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1) What datatypes in the python? Explain?

Datatypes are classification or categorization of data items. datatypes represent a kind of value which determines operators can performed on data.

Numeric:- A numeric value is representation of data which has numeric value

python identifies three types of numbers :-

Integer:- Positive and Negative values.

Float:- Real numbers with floating point representation in fractional component denoted by decimal symbol.

Complex number:- number with real and imaginary component represent as $x+yj$.

Boolean:- Data with one or two built-in-values.

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 arranged ordered collection of similar or different datatypes. python has following built in Sequence datatypes.

* **String:-** collection of one or more characters put in single, double or triple quotes

* **List:-** list object is ordered collection of one or more data items not necessary of same type put in square brackets.

* Tuple :- A Tuple object is ordered collection of one or more data items not necessary of same type put in parenthesis.

Dictionary

A dictionary is unordered collection of data in key value pair form.

Collection of such pairs enclosed in curly braces

For ex = { 1 : "Steve", 2 : "Bill", 3 : "Ram" }

* type() function

2. Briefly explain history of python?

python was concerned in late 1980s by Guido Van Rossum at centrum Viskunde and Informatis in Netherland as successor to the ABC language capable of exception handling and interfacing with Amoeba.

program python named after TV show called 'Monty python's Flying circus'.

python is snake name. it supports oops language

Language designers :- Guido Von Rossum

language paradigms :- Interpreted language,
Dynamic programming language

First appeared : 1990 30 years ago

os, linux, macos, windows and more

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3. Explain operators in Python?

1. Arithmetic operators:-

These are used to perform Mathematical operation like Addition, Subtraction, Multiplication and division.

$+$ $\rightarrow x+y$, $-$ $\rightarrow x-y$, $*$ $\rightarrow x*y$,
 $/$ $\rightarrow x/y$ $\%$ $\rightarrow x\%y$ $//$ $\rightarrow x//y$

2. Relation operator:-

These will compare values it either returns True or False a/c to condition.

$>$ $\rightarrow x>y$, $==$ $\rightarrow x==y$, $!$ $\rightarrow x!y$
 $>=$ $\rightarrow x>=y$

3. Logical operators

These perform logical AND, logical OR and logical 'NOT' operations.

and $\rightarrow x$ and y

or $\rightarrow x$ or y

not $\rightarrow x$ not y

4. Bitwise operators.

These operators acts on bits and perform bit by bit operation

$\&$ $\rightarrow x\&y$

$|$ $\rightarrow x|y$

\sim $\rightarrow \sim x$

\wedge $\rightarrow x\wedge y$

$>>$ $\rightarrow x>>y$

5. Assignment operator

These are used to assign values to variables

$= \rightarrow x = y + z$

$- = \rightarrow a -= b \rightarrow a = a - b$

$+ = \rightarrow a += b \rightarrow a = a + b$

$/ = \rightarrow a /= b \rightarrow a = a / b$

$\% = \rightarrow a \% = b \rightarrow a = a \% b$

$\& = \rightarrow a \& = b \rightarrow a = a \& b$

$\wedge = \rightarrow a \wedge = b \rightarrow a = a \wedge b$

$! = \rightarrow a ! = b \rightarrow a = a ! b$

$** = \rightarrow a ** = b \rightarrow a = a ** b$

$// = \rightarrow a // = b \rightarrow a = a // b$

$* = \rightarrow a * = b \rightarrow a = a * b$

6. Special operators :-

These are some special type of operators
Identify operators \rightarrow is, is not.

4) Explain Features of Python?

Simple:- These languages very easy to understand.

Easy to code :- It is very easy to learn and code the program. It is high level Language

Free and open source:- It is free available at official website and source code also available to public.

Object oriented language:- Python support oops and concept of classes, object, encapsulation.

GUI programming support:- Graphical user interfaces can be made using model such as pyqt5, pyqt4, wxpython or Tk in python.

Highlevel Language:- python is high level language when we write programs in python we dont need to remember system Architecture. nor we need to manage Memory.

Extensible Feature:- python is extensible language. we can write our python code into c or c++ language.

portable:- python is portable language. A property of program that can run on more than one kind of computer.

Integrated:- we can easily integrate python with other languages like c, c++.

Interpreted language:- python starts to execute exactly line by line at a time.

5. Justify why python is interactive interpreted languages?

unlike c, c++, python is interpreted object oriented programming language. unlike c language which is compiled programming language. These compiler translate whole code in one go rather than line by line. This is reason why c language all the errors are listed during compilation only.

An interpreter is translator in computers language which translate given code line by line in Machine Readable bytecode.

python is interactive. when python statement is entered and followed by return key - if appropriate result will be printed on screen immediately on the next line.