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**Core Python Language**

What you'll learn

• Have a fundamental understanding of the Python programming language.

• Understand how to create your own Python programs.

• Acquire Python Object-Oriented Programming (OOP) skills

• Acquire the pre-requisite Python skills to move into specific branches - Machine Learning, Data Science, etc.,

• Have the skills and understanding of Python to confidently apply for Python programming jobs.

Course content

1. Introduction

* 1. What is Python and history of Python - Done
  2. Unique features of Python - Done
  3. Python-2 and Python-3 differences Done

2. Install and Setup Done

2.1. How to Install Python on Windows with PyCharm IDE Done

* 1. Hello World: Create your First Python Program Done
  2. How to Print in Python with Examples Done

3. Python basics Done

3,1 Python Identifiers, Keywords, and Indentation Done

3.2. Comments and document interlude in Python Done

3.3. Command line arguments

3.4. Getting User Input Done

3.5. Python Basic Data Types Done

3.6.What are variables Done

4. Flow Control in Python Done

4.1. An Introduction to Program Flow Control Done

4.2. If, El-If & Else Processing Done

4.3. Using if with strings Done

4.4. For Loops Done

4.5. Understanding Continue, Break and Else Done

4.6. While Loops Done

4.7. Understanding Iterators Done

4.8. Understanding and using Ranges Done

5. Lists and Tuples in Python Done

5.1. Introduction Done

5.2. Lists methods Done

5.3. Using Python List Example Done

5.4. Tuple methods Done

5.5. Using Python Tuple Example Done

6. Python Dictionaries and Sets Done

6.1. Python Dictionaries Done

6.2. Using Python Dictionaries Examples Done

6.3. Sets Done

6.4. Python Sets Example Done

7. File Handling in Python

7.1. Python File Handling

7.2. Read Files

7.3. Write/Create Files

7.4. Delete Files

8. Modules and Functions in Python

8.1. Python user defined functions

8.2. Python packages functions

8.3. Defining and calling Function

8.4. The Lambda(anonymous) Functions

8.5. Python Modules & Packages

9. Object Oriented Python

9.1. Object Orientated Programming and Classes

9.2. Instances, Constructors and self

9.3. Class Attributes

9.4. Data Attributes and Properties

9.5. Inheritance

9.6. Subclasses and Overloading

9.7. Overriding Methods

9.8. Polymorphism

10. Using Databases in Python

10.1. Introduction to Using MySQL Database

10.2. Install MySQL Driver

10.3. Test MySQL Connector

10.4. Python MySQL Create Connection

10.5. Python MySQL Create Database

10.6. Using MySQL Queries in Python

11. Python Exceptions Handling

11.1. What is Exception?

11.2. Handling an exception

11.3. try…. except…else

11.4. try-finally clause

11.5. Python Standard Exceptions

11.6. Raising an exception

11.7. User-Defined Exceptions

12. Python Regular Expressions

12.1. What are regular expressions?

12.2. The match Function

12.3. The search Function

12.4. Matching vs searching

12.5. Search and Replace

12.6. Extended Regular Expressions

12.7. Wildcard

**Python For Data Science and Machine Learning**

What you'll learn

* After completing this course, you'll be able to use python tools to import data, explore it, analyze it, learn from it, visualize it and ultimately generate easily sharable reports.
* You will be having basic Knowledge of Predictive analysis
* You can implement an end-to-end

Course content

1. Introduction

1.1. What is Data Science?

1.2. Why Python for Data Science?

1.3. Introduction to Machine Learning

1.4 Python for Machine Learning

1.5 Supervised vs Unsupervised

2. ENVIRONMENT SETUP

2.1 BASICS OF PYTHON SPYDER (TOOL)

2.1.1 Introduction Spyder

2.1.2 Setting working Directory

2.1.3 Creating and saving a script file

2.2 JUPYTER OVERVIEW

3. Basic Overview

3.1. Python Basics for Data Science

3.1.1. Loading the Data

3.1.2. Cleaning the Data

3.1.3. Visualization

3.2. Python Libraries for Data Science Overview

3.2.1. NumPy

3.2.2. Pandas

3.2.3. Matplotlib

3.2.4. Seaborn

3.2.5. Scikit-Learn

4. NumPy

4.1. nD arrays

5. Data Frame related operations using Pandas

5.1. Reading files

5.2. Exploratory data analysis

5.3. Data preparation and preprocessing

6. Data visualization using matplotlib and seaborn libraries

6.1. Scatter plot

6.2. Line plot

6.3. Bar plot

6.4. Histogram

6.5. Box plot

6.6. Pair plot

7. Building a Predictive Model in Python using Scikit-Learn

## 7.1. Regression

7.1.2 [Introduction to Regression](https://www.coursera.org/lecture/machine-learning-with-python/introduction-to-regression-AVIIM)

7.1.3 Simple Linear Regression

7.1.4 Model Evaluation in Regression Models

7.1.5 Evaluation Metrics in Regression Models

7.1.6 Multiple Linear Regression

7.1.7 Non-Linear Regression

7.1.8 Practice Exercise

## 7.2 Classification

7.2.1 [Introduction to Classification](https://www.coursera.org/lecture/machine-learning-with-python/introduction-to-classification-95g22)

7.2.2 K-Nearest Neighbours

7.2.3 Evaluation Metrics in Classification

7.2.4 Introduction to Decision Trees

7.2.5 Building Decision Trees

7.2.6 Intro to Logistic Regression

7.2.7 Logistic regression vs Linear regression

7.2.8 Logistic Regression Training

7.2.9 Practice Exercise

8. Case Study

* Predicting price of Used cars --Regression
* Classifying personal income –Classification