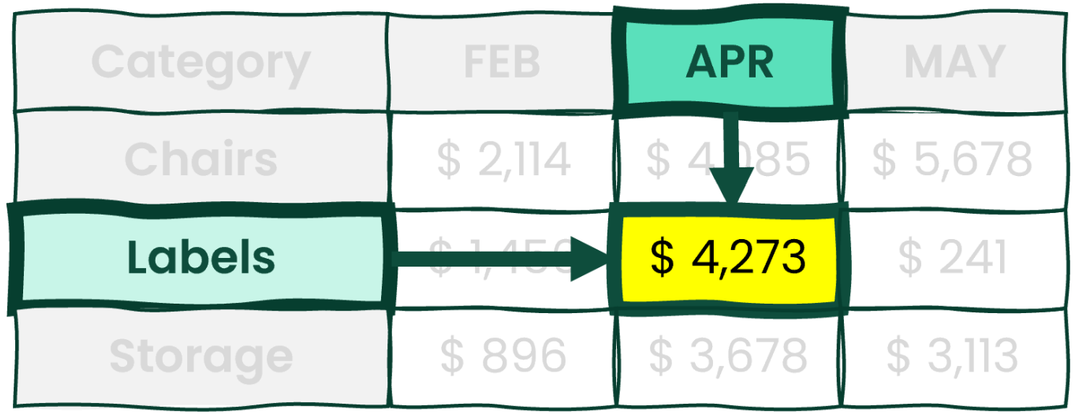
Previously on DataCamp:

- `VLOOKUP()` - vertical lookup
- `HLOOKUP()` - horizontal lookup

Category	FEB	APR	MAY
Chairs	$ 2,114	$ 4,085	$ 5,678
Labels	$ 1,456	$ 4,273	$ 241
Storage	$ 896	$ 3,678	$ 3,113

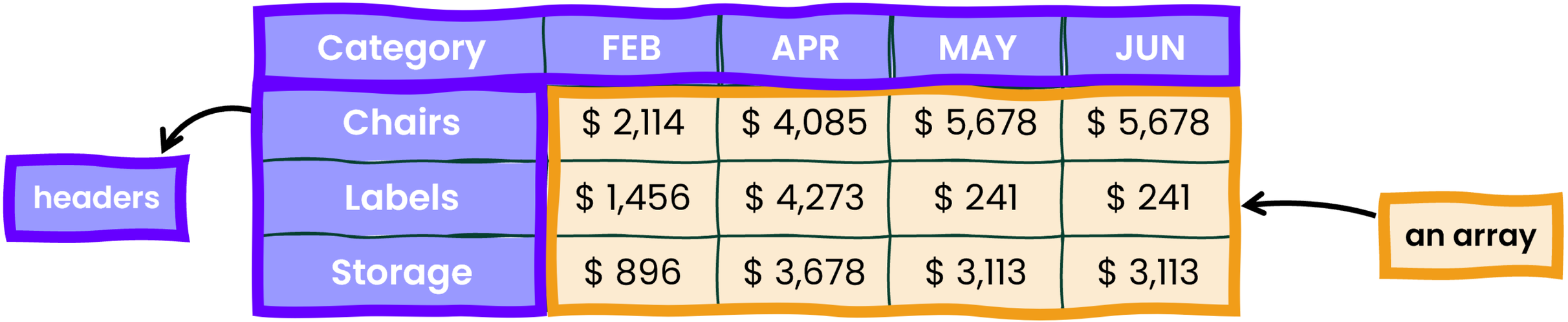
Limitations:

- `VLOOKUP()` - searched value must be to the **right** of the lookup value
- `HLOOKUP()` - searched value must be **below** of the lookup value



What is an array?

> **Array** - a set of row or column of values, or a combination of rows and columns of values[1]



An Excel table consists of:

- **Header:** row and column names
- **Array:** set of underlying values

[1] https://support.microsoft.com/

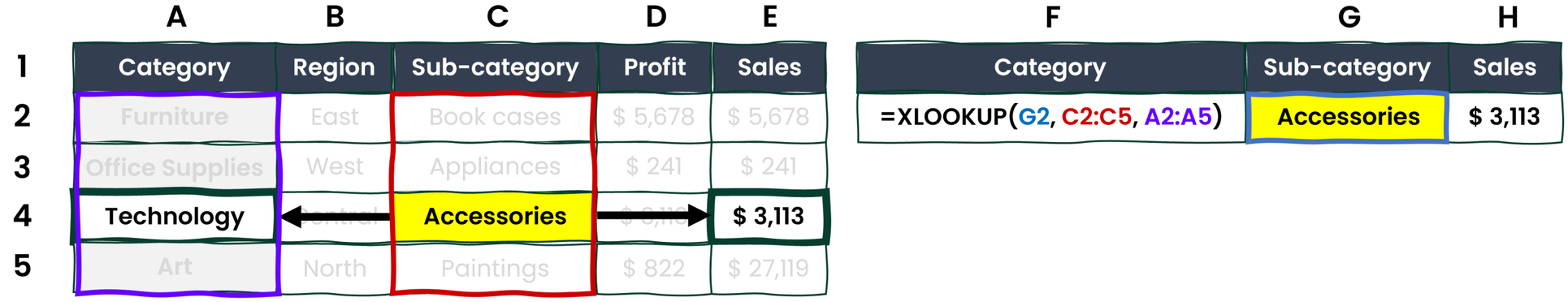
Drum roll... XLOOKUP!

`XLOOKUP()` - A lookup function that can **search in any direction**, thanks to arrays.

NEW as of Excel 2021!

