1. **Scenario:** A program needs to determine the largest prime factor of a given number for mathematical computations.  
    Write logic to find the largest prime factor of a given number.

**Ramishahope Artificial Intelligence Pvt Ltd**

**36, Old Anandas, SG Arcade, Marudhamalai Main Road, Vadavalli, Coimbatore -641041.**

**+91 6385383227 |** [**www.hopelearning.net**](http://www.hopelearning.net/) **|** [**mdaravind@hopelearning.net**](mailto:mdaravind@hopelearning.net) **| 33AAMCR3722R1ZU**

Ans:

1. Read the input from user.
2. Check the given number is equal to 1 or 2
3. Module with the given number if the result is 0
4. If the number is divisible by 1 and itself that number it is prime number
5. Take all prime number then compare the all prime number to find the greatest number
6. Print the largest number
7. **Scenario:** A system needs to convert a Roman numeral string into its integer equivalent for numerical processing.  
    Write logic to convert a given Roman numeral string into an integer.

**Ans:**

1. **Scenario:** A text-processing application analyzes a list of words to find the longest common prefix.  
    Write logic to find the longest common prefix among a list of strings.

**Ans:**

1. **Scenario:** A calculator program takes two numbers and an operator to perform a mathematical operation.  
    Write logic to take two numbers and an operator (+, -, \*, /) and perform the corresponding operation.

**Ans:**

1. Read the input from user for 2 numbers
2. Then assign a value for + - 1, - - 2, \* - 3, / - 4
3. Then ask input for which operation to perform if + means, press the 1
4. Finally retrun the value
5. **Scenario:** A lottery system assigns special numbers where Armstrong numbers have a special significance.  
    Write logic to check whether a given number is an Armstrong number.

**Ans:**

1. Read the input from user.
2. Using while to check the given number is greater than 0
3. Find the count of number
4. In for loop, module with 10 taken the value to power the count of number
5. Then add all value if the given number is equal to sum of added values then is an armstrong number
6. **Scenario:** A task management application allows users to add, remove, and view tasks in a to-do list.  
    Write logic to implement a to-do list where users can add, remove, and view tasks.
7. **Scenario:** A weather application requires a function to convert temperature between Celsius and Fahrenheit.  
    Write logic to convert a given temperature from Celsius to Fahrenheit and vice versa.

**Ans:**

1. Read the input from user for the celsius and fahrenheit
2. Check the given value is celsius and fahrenheit
3. Then using formula to convert the fahrenheit and celsius
4. Retrun the output
5. **Scenario:** A security system needs to verify whether a given string has all unique characters.  
    Write logic to check whether all characters in a given string are unique.

**Ans:**

1. Read the input from user in string format
2. Then compare the given string is equal or not using == operator
3. If the string is equal then return output as equal if not retrun no equal
4. **Scenario:** A text analyzer tool identifies the longest word in a given sentence for readability analysis.  
    Write logic to find the longest word in a given sentence.

Ans:

1. Read the input from user
2. Then using split keyword to split the sentence
3. Using for loop, find the length of each sentence using len keyword
4. Compare the first word length to second word
5. If second word is greater then the first word store in separate variable
6. Finally retrun the separte variable which is longest word
7. **Scenario:** A password manager generates secure passwords based on user-defined length and complexity.  
    Write logic to generate a random password of a given length, containing uppercase, lowercase, digits, and special characters.

**Ramishahope Artificial Intelligence Pvt Ltd**

**36, Old Anandas, SG Arcade, Marudhamalai Main Road, Vadavalli, Coimbatore -641041.**

**+91 6385383227 |** [**www.hopelearning.net**](http://www.hopelearning.net/) **|** [**mdaravind@hopelearning.net**](mailto:mdaravind@hopelearning.net) **| 33AAMCR3722R1ZU**

Ans:

1. Read the input from user
2. Create a separate variable to store the password
3. With the given length randomly create a password with upper case, lower case and digits and special characters.
4. Finally return the variable.