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Subject: SBL - Python Topic: Basics. Page No.: 1 Date:

EXPERIMENT - 1
BASICS OF PYTHON

Aim: To explore the basics of Python like Data Types (Strings, Arrays, Lists, Dictionaries, Set, Tuples) and Control Statements.

Theory:

Python Introduction:

1. Python is a general purpose, dynamic, high level and interpreted programming language. It supports Object Oriented programming approach to develop applications. It is simple and easy to learn and provides lots of high level data structures

2. Python is easy to learn yet powerful and versatile scripting language which makes it attractive for Application Development.

3. Python's syntax and dynamic typing with its intepreted nature, makes it an ideal language for scripting and rapid application development.

4. Python supports multiple programming pattern, including object oriented, imperative and functional or procedural programming styles.

5. Python is not intended to work on special area such as web programming. That is why it is known as multipurpose because it can be used with web, enterprise, 3D CAD, etc

6. We don't need to use data types to declare variables because it is dynamically typed so we can write a = 10 and assign an integer value in an integer variable.

7. Python makes development and debugging fast because there is no compilation step included in python development and edit - test - debug cycle is very fast.

Python Features:

Python provides a lots of features that are listed below:

1) Easy to learn and Use

Python is easy to learn and Use. It is a developer - friendly and high level programming language.

2) Empressive Language

Python language is more empressive means that it is more understandable and readable.

Name : _____ Class: ____ Div.: ____ Roll No.: ____

Subject : _____ Topic : _____ Page No. : _____ Date : _____

3) Interpreted Language
Python is an interpreted language, ie, the interpreter executes the code line by line at a time. This makes debugging Easy and thus suitable for developers and beginners.

4) Cross-platform Language.
Python can run equally on Windows, Linux, Unix and Macintosh, etc. So, we can say Python is a Portable Language.

5) Free and Open Source.
Python language is freely available at official web address. The source code is also available. Therefore it is open source.

6) Object-Oriented Language.
Python supports object oriented language and concepts of classes and objects come into existance

7) Extensible
It implies that other languages such as C/C++ can be used to compile the code and thus it can be used further in our python code.

8) Large Standard Library.
Python has a large and broad library and provides rich set of module and functions for rapid application development.

9) GUI Programming Support
Graphical User interfaces can be developed using Python.

10) Integrated.
It can be esily integrated with languages like C/C++, JAVA, etc.

Python Variables.
In Python, we don't need to specify the type of variable because Python is a type infer language and smart enough to get variable type

Python Tuples.
A tuple is a sequence of immutable objects, therefore tuple cannot be changed.
The objects are enclosed within round bracket parenthesis and separated by comma.

Name : _____ Class: ____ Div.: ____ Roll No.: ____

Subject : _____ Topic : _____ Page No. : _____ Date : _____

Python Dictionary

Dictionary is an unorded set of key and value pair.
It is a container that contains data, enclosed within curly braces.
The key passed in the item must be unique.
The key and the value is separated by a colon (:).

Python Strings.

Strings are the simplest and easy to use in Python.
Python strings are immutable.

Python List

1) Python lists are the data structures that is capable of holding different values of data.
2) Python lists are mutable ie, Python will not create a new list if we modify an element in the list.
3) A python list is enclosed between square ([]) brackets and the different elements are separatd by commas.

Control Statements.

Python IF Statement.

The python IF statement is a statement which is used to test the specified condition. We can use if statement to perform conditional operations in our Python application.

There are various types of if statements in Python

1) if Statement
2) if - else statement
3). nested if statement.

For Loop.

Python for loop is used to iterate the elements of a collection in the order that they appear.

Python while loop.

In Python, while loop is used to execute number of statements or body till the specified condition is true.

Conclusion.

In this experiment, we executed basic commands to write programs using Python language.

11/12/22