Programming in Python (PWP - 22616)

Unit I: Introduction and Syntax of Python Program

Topics:
- 1.1 Features of Python:
  - Interactive, Object
  - oriented, Interpreted, platform independent
- 1.2 Python building blocks:
  - Identifiers,Keywords, Indention, Variables, Comments
- 1.3 Python environment setup
  - Installation and working of IDE
- 1.4 Running Simple Python scripts to display 'welcome' message.
- 1.5 Python Data Types:
   Numbers, String, Tuples, Lists, Dictionary. Declaration and use of data types

Unit II: Python Operators and Control Flow Statement

Topics:
- 2.1 Basic Operators
   Arithmetic,Comparison/ Relational, Assignment,Logical,
   Bitwise, Membership, Identity operators,
   Python Operator Precedence
- 2.2 Control Flow
- 2.3 Conditional Statements (if, if ... else, nested if)
- 2.4 Looping in python (while loop, for loop, nested loops)
- 2.5 loop manipulation using continue, pass, break, else.

Unit III: Data Structures in Python

Topics:
- 3.1 lists:
  - Defining lists, accessing values in list, deleting values in list, updating lists.
  - Basic List Operations
  - Built in List functions
- 3.2 Tuples:
  - Accessing values in Tuples, deleting values in Tuples, and updating Tuples
  - Basic Tuple operations.
  - Built in Tuple functions
- 3.3 Sets :
  - Accessing values in Set, deleting values in Set and updating Sets.
  - Basic Set operations
  - Built in Set functions
- 3.4 Dictionaries:
  - Accessing values in Dictionary, deleting values in Dictionary and updating Dictionary.
  - Basic Dictionary operations.
  - Built in Dictionaries functions

Unit IV: Python Functions , Modules and Packages

Topics:
    4.1 Use of Python built in Functions :
       - data conversion functions, math functions etc.
    4.2 User defined functions:
       - Function definition, Function calling, function arguments and parameter passing,
        Return statement, Scope of Variables: Global variable and Local Variable.
    4.3 Modules:
       - Writing modules, importing modules, importing objects from
        modules, Python built in modules (e.g. Numeric and mathematical module,
        Functional Programming Module) Namespace and Scoping.
    4.4 Python Packages:
       - Introduction, Writing Python packages, Using standard
        (e.g.math, scipy, Numpy, matplotlib, pandas etc.) and user defined packages

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Unit V: Object Oriented Programming in Python

Topics:
    5.1 Creating Classes and Objects.
    5.2 Method Overloading and Overriding.
    5.3 Data Hiding.
    5.4 Data abstraction.
    5.5 Inheritance and composition classes
    5.6 Customization via inheritance specializing inherited methods.

Unit VI: File I/O Handling and Exception Handling

Topics:
    6.1 I/O Operations: Reading keyboard input, Printing to screen.
    6.2 File Handling:
       - Opening file in different modes, accessing file contents using
        standard library functions, Reading and writing files, closing a file,
        Renaming and deleting files, Directories in Python,
        File and directory related standard functions
    6.3 Exception Handling:
       - Introduction,
       - Exception handling - 'try: except: statement, 'raise' statement, User defined exceptions