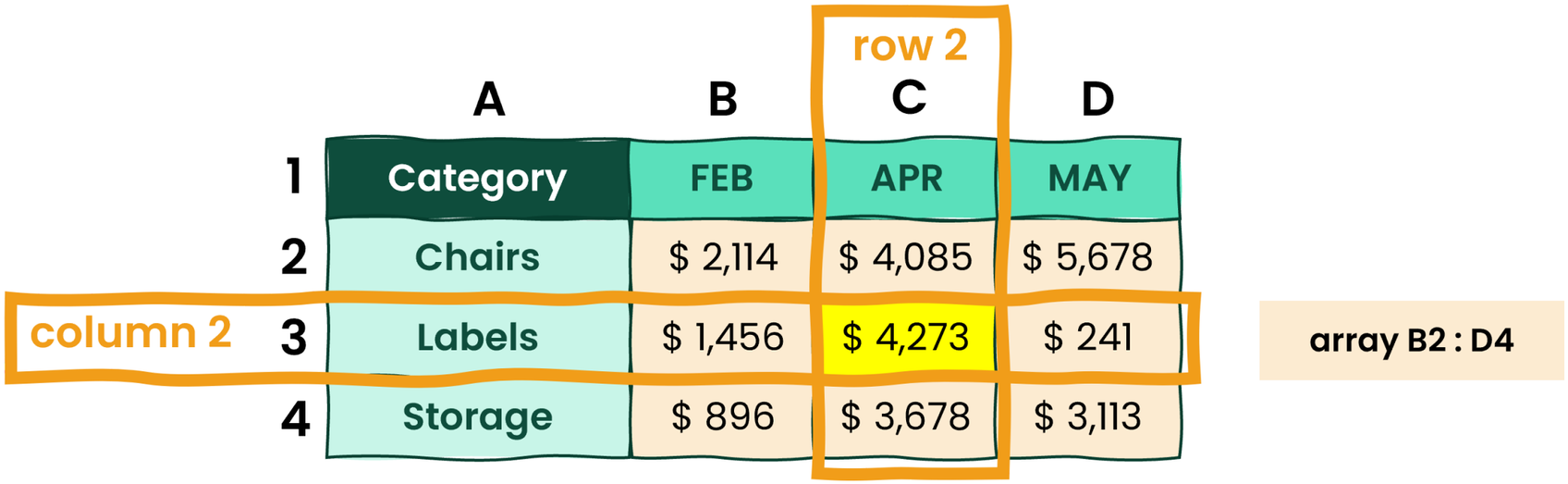
Syntax:

```
XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode])
```



Pro tip! Use name ranges in your formulas: **XLOOKUP(G2, Sub_categories, Categories)**

2D lookups? INDEX()

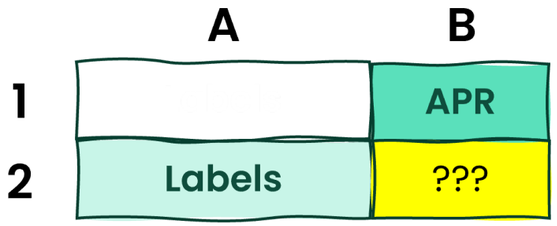


Labels Sales for April? `= INDEX ( B2:D4, 2, 2)`

- *Syntax:* `INDEX(array, row_num, [column_num])`
- Returns the value of a cell within a specified array

2D lookups? MATCH()

- *Syntax:* `MATCH(lookup_value, lookup_array, [match_type])`
- Finds which row and column to reference



rows array = Categories

column array = Months

Category	FEB	APR	MAY
Chairs	$ 2,114	$ 4,085	$ 5,678
Labels	$ 1,456	$ 4,273	$ 241
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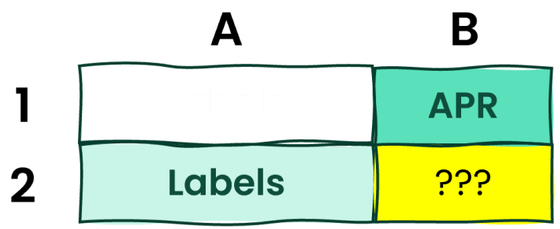
Where to find Labels Sales for April?

`= Match ( "Labels", Categories, 0)` = row 2

`= Match ( "APR", Months, 0)` = column 2

2D lookups? (INDEX and) MATCH made in heaven



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array= Sales

```
= INDEX ( B2:D4, 2, 2)
```

```
= INDEX(array, MATCH(rows), MATCH(columns))
```

```
= INDEX ( Sales, MATCH( "Labels", Categories, 0), MATCH( "APR", Months, 0) )
```

Meet our dataset!

Commercial dataset:

Column name	Data Group	Value example
Row ID	Order info	20
Order ID		CA-2014-143336
Returned?		Yes
Order Date		27/08/2014
Ship Date	Shipment info	01/09/2014
Ship Mode		Second Class
Customer ID	Customer info	ZD-21925
Customer Name		Zuschuss Donatelli
Segment		Consumer
Country		United States
City		San Francisco
State		California
Postal Code		94109
Region		West
Product ID	Product info	TEC-PH-10001949
Category		Technology
Sub-Category		Phones
Product Name		Cisco SPA 501G IP Phone
Sales	Value	213.48
Quantity		3
Discount		0.2
Profit		16.011

Data at a glance:

- Order information
- Customer socio-demo
- Detailed product data
- Sales, Volumes, Discounts, and Profits

Check out the **Metadata sheet** for more info.

Time for practice!

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XLOOKUP and INDEX MATCH in action

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Let's practice!

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