**Data Science Masters Assignment**

**Date - 29 jan, Python assignment**

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1. Who developed Python Programming Language?

Ans. Python was developed by Guido van Rossum in 1989.

1. Which type of Programming does Python support?

Ans.Python supports multiple programming paradigms such as:

* Object-Oriented Programming (OOP)
* Imperative Programming
* Functional Programming
* Procedural Programming

1. Is Python case sensitive when dealing with identifiers?

Ans. Yes, Python is case sensitive when dealing with identifiers. For example, the names "Var1" and "var1" would be considered as two different variables in Python.

1. What is the correct extension of a Python file?

Ans. The correct extension for a Python file is ".py" as this is the standard extension used for a Python source code file.

1. Is Python code compiled or interpreted?

Ans. Python is an interpreted language, not a compiled language. This means that the source code is executed line by line by an interpreter, rather than being compiled into machine code and executed directly on the computer's hardware.

1. Name a few blocks of code used to define in Python Language?

Ans. In Python, the following blocks of code can be used to define various structures:

1. Functions: defined using the "def" keyword, functions allow code to be reused and organized in a readable manner.
2. Classes: defined using the "class" keyword, classes allow for object-oriented programming, where complex data structures can be created and manipulated.
3. Loops: defined using the "for" and "while" keywords, loops allow for repeating a block of code multiple times.
4. Conditional statements: defined using the "if" keyword, conditional statements allow for executing different code blocks based on whether certain conditions are met.
5. try-except blocks: used to handle exceptions (errors) that may occur during the execution of the code.
6. State a character used to give single-line comments in Python?

Ans. # hash character is used for giving single-line comments

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

Ans. The following functions can be used to find the version of Python you are currently working on:

* sys.version: This returns a string that contains information about the Python version, including the release number, build date, and compiler used.
* sys.version\_info: This returns a named tuple that contains information about the Python version, including the major, minor, micro, and release level.
* platform.python\_version(): This returns a string that contains only the release number of the Python version you are working on.

1. Python supports the creation of anonymous function at runtime,using a construct called \_\_\_\_\_\_\_\_\_\_ .

Ans. lambda function

1. What does pip stand for Python?

Ans. PIP stands for "Pip Installs Packages." It is a package management system used to install and manage packages or libraries for the Python programming language. PIP makes it easier for developers to install and use packages, as well as distribute their own packages to others.

1. Mention a few built-in functions in Python?

Ans.

* print(): used to display text or values on the screen.
* len(): used to determine the length of a string, list, tuple, or other iterable object.
* sum(): used to calculate the sum of elements in an iterable object.
* max(): used to determine the largest value in an iterable object.
* min(): used to determine the smallest value in an iterable object.
* type(): used to determine the type of an object.
* str(): used to convert an object to a string.
* int(): used to convert an object to an integer.
* float(): used to convert an object to a floating-point number.

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

Ans. An identifier can have a maximum length of 79 characters in Python.

1. What are the benefits of using Python?

Ans.

* Easy to Learn and Use: Python has a simple and easy-to-learn syntax, making it a popular choice for beginners and experienced programmers alike.
* Versatile: Python can be used for a wide range of tasks, including web development, data analysis, artificial intelligence, and scientific computing.
* Large Community: Python has a large and active community of users, which means there is a wealth of online resources and support available.
* Strong Standard Library: Python has a rich standard library that includes modules for many common programming tasks, making it easy to accomplish a wide range of tasks without having to write complex code.
* Cross-Platform: Python can run on various operating systems, including Windows, macOS, and Linux, making it a versatile choice for developing cross-platform applications.
* Dynamic Typing: Python uses dynamic typing, meaning that the type of a variable is determined at runtime, making it easier to write code quickly and with less hassle.

1. How is memory managed in Python?

Ans. In Python, memory management is handled automatically by the Python memory manager. The memory manager manages the memory used by the Python interpreter, allocating and freeing memory as needed.

Python uses a combination of reference counting and garbage collection to manage memory. Reference counting keeps track of the number of references to an object in memory and automatically frees memory when the reference count reaches zero. Garbage collection is used to find and remove objects that are no longer reachable from any part of the program, even if the reference count is non-zero.

This automatic memory management frees the programmer from having to manually manage memory, making it easier to write code that is both efficient and error-free. However, it's worth noting that the automatic memory management can also result in some overhead and decreased performance in certain situations.

1. How to install Python on windows and set path variables?

Ans.Here are the steps to install Python on Windows and set the path variables:

* Download the latest version of Python from the official website (<https://www.python.org/downloads/>).
* Run the installation file and follow the instructions to complete the installation process. Make sure to check the option to "Add Python to PATH" during the installation process.
* Open the Command Prompt and type the following command: python. This should display the version of Python installed on your system.
* To set the path variables, follow these steps:
  + Go to the Start menu and search for "Environment Variables".
  + Click on "Edit the system environment variables".
  + Click on the "Environment Variables" button.
  + In the "System Variables" section, find the "Path" variable and click on "Edit".
  + Click on "New" and add the path to the Python installation directory (e.g., C:\Python37).
  + Click "OK" to save the changes.
* Close the Command Prompt and reopen it to apply the changes. Now, you should be able to use Python from the Command Prompt by typing python.

1. Is indentation required in Python?

Ans. Indentation refers to the spaces at the beginning of a code line.

Where in other programming languages the indentation in code is for readability only, the indentation in Python is very important.

Python uses indentation to indicate a block of code.

Indentation is used to define the structure and scope of code blocks in Python, such as loop blocks, conditional blocks, and function definitions. In Python, indentation is mandatory and must be consistent throughout the code. A code block is started with a colon (:) and is followed by a block of indented code. The level of indentation determines the level of nesting of the code block.