1. What 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 Bodean (true/false) data are the most used data types.

Numeric - A numeric value is any representation of data which has a numeric value.

→ Python identifies three types of numbers:

* Integer : Positive and negitive values.

* Float : real numbers with a floating point representation in which a fractional component is denoted by decimal symbols

* Complex number :

↳ A num with a real and imaginary componenit represent as: x+yj.

Bodean - 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 charailers put in single, double or triple quotes.

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* 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 / more data items, not necessarily of the same type, put in parentheses.

Dictionary:

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

{1: "Steve", 2: "Bill", 3: "Ram", 4: "Farha"}

* type() function

2. Briefly explain history of python?

Python was conceived in the late 1980s by Guido van Rossum at Centrum Wiskunde & 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.

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Language designers: Guido van Rossum

Language paradigms: Interpreted language, Dynamic Programming language,

First appered: 1990; 30 years ago.

OS: Linux, macOS, windows and more

3. Explain all the operators in python?

Python Operators:

(1) Arithmetic Operators: These are used to perform mathematical operations like addition, subtraction, multiplication and division.

+ → x+y, * → x*y, // → x//y, ** → x**xy

- → x-y, / → x/y, % → x%y,

(2) Relation Operator: These will compare the values. It either returns True or False according to the condition.

> → x>y, == → x==y, != → x!y

>= → x>=y, - -

(3) Logical Operators :- These perform Logical AND, Logical OR and Logical NOT operations.

⇒ and → x and y

⇒ or → x or y

⇒ not → not x

④ Bitwise Operators : these operators acts on bits and performs bit by bit operation.

⇒ & → x & y

| → x | y

~ → ~x

^ → x ^ y

>> → x >>

⑤ Assignment Operators : These are used to assign values to the variables.

⇒ = → x = y + z , ⇒ += → a += b
↳ a = a + b

⇒ -= → a -= b , ⇒ *= → a *= b
↳ a = a - b ↳ a = a * b

⇒ /= → a /= b ⇒ %= → a %= b
↳ a = a / b ↳ a = a % b

⇒ //= → a //= b ⇒ **= → a **= b
↳ a = a // b ↳ a = a ** b

⇒ &= → a &= b ⇒ != → a != b
↳ a = a & b ↳ a = a != b

⇒ ^= → a ^= b ⇒ >>= → a >>= b
↳ a = a ^ b ↳ a = a >> b

⑥ Special operators : There are some special type of operators like -

identity operaters → is, isnot

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4 : Explain the features of python ?

① Simple → This language is very easy to understand.

② Easy to code → it is very easy to learn and code the program, it is high level language.

③ Free and Open Source → it is freely available at official website and. This means that source code is also available to the public

④ Object-Oriented Language → One of the key feature of python is OOP's programming. Python supports OOP's and concepts of classes, objects and encapsulation etc--

⑤ GUI Programming Support → Gratical Users interfaces can be made using a model such as PyQt5, PyQt4, wxPython or Tk in python.

⑥ High level language → Python is high level language. when we write programs in python, we do not need to remember the system architecture, nor do we need to manage the memory.

⑦ Extensible feature → Python is Extensible language we can write our some python code into c or c++ language.

⑧ Portable → Python is a Portable language.
A property of a program that can run on more than one kind of Computer.

(9) Integrated :→ It is an integrated language because we can easily integrated python with other language like, c, c++, etc.

(10) Interpreted language → Python is an interpreted language. because python code is exactly line by line at a time.

5 : justify why python is interactive interpreted language ?

⇒ Unlike c/c++ etc, python is an interpreted object-oriented programming language.—
unlike c language, which is a compiled programming language. The compiler translates the whole code in one go rather than line by line. This is the reason why in c language, all the errors are listed during compilation only.

An interpreter is a translator in computer's language which translate the given code line by line in machine readable bytecodes

⇒ python is a interactive. when a python stmt is entered, and is followed by

the Return key, if appropriate, the result will be printed on the screen, immediatly, in the next line.

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