Introduction To Python

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Session Plan

The following topics will be discussed in this four days.

- Introduction to Python's Data Types.
- Object Oriented Programming in Python.
- File and Data I/O.
- Scientific Computing using Numpy.
- Pandas for Data Analysis.
- Data Visualization using Matlplotlib.
- Introduction to Data Structures and Algorithms.
- Building Abstract Data Structures using Python.
- Searching and Sorting Algorithms.
- Creating Tree Data Structures using Python.
- Where to go from here.

Introduction To Python

- Python is a general-purpose, open-source, high-level, dynamically typed, interpreted language.
- It has a very easy to understand Syntax and easy prototyping ability.
- It has a gentle learning curve that helps a programmer productive at a very early stage.
- It is relatively terse compared to other languages and requires comparatively a few lines of code that could take more number of lines of code in other languages to solve a problem.
- Python is currently being used in various areas of computer science such as Web Development, Machine Learning, Neural Networks and also in Quantum Computing.

Comparison To Other Languages

- Python is generally slower compared to C, C++ for computationally intensive applications.
- Where it lacks in speed relatively, it gains in speed of development which helps a programmer experiment more.
- The Standard Python Interpreter is implemented in C and this implementation is called "CPython".
- Python interpreters are becoming faster and newer implementations such as "PyPy" are faster than the CPython implementation.

Python 2 Versus Python 3

- Python 2 has been around for so long and comes as part of Linux and Apple machines.
- Python 3 is an improvement over Python 2, that has overcome many drawbacks of the language and is currently being widely adopted.
- The last version of Python 2, 2.7 is still supported and will be in general usage. But it is the last of the series.
- Some of the most prominent changes see in Python 3 is the print statement, string formatting and use of the Unicode Standard for text data.

Let's Write Our First Python Program

Now that we have learned what Python is about, let's go ahead and write our first Python program.

- Open a file in your machine using either using notepad or a text editor of your choice.
- Type "print("Hello World!!")" and save the file.
- Name the file as *first_program.py* and save it.
- Open the terminal/command prompt and navigate to the path where the *.py* file has been saved.
- Type the following command:
  python file_name.py and hit enter and wait for the magic to happen.
- We have performed the first ritual of saying "Hello World!!" to our fellow programmers.

We Begin Now

Hope you enjoyed the Introduction. There is more to come and we hope you all enjoy 4 days of learning with us.
Thank you.