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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* Get transaction amount
* Use if, elif to check amount=0,>0 or <0
* Print zero, positive or negative respectively

1. **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.

* Get password
* Find sum of digits using %10
* Using if, check sum to stored password sum and check if it matches the stored password
* Return allow if it matches, else return check password.

1. **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.

* Get a transaction ID number
* Convert it into string
* Reverse the string
* Convert to number and return

1. **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.

* Get user input for ID
* Check if ID is prime or not using for loop check divisibility till range or use \*\*0.5+1 sqrt of the number
* If prime, features enabled
* Else disable

1. **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.

* Create a function using “for” loop to find factorial
  + If 0 or 1, return 1, else multiply n with numbers from 1 to n-1.
  + Return the factorial
* Call the function with an argument
* Print the factorial

1. **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.

* Get the ticket number
* Count the digits by converting to str and using len / by using loop and /10 concept
* for each digit, raise the power to len
* add the result and if it is equal to ticket number, return Armstrong
* else return not armstrong

1. **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.

* Get the password string
* Find the length of string
* Convert string to characters
* Swap the first and last characters
* Join the characters into string again and print.

1. **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.

* Get a number
* While the number>0
* Divide the number by 2
* Note the remainder in a new variable
* Divide the quotient again until 0
* Multiply the remainder by 10 and add the new remainder
* Reverse the remainder variable for the binary

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

* Get a sentence as input
* Split the sentence using space delimiter
* Using for loop, find the longest word using len or using max,len
* Print the word

1. **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.

* Get two words as input
* Sort the words
* Compare both the words.
* If equal, Anagram.

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