**PYTHON BASIC INTERVIEW QUESTIONS**

**Q**: What is Python?

**A**: Python is a programming language. It allows you to control the computer. The benefits of Pythons are that it is simple and easy, portable, extensible.

**Q**: What are the main differences of Python from other programming language?  
**A**: Programs can be developed very quickly with this language. In addition, the simple and clean syntax of the Python programming language has made it a preferred language by many programmers. It's easy to write programs and read a program written by others. It has a wide range of countless libraries. It has build-in data structure and also it is free and open source programming language. So, it has been widely used - especially in Data Science - and has received lots of demands in recent years.

Key Words : simple, clean syntax, easy to write, easy to read a program written by others, wide range of libraries.

Q: What is PEP 8?  
A: PEP stands for Python Enhancement Proposal. PEP 8 is a coding convention, a set of recommendation, about how to write your Python code more readable. In other words, PEP 8 is a document that gives coding conventions for the Python code comprising the standard library in the main Python distribution.

Q: What are the comments and how do you write it in Python?  
A: Comments are used to explain code when the basic code itself isn't clear. Python ignores comments, and so will not execute code in there, or raise syntax errors for plain English sentences. Comments in Python start with a # character. '#' character converts all subsequent characters to the comment form that Python does nothing.

# this is a single line comment

print("Hello World!") # this is an inline comment

Q: What is docstring in Python?  
A: Docstrings are - unlike regular comments - stored as an attribute of the function or the module they document, meaning that you can access them programmatically. Docstring runs as an explanatory text of codes and it should be written between triple quotes.

Q: Which of the following is an invalid statement?  
A:  
a) x, y, z = 1, 22, 333  
b) x\_y\_z = 1\_234\_567  
c) xyz = 1234567  
**d) x y z = 111 222 333**  
  
Spaces are not allowed in variable names

Q: What are the numerical data types in Python and their properties?  
A:

* **Integers :** they are whole numbers (positive, negative or zero), including no decimal point.
* **Floats :** they stand for real numbers with a decimal point.
* **Complexes :** they are written in the form, **x + yj** , where x is the real part and y is the imaginary part.

Q: What are the basic data types except the numerical and collection types?  
A: **String** and **Boolean** types.

Q: Describe the Boolean types in detail.  
A: **Boolean** types are called bool and their values are the two constant objects **True** and **False**. They are used to represent truth values (other values can also be considered false or true).  
  
In numeric contexts (for example, when used as the argument to an arithmetic operator), they behave like the integers 0 and 1, respectively.  
  
**Bools** are important data types that are widely used in Python as they can find use in every aspect of our daily lives. For example, imagine, whether the TV is turned on or off in your home or if the weather is rainy can be explained easily with bools.

**Q**: What are the 'type conversion' and basic methods of that in Python?  
**A**: Type conversion refers to the conversion of one data type into another.  
  
**int()** – converts some data types into integer type.  
  
**float()** – converts some data types into float type.  
  
**str()** – converts any data type into string type.

Q: What is the 'variable' and how do you assign a value to it?  
A: **Variable** is a location designated where a value can be stored and accessed later. Imagine a box where you store something. That's a variable.  
  
Python variables do not need an explicit declaration to reserve memory space. The declaration happens automatically when you assign a value to a variable.  
  
To create a variable in Python, all you need to do is specify the variable name and then assign a value to it.

Q: What is a boolean in Python?  
A: Boolean is one of the built-in data types in Python, it mainly contains two values, and they are **True** and **False**.

Q: Python has three built-in Boolean operators. What are they?  
A: They are and, or, not.

Q: What is the order of priority of the logical operators?  
A:

1. not
2. and
3. or

Q: What are the values evaluated to False when applied to a Boolean operator?  
A:

* None and False.
* Zero of any numeric type: 0, 0.0, 0j.
* Empty sequences and collections: '', [], {}.
* Any remaining value is evaluated as True.

**Q**: What is the output of this Boolean logic: “True and False or not True or False” ?  
**A**: False

You should follow the order of priority. Firstly, 'not True' is evaluated. Then 'and' is

evaluated from left to right. Lastly, 'or' is evaluated as well.

**Q**: What is the output of print(str[4:]) if str = 'Python Language' ?  
**A**: on Language

**Q**: There are several ways in Python that we use when processing and using string data structures. What are the most important of these:  
**A**:

* Arithmetic syntax (**+**, **\*** and **=**),
* **%** operator formatting,
* **string.format()** method,
* **f-string** formatting.

