Assignment - 2

1. What are the data types in python ? Explain

→ Integers, floating point numbers and complex numbers fall under python numbers

Integers:-

Integers can be of any length, it is only limited by the memory available.

floating - point numbers

A floating - point number is accurate up to 15 decimal places. Integers and floating points are seperated by decimal points. 1 is an integer, 1.0 is a floating point number

Complex :-

It can be written in the form $x+yj$, where

x is the real part

y is the imaginary part

Text type :- str

Sequence type :- list, tuple, range

Mapping type : dict

Set type : set, frozenset

Boolean type : bool

Binary type bytes, bytearray
memory view

Numbers :- Number data types store numeric values. Number objects are created when you assign a value to them.

Strings :- strings in python are identified as a contiguous set of characters represented in the quotation marks Python allows pair of single or double quotes

Lists :- Lists are the most versatile of python's compound data types. A list contains items seperated by comma and enclosed within square brackets ([])

Tuples :- A tuples is another sequence datatype that is similar to the list. A tuple consist of number of values seperated by commas. unlike lists, however, tuples are enclosed within parenthesis

Dictionary :- Python's dictionaries are kind of hash-table type. They work like associative arrays or hashes found in Perl and consist of key value pairs. A dictionary key can be almost any python type but are usually numbers or strings. Values, on the other hand can be any arbitary Python object. they are enclosed by curly braces.

(2) Explain Briefly history of python

→ Python is a widely used general-purpose, high level programming language

* It was Intially designed by Guido Van Rossum in 1991 and developed by python
* Python is named after a TV show called monty python's flying circus and not after python the snake
* It was mainly developed for emphasis on code readbility and its syntax allows programmers to express concept in fewer lines of code
* For various purposes such as developing, scripting generation and software testing, this language is utilized.
* Python has been an inspiration for many other coding languages such as Ruby, Cobra, Boo, Coffee Script, ECMAScript, Groovy, Swift Go, OCaml, Julia etc

③ Explain all the operator in python

* Arithmetic operators:-

Arithmetic operators are used to perform mathematical ope
like addition, subtraction, multiplication etc

operator	Meaning	Example
+	Add two operands or unary plus	x+y+2
-	Subtract right operand from the left or unary minus	x-y-2
*	Multiply two operands	x*y
/	Divide left operand by the right one (always results into float)	x/y
%	Modulus remainder of the division of left operand by the right	x%y
//	floor division that results into whole no adjusted to the left in the number line	x//y
**	Exponent left operand raised to the power of right	x**y

* Comparision operators

Comparision operators are used to compare values. It reti
either True or false. according to the condition.

operator	Meaning	Example
>	Greater than - True if left operand is greater than the right	x > y
<	less than if left operand is less than the right	x < y
==	Equal to - True if both operands are Equal	x == y
!=	not equal to - True if operands are not Equal	x != y
>=	Greater than or Equal to - True if left operand is greater than or equal to the right	x >= y
<=	less than or Equal to - True if left operand is less than or equal to the right	x <= y

Logical operators :-

And, or, not

operator	Meaning	Example
and	True if both the operands are true	x and y
or	True if either of the operands is true	x or y
not	True if operand is false (complements the operand)	not x

Bitwise operators :-

Bitwise operators act on operands as if they were strings of binary digits. They operate bit by bit, hence the name

ex:- 2 is 10

7 is 111

operator	Meaning	Example
&	Bitwise AND	x & y = 0 (0000 0000)
|	Bitwise OR	x | y = 14 (0000 1110)
~	Bitwise NOT	~x = -11 (1111 0101)
^	Bitwise XOR	x ^ y = 14 (00001106
>>	right shift	x >> 2 = 2 (00000010
<<	left shift	x << 2 = 40 (0010 1000

Assignment operators :-

They are used in python to assign values to variables.

operator	Example	Equivalent to
=	x = 5	x = 5
+=	x += 5	x = x+5
-=	x -= 5	x = x-5
*=	x *= 5	x = x*5
/=	x /= 5	x = x/5
%=	x %= 5	x = x%5
//=	x //= 5	x = x//5
**=	x **= 5	x = x**5

%=	x %=5	x = x%5
|=	x |=5	x = x|5
^=	x ^=5	x = x^5
>>=	x >>=5	x = x>>5
<<=	x <<=5	x = x<<5

④ Explain the features of python.

*

1. Easy to code:-

Python is high level programming language. python is very Easy to learn language as compared to other language like C, C++, Java etc. It is Easy to code in python language and anybody can learn python basic in few hours or days.
It is also developer friendly language

2. Free and open source:-

Python language is freely available at official website. Source code is also available to the public.

3. object-oriented language:-

Python Supports object oriented language and concepts of classes objects encapsulation etc.

4. GUI progeamming Suppost:-

It is the most popular option for creating graphical apps with Python.

5. High-level language

When we write progeame in pylton we need to remember the system architecture, nor we need to manage the memory.

6. Extensible feature:-

Python is a Extensible language. we can write our some python code into C or C++ language and also we can compile that code in C C++ language

* Portable language :-

For example if we have python code for windows and if we want to run this code on the other platform such as linux, unix, and Mac then we do not need to change it, we can run this code on any platform

* Integrated language :-

Because we can easily integrated python with other languages like C, C++ etc.

* Interpreted language

It is executed by line by line at a time. The source code of python is converted into an immediate form called bytecode

* large standard library

There are many libraries present in python for such as regular Expressions, unit-testing, web browsers etc.

(5) justify why python is interactive interpreted language.

Interpreted :-

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

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 of the terminal