

Assignment - 2

1) what are the data types in python?

Explain ? +) the data types defined in the python are:

1. numbers

2. string

3. List

4. tuple

5. Dictionary

numbers:- Numbers store numeric value

python supports 4 types of numeric data

1. int (signed integers like 10, 2, 29 etc)

2. long (long integers used for a higher range of values like 908090300L etc)

3. float (It is used to store floating point numbers like 1.9, 9.9002 etc)

4. complex (complex numbers like 2+4j)

String : the string can be defined as the sequence of characters represented in the quotation marks.

In python we use single, double or triple quotes to define a string.

e.g:- "hello world".

List : list are similar to arrays in C.

However, the list contain data of diff types. The items stored in list are separated

with a comma and enclosed with in the square brackets [].

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We can use slice [i] operators to access the data of the list.

Eg:- `l = [1, "hi", "python", 2]`

`print(l[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 tuple are separated by a comma (,) and enclosed in the parenthesis.

Eg:- `t = ("hi", "python", 2)`

`print(t[1:]);`

O/P: ('python', 2)

Dictionary: Dictionary is an ordered set of a key-value pair of items. It is like an associative array. Key can hold only primitive data type whereas value is an arbitrary Python object.

Eg:- `d = {1: "jimmy", 2: "alex", 3: "johny",}`

`print("1st name is " + d[1]);`

O/P: 1st name is jimmy.

Q) Briefly explain history of python?

python is a widely used, general-purpose, high-level programming language. It was initially designed by Guido van Rossum in 1991 and developed by Python Software Foundation. It was mainly developed for emphasis on code readability and its syntax allows programmers to express concepts in fewer lines of code.

In the late 1980's history was about to written. At that time when working on python started. Soon after that Guido van Rossum began doing his application based work in dec of 1989 by at Centrum Wiskunde 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 succeeded is ABC programming language which had the interfacing with the Amoeba operating system and had the feature of exception handling. He had already helped to create ABC earlier in his career and he had seen some issues with ABC but liked most of the features. After that

What he did was 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 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 a big fan of the TV show and also he wanted a short unique and slightly mysterious name for his invention and hence he named it Python. He was the "Beneficent dictator for life (BDFL) until he stepped down from the position as the leader on 12th July 2018 for quite some 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 concept when we compare it with Java, C and C++. Its design philosophy was quite good too. Its main objective 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.

② Explain the operators in Python?

i) Arithmetic operators:-

These are used to perform arithmetic operations.

between two operands. It includes (+, -, *, /, %), (//), (()), (//), (**).

i) Comparison operators. 821810301011

These are used to compare the value of the two operands and return boolean true or false accordingly.

The comparison operators are:

==, !=, <, >, <=, >=, <<, >>

ii) Assignment operators:-

These are used to assign the value of the right expression to the left operand.

=, +=, -=, *=, /=, %=, **=, |=, |=,

iii) Bitwise operators:-

The bitwise operators perform bit by bit operation on the values of two operands.

Binary and (A) Binary (n) Left Shift (<<) Binary or (R) Negation (n) Right shift (>>)

iv) Logical operators:-

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

v) 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 notin are membership operators.

Vii) Identity operators.

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

(H) Explain the features of Python.

1) Easy to learn and use.

Python is easy to learn and use it's developer-friendly and high level programming language.

2) Expressive language.

It means that is more understandable, readable.

3) Interpreted language

Interpreter executes the code line by line a time. This makes debugging easy and thus suitable for beginners.

4) Cross platform language

It can run equally on diff platforms like windows, Linux, Unix etc.. So we can say python is a portable language.

5) free and open source

It is freely available at official web address source code is also available. It is open source.

6) Object oriented language

It supports object oriented lang and concepts of classes and object come into existence.

3) Extensible:-

It implies that other languages such as C/C++ can be used to compile the code & still it can be used further in our Python code.

4) Large standard library

Python has large and broad library and provides rich set of module and function for rapid application development.

5) GUI programming support

Graphical user Interface can be developed using Python.

6) Integrated:-

It can be easily integrated with languages like C, C++, Java etc..

5) Justify why Python is an interpreted language?

Python is an interpreted language because unlike C/C++ etc, Python is an interpreted object 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 instruction into machine readable byte code.

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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.