



Corporate Services Pvt. Ltd.

PYTHON



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MAIN ROAD DLF PHASE-III
SEC -24, GURUGRAM

Moonstone Corporate Services Pvt. Ltd.



Core Python

GETTING STARTED WITH PYTHON PROGRAMMING

- Overview
- Introductory Remarks about Python
- A Brief History of Python
- How Python Differs from Other Languages
- Python Versions
- Installing Python and Setting Up the Environment
- Using IDLE
- Getting Help
- Executing a Python Program
- Writing Your First Python Program
- Working with Popular IDEs
(e.g., PyCharm, Jupyter Notebook, Spyder)

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Core Python

VARIABLES, KEYWORDS, AND OPERATORS

- **Variables**
- **Memory Mapping of Variables**
- **Keywords in Python**
- **Comments in Python**
- **Operators**
 - > Arithmetic Operators
 - > Assignment Operators
 - > Comparison Operators
 - > Logical Operators
 - > Membership Operators
 - > Identity Operators
- **Bitwise Operators**
- **Basic I/O and Typecasting**
- **Getting User Input**



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DATA TYPES IN PYTHON

- **Numbers**
- **Strings**
- **Lists**
- **Tuples**
- **Dictionaries**
- **Sets**

NUMBERS AND STRINGS

- **Introduction to Python 'Number' & 'String'**

Data Types

- **Properties of Strings**
- **String Built-in Functions**
- **Programming with Strings**
- **String Formatting**

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LISTS AND TUPLES

- Introduction to Python 'List' Data Type
- Properties of Lists
- List Built-in Functions
- Programming with Lists
- List Comprehensions
- Introduction to Python 'Tuple' Data Type
- Tuples as Read-Only Lists

DICTIONARIES AND SETS

- Introduction to Python 'Dictionary' Data Type
- Creating a Dictionary
- Dictionary Built-in Functions
- Introduction to Python 'Set' Data Type
- Set Properties
- Set Built-in Functions

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DECISION MAKING AND LOOPS

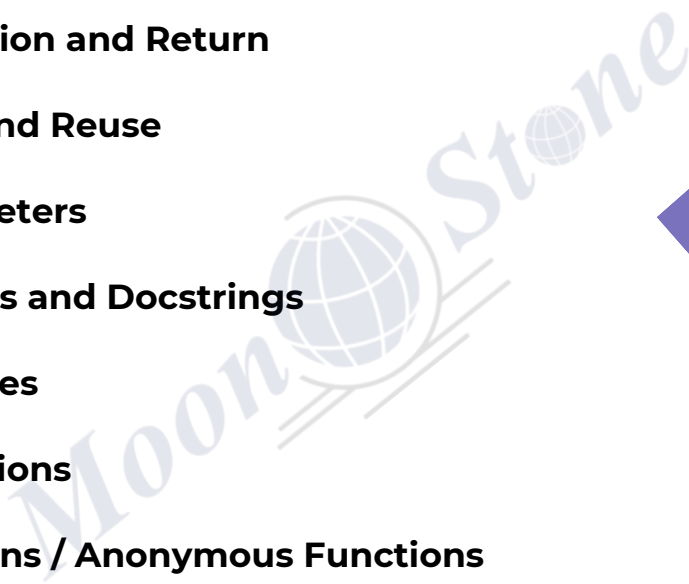
- Introduction to Decision Making
- Control Flow and Syntax
- The if Statement
- The if...else Statement
- The if...elif...else Statement
- Nested if...else Statements
- The while Loop
- break and continue Statements
- The for Loop
- Pass Statement and Exercises



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USER-DEFINED FUNCTIONS

- Introduction to Functions
- Function Definition and Return
- Function Calls and Reuse
- Function Parameters
- Function Recipes and Docstrings
- Scope of Variables
- Recursive Functions
- Lambda Functions / Anonymous Functions
- Map, Filter, and Reduce Functions



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MODULES AND PACKAGES

- **Modules**
- **Importing Modules**
- **Standard Module: sys**
- **Standard Module: OS**
- **The dir Function**
- **Packages**
- **Exercises**

REGULAR EXPRESSIONS

- **Pattern Matching**
- **Meta Characters for Pattern Making**
- **re Flags**
- **Using match(), sub(), findall(), search(), and split() Methods**

Data Analysis

GETTING STARTED WITH PYTHON LIBRARIES

- What is Data Analysis?
- Why Use Python for Data Analysis?
- Installing and Setting Up Essential Python Libraries

- Using Ipython
- Using Jupyter Notebook

NUMPY ARRAYS

- Introduction to NumPy
- NumPy Arrays
- NumPy Data Types
- Indexing NumPy Arrays
- NumPy Mathematical Operations
- Indexing and Slicing
- Manipulating Array Shapes
- Stacking Arrays
- Sorting Arrays
- Creating Array Views and Copies
- I/O with NumPy
- NumPy Exercises

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Data Analysis

WORKING WITH PANDAS

- Introduction to Pandas
- Data Structures in Pandas
- Pandas Series
- Pandas DataFrames
- Data Aggregation with Pandas
- Concatenating and Appending DataFrames
- Joining DataFrames
- Handling Missing Data in DataFrames
- Data Indexing and Selection
- Operating on Data in Pandas
- Using loc and iloc
- map, apply, apply_map Functions
- group_by Function
- String Methods in Pandas
- Querying Data in Pandas
- Working with Dates
- Reading and Writing CSV Files with Pandas
- Reading and Writing Excel Files with Pandas
- Reading and Writing SQL Data with Pandas
- Reading and Writing HTML Files with Pandas
- Pandas Exercises

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- Pandas Exercises

Data Visualization

MATPLOTLIB

- **Introduction to Matplotlib**
- **Basic Plots in Matplotlib**
- **Line Plots**
- **Bar Plots**
- **Pie Charts**
- **Scatter Plots**
- **Histogram Plots**
- **Saving Plots to Files**
- **Plotting Functions in Matplotlib**
- **Matplotlib Exercises**





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