PYTHON INTERVIEW QUESTION

1) How is Python different from Java?

Java and Python are way different from each other, but both of them can be useful tools for high-tech developers. Also, Python is quite easies to master than Java if you are new to learning how to write programs. Below mentioned are the few points which clearly shows that python is different from Java. Here they are-

- **Dynamic vs. Static Typing:**
  The very first difference between both of the powerful languages is the way they handle variables individually. Java uses static typing in which it wants the user to define the variable type when the user initially declare it and further, will not enable you to change the type later on in the program. Whereas, Python utilized dynamic typing, in which user is free to change the variable type.
- **Braces vs. Indentation:**
  Python make use of indentation so as to separate into blocks. Whereas, Java utilizes curly braces to clearly define the starting and end of every function as well as class definition.
- **Speed**
  The plus point of the Python programming language is that its programs tend to run quite faster than the Java programs.

2) Explain the difference between a list and the tuple?

There are many differences that makes list different from tuple. They are-

- List is mutable, which means that it can't be utilized as a key in a dictionary. Whereas, tuples are immutable due to which you can't change the value in a tuple once you have made it.
- The accurate syntax of tuples is displayed by parentheses {} while the accurate syntax of lists is displayed by square brackets [].
- Tuples are varied data structures (i.e., their entries contain diverse implications), whereas lists are uniform series.
- Tuples are for fixed length, lists are for uneven length.
- Tuples illustrate structure while lists illustrate order.
- Tuples contain O(N) insert, append, and delete performance while Lists contain O(1) insert, append, and delete performance.

3) How Python performs Compile-time and Run-time code checking?

Some portion of the Python coding is executed at compile time, but almost all the checking like name, type and so on, are deferred until code execution. So, if the Python code references a user-defined function that hardly exists, the code will run effectively. The Python code will be unsuccessful just with an exception while the code execution path is not present.

4) Point out some of the key features of Python?

- Python is basically an interpreted language, which means that unlike other programming languages and its variants, Python doesn't need compiling before being run. Other interpreted languages include *Ruby and PHP*.
- Another feature that makes Python special is that its dynamically typed. This simply means that one doesn't need to state the types of variables when you declare them or anything like that.
- It is very well suited to object orientated programming. It allows the definition of classes along with inheritance and composition. Python does not have access specifiers like public, private or C++, the justification for this point is given as "we are all adults here"
- In this programming language the functions are all first-class objects. As the language can be assigned to variables, returned from other functions and passed into functions. Classes are also first class objects

5) What is the parameter passing mechanism in Python?

Python consists of two parameter passing mechanism named as-

- **Pass by references:** Every parameter (argument) is passed "by reference" to the functions by default. However, in case you modify the value of the parameter in the function, the impact can also be reflected in the called function.
- **Pass by value:** The pass by value is that at whatever time you pass the parameters to functions which are of the type such as strings, numbers, tuples. This is due to the immutable nature of them.

6) What are the different uses of help() and dir() functions in Python?

dir() and help(), both the functions are accessible from the Python interpreter and used are generally used for viewing a consolidated dump of built-in functions.

- Dir() function: The dir() function is used to display the defined symbols.
- Help() function: This function is mainly used to display the string of documentation and also the facilitates you to see the help related to modules, keywords, attributes, etc.

7) What is the dictionary in Python?

In Python, the built-in data-types is called a **dictionary**. It is known to define the one-to-one relationship between the values and the keys. Dictionaries contain a pair of keys and their corresponding values. Dictionaries are generally indexed by the keys.

8) What are the key features of using python?

- Python is the most flexible language due to its dynamic nature.
- Functions in Python are first-class objects. Python follows OOPS paradigm that makes it more real-time coding experience.
- Python code is very clean by using indentation syntax. So its code is more clear than any other language.
- More natural language: you can express your ideas in more natural language compared to other languages.
- It has a huge community and growing faster so that it can be best promising language in the world.
- It has large number of packages based on almost every area of programming like machine learning, AI,
- Python has lots of interesting features you can check out on the official website.

9) What is a negative indexing in python?

Python sequences are managed by integer values (-ve 0 -ve). They can be accessed both wise. Positive indices start with 0 and continue to 1, 2, 3, …. N and **Negative indices** start with -1 and point to the last index.

```
Name = "python"

Name[-1] /////// n

Name[:-1]  ////// python
```

10) What do you understand by mutable and immutable in python?

Python sequences are mutable if we can change the data after initialization whereas sequences that can not be changed once created then they immutable.
In Python, tuples are immutable whereas lists and dictionaries are mutable.