Introduction to Data Science for Finance

Overview

The amount of data available to organizations and individuals is unprecedented. Financial services sectors, including securities & investment services and banking, have the most digital data stored per firm on average. As a result, financial companies have been on an innovation and technology push to create new, disruptive technologies that can maximize use of the these data assets to solve some of the industry's toughest problems.

This one-day, hands-on course provides a structured teaching environment where students learn classic data science methods, which are used as the bases for many financial technologies. At the end of the workshop, course participants will have applied the Python programming language and essential data science techniques to solve complex finance problems.

Specific areas in finance where the data science skills acquired from this course can be effectively applied include: sentiment analysis, advanced time series analysis, risk management, real-time pricing and economic data analysis, customer segmentation analysis, and machine learning algorithm creation for financial technologies.

What This Course Offers

- An overview of data science methods relevant to finance and fintech
- Explanation of the hype around data science, machine learning & big data
- Hands-on Python programming experience
- Understanding of effective data visualization techniques using Python
- Course notes, certificate of completion, and post-seminar email support for 1 year
- An engaging and practical training approach with a qualified instructor with relevant technical, business, and educational experiences

Who Is This For

This course is relevant for professionals who want to gain a hands-on introduction to essential data science methods that are utilized in finance and fintech.

Please note that you must have taken an introductory Python programming course before attending this workshop. Cognitir will recommend a free, online Python course to participants, but this online course must be completed <u>before</u> the start of this data science workshop.

Course and Contact Information

Level: Beginner

Prerequisite: Introductory Python Programming Course
Duration: 1 Day
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Course Curriculum

- **Introduction to Data Science for Finance & Fintech**
  - What is data science, why is it relevant to finance & fintech
  - Applications of data science to finance & fintech industries
- **The Data Science Process**
  - How does the data science process typically look like within an organization?
  - Overview of the main steps
  - Pitfalls & recommendations
- **Overview of the Most Common Data Science Methods**
  - Supervised vs. unsupervised learning
- **Classification in Python for Finance & Fintech**
  - When to use classification tasks
  - Overview and implementation of decision tree classification in Python to obtain better customer insights
  - Evaluation of classification tasks using accuracy, confusion matrices, expected value, etc.
  - Visualization classification tasks using profit curves, ROC curves, AUC, etc.
  - Selecting informative attributes via information gain and entropy analyses
- **Clustering in Python for Finance & Fintech**
  - When to use clustering tasks
  - Overview and implementation of k-means clustering in Python to understand stock data and optimize portfolios
  - Improving k-means and using similarity for predictive modeling
- **Big Data for Finance**
  - What is big data and why is big data relevant to finance & fintech
  - How does big data relate to the concepts taught in this course
  - Overview of most common big data technologies
- **Wrap-Up and Summary**

Course Content Developers

David Haber

David has led programming workshops at the undergraduate and graduate levels, at blue chip companies, and world renowned management consulting firms.

David has experience working with both startups and large corporations. He has filled several leading roles in technology startups. David also worked on optimizing large-scale payment processing systems at Deutsche Bank in Singapore.

David holds an MEng (First-Class Honours) in Computer Science from Imperial College London (UK) where he focused on statistical machine learning. He presented his work at international conferences and won several awards for his work. During his studies, he also served as a teaching assistant at Imperial College where he helped undergraduate students master fundamental computer science concepts.

Neal Kumar, CFA

At Cognitir, Neal leads strategy and business development initiatives and advises on new product development.

Outside of Cognitir, Neal consults C-level teams and senior business managers on a variety of strategic topics ranging from M&A to marketing. He also leads training seminars (financial modeling) for Wall Street Prep and has consistently received top reviews from attendees and created two training courses that were used in seminars worldwide. Before his consulting and training careers, Neal taught secondary mathematics in St. Louis Public Schools (USA) as a Teach for America Corps Member. Prior to joining Teach For America, Neal worked in investment banking at Lazard, JPMorgan, and Houlihan Lokey.

Neal received his MBA from London Business School (UK) and BBA in Finance from the University of Notre Dame (USA). He is also a CFA Charterholder and a Member of the CFA Institute Education Advisory Committee (EAC) Working Body where he helps shape CFA Program Content.