

Data Science with Python

Introduction

- Why do we need Python?
- Program structure

Execution steps

- Interactive Shell
- Executable or script files
- User Interface or IDE

Memory management and Garbage collections

- Object creation and deletion
- Object properties

Data Types and Operations

- Numbers
- Strings
- List
- Tuple
- Dictionary
- Set
- Other Core Types
- Conversion between data types

Statements and Syntax

- Assignments, Expressions and prints
- If tests and Syntax Rules
- While and For Loops
- Break and continue

File Operations

- Opening a file
- Using Files – txt ,Csv, Xlsx
- How to connect MySQL
- Find and replace
- Appending to file
- Exporting file

Functions

- Function definition and call
- Function Scope
- Arguments
- Function Objects
- Anonymous Functions
- Packaging Importing

OOPS

- Classes and Objects
- Creating object
- Working with Class and Instance Variables Together
- Accessing Object Variables
- Accessing Object Functions
- Inheritance
- Multiple Inheritance
- Constructor
- Operator Overloading
- Polymorphism
- Encapsulation
- Abstract class and methods

Pandas Section

- Python Pandas – Introduction
- Introduction to Data Structures
- Python Pandas – Series
- Python Pandas – DataFrame
- Python Pandas – Basic Functionality
- Python Pandas – Descriptive Statistics
- Python Pandas – Indexing and Selecting Data
- Python Pandas – Function Application
- Python Pandas – Reindexing
- Python Pandas – Iteration
- Python Pandas – Sorting
- Python Pandas – Working with Text Data
- Python Pandas – Options and Customization
- Python Pandas – Missing Data
- Python Pandas – GroupBy
- Python Pandas – Merging/Joining
- Python Pandas – Concatenation
- Python Pandas – IO Tools
- Python Pandas – Comparison with SQL
- Python Pandas – Dates Conversion
- Plotting Data

Machine Learning Techniques

- What is mathematics behind it
- Which scenario want to use
- How it is different from other algorithm
- How to interpret with Python
- What insights getting out from result
- Hypothesis Testing
- Correlation



- Outlier Detection
- T-test
- Anova
- Chi-square
- Linear regression
- Multiple regression
- Logistics Regression
- Naïve Bayes classifier
- K means clustering
- Decision tree
- SVM
- Time series forecasting Overview

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