Python Assignment -1

1. Who developed Python Programming Language?

➔ Python programming language was developed by Guido van Rossum and was first released in 1991.

2. Which type of Programming does Python support?

➔ Python supports multiple programming paradigms including object-oriented, imperative, functional and procedural programming.

3. Is Python case sensitive when dealing with identifiers?

➔ Yes, python is case sensitive when dealing with identifiers.
➔ For example "variable" and "Variable" would be treated as two different identifiers.

4. What is the correct extension of the Python file?

➔ The correct file extension for python file is ".py".this extension is used to indicate to the operating system and other software that the file contains python source code.

5. Is Python code compiled or interpreted?

➔ Python code is interpreted, not compiled. This means that the source code is executed line by line by interpreter,rather than being translated into machine code before being executed.

6. Name a few blocks of code used to define in Python language?

➔ **Functions**: defined using the"def" keyword, and are used to encapsulate a block of code that can be called and reused multiple times.
➔ **Classes:** defined using the "class" keyword, and are used to define new types that can be used to create objects.
➔ **Conditional Statements:** defined using the "if" keyword, and are used to conditionally execute code based on certain conditions.
➔ **Loops:** defined using the "for" and "while" keyword, and are used to repeatedly execute code until a certain condition is met.
➔ **Try-except blocks:** used to handle exception (i.e., run time errors) that may occur during the execution of the code.

7. State a character used to give single-line comments in Python?

➔ In python, the "#" symbol is used to give single-line comments,
➔ For example:

This is a single-line comment in Python

8. Mention functions which can help us to find the version of python that we are currently working on?

➔ You can find the version of python you are currently working on by using the 'sys' module's 'version' attribute or 'platform' module's 'pyhton_version' function.

import sys
print(sys.version)

import platform
print(platform.python_version())

9. Python supports the creation of anonymous functions at runtime, using a construct called

➔ In python, anonymous functions at runtime can be created using a construct called "lambda functions". A lambda function is a small, one-line anonymous function that is defined using the 'lambda' keyword.

sum = lambda x, y: x + y

print(sum(4, 4))

Output: 8

10. What does pip stand for python?

➔ "Pip" stands for "Pip installs packages". It is a package manager for python packages, which allows you to easily install, upgrade, and manage libraries and modules used in your python project.

11. Mention a few built-in functions in python?

➔ print() - used to display output on the console.
➔ len() - used to get the length of a sequence, such as a string, list, or tuple.
➔ type() - used to determine the type of an object.
➔ int(), float(), str(), list(), tuple(), dict() - used to convert an object to a specific data type.
➔ max(), min() - used to find the maximum or minimum value of a sequence

12. What is the maximum possible length of an identifier in Python?

➔ In Python, there is no strict limit to the length of an identifier (variable name, function name, class name, etc.). However, there is a practical limit imposed by the underlying system, such as the length of file names and the amount of memory available.

13. What are the benefits of using Python?

1. **Easy to Learn and Read:** Python has a simple, readable syntax and is designed to be easy to learn, making it a great language for beginners.
2. **Versatile**: Python can be used for a wide range of tasks, including web development, scientific computing, data analysis, artificial intelligence, and more.
3. **Large Community:** Python has a large and active community of developers, which means that there are many resources available for learning and troubleshooting, as well as a wealth of libraries and tools for specific tasks.
4. **Plenty of Libraries and Tools:** Python has a large collection of libraries and tools for specific tasks, such as NumPy for numerical computing, Matplotlib for data visualization, and Django for web development, which can help to save time and effort.
5. **Interoperable:** Python can be used with other programming languages and can integrate with other systems, making it a great choice for integrating different parts of a system or working with existing code.
6. **Good Performance:** Although Python is an interpreted language, it has good performance due to the presence of a number of optimizing compilers and runtime environments, such as PyPy, that can make Python code run faster.

14. How is memory managed in Python?

➔ Python uses a memory management system known as reference counting, combined with a garbage collector to automatically manage memory.
➔ Reference counting keeps track of the number of references to an object in memory, and when there are no more references to an object, the memory used by that object is automatically freed.
➔ The garbage collector, on the other hand, runs periodically to detect and remove objects that are no longer needed and can't be freed by reference counting alone, such as cyclic references, which occur when two objects reference each other and neither can be freed until the other is first freed.
➔ This automatic memory management in Python makes it easier to write code that is both efficient and free of memory leaks, as the developer does not have to manually manage memory allocation and deallocation.
➔ In addition, Python uses a memory manager to allocate and manage memory more efficiently, such as reusing memory that has been freed by unreferenced objects and maintaining free memory blocks to minimize the time required to allocate new objects.

15. How to install Python on Windows and set path variables?

➔ Search python(whatever ver. you required) on any browser you use.

- ➔ Download python installer.
- ➔ After the installer progress is finished search on your pc run.
- ➔ In run search "app data".
- ➔ In app data go to local
- ➔ C:\Users\------\AppData\Local\Programs\Python\Python311
- ➔ Copy the path where your python is.
- ➔ Now go to settings search environmental variable
- ➔ In environmental variable go to system variables and click new and copy paste the path
- ➔ Click ok ok
- ➔ Open terminal and check your python.

16. Is indentation required in python?

- ➔ Yes, indentation is required in Python. Indentation is used to define blocks of code, such as those in a function, loop, or conditional statement. The number of spaces used for the indentation must be consistent within each block, and this is how the structure of the code is indicated.