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:

1. Input the amount in Rs.

2.Check for Minimum balance.

3. If Minimum balance < Existing Balance amount - Requested amount; Print (transaction done)

4. If Minimum balance = Existing Balance amount - Requested amount :Print(transaction done)

5. If Minimum balance > Existing Balance amount - Requested amount ;Print(transaction not done, Insufficient Balance)

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:

```
1. Input the 6 digit passcode.
2. s = 0
 3. for i in range(1,7):
 4. s = s+i
5. print("Sum of digits of a given number is:" , s)
```

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:

1. **Input the 6 digit transaction ID in tid**
2. **Convert the integer to list**
3. **reverse the list and store in the same list**
4. **convert the list back to integer**

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:

   1. **Input the user ID**
   2. **Check if the number is divisible by and Itself**
   3. **If yes : print ("Allowed access)**
   4. **else: print ("Access denied")**

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. **Input the number as n**
   2. **s = 1**
   3. **for i in range(1,n+1)**
   4. **s = s *i**
   5. **Print s**

6. **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. **Input the ticket number as t**
   2. **Convert integer to List L**
   3. **calculate the length of List(total numbers in the digit) as p**

4. s=0
5. for i in range(1,p+1)
6.s = s+L(i)p**
7. if s == t print("Armstrong number")
Else: print ("not an Armstrong number")

7. **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.

ANS: 1. Input the password string
2. convert string to list
3.swap the first and last elements of list
4. Convert list to string
4. print the password

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: 1. Input the decimal number
2. If the number > 2 , divide it by 2
3.store the remainder
4. keep dividing till condition true
4. print the remainder

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: 1. Input the sentence
2. Extract words from sentence
3. calculate length of each word
4. display the word with more characters

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: 1. Input two words to be compared

2. sort the characters from both words

3. compare both words

4. If same print (“Anagrams”)

Else : print (“not an Anagram”)