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PES1201803018
CSE B2
SHRUTHI S

Python Assignment No-02

1) What are the data types in Python? Explain.

Ans The types of data that are used in python are:

*) Numbers: Numeric values are stored and python will support 4 types of numeric data, they are

- int (signed integers)
- long (used for high range of values)
- float (used to store floating point values)
- complex (used to store complex number)

*) String: The string can be defined as the sequence of characters represented in single or double or triple quotations. Example: 'hello world'

*) List: List are similar to arrays in C. However the list contain data of different types. The items stored in the list are separated with a comma and enclosed with in the square brackets[]. We can use slice[:] operators to access the data of the list. Eg: l = [1, "hi", "Python", 2]
print l[1:3]. o/p → [2]

*) Tuple: A tuple is similar to the list in many ways. like lists, Tuple also contain the collection of the items of different data types. The items of tuples are seperated with a comma (,) and enclosed in the parenthesis ( )
Eg: t = ("hi", "python", 2)
print (t[1:]) o/p ('python', 2)

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* Dictionary : it is an ordered set of a key-value pair of items. It is like an associative array. Key can hold any Primitive data type whereas value is an arbitary python object.

Eg: d = {1: 'jimmy', 2: 'Alex', 3: 'John'}
print ("1st name is "+d[1]);

o/p 1st name is jimmy

2) Briefly explain history of Python?

Ans Python is a widely used, general-purpose high-level programming language. It was initially designed by Guidavan Rossum in 1991 and developed by python software foundation. It was similarly / mainly developed for emphasis on code readability and its syntax allows programmers to express concept in fewer lines of code.

In the late 1980's, history was about to written. It was that time when working on python started. Soon after that, Guido Van Rossum began doing its application based work in december of 1989 by at centrumwiskunde and Informatica (CWI) which is situated in Netherland. It was started first as a hobby project because he was looking for an interesting project to keep him occupied during christmas. The programming language which python is said to have succeeded is ABC programming language, which had interfacing with Amoeba Operating System and had the feature of exception handling. He had already helped to create ABC earlier in his career and he had some issues with ABC but liked most of the features. After that what he did as really very clever. He had taken the syntax of ABC, and some of its good features. It came with a lot of complaints too, so he fixed those issues completely and had created

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a good scripting language which had removed all the flaws. The inspiration for the name came from BBC's TV show 'monty' Python's flying circus as he was big fan of TV shows and also he wanted a short, unique and slightly mysterious name for his invention and hence he name it python! He was the 'Benevolent dictator for life' (BDFL) until he stepped down from the position as the leader on 12th July 2018 for a little more time he used to work for Google, but currently he is working at Dropbox.

The language was finally released in 1991. when it was released, it used a lot fewer codes to express the concepts when we compare it with Java, C and C++. It design philosophy was quite good too. Its main objectives is to provide code readability and advanced developer productivity. when it was released it had more than enough capability to provide classes with inheritance, several core data types, exception handling and functions.

3) Explain operators in Python?

Ans i) Arithmetic Operators: They are used to perform arithmetic operations between two operands. It includes addition (+), subtraction (-), multiplication (*), division (/), remainder (%), floor division (//) and exponent (**)

ii) Comparison Operators: These are used to compare the value of two operands and returns boolean True or False accordingly. Operators are: ==, !=, <=, >=, >, <.

iii) Assignment Operators: These are used to assign the value of right expression to left operand.

Operator are: =, +=, -=, *=, %=, **=, //=

iv) Bitwise Operators: It performs bit by bit operation on values of two operands. Binary and (&), Binary XOR (^), left shift (<<), Binary OR (|), Negation (~) Right shift

v) Logical Operations: These are used primarily in the expression evaluation to make a decision. Python supports and, or, not logical operators.

vi) Membership operators: These are used to check the membership of value inside a python. If the value is present in data structure, then the resulting value is true otherwise it returns false. In and not in are membership operations.

vii) Identity Operator:

is :- it is evaluated to be true if the reference present at both side point to same object.

is not :- it is evaluated to be true if reference present present at both side do not point to same object.

4) Explain the features of python.

Ans

i) Easy to learn and use - It is developer friendly and high level programming language.

ii) Expressive language - it means that is more understandable and readable.

iii) Interpreted language - interpreter executes the code line by line at a time. This makes debugging easy and thus suitable for beginners.

iv) Cross platform language - it can run equally on different platforms such as windows, linux, unix etc. so we can say python is a portable language.

v) Free and Open source - it is freely available at official web address. Source code is also available it is a open source.

vi) Object - oriented language - It supports object oriented language and concepts of classes and objects came into existence.

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vii) 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.

viii) Large standard library - python has large and broad library and provides rich set of module and functions for rapid application development.

ix) GUI programming support - GUI can be developed using python.

x) Integrated - it can be easily integrated with languages like C, C++, Java etc.

5) Justify why python is interactive interpreted language.

Ans Python is an interacted interpreted language because Unlike C/C++ etc, python is an interpreted Objected Oriented programming language. By interpreted it is meant that each time a program is run the interpreter checks through the code for errors and then interprets the ~~code~~ instructions into machine readable byte code. We can easily integrated python with other languages like C, C++ etc. There is no need to compile python code this makes it easier to debug our code. The source code of python is converted into an immediate form called byte code.