Mastering Python

About Edureka

Edureka is a leading e-learning platform providing live instructor-led interactive online training. We cater to professionals and students across the globe in categories like *Big Data & Hadoop, Business Analytics, NoSQL Databases, Java & Mobile Technologies, System Engineering, Project Management and Programming.*

We have an easy and affordable learning solution that is accessible to millions of learners. With our students spread across countries like the US, India, UK, Canada, Singapore, Australia, Middle East, Brazil and many others, we have built a community of over 1 million learners across the globe.

About The Course

Python has been one of the premier, flexible, and powerful open-source language that is easy to learn, easy to use, and has powerful libraries for data manipulation and analysis. For over a decade, Python has been used in scientific computing and highly quantitative domains such as finance, oil and gas, physics, and signal processing. This course will cover both basic and advance concepts of Python like writing python scripts, sequence and file operations in python, Machine Learning in Python, Web Scraping, Map Reduce in Python, Hadoop Streaming, Python UDF for Pig and Hive. you will also go through important and most widely used packages like pydoop, pandas, scikit, numpy scipy etc.

Module 1
Python Introduction and Getting Started

Learning Objectives - In this module, you will understand what Python is and why it is so popular. You will also learn how to set up Python environment, Flow control and will write your first Python program.

Topics

- ✓ Python Overview,
- ✓ About Interpreted Languages
- ✓ Advantages/Disadvantages of Python
- ✓ Pydoc
- ✓ Starting Python
- ✓ Interpreter PATH
- ✓ Using the Interpreter
- ✓ Running a Python Script
- ✓ Python Scripts on UNIX/Windows
- ✓ Python Editors and IDEs
- ✓ Using Variables, Keywords, Built-in Functions, Strings, Different literals, Math operators and expressions, Writing to the screen, String formatting, Command line parameters and Flow Control.

Module 2
Sequences and File Operations

Learning Objectives - In this Module you will learn different types of sequences in Python, the power of Dictionary and how to use files in Python.

Topics

- ✓ Lists
- ✓ Tuples
- ✓ Indexing and Slicing
- ✓ Iterating through a sequence
- ✓ Functions for all sequences
- ✓ Using enumerate()
- ✓ Operators and keywords for sequences
- ✓ The xrange()function
- ✓ List comprehensions
- ✓ Generator expressions
- ✓ Dictionaries and sets.

Module 3
Deep Dive – Functions, Sorting, Errors and Exception, Regular Expressions and Pakages

Learning Objectives - In this Module you will understand how to use and create functions, sorting different elements, Lambda function, error handling techniques and regular expressions and using modules in Python.

Topics

- ✓ Functions
- ✓ Function Parameters
- ✓ Global variables
- ✓ Variable scope and Returning Values
- ✓ Sorting
- ✓ Alternate Keys
- ✓ Lambda Functions
- ✓ Sorting collections of collections
- ✓ Sorting dictionaries
- ✓ Sorting lists in place
- ✓ Errors and Exception Handling
- ✓ Handling multiple exceptions
- ✓ The standard exception hierarchy Using Modules
- ✓ The Import statement
- ✓ Module search path
- ✓ Package installation ways
- ✓ Module Aliases and Regular Expressions

Module 4
Object Oriented Programming in Python

Learning Objectives - In this module, we understand the Object Oriented Programming world in Python and use of standard libraries.

Topics

- ✓ The sys module
- ✓ Interpreter information
- ✓ STDIO
- ✓ Launching external programs
- ✓ Paths
- ✓ Directories and filenames
- ✓ Walking directory trees
- ✓ Math Function
- ✓ Random Numbers
- ✓ Dates and Times
- ✓ Zipped Archives
- ✓ Introduction to Python Classes
- ✓ Defining Classes
- ✓ Initializes
- ✓ Instance methods
- ✓ Properties
- ✓ Class methods and data
- ✓ Static methods
- ✓ Private methods and Inheritance.

Module 5
Debugging, Databases and Project Skeletons

Learning Objectives - In this module you will learn how to debug, How to use databases and how a project skeleton looks like in Python.

Topics

- ✓ Debugging
- ✓ Dealing with errors
- ✓ Using unit tests
- ✓ Project Skeleton
- ✓ Required packages
- ✓ Creating the Skeleton
- ✓ Project Directory
- ✓ Final Directory Structure
- ✓ Testing your set up
- ✓ Using the skeleton
- ✓ Creating a database with SQLite 3
- ✓ CRUD operations
- ✓ Creating a database object.

Module 6
Machine Learning using Python - i

Learning Objectives - This module will help you understand what machine learning is, Why Python is preferred for it and some important packages used for scientific computing.

Topics

- ✓ Introduction to Machine Learning
- ✓ Areas of implementation of Machine learning
- ✓ Why Python
- ✓ Major classes of Learning Algorithms
- ✓ Supervised vs. Unsupervised learning
- ✓ Learning NumPy
- ✓ Learning Scipy
- ✓ Basic plotting using Matplotlib
- ✓ In this Module we will also Build a small machine learning application and discuss the different steps involved while building an application.

Module 7
Machine Learning using Python - ii

Learning Objectives - In this module you will learn in detail about Supervised and Unsupervised learning and examples for each category.

Topics

- ✓ Classification Problem
- ✓ Classifying with k-Nearest Neighbors (KNN) algorithm
- ✓ General approach to KNN
- ✓ Building the classifier from scratch
- ✓ Testing the classifier
- ✓ Measuring the performance of the classifier
- ✓ Clustering Problem
- ✓ What is K-Means clustering
- ✓ Clustering with k-Means in python and an Application example
- ✓ Introduction to Scikit-Learn
- ✓ Inbuilt Algorithms for use
- ✓ Introduction to Pandas
- ✓ Creating Data frames
- ✓ Grouping
- ✓ Sorting
- ✓ Plotting Data
- ✓ Creating functions
- ✓ Converting different formats
- ✓ Combining data from various formats
- ✓ Slicing/Dicing operations.

Module 8
Introduction to Hadoop

Learning Objectives - This module will cover an introduction to Hadoop MapReduce concepts.

Topics

- ✓ What is Hadoop and why it is popular
- ✓ Distributed Computation and Functional programming
- ✓ Understanding MapReduce Framework
- ✓ Sample Map Reduce job run.

Module 9
Hadoop and Python

Learning Objectives - In this module you will understand how to use Python in Hadoop MapReduce as well as in PIG and HIVE.

Topics

- ✓ PIG and HIVE basics
- ✓ Streaming feature in Hadoop
- ✓ Map Reduce job run using Python
- ✓ Writing a PIG UDF in Python
- ✓ Writing a HIVE UDF in Python
- ✓ Pydoop and MRjob Basics.

Module 10
Web Scraping in Python and Project work

Learning Objectives - In this module we will discuss about the powerful web scraping using Python and discuss a real world project.

Topics

- ✓ Web scraping
- ✓ Introduction to Beautiful soup package
- ✓ How to scrape webpage's
- ✓ A Real world project showing scrapping data from Google finance and IMDB.

Project Work

A real world project showing scrapping data from Google finance and IMDB using beautiful soup.
We will also perform sentiment analysis over the live tweets fetched from twitter.

Mastering Python