

Q. What are the datatypes in python? Explain

Datatypes represent a kind of value which determines what operation can be performed on that data. Numeric, non-numeric and boolean (true/false) data are the most used datatypes.

There are five standard datatypes:

- Numbers
- String
- List
- Tuple
- Dictionary

Numbers/numeric

A numeric value is any representation of data which has a numeric value. Python defines three types of numbers:

1) Integer: Positive/negative whole numbers.
(without a fractional part)

2) float: Any real number with the floating point representation in which a fractional component is denoted by a decimal symbol.

> Complex number: A number with a real & imaginary component represented as $x+yj$.
 x and y are float and j is -1 (square root of -1 called imaginary number)

Boolean

Data with one of two built-in value True or false. Notice that 'T' and 'F' are capital. true and false are not valid booleans and python will throw error for them.

Sequence Type.

A sequence is an ordered collection of similar or different datatypes. python has the following built-in sequence data types:

- a) String: A string value is a collection of one or more character put in single, double/triple quote.
- b) List: A list object is an ordered collection of one or more data items, not necessarily of the same type, put in square brackets.

2] Tuple: It is a collection of one or more data items of the same type.

Dictionary

A dictionary is a collection of data items with a key-value pair.

Collection

brackets

~~type~~

2] Explain

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1) Tuple: It is a collection of one or more data items, not necessarily of the same type, put in parentheses.

Dictionary

A dictionary object is an unordered collection of data ~~type~~ in a key : value pair form. A collection of such pairs is enclosed in curly brackets.

~~type~~

2) Explain brief history of python?

Python was conceived in the late 1980 by Guido Van Rossum at Centrum Wiskunde & Informatica successfully. It was conceived by program evolution - every program came to life out of a simple project with sole purpose of entertainment and killing some time.

What is the mostly amazing about the story is that he created this solely using

Python is designed mainly to maximise the programmer's productivity by providing high-level tools and a simple syntax. It is with no doubt, a necessity for those who want to get into the programming. It is

considered a good language for beginners it is not the best. This is due to its quiet and strong static type system that a lot of programmers usually prefer over other type systems. It helps you avoid making mistakes while coding.

Python Benefit for the Coding is simpler words is nothing but problem is solving.

And who wouldn't want after all.

Thanks to its excellent library, the open source code and various online resources.

dedicated for the reference & assistance.

here. 3) Explain all the operators in Python?

An operator is a symbol that performs an operation. An operator acts on some variable called operands. If an operator acts on three variables, then it is called ternary operator.

① Arithmetic Operator

② Assignment operator

③ Unary minus Operator

④ Relational Operator

⑤ Logical Operator

⑥ Boolean Operator

⑦ Bitwise Operator.

① Arithmetic Operation: These operators are used to perform basic arithmetic operations like addition, subtraction, division, etc.

② Assignment operator: These operators are useful to store the right side value to the left side variable. They can also be used to perform simple arithmetic operation like addition,

And then store the value in the variable. These operators are shown in Table 4-2. In Table- let us assume the values $x=20$, $y=10$, $z=5$.

Relational operators: Relational operators are used to compare two quantities. We can understand whether two values are same or which one is bigger or which one is lesser, etc. using these operators.

Logical operators: Logical operators are useful to construct compound condition. A compound condition is a combination of more than one simple condition. Each of the simple condition is evaluated to True or False.

Boolean operator: we know that there are two 'bool' type literals. They are True and False.

Boolean operators act upon 'bool' type literals.

And they provide 'bool' type o/p. It means

Bitwise operators. These operators act on individual bits of the operands. We can use bitwise operators directly on binary numbers or on integers also. When we use these operators:

There are 6-types of bitwise operator:

- Bitwise Complement operator (\sim)
- Bitwise AND operator ($\&$)
- Bitwise OR operator ($|$)
- Bitwise XOR operator (\wedge)
- Bitwise Left shift operator (\ll)
- Bitwise Right shift operator (\gg)

4] Explain the features of python.

Feature of Python:

- Simple: python is a simple programming language. When we read a python program, we feel like reading English sentences.
- Easy to learn: Python uses very few keywords. Its programs are very simple structure so, developing programs in python become easy. Also, Python is simple.

open source the python software. python can freely download

High level language : programming languages

are of two types : a) low level
b) high level. A low level

language uses machine code instruction to develop programs.

Dynamically typed : In python, we not declare anything. A Assignment statement binds a name to an object, and the object can be of any type.

Platform Independent : When a python Program is Compiled using a python Compiler, it generates byte code. Python's byte code represent a fixed set of instructions.

Portable : when a program yield the same result on any computer in the world.

Q:5] Justify why python is interactive interpreted language.

python is an interpreted object-oriented programming language. By interpreted it is meant that each time a program is seen the interpreter the instructions into machine-readable bytecode. An interpreter is a translator in computer's language which translates the given code line by line in machine readable byte code. And if any error is encountered it stops the translation until the error is fixed. Unlike C language, which is compiled programming language. the compiler translates the whole code in one go rather than line by line. This is the reason why C language, all the errors are listed. Python is interactive is followed by the REPL (read, eval, print loop), if appropriate, the result will be printed on the screen, immediately, in the next