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**ASSIGN : 15**

1. What are the new features added in Python 3.8 version?

Assignment Expressions (the Walrus Operator): Python 3.8 introduced the "walrus operator" (:=), which allows assignment expressions within other expressions. It enables you to assign values to variables as part of a larger expression, reducing code duplication and improving readability.

Positional-only Parameters: Python 3.8 introduced the ability to define positional-only parameters in function signatures using a new syntax (/). This allows you to enforce that certain arguments can only be passed positionally and not as keyword arguments.

f-strings Support = for Self-Documenting Expressions: In Python 3.8, f-strings gained the ability to use = to provide a quick way to include the expression and its value in the resulting string. This enhances the self-documenting nature of f-strings and helps in debugging and logging.

The math.prod() Function: Python 3.8 added a new math.prod() function, which calculates the product of all elements in an iterable. It provides a convenient way to compute the product without manually iterating over the elements.

The statistics Module Enhancements: The statistics module in Python 3.8 introduced several new functions, including statistics.fmean(), statistics.geometric\_mean(), and statistics.multimode(). These additions expand the capabilities of the statistics module for statistical calculations.

Syntax Warning for Unparenthesized yield Expressions: Python 3.8 introduced a new syntax warning when yield expressions are used without parentheses in generator functions. This helps in reducing potential confusion and ambiguity in the code.

1. What is monkey patching in Python?

Monkey patching in Python refers to the practice of modifying or extending existing code at runtime by altering or adding functionality to objects or classes without directly modifying their original source code. It involves making changes to the code dynamically, typically by adding, replacing, or modifying attributes or methods of an existing object or class.

1. What is the difference between a shallow copy and deep copy?

a shallow copy creates a new object with references to the nested objects, while a deep copy creates a new object with recursively copied, independent copies of all the nested objects.

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

In practical terms, the maximum length of an identifier is determined by the limitations of the underlying Python implementation. For most Python implementations, including CPython (the reference implementation), the maximum length of an identifier is typically limited by the maximum size of a string object, which is system-dependent. In CPython, the maximum size of a string object is around 2^31-1 bytes.

1. What is generator comprehension?

Generator comprehension, also known as generator expression, is a concise syntax in Python for creating generators on the fly. It allows you to generate a sequence of values using a compact and readable syntax, similar to list comprehensions, but with the advantage of generating values lazily as they are requested.