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Assignment - 2

1. What r the data types in python ? Explain

Data types are the classification or categorization of data items. Data types represent a kind of value which determines what operations can be performed on that data Numeric, non-numeric and Boolean (true/false) data are the most used data types. However, each programming language has it own classification largely reflecting its programming philosophy

python has the following standard or built-in data types:-

- Numeric

A numeric value is any representation of data which has a numeric value. python identifies three types of numbers

* Integer: Positive or negative whole numbers (without a fractional part)
* Float: Any real number with a floating point representation in which a fractional component is denoted by a decimal symbol or scientific notation
* Complex number: A number with a real and imaginary component represented

as x+yj. x and y are floats and j is √-1 (square root of -1 called an imaginary number)

- Boolean

Data with one of 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 an error for them.

- Sequence Type

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

* String - A string value is a collection of one or more characters put in single, double or triple quotes
* List - A list object is an ordered collection of one or more data items not necessarily of the same type, put in square brackets
* Tuple - A Tuple object is an ordered collection of one or more data items not necessarily of the same type pu

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in parenthesis

2) 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 1980's history was about to be written soon after that, Van Rossum began doing its application based work in December of 1989 by at centrum Wiskunde and informatica (CWI) which is situated in Netherland. The programming language, which had the interfacing with the Amoeba Operating The language was finally released in 1991. When it was released, it used a lot fewer codes to express the concepts when we compare it with java, C++ & C

Python 3.7.3 is the latest version.

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3) Explain all the operators in python

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

*) + (adds two operands)
*) - (subtracts two operands)
*) * (multiplies two operands)
*) / (divides the first operand by the seco
*) // (floor: divides the first operand by the second)
*) % (returns the remainder when first operand is divided by the second)
*) ** (Returns first raised to power second)

- Relational Operator: Relational operator compares the value. It either returns True or False according to the condition

*) > (True if left operand is greater than the righ and visa versa)
*) == (True if both operands are equal)
*) != (Not equal to)
*) >= (True if left operator is greater than or equal to the right and visa versa)

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- Logical operators: Logical operators perform Logical AND, Logical OR and Logical NOT operations.
  *) and (True if both the operands are true)
  *) or (True if either of the operands are true)
  *) not (True if operand is false)

- Bitwise operators: Bitwise operators acts on bits and performs bit by bit operator
  *) & (Bitwise AND)
  *) | (Bitwise OR)
  *) ~ (Bitwise NOT)
  *) ^ (Bitwise XOR)
  *) >> (Bitwise right shift x>> & Bitwise left shift x)

- Assignment operators: Assignment operators are used to assign values to the variables
  *) = (Assign value of right side of expression to left side operand)
  *) /= (operand with right operand and then assign to left operand
  *) +=, -=, *=, %=, //=, **==, &=, |=, ^=, >>=

4) Explain the features of Python

i) Easy to code
ii) Free and open source
iii) Object - Oriented Language
iv) GUI programming Support
v) High - Level Language
vi) Extensible feature
vii) Python is Portable language
viii) python is Integraded language
xi) Interpreted language
x) Large Standard library
xi) Dynamically Typed language

- Easy to code :- phython is high level programming language. Phython is very easy to learn language as compared to other language like C, C#, java, C++ etc.
- Free and open source :- Python language is freely available at official website and

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you can doconload it from the link

- Object-Oriented language:- One of the key features of python is Oject-Ouerded language. python supports concepts of classes, objects etc---
- GUI Programming support:- Graphical users interfaces can be made using a module such as PyQt5, PyQt4, wxPython or Tk in python. PyQt5 is the most popular option.
- High-level language:- Python is a high-level language. when we write program in python, we do not need to remember the system architecture, nor do we need to manage the memory
- Extensible feature:- python is a Extensible language. we can write our some python code in C or C++ and also we can compile that code in C or C++ language
- Python is Portable language: python language is also a portable language. for example, if we have python code for windows & if we want to run this code on other platform such as Linux, Unix and Mac OS we can run this code in any platform

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- Python is integrated language :- phyton is also an integrated language because we can easily integraded python with other language like C & C++
- Dynamically Typed language :- python is dynamically - typed language. That means the type for a variable is decided at run time not in advance. because of this feature we don't need to specify the type of variable

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5. justify why python is interactive interpreted language

- Interactive language :-

Python is interactive, when a Python statement is entered, and is followed by the return key, if appropriate, the result will be printed on the screen, immediately in the next line. This is particularly advantageous in the debugging process. In interactive mode of operation, python is used in a similar way as the unix command line or the terminal.

Interative Python is very much helpful for debugging purpose. it simply returns the >>>

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- Interpreted language:-

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 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 bytecodes. And if any error is encounted it stops the translation until the error is fixed. Unlike C language., which is a compiled programming language.