✓ Question 1

Write a program to print the sum of digits of a number.

```
num = input("Enter a number: ")

total = 0for digit in num:
    total += int(digit)
print("Sum of digits:", total)
```

✓ Question 2

Write a program to print the reverse of a number.

```
num = input("Enter a number: ")

reverse = num[::-1]
print("Reverse of number:", reverse)
```

✓ Question 3

Write a program to check whether a number is a palindrome.

```
num = input("Enter a number: ")
if num == num[::-1]:
    print("It is a palindrome.")else:
    print("It is not a palindrome.")
```

✓ Question 4

Write a program to print the sum of even digits of a number.

```
num = input("Enter a number: ")

total = 0for digit in num:
    if int(digit) % 2 == 0:
        total += int(digit)
print("Sum of even digits:", total)
```

✓ Question 5

Write a program to print the product of odd digits of a number.

```
num = input("Enter a number: ")

product = 1
found = False
for digit in num:
    if int(digit) % 2 != 0:
        product *= int(digit)
        found = True
if found:
    print("Product of odd digits:", product)else:
    print("No odd digits found.")
```

✓ Question 6

Write a program that reads a string with multiple words and capitalizes the first letter of each word.

```
text = input("Enter a sentence: ")

words = text.split()
new_sentence = ""
for word in words:
    new_sentence += word.capitalize() + " "
print("Capitalized sentence:", new_sentence.strip())
```

✓ Question 7

Write a program that reads a string and displays the longest substring containing only consonants.

```
text = input("Enter a string: ")

vowels = "aeiouAEIOU"
longest = ""
current = ""
for char in text:
    if char.isalpha() and char not in vowels:
        current += char
```

```
        if len(current) > len(longest):
            longest = current
    else:
        current = ""
print("Longest consonant substring:", longest)
```

✓ Question 8

Write a program that reads a string and capitalizes every other letter.
Example: computer → cOmPuTeR

```
text = input("Enter a string: ")

result = ""
for i in range(len(text)):
    if i % 2 == 0:
        result += text[i].lower()
    else:
        result += text[i].upper()
print("Modified string:", result)
```

✓ Question 9

Write a program to count total words, total characters, and percentage of alphanumeric characters.

```
text = input("Enter a sentence: ")

words = text.split()
total_words = len(words)
total_characters = len(text)

alnum_count = 0for char in text:
    if char.isalnum():
        alnum_count += 1

percentage = (alnum_count / total_characters) * 100
print("Total words:", total_words)print("Total characters:",
total_characters)print("Percentage of alphanumeric characters:",
round(percentage, 2), "%")
```

✓ Question 10

Extract two list slices and calculate sum and average.
(List contains numbers from 1 to 20)

```
numbers = list(range(1, 21))

first_slice = numbers[5:16:2]   # Every other element between index 5
and 15
second_slice = numbers[::4]     # Every fourth element
print("First slice:", first_slice)print("Sum of first slice:",
sum(first_slice))
print("Second slice:", second_slice)print("Average of second slice:",
sum(second_slice)/len(second_slice))
```

✓ Question 11

Find minimum element in a list along with its index.

```
numbers = []

n = int(input("Enter number of elements: "))
for i in range(n):
    num = int(input("Enter number: "))
    numbers.append(num)

minimum = min(numbers)
index = numbers.index(minimum)
print("Minimum element:", minimum)print("Index:", index)
```

✓ Question 12

Find frequency of elements, unique elements, and duplicate elements.

```
numbers = []

n = int(input("Enter number of elements: "))
for i in range(n):
    num = int(input("Enter number: "))
    numbers.append(num)
```

```
frequency = {}for num in numbers:
    frequency[num] = frequency.get(num, 0) + 1
print("Frequencies:", frequency)

unique = [num for num in frequency if frequency[num] == 1]
duplicate = [num for num in frequency if frequency[num] > 1]
print("Unique elements:", unique)print("Duplicate elements:",
duplicate)
```

