Python 3, Part 3 of 6: Data

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Meet the expert: Peter Thorsteinson has been working for two decades in many areas of Microsoft-based software development technologies, including all the latest languages, frameworks, and tools. He has been involved in several large scale software development projects and has authored and co-authored several books and courses relating to ASP.NET, AJAX, JavaScript, WPF, WCF, WF, ADO.NET, and LINQ. Peter is currently focusing on ASP.NET MVC, jQuery, Task Parallel Library, Windows Azure, and SharePoint Development.

Prerequisites: This course teaches anyone who is interested in learning the basics of programming computers using Python 3. This course has no programming language pre-requisites and only assumes the basic familiarity with computer usage that virtually everybody has. Anyone with moderate computer end-user experience should be able to take this course.

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Course description: In this course we are going to talk about data and data types. Python is a dynamically typed language that means it does not use a compiler. So the data types of variables and expressions won't be known until the code is executed at runtime. We will take a look at the different data types that are supported and the built-in data types of Python. We will also talk about numbers, string and Boolean. Then we'll move onto a File type, and show how that can be used to iterate over elements within a file as a sequence. Next we'll cover Lists, Dictionary, and Tuple, which is similar to a List but its contents are immutable. Then we will talk about Set, which is another type of collection, but unlike the others, Set is unordered and all of its elements are unique. And then we'll take a look at a very powerful concept known as comprehensions.

Course outline:

Data Types
- Introduction
- Built-in Types
- Program Defined Types
- Demo: Integers
- Demo: Imaginary
- Demo: Sets
- Demo: Data Types – recap
- Demo: Data Types – recap2
- Summary

NumberTypes
- Introduction
- Number
- Number Operations
- Demo: Numerical Data Types
- Demo: Fractions
- Demo: Math
- Demo: Random
- Summary

More Numbers
- Introduction
- Demo: Rational Numbers
- Demo: Operations
- Demo: Bitwise Operations
- Demo: Assignment
- Summary

Strings
- Introduction
- String
- String Operations
- String Operations (continued)
- Demo: String Operations
- Summary

More Strings
- Introduction
- Demo: String Formatting
- Demo: Format Specifiers
- Demo: Triple Coded
- Summary

Booleans
- Introduction
- Boolean
- Boolean Operations
- Demo: Boolean Operations
- Summary

Files
- Introduction
- None
- File
- Demo: File IO
- Demo: File Code
- Summary

Lists
- Introduction
- List
- List Operations
- Demo: List Operations
- Demo: Stack
- Demo: Sort
- Demo: Queues
- Summary

Dictionaries
- Introduction
- Demo: Dictionaries
- Demo: Kev Value Pairs
- Summary

Tuples
- Introduction
- Tuple
- Demo: Tuples
- Demo: Immutable
- Demo: Single element
- Demo: Multi-dimension
- Summary

Sets
- Introduction
- Set
- Demo: Sets
- Demo: super/sub
- Summary

Comprehensions
- Introduction
- Comprehensions
- Demo: Comprehensions
- Demo: Lists
- Summary