Python Assignment - 2

G. Sowjya
321810303025

1. what are the data types in python? Explain

Data types in python:-

Numeric:-

A numeric value is any representation of data which has a numeric value.

Integer:- positive or negative whole numbers (without any fractional part). Ex:- a = 10

Float:- Any real number with a floating point representation in which a fractional component is denoted by a decimal symbol.

Ex:- a = 10.5

Complex number:-

A number with a real and imaginary component represented as x + iy.

Ex:- 2+i3

Boolean:-

Data with one of two built-in values True or False.

Sequence Type

A Sequence is an ordered collection of similar or different data types.

> String : A string value is a collection of one or more characters put in single or double or triple quotes.

Ex:- "GITAM SCHOOL OF TECHNOLOGY"

> List :- A list object is an ordered collection of one or more data items, not necessarily of the same type, put in square brackets.

Ex:- [1, 2, 3, 4]

> Tuple :-

A Tuple object is an ordered collection of one or more data items, not necessarily of the same type. put in paranthesis.

2. Briefly explain history of python?

Python is an interpreted, high-level, general purpose programming language. created by Guido van Rossum and first released in 1991. Its language constructs and object-oriented approach aim to help

programmers write clear, logical code for small and large-scale projects.

Python is dynamically typed and garbage-collected. It supports multiple programming paradigms, including structured, object-oriented, and functional programming.

Python was conceived in the late 1980s as a successor to the ABC language. Python 2.0, released in 2000, introduced features like list comprehensions and a garbage collection system with reference counting. Python is capable of exception handling.

Python 3.0 was released on 3 December 2008. It was a major revision of the language that is not completely backward-compatible. Many of its major features were backported to Python 2.6.x and 2.7.x version series.

3. Explain all the operators in python?

Arithmetic Operators:- Arithmetic operators are used to perform mathematical operations like addition, substraction, multiplication and division.

Addition:- x + y

Substraction :- x - y

Multiplication x * y

Division x/y

floor division x//y

Modulus x%y

exponential x**y

Relational Operators:-

Relational operators compares the values. It either returns True or False according to the condition.

> Greater than

== Equal to

!= Not equal to

>= greater than or equal to

<= less than or equal to

logical operators:

logical operators perform logical AND, logical OR and Logical NOT operations.

7. Python is portable language:

Python is portable language. for example, if we have python code for windows and if we want to run this code on other platform such as linux, Unix and Mac then we do not need to change it, we can run this code on any platform

8. Python is integrated language:

We can easily integrated python with other language like C, C++ etc.

9. Interpreted language.

Python code is executed line by line at a time. like other language C, C++ Java etc there is no need to compile python code this makes it easier to debug our code.

Source code is converted into an Byte code.

10. large standard library:

Python has a large standard library provides rich set of module and functions. There are many libraries present in python for such as regular expressions, unit testing.

3. Object-Oriented language:

One of the key features of python is object-oriented programming. Python supports OOP language and concepts of classes, objects encapsulation etc.

4. GUI programming Support:

Graphical Users Interfaces can be made using a module such as PyQt5, PyQt4, wxPython or Tk in Python. PyQt5 is the most popular option for creating graphical apps with python.

5. High-level language:

python is a high-level language. when we write programs in python, we do not need to remember the system architecture, nor do we need to manage the memory.

6. Extensible feature:

python is a Extensible language. we can write our some python code into C or C++ language and also we can compile that code in C/C++ language.

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11. Dynamically typed language:

the type for a variable is decided at run time not in advance. because of this feature we don't need to specify the type of variable

5. Justify why python is interactive interpreted language

python is interacted interpreted language because unlike c/ c++, etc, python is an interpreted object oriented language. By interpreted it is meant that at time a program is run the interpreter checks through the code for errors and then interprets the instructions into machine readable bytecode.

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The Source code of python is converted into an immediate form called byte code.