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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1. Get user amount as input
2. If amount<0, print negative
3. elIf amount==0, print zero
4. Else, print positive
5. **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.  
   1. get passcode as str input from user  
   2. using for loop, take one by one characters - digits here  
   3. Use another variable sum , initialise to zero and add integer of each digits to the sum  
   4. Print this sum
6. **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.
7. get transaction ID as str input from user  
   2. reverse the number string using string[::-1]  
   3. convert this reversed number string to integer  
   4. print this reversed number
8. **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.
9. If the number is less than 2, it is not prime.
10. Check for divisibility from 2 up to the square root of the number.
11. If any divisor is found, the number is not prime.
12. If no divisors are found, the number is prime.
13. **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.
14. Get number num as input from user
15. Write a function with num as Argument
16. Initialize variable fact to 1
17. Use for loop, for i with range of num to 1 in backwards
18. fact = fact \* i. then return the fact
19. **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  
    1. get num1 as string input from use  
    2. find len(num1) to find no of digits and store in another length variable  
    3. have another variable sum, initialized to 0.  
    4. in for loop, taking one by one digits, convert to int and raise to power of length variable and store in another num2 variable and add it to sum variable  
    5. after loop, check is sum == num1. if so, its Armstrong number, else its not
20. **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.  
    1. get input string from user in variable - word  
    2. find length of word and store as leng variable  
    3. use this value in a new string for stronger password, by slicing the string as : word[leng-1] + word[1:-1] + word[0]  
    4. this gives new password
21. **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.  
    1. get input from user for decimal number and intitialise an empty string or list to store binary digits.  
    2. Divide the number by 2 repeatedly, and record the remainder each time.  
    3. Keep dividing until the number becomes 0.  
    4. Write the remainders in reverse order using for loop
22. **Scenario:** A text-processing tool helps summarize articles by identifying the most significant words.  
     Write logic to find the longest word in a sentence.  
    1. Split the sentence into individual words using space as the separator.  
    2. Set a variable to keep track of the longest word found so far (initially empty).  
    3. Go through each word in the list, and compare its length with the longest word so far.  
    4. If a word is longer, update the longest word variable with this word.  
    5. After checking all words, return the longest word.
23. **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.  
    1. get two strings in 2 variables, check if length of both strings are equal.  
    2. choose one string and in for loop for each letter in that string,   
    3. if each letter is in second string, then they are anagrams

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