### **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.

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### **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.

### **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.

### **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.

### **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.

### **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.

### **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.

### **Scenario:** A system needs to verify whether a given dataset contains duplicate entries. Write logic to check whether a given list contains duplicate values.

### **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.

### **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.

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# My answers (krithiksha):

## 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

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1. Get the user input
2. Check the user input is valid integer using type() function.
3. Put the condition in while loop, in order to check repeatedly
4. If condition pass, take the user input
5. Otherwise, ask the user to give a valid integer input

## 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.

1. Get the list
2. Initialize the empty dictionary
3. Loop through the given list, and add the number as dictionary key and its frequent occurring count as its value
4. If the number repeats again the particular number key’s value will be incremented by 1
5. Now calculate the max value from the dictionary and return the number as the most frequently occurring number in a given list.

## 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.

1. Get the 2 strings
2. Convert the 2 strings into lower case
3. Sort the 2 string
4. Compare the 2 strings, if it is equal then ‘anagram’
5. Otherwise , ‘ not a anagram’

## 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.

1. Get the string
2. Initialize a vowel\_str varialble to store vowels [“aeiou”]
3. Initialize a count =0 variable
4. Convert the string in lower case
5. Loop through the string
6. Check if the character in string is present in vowel\_str
7. If yes, increment count by 1
8. After the loop execution return the count variable

## 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.

1. Get the sentence
2. Separate the sentence using .split(‘ ‘) -> it becomes list of words in the sentence
3. Now reverse the list using .reverse()
4. merge the words in the list and make it as a string by using .join()
5. return the sentence which is reversed by it’s order of words

## 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.

1. Get the list and n
2. Initialize ‘ missedNum = []’
3. Loop through the range of n
4. Check number in n with each item in list
5. If condition fails, store the number (missed number in list) in the ‘missedNum’
6. After the loop execution, return the missedNum list which contains missing number in a list containing n-1 numbers from 1 to n.

## 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.

1. Get the withdrawal amount from user
2. Check if the withdrawal\_amount is lesser than the account\_balance of the user
3. If condition pass, withdraw the amount and send to user with current account balance details
4. Else: send message to user ‘ your balance is insufficient to withdraw the amount ‘

## 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.

1. Get the list
2. Initialize list\_without\_duplicates=[]
3. Convert the list into set and convert as list and store in list\_without\_duplicates
4. Check list is equal to list\_without\_duplicates, if yes, list has no duplicate values
5. Else: list has duplicate values

## 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.

1. Get the integer
2. Use sum() function to sum the all digits of given integer
3. Return the sum

## 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.

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1. Get the sentence
2. Initialize the variable ‘alpha = “abcdefghijklmnopqrstuvwxyz”
3. Initialize alphaCount variable
4. Convert the sentence into lower case, strip(), eliminate duplicates
5. Loop through the each character of sentence
6. Check if the character is present in ‘alpha’
7. If yes, increment alphaCount by 1
8. If alphaCount == 26 then sentence is pangram else not a pangram