✅ Question 13

Find the second largest number in a list.

```
numbers = []

n = int(input("Enter number of elements: "))
for i in range(n):
    num = int(input("Enter number: "))
    numbers.append(num)

numbers = list(set(numbers))
if len(numbers) < 2:
    print("Second largest does not exist")else:
    numbers.sort()
    print("Second largest number:", numbers[-2])
```

✅ Question 14

Shift all zeros to the right and non-zero elements to the left of the list.

```
numbers = []

n = int(input("Enter number of elements: "))
for i in range(n):
    num = int(input("Enter number: "))
    numbers.append(num)

non_zero = []
zero = []
for num in numbers:
    if num == 0:
        zero.append(num)
```

```
    else:
        non_zero.append(num)

result = non_zero + zero
print("Updated list:", result)
```

✓ Question 15

Create a new list by removing the first character from each string.

```
strings = []

n = int(input("Enter number of strings: "))
for i in range(n):
    s = input("Enter string: ")
    strings.append(s)

new_list = []
for s in strings:
    new_list.append(s[1:])
print("New list:", new_list)
```

✓ Question 16

Count number of pairs (a, b) such that both are even.
Given: `pairs = ((2,5),(4,2),(9,8),(12,10))`

```
pairs = ((2,5),(4,2),(9,8),(12,10))

count = 0
for a, b in pairs:
    if a % 2 == 0 and b % 2 == 0:
        count += 1
print("Number of even pairs:", count)
```

✓ Question 17

Find mean of each tuple and then mean of those means.

```
tup1 = ((1,2),(3,4.15,5.15),(7,8,12,15))
```

```
means = []
for t in tup1:
    mean = sum(t) / len(t)
    means.append(mean)
    print("Mean:", round(mean, 3))

overall_mean = sum(means) / len(means)
print("Mean of means:", round(overall_mean, 6))
```

✓ Question 18

Invert a dictionary (swap keys and values).

```
x = {'k1':'v1', 'k2':'v2', 'k3':'v3'}

inverted = {}
for key, value in x.items():
    inverted[value] = key
print("Inverted dictionary:", inverted)
```

✓ Question 19

List overlapping keys of two dictionaries.

```
D1 = {'a':1, 'b':2, 'c':3}
D2 = {'b':5, 'c':7, 'd':9}

overlap = []
for key in D1:
    if key in D2:
        overlap.append(key)
print("Overlapping keys:", overlap)
```

✓ Question 20

Insertion sort based on one's digit (3-digit integers).

```
numbers = []
```

```
n = int(input("Enter number of elements: "))
for i in range(n):
    num = int(input("Enter 3-digit number: "))
    numbers.append(num)
for i in range(1, len(numbers)):
    key = numbers[i]
    j = i - 1

    while j >= 0 and (numbers[j] % 10) > (key % 10):
        numbers[j + 1] = numbers[j]
        j -= 1

    numbers[j + 1] = key
print("Sorted list based on one's digit:", numbers)
```

✓ Question 21

Sort a list of strings based on their length (smallest to largest).

```
strings = []

n = int(input("Enter number of strings: "))
for i in range(n):
    s = input("Enter string: ")
    strings.append(s)

strings.sort(key=len)
print("Sorted list by length:", strings)
```

✓ Question 22

Read text from one file and write it to another file in reverse order.

```
f1 = open("input.txt", "r")
content = f1.read()
f1.close()

f2 = open("output.txt", "w")
f2.write(content[::-1])
f2.close()
print("File reversed successfully.")
```

✓ Question 23

Convert all lowercase characters in a file to uppercase and write to another file.

```
f1 = open("input.txt", "r")
content = f1.read()
f1.close()

f2 = open("output.txt", "w")
f2.write(content.upper())
f2.close()
print("Converted to uppercase successfully.")
```

