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.

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Ans:

1. Read the input from the user
2. If the amount is less then 0 then its negative
3. If the amount is greater than 0 then its positive
4. **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:**

1. Read the input from the user
2. Then convert the individual number
3. Then add the all value print the value
4. **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:**

1. Read the input as number
2. Then convert into string
3. Then reverse the string
4. Print the string
5. **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:**

1. Read the input as number
2. Check the number which is less than 2 then print not a prime
3. Using for loop to take a square root from 3 (n, (n\*\*0.5)+1) then module with the input number if result is 0 then notprime
4. Else the input number is prime
5. **Scenario:** 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:**

1. Read the input as number
2. Using another variable as 1 eg: fac
3. Using for loop to multiple the value from 1 to input number then save in fac variable
4. Print the value
5. **Scenario:** 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:**

1. Read the input as number
2. Then convert the string and calculate the string length and store in another variable
3. Then each number power the length of the given number and then add the all numbers
4. If its equal to the given input number then print Armstrong number else not an Armstrong number
5. **Scenario:** 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.

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**Ans:**

1. Read the input as string
2. If the string length is 2 only then as it is.
3. If string is greater than 2 then swap the first and last character
4. **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:**

1. Read the input as number
2. Initialize the variable to store the binary values
3. Given number module with 2 then the remainder to store the binary variable
4. Then divide by 2 eg:(n=n//2) if the number is greater than 0 then the loop will continue using while loop
5. **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:**

1. Read the input from as string
2. Then split the individual string
3. Initialize the variable to store the longest word
4. Loop through each word
5. If the current word is greater than the stored longest word update the longest word
6. Then print the longest word
7. **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:**

1. Read the two input string
2. Then convert all char as lower
3. sort the both string
4. compare the both strings if equal then print anagrams
5. if not print not anagrams