



## INTRODUCTION:

- Understanding the Open source
- Installation of python in Linux/windows.
- Understanding Interpreters
  - \* ipython
  - \* bpython
- Getting started with Python.
- Setting up the IDE and various IDEs.
- Setting up using the PEP-8 .
  - \* Indentation.
  - \* Tabs or spaces.
  - \* Maximum line length.
  - \* Blank lines.
  - \* Source file Encoding.
- creating the first python program.
  - \* understanding sha-bang.
  - \* understanding the .py extension.
- How to run thePYTHON PROGRAM

## Types and operators:

- Introduction to data types.
- Type casting in python.
- Various ways of printing.
- Boolean operators.
- Playing with numbers.
- Playing with strings.
- \* String quotes.
- \* Raw strings.
  - Doc string & comments.





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# Python

- Accepting inputs.

## **Control Statements:**

- Conditional statements

\* Introduction

\* Boolean expressions

\* Logical Operators

\* Using If condition

\* Pass

\* Applying PEP-8 standards.

- Looping statements

\* for

\* while

\* range

\* break

\* continue

## **Data structures – Lists:**

\* What are lists?

\* Mutable lists.

\* In operator.

\* Traversing a list.

\* List operations.

\* Indexing.

\* Slicing.

\* converting a list to string.

\* converting a string to list.



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\* Aliasing in lists.

\* Functions in lists.

## ***Data structures – TUPLES***

\* What is tuples.

\* Indexing in tuples.

\* slicing in tuples.

\* Immutable tuples.

\* Packing and unpacking.

\* Lists and tuples.

\* Functions in tuples.

## ***Data structures – dictionaries:***

What are dictionaries?

\* Keys and values.

\* In operator.

\* Looping in dictionaries.

\* Lookups in dictionaries.

\* Dictionaries and tuples.

\* Functions in dictionaries.

\* Dictionaries vs sets.

## ***Functions:***

- Function basics
- Scope rules in functions

\* Global scope.

\* Local scope.

\* Locals.



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\* Globals.

\* Global.

- Understanding the return keyword.
- Argument passing

\* Default argument list.

\* Keyword arguments.

- Understanding the docstrings.
- List comprehensions.
- Lambda, map, filters.
- Understanding the closures.
- Decorators.

## **Modules:**

- What are modules?
- Understanding the namespaces
- Various ways of importing.
- "reload" operation.
- understanding about sys.path
- dir () function.
- understand the \_\_main\_\_ and \_\_name\_\_
- operation.
- Installation of a module.
- Understanding the virtualenv.
- Packaging a module.
- Packages.

## **Files:**



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# Python

- Reading and writing files
- Methods of File Objects

\* Reading

\* Writing

\* Modify

- Buffering in files.
- Parsing a xml files.
- Parsing a xls files.
- Pickles
- Output using Pickle
- Introduction to subprocess, os

### **Exceptions:**

- What are exceptions?
- Simulating errors.
- Various types of exceptions.
- exception handling - try,except,else,finally
- trapping errors.
- raising exceptions.
- Customized exceptions.

### **REGULAR EXPRESSION:**

- Understanding the regular expressions.
- Getting started.
- Compiling a pattern.
- Flags - ignorecase, dotall
- Working with multiple flags.



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- Search vs match.
- Raw string notations.
- Special characters

\* Globbling characters

\* Anchors

\* character

## **DEBUGGING:**

- Introduction to debugging.
- Debugging using IDE.
- Various modes to get to pdb.

\* Script mode, Enhanced script mode.

\* Post mortem mode.

\* run mode.

\* Trace mode.

- Playing with the trace mode.

\* listing

\* step, next

\* continue, break

\* printing variables

\* assigning values

\* Restart and return.

\* Where, stacks

## **CLASSES:**

- OOP: what is object oriented programming.
- Understanding the classes in python.



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# Python

- Lets create a bank account.
- Using the class statement
- Methods in classes.

\* Constructor.

\* Magic methods.

- Understanding Inheritance.
- Understanding Polymorphism.
- Understanding Encapsulation.
- Operator overloading.

## **SOCKET PROGRAMMING:**

- Introduction.
- Understanding basics

\* routing.

\* Protocols - udp & tcp.

- Working with sockets

\* How to connect to server.

\* Connect on port.

\* sending data.

\* receiving data.

\* How to close the socket.

- Programming a socket server

\* Bind a socket.

\* Listen to incoming connections.

\* Accept connections.

\* Live server



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# Python

- \* Handing connections.
- \* Thread class
- \* Thread library
- \* Thread pool
- \* Task thread
- \* Multiprocessing
  - Demo: common chat application.
  - Demo: FAQ chat application.
  - Demo - Port scanning software.

## **LOGGING:**

- Understanding logging.
- When to use logging.
- Understanding the log levels
- Understanding stream handling using Basic
- Config
- Understanding logger.
- Understanding handlers.
- Understanding Formatters.
- Understanding filters.
- Demo: Playing with the syslog handlers.
- Demo: Playing with the St
- Demo: Playing with the File handlers.

## **DATABASE CONNECTIVITY:**

- Introduction
- Working with mysql databases.



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# Python

- \* How to install mysql-server
- \* How to know what modules to install
- \* Creating a database
- \* Creation of the user and giving grants
- \* Granting access to the users
- \* Connecting mysql and python
  - Python and Mysql:
- \* Creating and populating a table
- \* Retrieving data
- \* Dictionary cursors
- \* Column headers
  - Integration with various databases.
  - Introduction to ORM and sqlalchemy.

## **CGI PROGRAMMING :**

- Introduction
- Getting started with CGI
- Configuring apache
- Configuring CGI

## **MULTI THREADING:**

- Introduction
- Starting a thread
- Thread module
- Synchronizing Threads

## **PYTHON FRAMEWORKS:**

- FRAMEWORK Introduction



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# Python

- FLASK FRAMEWORK



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