✓ Question 24

Create list of 10 random integers and separate into Odd and Even lists.

```
import random

numbers = []
for i in range(10):
    numbers.append(random.randint(1, 100))

odd_list = []
even_list = []
for num in numbers:
    if num % 2 == 0:
        even_list.append(num)
    else:
        odd_list.append(num)
print("Original list:", numbers)print("Even list:",
even_list)print("Odd list:", odd_list)
```

✓ Question 25

Remove all duplicates from a list.

```
numbers = []

n = int(input("Enter number of elements: "))
for i in range(n):
```

```
    num = int(input("Enter number: "))
    numbers.append(num)

unique = list(set(numbers))
print("List after removing duplicates:", unique)
```

✓ Question 26

Create list 1 to 20 and delete numbers divisible by 3.

```
numbers = list(range(1, 21))

result = []
for num in numbers:
    if num % 3 != 0:
        result.append(num)
print("Updated list:", result)
```

✓ Question 27

Count strings with length ≥ 2 and same first & last character.

```
strings = ['abc', 'xyz', 'aba', '1221']

count = 0
for s in strings:
    if len(s) >= 2 and s[0] == s[-1]:
        count += 1
print("Count:", count)
```

✓ Question 28

Sort list of tuples by last element.

```
tup_list = [(2, 5), (1, 2), (4, 4), (2, 3), (2, 1)]

tup_list.sort(key=lambda x: x[-1])
print("Sorted list:", tup_list)
```

✓ Question 29

Find words longer than n from a list.

```
words = ["apple", "cat", "banana", "dog", "elephant"]

n = int(input("Enter length: "))

result = []
for word in words:
    if len(word) > n:
        result.append(word)
print("Words longer than", n, ":", result)
```

✓ Question 30

Check whether two lists are circularly identical.

```
list1 = [1, 2, 3, 4]
list2 = [3, 4, 1, 2]
if len(list1) == len(list2) and str(list2) in str(list1 * 2):
    print("Lists are circularly identical.")else:
    print("Lists are not circularly identical.")
```

✓ Question 31

Create a list by concatenating elements from 1 to n.
Example: ['p','q'], n = 5 → ['p1','q1','p2','q2',...]

```
base_list = ['p', 'q']
n = int(input("Enter value of n: "))

result = []
for i in range(1, n + 1):
    for item in base_list:
        result.append(item + str(i))
print("Result:", result)
```

✓ Question 32

Change position of every n-th value with (n+1)th value.
Example: [0,1,2,3,4,5] → [1,0,3,2,5,4]

```
numbers = [0,1,2,3,4,5]
for i in range(0, len(numbers)-1, 2):
    numbers[i], numbers[i+1] = numbers[i+1], numbers[i]
print("Updated list:", numbers)
```

✓ Question 33

Split a list every Nth element.

```
lst = ['a','b','c','d','e','f','g','h','i','j','k','l','m','n']

n = int(input("Enter value of N: "))

result = []
for i in range(n):
    temp = []
    for j in range(i, len(lst), n):
        temp.append(lst[j])
    result.append(temp)
print("Split list:", result)
```

✓ Question 34

Replace last element in a list with another list.

```
list1 = [1, 3, 5, 7, 9, 10]
list2 = [2, 4, 6, 8]

list1 = list1[:-1] + list2
print("Updated list:", list1)
```

✓ Question 35

FizzBuzz Function

```
def fizz_buzz(num):
    if num % 3 == 0 and num % 5 == 0:
        return "FizzBuzz"
```

```
    elif num % 3 == 0:
        return "Fizz"
    elif num % 5 == 0:
        return "Buzz"
    else:
        return num

number = int(input("Enter number: "))print(fizz_buzz(number))
```

✓ Question 36

Driver Speed Check Function

```
def check_speed(speed):
    if speed < 70:
        print("Ok")
    else:
        points = (speed - 70) // 5
        if points > 12:
            print("License suspended")
        else:
            print("Points:", points)

speed = int(input("Enter speed: "))
check_speed(speed)
```

