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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: Number 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 908090800L 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.

Eg: "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[ ].

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We can use slice[:] 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 with a comma(,) and enclosed in the parentheses( )

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 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

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② Briefly explain history of

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 concept in fewer lines of code.

In the late 1980's, history was about to written. It was that ~~by~~ time when working on python started. Soon after that, Guido van Rossum began doing its application based work in dec 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 intresting project to keep him occupied during christmas. The programming language which python is said to have 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 [illegible] 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 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 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 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 concepts. whence we compare it with Java, c and c++. Its design philosophy was quite good too. Its main objective is to

provide code readability & 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 the operators in Python?

(i) Arithmetic operators:

These are used to perform arithmetic operations between two operands. It includes addition(+), subtraction(-), multiplication(*), divide(/) remainder(%), floor division(//) and exponent(**)

(ii) Comparison operator

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

The comparison operators are:

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

(iii) Assignment operators:

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

Eg of Assignment operators:

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

④ Explain the features of Python.

(1) Easy to learn and use

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

(2) Expressive language

It means that is more understandable and readable.

(3) Interpreted language.

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

(4) 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

(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 language and concepts of classes and objects come into existence.

(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 large and broad library and provid 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 easily integrated with language like C, C++, java etc.

(5) Justify why python is interactive interpre language?
Python is an interacted interpreted language because
Unlike C/C++ etc, python is an interpreted Object oriented programming language. By inte Oted it is meant that each time a progran is run the interpreter checks through the code for errors and then interprets the instru into machine readable byte code

we can easily integrated
python with other languages like C, C++ e
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.