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Assignment - 2

1) What are the data types in python? Explain

Ans :: \Rightarrow Numeric data type

① int \rightarrow Integer is a whole number, without decimals and unlimited length.

Ex :: $x = 20$

② float \rightarrow Floating point number is a number, positive or negative, containing one or more decimal.

Ex :: $x = 20.456$

③ complex \rightarrow complex numbers are written with a "j" as a imaginary part.

Ex :: $z = 3 + 5j$

\Rightarrow Text Data type

① String \rightarrow string literals in python are surrounded by either single quotation marks or double quotation marks.

Ex :: $y = \text{"Hello world"}$

\Rightarrow Boolean data type

bool \rightarrow only two expressions true or false.

If it runs the condition statement it gives true or false.

Q Explain the history of python?

Ans: python has become one of the most introducing programming language of our time. It was conceived by Guido van Rossum at CWI in the Netherlands during the late 1980's.

The most Amazing story is that he created python using solely his computer. His office was closed and all he had was this simple machine and his brilliant mind. Thus, the first version of the program first appeared in 1991, that is 29 years ago. python was ironically named after the famous british sketch comedy series "Monty python's flying circus" as the founding father was a big fan.

In february 1991, the first public version of python numbered 0.9.0, was posted the usenet alt. source form.

The development team moved to python Beopen.com in 2000. And that is where python 2.0 was released.

new python succeeded in releasing the new major version, python 3.0 in 2008. And followed by upcoming versions.

3) Explain all the operators in python?

Ans:- 1) Arithmetic operators :: used to perform common mathematical operators, They are.

<u>operator</u>	<u>Name</u>	<u>Example</u>
+	Addition	$x+y$
-	Subtraction	$x-y$
*	Multiplication	$x*y$
/	Division	x/y
%	Modulus	$x\%y$
**	Exponentiation	$x**y$
//	Floor division	$x//y$

2) Assignment operators :: To Assign values to variable

<u>operator</u>	<u>Example</u>	<u>Same As</u>
=	$x=5$	$x=5$
+=	$x+=3$	$x=x+3$
-=	$x-=3$	$x=x-3$
=	$x=3$	$x=x*3$
/=	$x/=3$	$x=x/3$
%=	$x\%=3$	$x=x\%3$
//=	$x//=3$	$x=x//3$
=	$x=3$	$x=x**3$
&=	$x\&=3$	$x=x\&3$
=	$x =3$	$x=x 3$

$\wedge =$	$x \wedge = 3$	$x = x \wedge 3$
$\gg =$	$x \gg = 3$	$x = x \gg 3$
$\ll =$	$x \ll = 3$	$x = x \ll 3$

3) Comparison operators :

<u>operator</u>	<u>name</u>	<u>Example</u>
$=$	Equal	$x = y$
$!=$	Not Equal	$x != y$
$>$	greater than	$x > y$
$<$	lesser than	$x < y$
$>=$	greater than or equal to	$x >= y$
$<=$	lesser than or equal to	$x <= y$

4) Logical operators :

<u>operator</u>	<u>Description</u>	<u>Example</u>
and	Returns true if statement is true	$x < 5$ and $y > 2$
or	Returns true if one statement is true	$x < 5$ or $y > 2$
not	Reverse the result if the result is True, returns False	$\text{not}(x < 5)$

5) Identity operators :-

<u>operators</u>	<u>description</u>	<u>example</u>
is	Returns true if both variables are the same object	x is y
is not	Returns true if both variables are not the same object	x is not y

6) python membership operators

<u>operators</u>	<u>operators</u>	<u>description</u>	<u>example</u>
	in	Returns true if a sequence with the specified value is present in the object	<u>x in y</u> x = ["apple", "ball"] <u>print ("ball" in x)</u> True
	not in	Returns true if the specified value is not in the object	x not in y

7) Bitwise operators

operator	Name	Example
&	AND	$x \& y$
	OR	$x y$
^	XOR	$x ^ y$
~	NOT	$x \sim y$
<<	left shift	$x \ll y$
>>	Right shift	$x \gg y$

4) Explain the features of python?

Ans :: python provides lots of features that are listed below

① Easy to learn and use :: python is easy to learn and use.
It is develops friendly and high level programming language.

2) Expressive language ::
python language is more expressive means that is more understandable and readable.

3) Interpreted language ::
python is an interpreted language i.e interpreted executes the code line by line at a time. This makes debugging easy and thus suitable for beginners.

4) cross-platform language :-

python can run equally on different platforms such as windows, linux, unix etc, so we can say python is a portable language.

5) Free and open source :-

python language is freely available at ~~at~~ ^{official} ~~official~~ web address

The source code is also available. Therefore it is open source.

6) Object-oriented language :-

python supports object oriented language and concepts of classes and objects come into existence.

7) Extensible :-

It implies that other languages such as c/c++ can be used to compile the code and thus it can be used further in our python code.

8) Large standard library :-

python has a large and broad library and provides such set of module and function for rapid application development.

9) GUI Programming support :-

Graphical user interfaces can be developed using python.

10) Integrated:

It can be easily integrated with language like C, C++, Java etc.

5) Justify why python is interactive interpreter language?

Ans :- (.py) Files are run in the python interpreter Interactive mode is a command line shell which gives immediate feedback for each statement, while running previously fed statement, in active memory. As new lines are fed into the interpreter, the fed program is evaluated both in part and in whole.