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## Python Web Development



### Course Guide

Python is a powerful and flexible object-oriented scripting language that is designed for ease of use and enhanced productivity. Organizations benefit from rapid development cycles, faster time-to-market and lower cost of maintenance. This course provides hands-on experience using Python to develop applications, automate administrative tasks and integrate systems effectively.



### Python is globally recognized

Python is trusted and accepted by leading employers, educational institutions and governments worldwide.

For a full list of organizations using these market-leading product, go to <https://www.python.org/about/success/>



## Python Course Contents

Python course helps you to rapidly develop feature-rich applications, Structure code with classes, functions, modules and OO features, access standard and third-party modules and packages

### Introduction to Python

- Python language characteristics
- The Python execution model

### Leveraging Python Built-in Types

#### *Manipulating string and numeric literals*

- Declaring and initializing variables
- Performing arithmetic calculations
- Making decisions and performing iterations
- Formatting and slicing strings

#### *Aggregating related data*

- Accessing positional information in lists
- Representing ordered data with tuples
- Consistently handling data collections with iterators

### Organizing and Structuring Code

#### *Defining and calling functions*

- Positional, keyword and default arguments
- Implementing variable-length argument lists
- Iterating with generator functions

#### *Grouping code into modules*

- Importing and reloading modules
- Referencing functions from modules by qualification
- Combining modules into packages

### Implementing Classes and Objects

#### *Declaring and modifying objects*

- Encapsulating attributes and methods in classes
- Initializing objects with constructors
- Accessing derived data with properties
- Overloading operators

#### *Inheritance and polymorphism*

- Reusing functionality through inheritance
- Extending methods from base classes
- Overriding methods for dynamic behavior
- Tracing the scope in the namespace
- Enhancing functionality with class decorators

### Manipulating the File System

#### *Managing files*

- Reading and writing text and binary files
- Importing the OS module for directory management

#### *Increasing program robustness through handling exceptions*

- Maintaining program control with error handlers
- Detecting errors and raising exceptions

### Interfacing with Relational Databases

#### *Establishing communication*

- Creating a SQL database connection
- Instantiating cursors to access a database

#### *Executing SQL statements within a Python program*

- Retrieving desired data sets
- Updating the database with action statements

### Constructing a GUI with Tkinter/Any

#### *Building the user interface*

- Defining a window layout
- Placing widgets

#### *Listening for interface events*

- Providing menu items
- Responding to mouse clicks
- Binding event handlers

### Developing Web Applications

#### *Analyzing the request processing pipeline*

- Positioning the role of Python
- Mapping requests to Python scripts

#### *Developing MVC with Python*

- Integrating the model with a database
- Processing requests with Python controllers

#### *Benefiting from the Django framework*

- Improving productivity with code reduction
- Simplifying application development
- Accessing the database and producing HTML with Django templates

### Final Project

### Conclusion

### Practical Approach

The real-time examples will be given throughout the lectures, starting from design, analysis, implementation and maintenance.

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