

Applied Data Science in Python Bootcamp

Duration

60h (10 days x 6h)

Description

Data scientists build information platforms to ask and answer unimaginable questions previously. Learn how data science helps businesses and organizations reduce costs, increase efficiency, improve product delivery, improve customer and user experience, and identify new opportunities. In business, Data Science is applied to optimize business processes, maximize revenue and reduce cost. The purpose of this Bootcamp is to provide the participant with knowledge of key aspects of data science applications in business in a practical, easy and fun way. The course provides students with practical hands-on experience using real-world datasets.

This Bootcamp focuses on the fundamental principles of data science and walks the participant through the "data-analytic thinking" necessary for extracting useful knowledge and business value from the available data.

Data visualization is vital in bridging the gap between data and decisions. Discover the methods, tools, and processes involved. Data visualization is an important visual method for effective communication and analyzing large datasets. Through data visualizations, we can draw conclusions from data that are sometimes not immediately obvious and interact with the data in an entirely different way.

Applied Data Science for Business Bootcamp provides examples of real-world business problems to illustrate different scenarios. The participant will learn how to improve communication between business stakeholders and data scientists, how to participate intelligently in your company's data science projects, discover how to think data analytically, and fully appreciate how data science methods can support business decision-making.

Audience

- This course suits consultants wanting to transform businesses by leveraging data science and AI.
- Visionary business owners who want to harness the power of Data Science and AI to maximize revenue, reduce costs and optimize their business.
- Tech enthusiasts who are passionate about Data Science and AI and want to gain real-world practical experience.
- In general, all are interested in big data, data science, and data analytics.

Prerequisites

- Experience in Python programming or completion of our *Python Fundamentals* course

Objectives

Participants will learn:

- How to identify potential business use cases where data science can provide impactful results
- Understand how data science fits in your organization—and how you can use it for competitive advantage
- Treat data as a business asset that requires careful investment if you're to gain real value
- Approach business problems data-analytically, using the data-mining process to gather good data in the most appropriate way
- Learn general concepts for actually extracting knowledge from data
- Best practices for data storage
- Joining diverse datasets to gain valuable business insight
- Performing real-time, complex queries on datasets
- Use big data, data science, and analytics visualization tools

Course Outline

1. Welcome
 - a) Course Overview
 - b) Installation and Setup
2. New Data Ecosystem
 - a) The Big Data paradigm
 - b) What is Data Science
 - c) Use Cases for Data Science
3. Revisiting python fundamentals
4. Statistics in python
5. Essential data science libraries
 - a) Pandas
 - b) Numpy
 - c) SK-learn
6. Data visualization packages
7. Exploratory Data Analysis (EDA) packages
8. Data Engineering
 - a) ETL process (Extract, Transform, Load)
 - b) Extracting from multiple sources and file formats
 - i. Excel
 - ii. CSV
 - iii. REST API's (JSON)
 - iv. Web Scraping
 - v. FTP
 - vi. Google Drive
 - vii. Databases

- c) SQL has the universal language for data engineering
- d) Data lake
- e) Unique data models
- f) Data warehousing

9. Machine Learning

- a) What is Machine Learning
- b) Introducing Scikit-Learn
- c) Training/Test datasets
- d) Hyperparameters and Model Validation
- e) Feature Engineering
- f) ML techniques overview:
 - i. Naive Bayes
 - ii. Random Forests
 - iii. Linear Regression
 - iv. Decision Trees
 - v. SVM
 - vi. K-Means
 - vii. KNN's

10. Advanced examples

- a) EDA
- b) A/B Testing
- c) Fraud detection

11. Capstone project

12. Goodbye

- a) Course Recap
- b) Course evaluation
- c) Q&A