

# Python (Data Analytics)



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## Introduction to Python

- History of Python
- Why learn python?
- Python Installation
- Python Interpreter and IDE

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## Python Basic Concepts

- Data types
- Statements & Comments
- Keywords
- Variables
- Indentation
- Dynamic Typing
- User Input

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## Control Flow

- If statement
- If-else
- If-elif-else
- Nested if-else
- while loop
- for loop
- Nested for loop
- Nester while loop
- Pass,Break & continue

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## Functions

- Explore Builtin Functions
- User Defined Functions
- Defining function
- Calling a Function
- Return statement
- Function with parameter and without parameter
- Scope of variable
- Recursive & lambda Functions

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## Modules & Packages

- What is module?
- Importing & creating a module
- Reloading a module
- What is a package?
- Importing & creating a module
- Installing third party packages



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## Strings

- What is a String ?
- String Creation
- Accessing elements of a string
- Escape Sequence
- String methods
- String formatting

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## List

- What is a List ?
- List Creation
- Accessing elements of a List
- List methods
- List Comprehension
- Matrix operations using list

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## Tuple

- What is a Tuple ?
- Tuple Creation
- Accessing elements of a Tuple
- Tuple methods
- List vs Tuples

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## Dictionary

- What is a Dictionary?
- Dictionary Creation
- Accessing elements of a Dictionary
- Dictionary methods
- Dictionary Comprehension

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## Set

- What is a Set?
- Set Creation
- Accessing elements of a Set
- Set methods
- Set Comprehension

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## File Handling

- File Operations
- File modes
- Write, read, append to a file
- File positions
- Pickle Module

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## Exception Handling

- What is Exception Handling?
- Exception handling techniques
- Detecting Exception (try)
- Catching exceptions (catch)
- Catching multiple exceptions
- Raising exception (raise) Finally block

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## Object Oriented Programming

- What is Object Oriented Programming?
- Class vs Object
- Method vs Functions
- Types of Methods & Attributes
- Method Overloading and Method Overriding
- Encapsulation, Polymorphism, Abstraction & Inheritance

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## Python to Database Connection

- Introduction to MySQL connector
- Connecting to the MySQL database from Python
- My SQL, Creating a table by MySQL
- Performing SQL Operations

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## Python libraries

- NumPy
- Pandas

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## Descriptive Statistics

- Measure of Central Tendency
- Measure of Dispersion
- Measure of Shape

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## Probability and Sampling

- Conditional Probability
- Bayes theorem

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## Probability Distribution

- Guassian distribution
- Binomial distribution

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## Inferential statistics

- Central limit theorem
- Confidence interval

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## Data Visualization

- Matplotlib and Seaborn

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## Hypothesis testing

- Z-test
- T-test
- Chi-square test
- Annova test
- Correlation test

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## Add ons

- Problem Solving Session
- Project
- Assignments on each topics
- Tips on resume and interview preparations