PYTHON

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ASSIGNMENT - 2

1. what are the data types in python? Explain

A. Variables can hold values of different data types. Python is a dynamically typed language hence we need not define the type of the variable while declaring it. The interpreter implicitly binds the value with its type.

The data types in python are:-

(i) Numbers
(ii) String
(iii) list
(iv) Tuple
(v) Dictionary

(1) Numbers:-

Numbers stores numeric values. Python creates Number object when a number is assigned to a variable.

There are 4 types of numeric data

(i) int - signed integers like 10, 2, 29 etc
(ii) long - long integers used for higher range of values like 90890982 etc
(iii) float - store floating point numbers like 1.9, 9.902, etc
(iv) complex - complex numbers like 2.14j, 2.0+2.3j, etc

(2) String:-

String can be defined as sequence of characters repre-sented in the quotation marks. In python we use single, double or triplet quotes to define a string.

Ex:- "hello world"

(3) List:-

List are similar to arrays in c. However the list contain data of different types. The items stored in the list are seperated with a comma & enclosed with in the square brackets [ ].

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

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Ex:- L = [1, "hi", "python", 2]
     print [L[3:]];
     o/p :- [2]
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(4) 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 seperated with comma(,) and enclosed in the parenthesses ( )

Ex:- t = ("hi", "python", 2)

print (t[1:]);

O/p : ('python', 2)

(5) 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 where as value is an arbitary python object.

Ex :- 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?

A. Python was concerned in the late 1980 by Guido van Rossum at centrum wiskunde and informatica in the Netherlands as a successor to the ABC language capable of exception handling and interfacing with the Amoeba os.

* The program python was named after a TV show called 'Monty python's Flying circus'.
* python is a snake name.
* python supports the oops language.

Language designers : Guido van Rossum

Language paradigms : Interpreted language, Dynamic language

First appered : 1990 : 30 years ago

Os : Linux, macos, windows and more.

The language was finally released in 1991. when it was released it used a fewer codes to express the concepts 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 & functions.

3. Explain all the operators in python?

A. Operators in python:-

(i) Arithmetic operators:- Arithmetic operators are used to perform mathematical operations like addition, subtraction, multiplication and division.

Operator	Description	syntax
+	Addition	x+y
-	subtraction	x-y
*	multiplication	x*y
/	Division	x/y
%	modulus	x%.y
//	Floor division	x//y
**	Exponentiation	x**y

(ii) Relational operators:-

Relational operators compares the values. It either returns true or false according to the condition.

Operator	Description	syntax
==	equal	x==y
!=	not equal	x!=y
>	Greater than	x>y
<	Less than	x<y
>=	Greater than or equal to	x>=y
<=	Less than or equal to	x<=y

(iii) Logical operators:-

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

operator	Description	syntax
AND	Logical AND: True if both the operands are true	x and y
OR	Logical OR: True if either of the operands is true	x or y
not	Logical NOT: True if operand is false	not x

(iv) Bitwise operators:-

Bitwise operators acts on bits and performs bit by bit operation.

operator	Description	syntax
&	Bitwise AND	x & y
|	Bitwise OR	x | y
~	Bitwise NOT	~x
^	Bitwise XOR	x ^ y
>>	Bitwise right shift	x >>
<<	Bitwise left shift	x <<

(v) Assignment operators:-

Assignment operators are used to assign values to variables.

operator	example	same as
=	x = 5	x = 5
+=	x += 3	x = x + 3
-=	x -= 3	x = x - 3
*=	x *= 3	x = x * 3
/=	x /= 3	x = x / 3
%=	x %= 3	x = x % 3
>>=	x >>= 3	x = x >> 3
<<=	x <<= 3	x = x << 3

(vi) Special operators:-

There are some special type of operators like

Identify operators - is and is not are the identity operators both are used to check if two values are located on the same part of the memory. Two variables that are equal does not imply that they are identical.

is True if the operands are identical

is not True if the operands are not identical.

Membership operators:- in and not in are the membership operators, used to test whether a value or variable is in a sequence.

in True if value is found in sequence

not in True if value is not found in sequence.

4. Explain the features of python.

A. (i) Easy to learn and use:

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

(ii) Expressive language:-

It means that it 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 open source.

(vi) object-oriented language:-

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

(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:-

Graphical user interfaces 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

A. python is an interacted 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 interpretes the instructions into machine readable bytecode. 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.