1. **Scenario:** A user is required to enter a valid number in a form, but users sometimes input invalid data.

   Write logic to repeatedly prompt the user until they enter a valid integer.

   - Use while loop to repeatedly prompt the user until they enter a valid integer.
   - Get the user input.
   - Use type() function to check the type the input.
   - Use if condition to check whether the type is valid integer.
   - Each time condition fails, loop continues and ask user to enter a valid integer.

2. **Scenario:** A data analysis tool processes a list of numbers and needs to identify the most frequently occurring value.

   Write logic to find the most frequently occurring number in a given list.

   - Create a variable named count and initialize it as 0.
   - Store the first item from the list in a variable and use for loop to compare it with rest of the items in the list.
   - Use if condition to check whether same item repeats. If yes, count variable increments and store the count value in a count_list.
   - Likewise, check for all the items in the list.
   - Use max() to pick the most frequently occurring value.

3. **Scenario:** A text-processing application needs to compare words and check if they are anagrams (contain the same letters in a different order).

   Write logic to determine whether two given strings are anagrams.

   - Get two input words from the user and store it in two different variables.
   - Use sorted() to arrange the words.
   - Use if condition to check whether both the words are same.
   - If yes, they are anagrams.

4. **Scenario:** A speech analysis program needs to count the number of vowel sounds in a given input.

   Write logic to count the number of vowels in a given string.

   - Create a list with all the vowel letters in uppercase and lowercase.
   - Get the user input and store it in a variable.
   - Create a variable named count and initialize it as 0.
   - Use nested for loop and if condition to check vowels in the user input.
   - If vowel is there, increase the count by 1.
   - Print the count variable to know the total count of vowel sounds in a given input.

5. **Scenario:** A text-editing software includes a feature to reverse the order of words in a sentence for stylistic effects.

Write logic to reverse the order of words in a sentence while keeping the words themselves intact.

- Get the user input and store it in a variable.
- Use split() to split and then store it in a list.
- Reverse the list [::-1]

6. **Scenario:** A missing number is detected in a sequence of values stored in a database.

   Write logic to find the missing number in a list containing n-1 numbers from 1 to n.

- Get the list of values from the user.
- Use for loop to check the sequence.
- Pick the first item from the list and compare it with the next item.
- Likewise, the loop continues.
- If missing number is detected, it will be stored in a variable.

7. **Scenario:** An ATM machine processes withdrawal requests and needs to ensure that users cannot withdraw more than their account balance.

   Write logic to allow a withdrawal only if the balance is sufficient.

- Get the user input for withdrawal amount.
- Use if condition to check whether the withdrawal amount is lesser than or equal to the balance amount.
- If yes, the withdrawal request processed.
- Else, it should print “Balance insufficient”

8. **Scenario:** A system needs to verify whether a given dataset contains duplicate entries.

   Write logic to check whether a given list contains duplicate values.

- Get the input list from the user.
- Create a new empty list.
- Use for loop to loop through the input list. Use If condition to check if the item is not available in the empty list. If yes, it adds that value to that empty list. If not, it skips and checks the next item in the list.
- So, the new list only contains numbers without duplicates.

9. **Scenario:** A digital calculator includes a feature to sum the digits of a number for verification purposes.

   Write logic to calculate the sum of all digits in a given integer.

- Get the user input and store it in a variable.
- Create a new variable named sum and initialize it as 0.
- Convert the input number into a string and then loop through it.

- Now, convert that str to int and add it to sum variable.
- Print the sum variable to get sum of digits of a number.

10. **Scenario:** A language-learning app wants to verify whether a given sentence is a pangram (contains every letter of the alphabet at least once).

    Write logic to check if a given sentence is a pangram.

    - Get the user input and store it in a variable.
    - Create a list with all the alphabets in both uppercase and lowercase.
    - Use nested for loop to loop through each alphabet in the list and then use if condition to check whether it has that particular letter in the sentence or not.
    - If any letter is not available in a sentence, loop breaks.
    - If not, it prints “pangram”