



# Introduction to Pandas



# Python for Finance

- Get a quick introduction to pandas.
- Learn a bit about pandas' history.
- Dive straight into coding and learning how to use pandas in our jupyter notebooks!
- Afterwards see some example exercises.



# Python for Finance

- Now that we understand the basics of Python and NumPy we can learn about Pandas!
- So what is “Pandas”?



# Python for Finance

- It's named after "Panel-Data" and was created by Wes McKinney.
- Pandas was first created to help work with datasets in Python for McKinney's work in finance at his place of employment.



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- It is now an open source library that is freely available for all to use and contribute to!
- Let's go through some of its main features (as pointed out by the official website).



# Python for Finance

- A fast and efficient DataFrame object for data manipulation with integrated indexing.
- We'll work with DataFrames a lot!



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# Python for Finance

- Tools for reading and writing data between in-memory data structures and different formats:
  - CSV and text files, Microsoft Excel, SQL databases, and the fast HDF5 format, and much more!





# Python for Finance

- Great interaction with Python Data Visualization libraries!
- Highly optimized for performance, with critical code paths written in Cython or C.
- Aggregating or transforming data with a powerful group by engine.



# Python for Finance

- Learning pandas is fundamental to being able to easily work with the financial data we'll use in this course!
- We will first focus on “General Pandas” then have another section on working with time series data with pandas.



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- At the end of this section we will have a quick exercise for you to do to test your skills!



# Let's get started!



# Series



# Python for Finance

- Series are similar to NumPy arrays, except that we can give them a named or datetime index, instead of just a numerical index.
- Let's see how they work!



# DataFrames



# DataFrames

## Part Two





# DataFrames

## Part Three



# Missing Data



# GroupBy



# Merging, Joining & Concatenating



# Operations



# Data Input and Output



# Pandas Exercises



# Python for Finance

- This exercise will test your new skills!
- We'll work with the failed banks data set (provided as a csv file)
- You can find this in the Pandas Exercises sub-folder.
- Let's quickly go through it!





# Pandas Exercises Solutions