**Python Data Types - Beginner Questions**

1. What is a data type in Python?

* A data type in python defines what kind of value a variable holds and what operations can be performed. python is a dynamically typed languge, meaning u don’t need to declare the data type of a variable explicity it is automatically inferred when u assign a value.

1. List all the data types that we have in Python?

* Text type : str- string(sequence of characters)
* Numeric types : int-integer numbers ex:1,2
  + - Float- floating data type (decimals) ex:3.13
    - Complex-complex numbers ex:a+bj,2+3j
* 3.sequence types: 1.List - orderd, mutable ex:[1,2,3]
  + - 2.tuple - orderd, immutable ex:(1,2,3)
    - 3.range -sequence of numbers ex: range(5)
* 4.dict(dictionary):key-value pairs:
  + - Ex:{“name”: “saira”, “age”:20}
* 5.set:unordered,unique items, finite set
  + Ex:{1,2,3}
* 6.Frozen set: immutable set ex: frozenset([1,2,3])
* 7.Boolean type: true or false
* 8.None type: Represents no value ex: none

1. What is the difference between mutable and immutable data types?

Mutable- Changeable: can be changed a creation

Ex :list, dict, set

Immutable-can’t changeable :ex-tuple,str

1. What is the difference between int, float, and complex?

* Int: represents integer numbers
* Float: represents numbers with decimal points
* Complex: represents a number with real part and imaginary part

1. Which data type is used to represent text in Python?

In python, text is represented using the string data type

1. What is the output of type(521) and type("521")?

* type(521) #output: <class ‘int’>
* type(“521”) #output: <class ‘str’>

1. What is the difference between list, tuple, and set?
   * List:
   * 1.Written using square brackets[]
   * 2.orderd,mutable,allows duplicate values
   * 3. we can use indexing
   * Tuple:
   * Written using parenthesis()
   * Orderd, Immutable, allow duplicate values
   * We can use indexing

* Set:
  + 1.written using curly braces{}
  + 2,unordered,mutable,doesn’t allow duplicate values.

1. How is a dictionary different from a list?

* List: orderd collection accessed by index and stores a sequence of values.
* Dictionary: unordered collection of key value pairs.\
* Keys are unique and values are changeable.

1. What is the default data type of a number with a decimal point?

* float

1. Declare variables of type int, float, string, and complex.
2. a = 10
3. b = 12.5
4. c = "saira"
5. d = 5+3j
6. print(a)
7. print(b)
8. print(c)
9. print(d)

11.Take any 3 datatypes examples and check type of each variable using the type() function.

1. a = 10
2. b = 12.5
3. c = "saira"
4. d = 5+3j
5. print(type(a))
6. print(type(b))
7. print(type(c))
8. print(type(d))

output:

<class 'int'>

<class 'float'>

<class 'str'>

<class 'complex'>

12.What happens if you try to add a string and an integer?

* A = “hello” +5 #error
* Type error: can only concatenate str to str

13.What is the output of:

* 1. x = [1, 2, 3]
  2. y = (1, 2, 3)
  3. z = {1, 2, 3}
  4. print(type(x), type(y), type(z))

output: <class 'list'> <class 'tuple'> <class 'set'>

14.Can you change a value in a tuple once it is defined? Why or why not?

* No, u can’t change a value in a tuple bcoz tuples are immutable.

15.Is reassignment possible for immutable datatypes?

* Yes,reassignment is allowed but creates a new object in same memory
* a = 10
* a = 20 # new object created