✓ Question 37

Show numbers with EVEN or ODD label

```
def showNumbers(limit):
    for i in range(limit + 1):
        if i % 2 == 0:
            print(i, "EVEN")
        else:
            print(i, "ODD")

limit = int(input("Enter limit: "))
showNumbers(limit)
```

✓ Question 38

Sum of multiples of 3 and 5 between 0 and limit

```
def sum_multiples(limit):
    total = 0
    for i in range(limit + 1):
        if i % 3 == 0 or i % 5 == 0:
            total += i
    return total

limit = int(input("Enter limit: "))print("Sum:", sum_multiples(limit))
```

✓ Question 39

Print star pattern

```
def show_stars(rows):
    for i in range(1, rows + 1):
        print("*" * i)

rows = int(input("Enter number of rows: "))
show_stars(rows)
```

✓ Question 40

Break list into chunks of size N

```
lst = [1,2,3,4,5,6,7,8,9,10]

n = int(input("Enter chunk size: "))

result = []
for i in range(0, len(lst), n):
    result.append(lst[i:i+n])
print("Chunks:", result)
```

✓ Question 41

Reverse words in a given string

```
text = input("Enter a sentence: ")

words = text.split()
reversed_words = words[::-1]

result = " ".join(reversed_words)
print("Reversed sentence:", result)
```

✅ Question 42

Find uncommon words from two strings

```
str1 = input("Enter first string: ")
str2 = input("Enter second string: ")

set1 = set(str1.split())
set2 = set(str2.split())

uncommon = set1.symmetric_difference(set2)
print("Uncommon words:", list(uncommon))
```

✅ Question 43

Find words greater than given length k

```
sentence = input("Enter a sentence: ")
k = int(input("Enter length k: "))

words = sentence.split()
result = []
for word in words:
    if len(word) > k:
        result.append(word)
print("Words longer than", k, ":", result)
```

✅ Question 44

Return difference between smallest and largest number in a list

```
def diffmin(lst):
```

```
    return max(lst) - min(lst)

numbers = [10, 2, 32, -50, 10, -4]
print("Difference:", diffmin(numbers))
```

✓ Question 45

Check whether a number is a Harshad Number

```
num = int(input("Enter a number: "))

digit_sum = 0
temp = num
while temp > 0:
    digit_sum += temp % 10
    temp //= 10
if num % digit_sum == 0:
    print("It is a Harshad Number.")else:
    print("It is not a Harshad Number.")
```

✓ Question 46

Check whether a number is a Disarium Number

```
num = int(input("Enter a number: "))

temp = num
length = len(str(num))
sum_val = 0
for i, digit in enumerate(str(num), start=1):
    sum_val += int(digit) ** i
if sum_val == num:
    print("It is a Disarium Number.")else:
    print("It is not a Disarium Number.")
```

✓ Question 47

Count uppercase and lowercase letters in a string

```
def count_case(text):
```

```
    upper = 0
    lower = 0

    for char in text:
        if char.isupper():
            upper += 1
        elif char.islower():
            lower += 1

    print("No. of Upper case characters:", upper)
    print("No. of Lower case characters:", lower)

text = input("Enter a string: ")
count_case(text)
```

✓ Question 48

Multiply all numbers in a list

```
def multiply_list(lst):
    result = 1
    for num in lst:
        result *= num
    return result

numbers = [8, 2, 3, -1, 7]
print("Product:", multiply_list(numbers))
```

Reverse a String

```
text = input("Enter a string: ")
print("Reversed string:", text[::-1])
```

✓ Question 49

Check whether a string is a Pangram

```
import string

sentence = input("Enter a sentence: ")

alphabet = set(string.ascii_lowercase)
```

```
letters = set(sentence.lower())
if alphabet.issubset(letters):
    print("It is a Pangram.")else:
    print("It is not a Pangram.")
```

✓ Question 50

Sort hyphen-separated words alphabetically

```
text = input("Enter hyphen-separated words: ")

words = text.split("-")
words.sort()

result = "-".join(words)
print("Sorted sequence:", result)
```