Python

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| **Software:**  ActivePython 2.7+ installed,   * can be downloaded from http://www.activestate.com/activepython/downloads * Pycharm Community Edition https://www.jetbrains.com/pycharm/download |

Samples includes demo from below topics.

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| * **Classes and Objects**    + Built-in functions for classes, instances and other objects   + Privacy and Delegation   + An overview of built-in python classes and modules * **Python List Comprehension**    + Basic List Comprehensions   + Compound List Comprehensions * **Handling Compound Data Structure**    + Nested Structure   + Parsing and Loading into Data Structure   + Retrival of data from the Data Structure |
| * **Garbage collection**    + Object id   + Shallow copy vs Deep Copy * **4. Regular expressions**    + \* Introduction to regexps   + \* Special symbols and characters for RE   + \* Metacharacters and Metasymbols | |
| * + Character classes   + \* Quantifiers and Positions   + \* Practical examples | |
| * **5. Creating Python Functions**    + \* Function Polymorphism   + \* Argument Defaults   + \* Lambdas   + \* Understanding \_\_builtin\_\_   + \* Preventing Variable Modifications   + \* Argument Matching Methods   + \* Keyword Argument Methods | |

* **6. Modules & Packages** 
  + Module Basics
  + Packages
  + Using \_\_all\_\_ and \_ Variables
  + Using \_\_name\_\_
  + Using third party modules
* **7. Exceptions** 
  + About Exceptions
  + Python's Default Exception Handler
  + Using Try/Except/Else/Finally Exceptions
  + Generating User Defined Exceptions
  + More on Exceptions
  + Exception Examples
  + Using Asserts
  + Exception Classes
* **8. Standard Python modules** 
  + Overview of pre-requisite reading
    - -sys.argv, sys.path, sys.version
  + An overview on \_\_builtin\_\_ and \_\_future\_\_ modules
  + Basic process management functions
  + Using the os.path module
  + Determining basename, dirname, path manipulation
  + Using the time and datetime modules
  + Using random, shutil, pprint, hashlib, md5, optparse
* **9. Process management and process automation** 
  + Using the commands module
  + Using the subprocess module
  + Managing processes using various functions
* **10. Logging** 
  + Python Logging module
  + Logging Level
  + \* Steam Logging
  + \* File Handling Logging
  + \* Log RollOver
  + \* Logging in multithreaded mode / across processes
* **11. Database access** 
  + The DB API
  + Available Interfaces
  + Connecting to a server
  + Creating and executing a cursor
  + Fetching data
  + Parameterized statements
  + Metadata
* **12. XML and JSON** 
  + Working with XML
  + Introducing ElementTree
  + Parsing XML
  + Navigating the document
  + Creating a new XML document
  + JSON
  + Parsing JSON into Python
  + Converting Python into JSON
* **13. Concurrent programming (Multithreading & Multiprocessing)** 
  + Introduction to threads and processes
  + Creating and managing threads
  + An overview of thread and threading modules
  + Concurrency management using Lock and RLock
  + Producer Consumer algorithm using Queue
  + multiprocessing concepts & implementation
* **14. Interfacing with UI Application using python** 
  + Introduction
  + Layout management
  + Widgets
  + Menus & toolbars
* **15. Plotting and statistical analysis using python** 
  + Plotting using mathplotlib
  + statistical analysis using python
* **16. Django introduction** 
  + Software tools for a Django development environment
  + Database abstraction (Object Relational Mapper)
    - * Creation of a model
      * Model validation