

# Starting to explore time series data

TREND ANALYSIS IN POWER BI



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# What is a "time series"?

## Definition:

- *A series of data points graphed in chronological order.*
- *Most commonly, it is a sequence taken at successive equally spaced points in time.*

<sup>1</sup> [https://en.wikipedia.org/wiki/Time\\_series](https://en.wikipedia.org/wiki/Time_series)

# Use cases for time series analysis

## Use Cases:

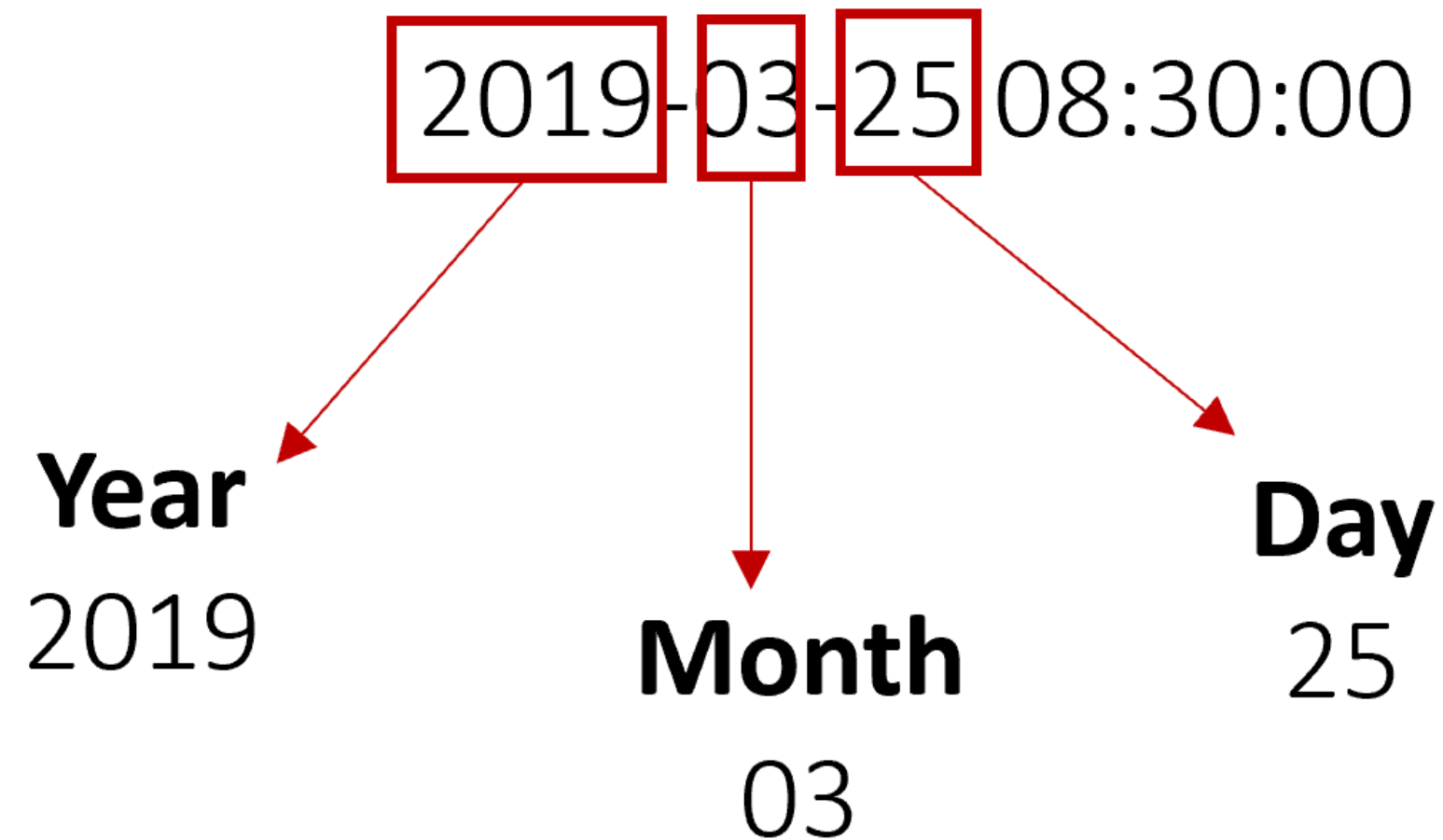
- Patterns (e.g. cyclical) in a variable
- Season-specific trends
- Systemic challenges
- Relationships with a target outcome
- Informing a forecasting model

