#### 1. Name four of the main data types in Python

Numbers, strings, lists, dictionaries, tuples, files, and sets are generally considered the main types of data. Types, None, and Booleans are sometimes also classified this way. The integer, floating-point, complex, fraction and decimal are numerical data types and simple strings and Unicode strings in Python 2 and text strings and byte strings in Python 3 are the types of string data types.

#### 2. What does immutable mean and what three types of Python core data types are considered immutable?

An immutable data type is a type of object which cannot be modified after its creation. Numbers, strings, and tuples in Python fall into this category. Although you cannot modify an immutable object in place, you can always create a new one by running an expression.

#### 3. What does mapping mean and what kind of data type is based on mapping?

The term mapping refers to an object that maps keys to associated values. The Python dictionary is the only type of mapping in the base typeset. Mappings do not maintain any left-to-right position order; they support access to stored data by key, as well as type-specific method calls.

#### 4. What is polymorphism and why should you care?

Polymorphism means that the meaning of an operation (like a+) depends on the objects being operated. This turns out to be a key idea behind good use of Python, not coercing code to specific types makes that code automatically applied to many types.

**5.What are types of operators used in python?**

* Arithmetic Operators
* Comparison Operators
* Python Assignment Operators
* Logical Operators or Bitwise Operators
* Membership Operators
* Identity Operators

**6.what is a built in function that python uses to iterate over a number sequence?**

Range() generates a list of numbers, which is used to iterate over for loops.

The range() function accompanies two sets of parameters.

range(stop)

stop: It is the no. of integers to generate and starts from zero. eg. range(3) == [0, 1, 2].

range([start], stop[, step])

Start: It is the starting no. of the sequence.

Stop: It specifies the upper limit of the sequence.

Step: It is the incrementing factor for generating the sequence.

**7.How does for loop and while loop differ in python and when do you choose to use them?**

For loop is generally used to iterate through the elements of various collection types such as List, Tuple, Set, and Dictionary.

While loop is the actual looping feature that is used in any other programming language. This is how Python differs in handling loops from the other programming languages.

### **8. Which conditional statements are available in Python ?**

Conditional statements are the programming statements which alter the course of execution based on a condition.

Like other functional programming languages, Python has following conditional statements.

* [Python If](https://www.tutorialkart.com/python/python-if-conditional-statement/)
* [Python If-Else](https://www.tutorialkart.com/python/python-if-else/)
* [Python For](https://www.tutorialkart.com/python/python-for-loop/)
* [Python While](https://www.tutorialkart.com/python/python-while-loop/)

Conditional Statements are also called Control Statements.

### **9. What is the syntax for Python If statement ?**

Python If statement contains if keyword, condition followed by colon symbol (:), and then the statements of if block with indentation.

|  |
| --- |
| if condition:      statement1      statement2      statementN |

Condition should evaluate to a boolean value (true or false).

**10. How is the Python switch statement used?**  
This is a trick question, there is no built-in switch statement in Python, which is unusual. A switch statement can be easily created using if-elif using lambda or with Python dictionaries.

**11.  What keyword is used for looping?**  
A) while  
B) for  
C) loop

Answer: for

#### 12. What is the Python syntax for a for loop?

The for loop is a programming construct that allows you to iterate over an arbitrary range of values, mapping them to the required actions.

It can be thought of as an extension of the mathematical notion of a for loop, which is defined as "a control structure that enables one to iterate (repeat) a process (such as counting or summing) while varying the process's start value (or its end point), step size, and/or direction."

- The syntax for Python for loops is:

for x in range(y): do something

#### 13. What are the advantages of using a for loop in Python?

A for loop is a type of loop that executes a set of instructions repeatedly. It uses the following syntax: **for x in range(y): do something**

This type of loop has the following properties:

* For loops are good because they can make your code more readable and easier to follow.
* They also make sure that certain instructions are executed at least one time.

**14. What are the disadvantages of using a for loop in Python?**

The for-loop is one of the most basic constructs in programming. However, this construct has its own disadvantages.

1. If you don't know the upper-bound of your loop, you have to keep track of it by hand or break out of your loop early.
2. You can't use a break statement to escape from a nested loop.

**15. How can I use a break statement in my Python for loops?**

A break statement can be used to terminate a loop. It is often used when the programmer needs to stop iterating through the data and instead go back to checking for other conditions.

An example of such a situation is when we need to break out of a for loop if an exception occurs. This will allow us to take different paths depending on whether or not we want to handle that exception, or ignore it and continue with whatever else follows after the for-loop.

Code Example for Break Statement is as follows:

animals = ["dog","cat","sheep","tiger","lion"]

 for x in animals:

 print (x)

 if x == "tiger":

 break;

### 16. **What are functions in Python?**

Functions in Python refer to blocks that have organized, and reusable codes to perform single, and related events. Functions are important to create better modularity for applications that reuse a high degree of coding. Python has a number of built-in functions like print(). However, it also allows you to create user-defined functions.

#### 17. Define self in Python.

Self is an instance of a class or an object in Python. It is included as the first parameter. It helps differentiate between the methods and attributes of a class with local variables.

**18. What is the Pass statement?**

A Pass statement in Python is used when we cannot decide what to do in our code, but we must type something to make it syntactically correct.

**19. What are the limitations of Python?**

There are limitations to Python, which include the following:

1. It has design restrictions.
2. It is slower when compared with C and C++ or Java.
3. It is inefficient for mobile computing.
4. It consists of an underdeveloped database access layer.

**20. Do runtime errors exist in Python? Give an example.**

Yes, runtime errors exist in Python. For example, if you are duck typing and things look like a duck, then it is considered a duck even if that is just a flag or stamp. The code, in this case, would be a run-time error. For example, Print “Hackr io” would result in the runtime error of the missing parenthesis that is required by print ( ).