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. Finance companies that want to maximize use of this available data require professionals who have a keen understanding of data science and know how to use it to solve meaningful business challenges.

This two-day, hands-on course provides a structured teaching environment where attendees learn the Python programming language as a powerful tool to conduct robust data analyses on finance-related data sets. At the end of the workshop, course participants will have applied the Python programming language and essential data analysis techniques to practical programming exercises to gain experience solving challenging finance-related 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 state-of-the-art data science and machine learning methods and how finance professionals can use them to solve real-world problems
- Hands-on Python programming experience
- Understanding of the advantages of data science and specific analytical methods
- Understanding of effective data visualization techniques using Python
- Course notes, certificate of completion, and post-seminar email support for 6 months
- An engaging and practical training approach with a qualified instructor with relevant technical, business, and educational experiences
- A Computer Science 101 pre-course webinar

No prior programming experience required.

Course & Contact Information

Course Prerequisites: None
Duration: 2 Days
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Course Curriculum

- **Introduction to Data Science for Finance**
  - What is data science, why data science is so important, which questions data science can answer
- **Hands-on Introduction to Python Programming for Data Science**
  - Why use Python for data science, how do we write programs in Python, syntax, variables, conditionals & control flow, data structures, loops, functions, modules, objects & classes
- **Financial Time Series Analysis In Python**
  - Reading in data, plotting, resampling, data slicing, computing returns, computing descriptive statistics, moving window functions, computing Bollinger Bands, computing stock correlations, loading financial data from the internet
- **Linear Regression for Finance**
  - What is regression, what finance questions can regression help us answer, what are the different types of regression, how do we use Python to solve regression tasks, how can we assess the quality of our results, what is overfitting & how can we avoid it
- **Data Science Problem Solving Process**
  - What is data mining, overview of data science methods, data science problem solving process, differences between supervised and unsupervised tasks
- **Visualization of Data Science Results**
  - How Python is used to produce easy-to-understand and convincing visualizations that can be used for presentations and during meetings
- **Clustering of Financial Data**
  - Unsupervised modeling, when to use clustering, what is similarity and how do we measure it, intuition behind k-means, how to implement k-means clustering in Python, how to improve your clustering model, using similarity for predictive modeling (classification)

- **Applications of Data Science to Finance and Economics Data**

- **Big Data 101**
  - What is Big Data, why is Big Data relevant, how does Big Data relate to the concepts taught in this course, overview of most common Big Data technologies

Course Content Developers

David Haber

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David heads Cognitir's products and technology. He 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. Previously, he was a lead software and machine learning engineer at Soma Analytics, an investor-backed and award-winning health-tech startup in London. David also worked on optimizing large-scale payment processing systems at Deutsche Bank in Singapore. Outside of Cognitir, he currently advises HiDoc, an early stage digital health startup in Germany.

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

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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 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 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.