Fast Track to Python for Data Science

Duration: *3 Day(s)*

Course Overview

Fast Track to Python for Data Science and/or Machine Learning is a three-day, hands-on course geared to equip you with the knowledge and skills necessary to handle various data science projects efficiently using Python, one of the most popular languages in the industry. Python's ease of use, extensive libraries, and robust community make it a fantastic choice for professionals seeking to enhance their data science capabilities. From automating small tasks to building complex data models, Python can enable you to streamline your work or provide significant insights for your organization.

Working in a hands-on learning environment led by our expert instructor, you'll also gain experience with Python's core topics like flow control, sequences, arrays, dictionaries, and handling files. You'll delve into functions, sorting, essential demos, the standard library, and even dates and times. You'll learn how to manage syntax errors and exceptions effectively, enhancing your code's resilience and your productivity. You'll delve into how Python it operates within web notebooks such as iPython, Jupyter, and Zeppelin, where you'll practice writing, testing, and debugging your Python code.

You'll also gain practical experience with Python and key data science libraries, enabling you to optimize data handling and create insightful visualizations. You'll explore working with large number sets and transforming data in numpy, reading, writing, and reshaping data with pandas, and creating data visualizations with matplotlib. You'll also gain experience optimizing data handling processes, creating insightful visualizations, or making data-driven decisions.

By the end of this journey, you'll have a solid understanding of Python for data science, including data analysis, manipulation, and visualization, ready to apply these new skills in your work. This course aims not just to teach Python but also to lay a strong foundation for you to continue building upon, enhancing your proficiency in Data Science and enabling you to contribute effectively to your team's data projects.

Review this course online at https://www.alta3.com/courses/TTPS4873

Objectives

- Grasp core Python concepts and syntax for effective programming.
- Leverage key Python libraries like numpy and pandas for data manipulation.
- Create visualizations using matplotlib to communicate insights clearly.
- Master error handling to improve code reliability and productivity.

Who Should Attend

- Data Analysts
- Developers
- Engineers
- IT Professionals

Prerequisites

While there are no specific programming prerequisites, students should be comfortable working with files and folders and should not be afraid of the command line and basic scripting.

Course Outline

An Overview of Python

1. Why Python?

2. Python in the Shell
3. Python in Web Notebooks
4. Demo: Python, Notebooks, and Data Science

Getting Started

5. Using variables
6. Builtin functions
7. Strings
8. Numbers
9. Converting among types
10. Writing to the screen
11. Command line parameters
12. Running standalone scripts under Unix and Windows

Flow Control

13. About flow control
14. White space
15. Conditional expressions
16. Relational and Boolean operators
17. While loops
18. Alternate loop exits

Sequences, Arrays, Dictionaries and Sets

19. About sequences
20. Lists and list methods
21. Tuples
22. Indexing and slicing
23. Iterating through a sequence
24. Sequence functions, keywords, and operators
25. List comprehensions
26. Generator Expressions
27. Nested sequences
28. Working with Dictionaries
29. Working with Sets

Working with files

30. File overview
31. Opening a text file
32. Reading a text file
33. Writing to a text file

34. Reading and writing raw (binary) data

Functions

35. Defining functions
36. Parameters
37. Global and local scope
38. Nested functions
39. Returning values

Sorting

40. The sorted() function
41. Alternate keys
42. Lambda functions
43. Sorting collections
44. Using operator.itemgetter()
45. Reverse sorting

Errors and Exception Handling

46. Syntax errors
47. Exceptions
48. Using try/catch/else/finally
49. Handling multiple exceptions
50. Ignoring exceptions

Essential Demos

51. Importing Modules
52. Classes
53. Regular Expressions

The standard library

54. Math functions
55. The string module

Dates and times

56. Working with dates and times
57. Translating timestamps
58. Parsing dates from text
59. Formatting dates
60. Calendar data

numpy

61. numpy basics
62. Creating arrays
63. Indexing and slicing
64. Large number sets
65. Transforming data
66. Advanced tricks

Python and Data Science

67. Data Science Essentials
68. Working with Python in Data Science

Working with Pandas

69. pandas overview
70. Dataframes
71. Reading and writing data
72. Data alignment and reshaping
73. Fancy indexing and slicing
74. Merging and joining data sets

Working with matplotlib

75. Creating a basic plot
76. Commonly used plots
77. Ad hoc data visualization
78. Advanced usage
79. Exporting images