Assignment 1 - 29th Jan

1. Who developed Python Programming Language?

Ans : The implementation of Python was started in December 1989 by **Guido Van Rossum** at CWI in Netherland and the first version of the language was released in February 1991.

2. Which type of Programming does Python support?

1. Imperative programming: This involves using statements that change a program's state or cause an action to be performed.
2. Object-oriented programming (OOP): This involves organizing code into objects that represent real-world entities and the actions that can be performed on them. Python has support for OOP concepts such as classes, inheritance, and polymorphism.
3. Functional programming: This involves writing code as a series of functions that take inputs and produce outputs, without changing state or causing side effects. Python has support for functional programming concepts such as first-class functions and higher-order functions.
4. Aspect-oriented programming: This involves adding additional behavior to existing code, without modifying the code itself. Python has limited support for aspect-oriented programming through the use of decorators.

3. Is Python case sensitive when dealing with identifiers?

Ans: Yes, python is case sensitive in case of identifiers like variable names, function names, classes, methods etc. Example – Marks is different from marks.

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

Ans: Extension is .py

5. Is Python code compiled or interpreted?

Ans: Interpreted. The source code is translated into an intermediate form called bytecode, which is executed by the Python interpreter.

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

Ans: Indentation is used to define a block of code in python

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

Ans: #

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

Ans: sys.version

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

Ans : It uses a construct called "lambda" .

10. What does pip stand for python?

Ans: preferred installer program

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

Ans : print( ), type( ) ,input( ), abs( ) ,pow( ) ,dir( ) ,sorted( ),max( ) ,round( ),divmod( )

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

Ans: 79 characters

13. What are the benefits of using Python?

* **Third-Party Modules** - [Python Package Index](https://en.wikipedia.org/wiki/Python_Package_Index) (PyPI) comprises a multitude of third-party modules which makes Python integrate with other languages and platforms easily.
* **Presence of Libraries** - Python is fraught with numerous standard libraries that include string operations, internet protocols, web service tools, Machine Learning libraries, and operating System Interfaces.
* **Open Source and free** - Python is free for use even for commercial purposes. Moreover, active developers can contribute by developing modules and appending them to the existing library.
* **Huge Support Community**- Due to lack of official technical support for Python is open-sourced has prompted the development of communities that enrich the resource bank for continued development and adoption of the language.
* **Easy to learn** - Python is popular for its excellent readability. This means, even a non-programmer can read and comprehend the uncluttered syntax. The PEP 8 guidelines provide a set of rules to help in formatting the code.
* **User-Friendly data structures** - With its built-in data structures, Python can easily construct run-time data structures including Arrays, Lists, tuples, and Files.
* **Speed** - Being expressive and with object-oriented design, Python contributes to increased speed and productivity even with less amount of coding. Python is considered ideal for developing complex, multi-protocol network applications.

14. How is memory managed in Python?

Ans: Python uses automatic memory management, which means the Python memory manager automatically handles memory allocation and deallocation. The memory manager uses a reference counting system to track the number of references to objects in memory, and frees the memory occupied by an object when its reference count reaches zero. Additionally, Python has a garbage collector that periodically frees up memory occupied by objects that are no longer being used. This ensures that Python programs are able to efficiently use memory without the need for manual memory management.

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

* Download the latest version of Python from the official website (<https://www.python.org/downloads/>).
* Run the installer and follow the instructions to install Python on your system.
* Open the "Environment Variables" dialog by typing "Environment Variables" into the Windows search bar and clicking on "Edit the system environment variables."
* Under "System Variables," scroll down and find the "Path" variable, then click "Edit."
* Click "New" and add the path to your Python installation. For example, if you installed Python in the default location, the path would be "C:\PythonXX," where "XX" is the version number.
* Click "OK" to close all the dialog boxes.
* Open a new command prompt and type "python" to confirm that the installation was successful and that the path variables are set correctly.

16. Is indentation required in python?

Ans: Yes, Indentation is important to Python because it’s how scope isdetermined. Scope is how Python knows what code belongs to what part of the program.