Python first program

In [1]:
```
print ("Hello world")
```

```
Hello world
```

In [2]:
```
import sys
print("Python version:",sys.version)
```

```
Python version: 3.11.5 | packaged by Anaconda, Inc. | (main, Sep 11 2023, 13:26:2
3) [MSC v.1916 64 bit (AMD64)]
```

What is python

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics.It is versatile, high-level programming language designed for ease of use and readability.

Python is widely used in web development, data analysis, automation, and artificial intelligence due to its simple syntax and extensive library ecosystem.

History of python

In the late 1980s, Guido van Rossum began developing Python at CWI in the Netherlands, and in 1991, Python 0.9.0 was released, featuring basic elements like classes and functions. The year 2000 marked the release of Python 2.0, which introduced new features like list comprehensions and saw the establishment of the Python Software Foundation (PSF). In 2008, Python 3.0 was launched, bringing major improvements but lacking backward compatibility with Python 2. By 2020, Python 2 was officially discontinued, solidifying Python 3 as the standard. Today, Python is a leading programming language used globally across various fields.

Features of Python:

Python is easy to learn due to its simple and readable syntax. As a high-level language, it abstracts away system complexity, making programming more accessible. Being interpreted and dynamically typed, Python executes code line by line and determines types at runtime. It also boasts an extensive standard library and benefits from strong community support.

Applications of python

.Developing web applications

.Desktop applications

.Data Analysis

.Machine learning

.Deep learning

.Artificial intelligence

.cloud computing

.software development

.Scientific and Numeric

.Business applications

Advantages of Python:

Easy to Learn and Use: Python's simple syntax and readability make it accessible for beginners. Extensive Libraries: Python has a vast standard library and numerous third-party modules, allowing for quick development across various domains. Cross-Platform Compatibility: Python runs on many operating systems, ensuring consistent behavior across platforms. Dynamically Typed: Variables do not need explicit declaration, which simplifies coding. Large Community Support: A strong and active community offers extensive documentation, tutorials, and resources. Versatile: Python is used in web development, data science, artificial intelligence, automation, and more.

Disadvantages of Python:

Slower Performance: Python is generally slower than compiled languages like C or C++ due to its interpreted nature. Memory Consumption: Python's flexibility can lead to higher memory usage, which may be a concern in memory-intensive applications. Weak in Mobile Computing: Python is not commonly used for mobile app development, as it lacks some native mobile support. Runtime Errors: Being dynamically typed, Python can lead to runtime errors if types are not handled carefully. Global Interpreter Lock (GIL): Python's GIL can limit performance in multi-threaded applications, making it less efficient for CPU-bound tasks. Less Suitable for Low-Level Programming: Python's abstraction from hardware makes it less suitable for low-level programming tasks.

Comments in python

1.Single-Line Comments:Single-line comments start with the # symbol. Everything after # on that line is treated as a comment.

In [4]:
```
# This is a single-line comment
print("Hello, World!")  # This is an inline comment
```

```
Hello, World!
```

2.Multi-Line Comments:Python doesn't have a specific syntax for multi-line comments like some other languages. However, you can use multiple single-line comments or triple-quoted strings (which are technically not comments, but can be used this way if not assigned to any variable).

In [5]:
```
# This is a
# multi-line comment
print("Hello, World!")

"""
This is another way
to create a multi-line comment,
using triple quotes.
"""
```

```
Hello, World!
```

Out[5]:
```
'\nThis is another way\nto create a multi-line comment,\nusing triple quotes.\n'
```

Keywords in python

Every scripting language has designated words or keywords, with particular definitions and usage guidelines. Python is no exception. The fundamental constituent elements of any Python program are Python keywords.

In [6]:
```
import keyword

python_keywords= keyword.kwlist

print(python_keywords)

len(python_keywords)
```

```
['False', 'None', 'True', 'and', 'as', 'assert', 'async', 'await', 'break', 'clas
s', 'continue', 'def', 'del', 'elif', 'else', 'except', 'finally', 'for', 'from',
'global', 'if', 'import', 'in', 'is', 'lambda', 'nonlocal', 'not', 'or', 'pass',
'raise', 'return', 'try', 'while', 'with', 'yield']
```

Out[6]:
```
35
```

In [ ]:
```

```