## Examples:

- Weather
- Heart rate monitoring
- Quarterly sales
- Interest rates

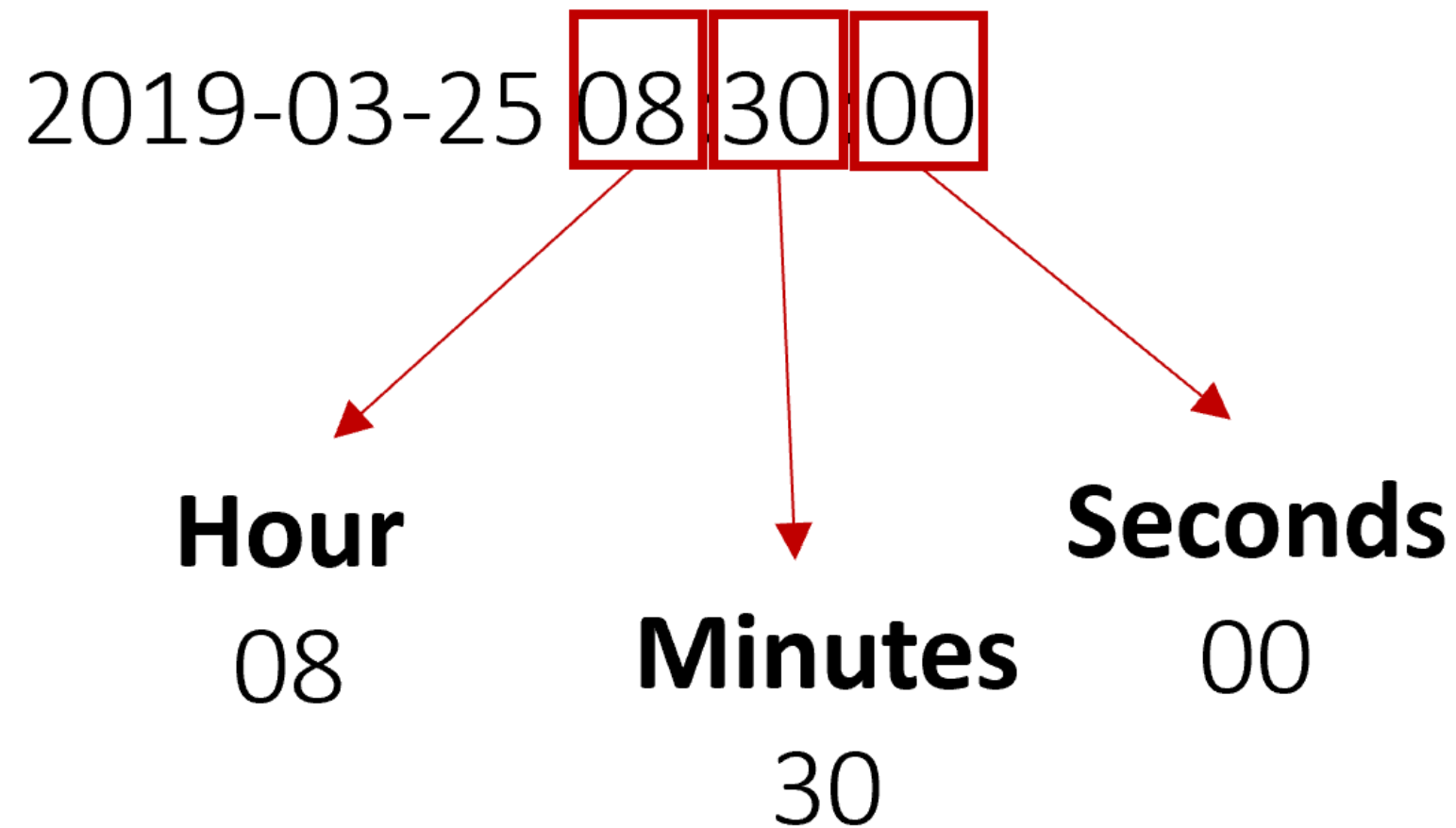
# Analyzing at different date grains

**subscription\_start\_date**



# Analyzing at different date grains

**subscription\_start\_date**



# Mutating into different time variables

**subscription\_start\_date**

2019-03-25 08:30:00

The diagram illustrates how a single timestamp is decomposed into three separate time variables. A red box highlights the timestamp '2019-03-25 08:30:00'. Three red arrows originate from the bottom of this box and point to three distinct variables: 'Day of the Year' (with value 84), 'Week of the Year' (with value 12), and 'Day of the Week' (with value 2 - Monday).

**Day of the Year**

84

**Week of the Year**

12

**Day of the Week**

2 - Monday

# Mutating into different time variables

**subscription\_start\_date**

2019-03-25 08:30:00

**age: 1,003 days**

**age\_group:**  
old

**current\_date**

2021-12-22 12:00:00

# Measuring the change over a period of time

Period-over-period change

*current\_period – previous\_period*

---

*previous\_period*



# Measuring the change over a period of time

Period-over-period change

*current\_period – previous\_period*

---

*previous\_period*

Month	Stock Price	MoM Change
Jan 2018	\$20.67	--
Feb 2018	\$19.79	-4.3%
Mar 2018	\$21.34	7.9%
Apr 2018	\$21.25	-0.4%
May 2018	\$22.12	4.1%
Jun 2018	\$22.85	3.3%

# DAX functions for dates

`DATE()` : constructs a date value from parts (e.g. year, month, and day)

`LEFT()` : extracts a given number of characters from a set of characters, starting from the left side.

`RIGHT()` : extracts a given number of characters from a set of characters, starting from the right side.

`MID()` : extracts a given number of characters from a set of characters, starting from a defined place in the set.

`WEEKDAY()` : returns the day of the week as a number; default is to use the number 1 for Sunday.

**Let's practice!**  
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# Exploring AirBnB time series

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