**Q**: What is the output of print('%.5s' % x) if x = "HelloWorld!" ?  
**A**: Hello

**Q**: If you want to use multiple 'f-string formatting' lines without parentheses, what will be the other option that you can use?  
**A**: You can use backslashes 👉\ between f-lines.

**Q**: What are the string.startswith() and string.endswith() method used for? Describe how?  
**A**: To search patterns in a string there are two useful methods called startswith() and endswith() that search for the particular pattern in the immediate beginning or end of a string and return True if the expression is found.

**Q**: print("Actions speaks louder than words".upper().swapcase().capitalize()), will this code work? If yes, what the output will be? Describe how?  
**A**: Yes it works. The syntax is : string.method(). Changing the string using these methods returns string type again. The output is :  
Actions speaks louder than words  
  
Follow the additional examples below :  
  
string.upper() # returns string type,  
string.upper().lower() # also returns string type,  
string.upper().lower().title() # returns string type again.

**Q**: What does the title() method do in Python?

**A:** Python provides the title() method to convert the first letter in each word to capital format while the rest turns to lowercase.

Example:

str = 'pYtHoN lAngUaGe'

print(str.title())

The output:

Python Language

Q: In Python what is slicing?  
A: A mechanism to select a range of items from sequence types like list, tuple, strings etc. is known as slicing.

**Q**: What does list[::-1] do?  
**A**: list[::-1] is used to reverse the order of a sequence of the elements in the list.

Q: What is the difference between list and tuple?  
A:  
LISTs :

* Lists are mutable i.e they can be edited.
* Lists are slower than tuples.
* Syntax: list\_1 = [True, ‘Space’, 20]

TUPLEs :

* Tuples are immutable (tuples are lists which can’t be edited).
* Tuples are faster than list.
* Syntax: tup\_1 = (True, ‘Space’ , 20)

**Q**: Explain list, tüple, set and dictionary (collection types) in Python?  
**A**:

* **List:** Collection of items of different data types which can be changed at run time.
* **Tuple:** Collection of items of different data types which cannot be changed. It only has read-only access to the collection. This can be used when you want to secure your data collection set and does not need any modification.
* **Set:** Collection of items of a similar data type.
* **Dictionary:** Collection of items with key-value pairs.

Generally, List and Dictionary are extensively used by programmers as both of them provide flexibility in data collection.

**Q**: What are the built-in types available in Python?  
**A**:

**Here is the list of most commonly used built-in types that Python supports:**

* **Immutable built-in datatypes of Python:**
  + Numbers
  + Strings
  + Tuples
* **Mutable built-in datatypes of Python:**
  + List
  + Dictionaries
  + Sets

**Q**: What is a dictionary in Python?  
**A**: Python dictionary is one of the supported data types in Python. It is an unordered collection of elements. The elements in dictionaries are stored as key–value pairs. Dictionaries are indexed by keys. For example, below we have a dict named my\_dict. It contains two keys, **fruit** and **vegatable**, along with their corresponding values, **banana** and **onion**.  
  
my\_dict = {'fruit':'banana', 'vegatable':'onion'}

**Q**: Which one of the following is not the correct syntax for creating a set in Python?  
**A**:  
**a. set([[1,2],[3,4],[4,5]])**  
b. set([1,2,2,3,4,5])  
c. {1,2,3,4}  
d. set((1,2,3,4))  
  
**Explanation:** The iterable argument given for the set must be used in a correct way.

Q: What are the two major loop statements?  
A: for and while loops.

Q: What are control flow statements in Python?  
A: Control flow statements are used to manipulate or change the execution flow of a program. Basically, we can control the flow of Python code lines using Conditional Statements (if statements, boolean logic expressions) and Loops.

Generally, the flow of the execution of a program runs from top to bottom, but certain statements (control flow statements) in Python can break this top-to-bottom order of execution. Control flow statements include decision-making, looping, and more.

Q: How does for loop and while loop differ in Python and when do you choose to use them?  
A: **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.

**Q**: What are Python iterators?  
**A**: Iterators in Python are array-like objects which allow moving on the next element. We use them in traversing a loop, for example, in a for loop.

**Q**: Write a program that takes a number from the user and prints the result to check if it is a prime number? Use “for” loops and “if else statement.  
**A**:

There are several code alternatives to check if a number is a prime. Consider this :

n=int(input('Enter a number to check if it is a prime number : '))

count=0

for i in range(1, n+1):

if n%i==0 : count += 1

else : count += 0

if count < 3: print(f'{n} is a prime number')

else : print(f'{n} is not a prime number')