

# Intro to Time Series

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## Intro to Time Series

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# LEARNING OBJECTIVES

- Understand what time series analysis is and what it is used for
- Use Pandas to model and manipulate a Time Series
- Explain the functionality afforded to the DateTime object

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# OPENING

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# **What is Time Series Analysis?**

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# **What is a time series?**

- Statistical modeling of time ordered data observations

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- Examining multiple time series to model dynamic relationships

# What is a time series?

- Statistical modeling of time ordered data observations
- Examining multiple time series to model dynamic relationships
- Two main goals:
  - Identifying the underlying mechanisms represented by the sequence of observations
  - Forecasting: predicting the future values of a variable described in the time series

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# The DateTime Object

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- As our data will be ordered by time, we will need a powerful library for dealing with timestamps.
- Luckily, Python provides a module that gives us both simple and complex methods of manipulating dates and times.
- The cornerstone of the datetime module is the DateTime object, a container representing a time that is either aware or naive.
- Aware DateTimes have information regarding time zone and daylight savings time, a naive DateTime does not.

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# The DateTime Object

We can also use a timedelta object to shift a DateTime object.

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# **Times Series Practice - The DateTime Object**

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# **Time Series Practice - Date Ranges and Frequencies**

# Independent Practice: Manipulating a Time Series

# Conclusion

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# Q & A