Interview Questions

Q1. Differentiate between lists and tuples.
Ans1.The major difference is that a list is mutable, but a tuple is immutable.

Q2. How would you convert a string into lowercase?
Ans2. We use the lower() method for this.

Q3. What is the pass statement in Python?
Ans3. There may be times in our code when we haven't decided what to do yet, but we must type something for it to be syntactically correct. In such a case, we use the pass statement.

Q4. Explain help() and dir() functions in Python.
Ans4. The help() function displays the documentation string and help for its argument.
The dir() function displays all the members of an object(any kind).

Q5. What is slicing?
Ans5. Slicing is a technique that allows us to retrieve only a part of a list, tuple, or string. For this, we use the slicing operator [].

Q6. Why do we need break and continue in Python?
Ans6. Both break and continue are statements that control flow in Python loops. Break stops the current loop from executing further and transfers the control to the next block. Continue jumps to the next iteration of the loop without exhausting it.

Q7. How will you convert a list into a string?
Ans7. We will use the join() method for this.
>>> nums=['one','two','three','four','five','six','seven']
>>> s=' '.join(nums)
>>> s

Q8. What are membership operators?
Ans8. With the operators 'in' and 'not in', we can confirm if a value is a member in another.
Q9. What is recursion?

Ans9. When a function makes a call to itself, it is termed recursion. But then, in order for it to avoid forming an infinite loop, we must have a base condition.

Q10. **What does the function zip() do?**
Ans10. One of the less common functions with beginners, zip() returns an iterator of tuples.
>>> list(zip(['a','b','c'],[1,2,3]))
Output = [('a', 1), ('b', 2), ('c', 3)]

Q11. **Differentiate between the append() and extend() methods of a list.**
Ans11. The methods append() and extend() work on lists. While append() adds an element to the end of the list, extend adds another list to the end of a list.

Q12. **What does the map() function do?**
Ans12. Map() executes the function we pass to it as the first argument; it does so on all elements of the iterable in the second argument. Let's take an example,
>>> for i in map(lambda i:i**3, (2,3,7)):
print(i)
This gives us the cubes of the values 2, 3, and 7.

Q13. **What is the enumerate() function in Python?**
Ans13. Enumerate() iterates through a sequence and extracts the index position and its corresponding value too.

Q14. **How many arguments can the range() function take?**
Ans14. The range() function in Python can take up to 3 arguments. Let's see this one by one.
1. One argument: When we pass only one argument, it takes it as the stop value. Here, the start value is 0, and the step value is +1.
2. Two arguments: When we pass two arguments, the first one is the start value, and the second is the stop value.
3. Three arguments: Here, the first argument is the start value, the second is the stop value, and the third is the step value.

Q15. **What are the common built-in data types in Python?**
Ans15. There are several built-in data types in Python. Although, Python doesn't require data types to be defined explicitly during variable declarations type errors

are likely to occur if the knowledge of data types and their compatibility with each other are neglected. Python provides type() and isinstance() functions to check the type of these variables.

Q16. **What are modules and packages in Python?**
Ans16. Modules, in general, are simply Python files with a .py extension and can have a set of functions, classes, or variables defined and implemented. They can be imported and initialized once using the import statement. If partial functionality is needed, import the requisite classes or functions using from foo import bar.
Packages allow for hierarchical structuring of the module namespace using dot notation. As, modules help avoid clashes between global variable names, in a similar manner, packages help avoid clashes between module names.Creating a package is easy since it makes use of the system's inherent file structure. So just stuff the modules into a folder and there you have it, the folder name as the package name. Importing a module or its contents from this package requires the package name as prefix to the module name joined by a dot.

Q17. **What is self in Python?**
Ans17. Self is a keyword in Python used to define an instance of an object of a class. In Python, it is explicitly used as the first parameter, unlike in Java where it is optional. It helps in distinguishing between the methods and attributes of a class from its local variables.

Q18. **What is __init__?**
Ans18. __init__ is a constructor method in Python and is automatically called to allocate memory when a new object/instance is created. All classes have a __init__ method associated with them. It helps in distinguishing methods and attributes of a class from local variables.

Q19. **What is docstring in Python?**
Ans19. Documentation string or docstring is a multiline string used to document a specific code segment.The docstring should describe what the function or method does.

Q20. **What are decorators in Python?**
Ans20. Decorators in Python are essentially functions that add functionality to an existing function in Python without changing the structure of the function itself. They are represented by the @decorator_name in Python and are called in a bottom-up fashion.