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

Python 3.8 introduced several new features, including the "walrus operator" (:=) for assignment expressions, positional-only parameters in function definitions, the "f-strings" debugging support, the math.prod() function for calculating products of numbers, the "asyncio" library enhancements, and improvements in syntax errors and runtime performance. Additionally, there were updates to the standard library and various optimizations for dictionaries.

1. What is monkey patching in Python?

Monkey patching in Python refers to the practice of modifying or extending the behavior of existing code at runtime by dynamically altering its attributes or methods. It involves adding, replacing, or modifying attributes and methods of objects or classes from outside their original definition. Monkey patching can be a powerful technique but should be used with caution to maintain code clarity and avoid unexpected behavior.

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

A shallow copy creates a new object and references the same elements as the original. Modifying a shallow copy may impact the original. In contrast, a deep copy creates a new object and recursively copies all elements, creating independent copies. Modifying a deep copy does not affect the original. Deep copy ensures complete separation, while shallow copy shares references.

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

In Python, the maximum length of an identifier is not explicitly defined. However, the Python style guide, PEP 8, recommends limiting identifiers to a maximum of 79 characters to ensure readability. Additionally, some implementations of Python may impose a practical limit on identifier length due to system constraints, but this can vary depending on the specific implementation being used.

1. What is generator comprehension?

Generator comprehension, also known as generator expression, is a concise way to create generators in Python. It follows a similar syntax to list comprehension but uses parentheses instead of square brackets. Instead of creating a complete list in memory, a generator comprehension generates values on the fly, allowing for efficient memory usage. It is denoted by enclosing the comprehension expression within parentheses.