1. **Scenario:** A program needs to find the second largest number in a given list of numbers.

   Write logic to find the second largest number in a given list.

   Ans:
   - Get the number of lists.
   - Then sort the list.
   - Assign second largest number is number[-2]
   - Then print the second largest number.

2. **Scenario:** A function needs to convert an integer to its binary representation without using Python's built-in $bin()$ function.

   Write logic to convert a given integer to its binary representation.

   Ans:
   - Get the integer number.
   - Initialize binary_number =[ ]
   - Create a loop through each time in the number, until following procedure completes.
     - To get the reminder of the division use num%10
     - Add the reminder in front of the binary number.
     - Then to get divisor use num//10, store it as number.
   - Once the loop ends, print the binary_number.

3. **Scenario:** A function needs to merge two sorted lists into a single sorted list efficiently.

   Write logic to merge two sorted lists into one sorted list.

   Ans:
   - Get the two list as A and B.
   - Sort the both list.
   - Use the merger function to join the both list.
   - Then Sort the new list and print it.

4. **Scenario:** A function needs to find the first non-repeating character in a string for text processing.

   Write logic to find the first non-repeating character in a given string.

   Ans:
   - Get the string.
   - Create unique character=[ ]
   - Loop through each character in the word.
   - If the character is not in unique character list, add to that list.
   - Once loop ends, print the unique character[0].

Ramishahope Artificial Intelligence Pvt Ltd

36, Old Anandas, SG Arcade, Marudhamalai Main Road, Vadavalli, Coimbatore -641041.

+91 6385383227 | www.hopelearning.net | mdaravind@hopelearning.net | 33AAMCR3722R1ZU

5. **Scenario:** A program needs to identify common elements between two lists for data filtering.

Write logic to find the common elements between two lists.

Ans:
- Get the two lists.
- Sort the list.
- Compare the both list for same elements.
- If yes, print the common element.

6. **Scenario:** A function is required to reverse a given number.

Write logic to reverse a given number.

Ans:
- Get the number.
- Use slicing method number[: :-1] to reverse the number.
- Then print the reversed number.

7. **Scenario:** A program needs to count the number of words in a given sentence.

Write logic to count the number of words in a given sentence.

Ans:
- Get the string.
- Split the sentence into words.
- Use len() function to get the number of words and print it.

8. **Scenario:** A function needs to compute the factorial of a number using iteration instead of recursion.

Write logic to find the factorial of a given number using iteration.

Ans:
- Get the number.
- If the number is equal 0, return 1. (0! will be 1)
- Initialize fact =0
- Create a loop through the number untill n =0
- Use the n*fact(n-1) to get the factorial of the number.
- Once loop ends, print the factorial of the given number.

9. **Scenario:** A program is required to convert all strings in a list to uppercase.

Write logic to convert all strings in a list to uppercase.

Ans:
- Read the list of strings.
- Use list.upper() function.
- Then print the list of strings.

10. **Scenario:** A function is needed to compute the greatest common divisor (GCD) of two numbers using the Euclidean algorithm.

   Write logic to calculate the GCD of two numbers using the Euclidean algorithm.

   Ans:
   - Use import math
   - Get the two number.
   - Then use math.gcd of two number like math.gcd()
   - print the greatest common divisor of the given number.