Python 101

Module #1 – Hello Python

In this module, I'll introduce you to the general concept of programming as well as our course format. Then we'll go over the fundamentals of Python programming language and syntax and do some simple exercises. In practice, I'll go over some essential Python functions and keywords, as well as some arithmetic operations.

* Course Introduction
* What is programming?
* What is Python?
* Why Python?
* Hello, World!
* Obtaining Data from the User
* Doing math with Python

Practice Exercises (15 min)

* Exercise #1: Python Setup
* Exercise #2: Your first program: Hello World
* Exercise #3: Convert between Fahrenheit to Celsius

Module #2 – Python Basics

This module will teach Python data types, identify, and convert between them.  You'll learn how to define functions, pass parameters to them, and have them return data. You'll also learn how to assign data to variables. You'll learn about code reuse, code style, as well as how to use code comments effectively. Finally, you'll learn how to compare data with equality and logical operators and how to use these to create complex branching scripts with if statements.

* Variables & Data Types
* Expressions, Numbers, and Type Conversions
* Defining User-defined Functions
* Coding Style
* Comparing Things
* Conditional Statements

Practice Exercises

* Exercise #1: Expressions and Variables
* Exercise #2: Functions
* Exercise #3: Conditionals

Module #3 – Loops in Python

This module will take you through Python loops. In particular, you'll learn how to use different loops in Python and identify and fix infinite loop errors. You'll also know about common loop errors and how to fix them.

* Introduction to Loops
* Types of loops in Python
* What is a while loop?
* Infinite Loops and How to Break Them
* What is a for loop?
* Nested Loops
* Common Errors in for Loops

Practice Exercises

* Exercise #1: While Loops
* Exercise #2: While Loops
* Module #4 Assessment

Module #4 – Strings, Lists and Dictionaries in Python

This module will introduce you to string manipulation techniques in Python, such as indexing, slicing, and advanced formatting. You'll also learn about more advanced data types such as lists, sets, and dictionaries. You'll learn how to use these structures to store, reference, and manipulate data, as well as how to combine them to store complex data structures.

* What is a string?
* Strings' manipulation
* Formatting Strings
* Basic Structures Introduction
* What is a list? And how to modify and iterate the contents of a List
* What is a dictionary, and how to change and iterate the contents of a Dictionary?
* What is a set? And how to modify and iterate the contents of a Set
* Dictionaries vs. Lists vs. Sets

Practice exercises

* Exercises #1: Strings
* Exercises #2: Lists
* Exercises #3: Dictionaries
* Module #4 Assessment