Assignment - 25

1)What is the difference between enclosing a list comprehension in square brackets and parentheses?

Ans1- The main difference is in how they handle memory. Lists store all values in memory at once, while generators generate values on-the-fly, which can be more memory-efficient for large datasets. If you need to access the elements multiple times or modify the collection, a list comprehension is suitable. If you're iterating through the elements once and want to save memory, a generator comprehension is a better choice.

2) What is the relationship between generators and iterators?

Ans2- generators are a specific type of iterator in Python. They are a convenient way to create iterators using generator functions, which simplify the process of defining iterators. Generators allow you to work with large datasets efficiently by generating values on-the-fly rather than storing them all in memory.

3) What are the signs that a function is a generator function?

Ans3- A generator function in Python is defined using the def keyword like any other function, but it contains one or more yield statements. The presence of yield statements is the primary indicator that a function is a generator function.

4) What is the purpose of a yield statement?

Ans4- The yield statement in Python serves a crucial role in defining generator functions and enabling lazy evaluation. Its primary purpose is to produce a value from a generator function and temporarily pause the function's execution until the next value is requested

5) What is the relationship between map calls and list comprehensions? Make a comparison and contrast between the two.

Ans5- Use map when you need to apply a function to an iterable and want to work with a map object, especially if you require lazy evaluation.

Use list comprehensions when you want a concise and readable way to create a new list, and especially when you need to filter elements or apply more complex transformations.