**1.What are the benefits of using Python?**

**The benefits of using python are-**

**Easy to use–** Python is a high-level programming language that is easy to use, read, write and learn.

**Interpreted language–** Since python is interpreted language, it executes the code line by line and stops if an error occurs in any line.

**Free and open-source–** Python is free to use and distribute. It is open source.

**Extensive support for libraries–** Python has vast libraries that contain almost any function needed. It also further provides the facility to import other packages using Python Package Manager(pip).

**Portable–** Python programs can run on any platform without requiring any change.

The data structures used in python are user friendly.

It provides more functionality with less coding.

**2.Difference between list and tuple in python?**

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| --- | --- | --- |
|  | **List** | **Tuple** |
| **1** | List is mutable. | Tuple is immutable. |
| **2** | List iteration is slower and is time consuming. | Tuple iteration is faster. |
| **3** | List consumes more memory. | Tuples consumes less memory |
| **4** | List provides many in-built methods. | Tuples have less in-built methods. |
| **5** | List is useful for insertion and deletion operations. | Tuple is useful for read only operations like accessing elements. |
| **6** | List operations are more error prone. | Tuples operations are safe. |

**3.What is pep 8?**

PEP stands for Python Enhancement Proposal. It is a set of rules that specify how to format Python code for maximum readability.

**4.What is slicing in Python?**

Slicing is used to access parts of sequences like lists, tuples, and strings. The syntax of slicing is-[start:end:step].

e.g. if there is a list- [1,2,3,4,5,6,7,8]. Then [-1:2:2] will return elements starting from the last element till the third element by printing every second element. i.e. [8,6,4].

**5.What is the difference between Python Arrays and lists?**

Arrays and lists, in Python, have the same way of storing data. But, arrays can hold only a single data type element whereas lists can hold any data type elements.

**6. What is split used for?**

The split() method is used to separate a given String in Python.

Example:

a="ram abc"

print(a.split())

Output:

[‘ram’, ‘abc’]

**7.What is the use of self in Python?**

Self is used to represent the instance of the class. With this keyword, you can access the attributes and methods of the class in python. It binds the attributes with the given arguments. self is used in different places and often thought to be a keyword. But unlike in C++, self is not a keyword in Python.

**8.What are the keyword used in Python?**

Keywords are the reserved words in python for which some special meaning is defined.

There are 33 Keywords in python.

All 30 keywords are in small letters except 3 keywords which are True,False,None.

**9. Explain Inheritance in Python with an example.**

Inheritance allows One class to gain all the members (say attributes and methods) of another class. Inheritance provides code reusability, makes it easier to create and maintain an application. The class from which we are inheriting is called super-class and the class that is inherited is called a derived / child class.

They are different types of inheritance supported by Python:

Single Inheritance – where a derived class acquires the members of a single super class.

Multi-level inheritance – a derived class d1 in inherited from base class base1, and d2 are inherited from base2.

Hierarchical inheritance – from one base class you can inherit any number of child classes

Multiple inheritance – a derived class is inherited from more than one base class.

**10.What is zip() function in Python?**

Python zip() function returns a zip object, which maps a similar index of multiple containers. It takes an iterable, convert into iterator and aggregates the elements based on iterables passed. It returns an iterator of tuples.

**11. What are the different types of operators in Python?**

Python uses a rich set of operators to perform a variety of operations. Some individual operators like membership and identity operators are not so familiar but allow to perform operations.

Arithmetic Operators

Comparison Operators

Assignment Operators

Logical Operators

Membership Operators

Identity Operators

**12. What is Pass in Python?**

Pass specifies a Python statement without operations. It is a placeholder in a compound statement. If we want to create an empty class or functions, the pass keyword helps to pass the control without error.

**13. What is lambda function in Python?**

The anonymous function in python is a function that is defined without a name. The normal functions are defined using a keyword "def", whereas, the anonymous functions are defined using the lambda function. The anonymous functions are also called as lambda functions.

**14. What is \_\_init\_\_?**

The \_\_init\_\_ is a method or constructor in Python. This method is automatically called to allocate memory when a new object/ instance of a class is created. All classes have the \_\_init\_\_ method.

**15.Define encapsulation in Python?**

Encapsulation means binding the code and the data together. A Python class in an example of encapsulation.

**16. How do you do data abstraction in Python?**

Data Abstraction is providing only the required details and hiding the implementation from the world. It can be achieved in Python by using interfaces and abstract classes.

**17.What is Global Variables in Python?**

Variables declared outside a function or in global space are called global variables. These variables can be accessed by any function in the program.

**18. What is Local Variables in python?**

Any variable declared inside a function is known as a local variable. This variable is present in the local space and not in the global space.

**19. Define a function in Python.**

A block of code that is executed when it is called is defined as a function. The keyword def is used to define a Python function.

**20. Why do we need a continue and break?**

A continue helps control the Python loop by making jumps to the next iteration of the loop without exhausting it.

Break helps control the Python loop by breaking the current loop from execution and transferring the control to the next block.