FULL STACK DATA SCIENCE COURSE

PYTHON BASIC ASSIGNMENT 1

1. In the below elements which of them are values or an expression? eg:- values can be integer or string and expressions will be mathematical operators.

\* - Expression

'hello' - Value

-87.8 - Value

- - Expression

/ - Expression

* - Expression

6 - Value

2. What is the difference between string and variable?

Variable- Variable is a local instance or a global instance where you can store a data.It is a reserved memory location to store values. Variables are references that you create to refer to other values in your program later.

Example a=10

x=’abc’ ; here a,x are variable storing the date that is the values 10 and abc

String - Strings is a data type for a a sequence of characters .In addition to letters, they can also include numbers, spaces, punctuation, and even line breaks (using ‘\n’ for new line

A string is defined by putting single quotes (‘ ’) or double quotes (“ “) around whatever we want to classify as a string. The string data type is primarily used for reading and writing data.

Example – ‘python’

“data\_science”

3. Describe three different data types.

1. **Numeric**- numeric data type represent the data which has numeric value. Numeric value can be integer, floating number or even complex numbers. These values are defined as int, float and complex class in Python.

**Integers**– This value is represented by int class. It contains positive or negative whole numbers (without fraction or decimal).

Example– 3, 10 , -4, 0.

**Float**– This value is represented by float class. It is a real number with floating point representation. It is specified by a decimal point.

Example- 23.56

**Complex Numbers** – Complex number is represented by complex class. It is specified as *(real part) + (imaginary part)j*.

Example – 2+3j

2. **Sequence** - sequence is the ordered collection of similar or different data types. Sequences allows to store multiple values in an organized and efficient fashion. There are several sequence types in python

a)String b) List c)Tuple

a)**String**- In Python, strings are arrays of bytes representing Unicode characters. A string is a collection of one or more characters put in a single quote or double-quote.

It is represented by str class.

x=’abc to xyz’

w=”234 is my new number”

a=”12ab to 34mu”

b)**List** – List is a ordered collection of data. It is very flexible as the items in a list do not need to be of the same type. It is represented in [](square brackets)

l=[“full stack”]

a=[“data”,”science”]

r=[3,4,2,5]

c)**Tuple**- It is an ordered collection of Python objects. Tuples are immutable i.e. tuples cannot be modified after it is created. It is represented by tuple class.

It is represented in ().

a=(2,4,2,5)

b=(“data”,”science”)

3.**Set**- It is an unordered collection of data type that is iterable, mutable and has no duplicate elements. The order of elements in a set is undefined though it may consist of various elements.

Example- a= set ()

b= set(“python”)

c= set ([“data” ,”science” ,1,3,4])

4.Dictionary- Python is an unordered collection of data values, used to store data values like a map, which unlike other Data Types that hold only single value as an element, Dictionary holds key value pair. Key-value is provided in the dictionary to make it more optimized. Each key-value pair in a Dictionary is separated by a colon : whereas each key is separated by a ‘comma’.

Example- Dict={}

a={“data”,”science”,”2021”}

4. What is an expression made up of? What do all expressions do?

An expression is a construct made up of variables, operators, and method invocations, which are constructed according to the syntax of the language, that evaluates to a single value. Expressions are representations of value.

| Operator | Token |
| --- | --- |
| Add | + |
| Subtract | - |
| Multiply | \* |
| Power | \*\* |
| Integer Division | / |
| Remainder | % |
| Decorator | @ |
| Binary left shift | << |
| Binary right shift | >> |
| And | & |
| Or | \ |
| Binary Xor | ^ |
| Binary ones complement | ~ |
| Less than | < |
| Greater than | > |
| Less than or equal to | <= |
| Greater than or equal to | >= |
| Check equality | == |
| Check not equal | != |

5. This assignment statements, like spam = 10. What is the difference between an expression and a statement?

Statements represent an action or command e.g print statements, assignment statements. Expression is a combination of variables, operations and values that yields a result value. An expression is something that can be reduced to a value.

Spam=10 is a statement

32+6\*2+a=x is a expression which yields a result/value

6. After running the following code, what does the variable bacon contain?

bacon = 22

bacon + 1

answer= 23

7. What should the values of the following two terms be?

'spam' + 'spamspam' = ‘spamspamspam’

'spam' \* 3 = ‘spamspamspam’

8. Why is eggs a valid variable name while 100 is invalid?

Variable names cannot start with a integer or a special character except underscore.

9. What three functions can be used to get the integer, floating-point number, or string version of a value?

a=int(input("value of a"))

b=float(input("value of b"))

c=str(input("value of c"))

10. Why does this expression cause an error? How can you fix it?

'I have eaten ' + 99 + ' burritos.'

Concatenation can be done only on string to string but not in combination of string and integer. Therefore here the integer 99 has to be converted into string by writing it in single quotes.

Input- 'I have eaten ' +’ 99’ + ' burritos.'

Output- 'I have eaten 99 burritos.'