1. **Scenario:** You are developing a banking application that categorizes transactions based on the amount entered.
   Write logic to determine whether the amount is positive, negative, or zero.

Ans:

Get the amount detail as a input from user

Once amount entered, logic will check whether the user entered amount is greater than zero or not

If it greater than zero – amount is positive

Elif less than zero – amount is negative

Else – shows zero

2. **Scenario:** A digital locker requires users to enter a numerical passcode. As part of a security feature, the system checks the sum of the digits of the passcode.
   Write logic to compute the sum of the digits of a given number.

Ans:
Get the numerical passcode from user
Convert the passcode into individual digits
Initialize sum variable 0
For each digit the number, add it to the sum variale
Print the sum

3. **Scenario:** A mobile payment app uses a simple checksum validation where reversing a transaction ID helps detect fraud.
   Write logic to take a number and return its reverse

Ans:
Get the transaction ID from last payment
Convert the ID into string, reverse the string
Again convert the string into number
Print the reverse number

4. **Scenario:** In a secure login system, certain features are enabled only for users with prime-numbered user IDs.
   Write logic to check if a given number is prime.

Ans: get the user ID from user in the number format

Using logic to find whether prime number is present in user ID or not
if user ID had prime number (divided by 2 == 0), enable the certain features
If user ID does not have prime number (divided by !=0) , don't show the certain feature

5. A scientist is working on permutations and needs to calculate the factorial of numbers frequently.
   Write logic to find the factorial of a given number using recursion.

Ans:
Get the number from user
If the number is 0 or 1, return 1
Else, return the number multiplied by the factorial of (number -1)
Print (result)

6. A unique lottery system assigns ticket numbers where only Armstrong numbers win the jackpot.
   Write logic to check whether a given number is an Armstrong number.

Ans:
Get the number from user
Count the number of digits
Sum=0
For loop in numbers and raise the digit to the number and assign to result
If sum is equal to original number print"Armstrong number"
Else print("Not an Armstrong number")

7. A password manager needs to strengthen weak passwords by swapping the first and last characters of user-generated passwords.
   write logic to perform this operation on a given string

Ans:
Get the password from user
If passwords is less than print the password as it is

Swap the first and last char, withoutchange the middle part. Print the modified string

8. **Scenario:** A low-level networking application requires decimal numbers to be converted into binary format before transmission. Write logic to convert a given decimal number into its binary equivalent

Ans:

Get the decimal number from user
Initialize an empty string for binary representation
While number is greater than 0
Divide it by 2 and store the remainder
Add the remainder to binary string
Update the number by divide it by 2
Reverse the binary string
Print the binary representation

9. **Scenario:** A text-processing tool helps summarize articles by identifying the most significant words. Write logic to find the longest word in a sentence.

Ans: get the sentence from user
Split the sentence into individual words
Create the variable to store the longest word
Loop for each word
If word is longer than stored longest word, update the longest word
Print the longest word

10.Scenario: A plagiarism detection tool compares words from different documents and checks if they are anagrams (same characters but different order).
Write logic to check whether two given strings are anagrams.

Ans: get the 2 input from user (one is existing sentence and other one is user created sentence)

Remove the spaces and convert both string into lowercase

Sort the characters of both strings

If the sorted versions of both string are identical print “Anagram“

Else print “Not anagram“