Assignment-25

1. What is the difference between enclosing a list comprehension in square brackets and parentheses?
   Enclosing a list comprehension in square brackets creates a list, while enclosing it in parentheses creates a generator expression.

2. What is the relationship between generators and iterators?
   Generators are a type of iterator. Hence, in summary, all generators are iterators, but not all iterators are generators.

3. What are the signs that a function is a generator function?
   A function is a generator function if it contains the yield keyword.

4. What is the purpose of a yield statement?
   The yield statement is used in Python generator functions to pause the execution of the function, save its current state, and produce a value to the caller. When the function is called again, execution resumes from where it left off, using the saved state to continue processing. This helps in memory saving.

5. What is the relationship between map calls and list comprehensions? Make a comparison and contrast between the two.
   Map calls apply a function to each item in an iterable (e.g., a list or a tuple) and return a new iterable containing the results. List comprehensions provide a more concise way to generate a new list from an existing iterable.
   The main difference between map calls and list comprehensions is that map calls can apply any function to the items in an iterable, while list comprehensions are limited to expressions that can be evaluated for each item in the iterable. Additionally, list comprehensions offer the ability to filter items based on a condition, while map calls do not provide this functionality.