# Recursion

## 1: Factorial Calculation

Write a recursive function to calculate the factorial of a number n.  
Example: factorial(5) = 120

## 2: Fibonacci Sequence

Write a recursive function to return the nth number in the Fibonacci sequence.  
Example: fibonacci(6) = 8

## 3: Sum of Digits

Write a recursive function to calculate the sum of the digits of a number.  
Example: sum\_digits(1234) = 10

## 4: Power Function

Write a recursive function to compute a^b (a raised to the power of b).  
Example: power(2, 3) = 8

## 5: Reverse a String

Write a recursive function to reverse a string.  
Example: reverse('hello') = 'olleh'

## 6: Count Consonants in a String

Write a recursive function that counts the number of consonants in a string.  
Example: count\_consonants('recursion') = 6

## 7: Greatest Common Divisor (GCD)

Write a recursive function to find the greatest common divisor (GCD) of two numbers using the Euclidean algorithm.  
Example: gcd(48, 18) = 6

## 8: Check Palindrome

Write a recursive function that checks whether a given string is a palindrome.  
Example: is\_palindrome('madam') = True

## 9: Count Ways to Climb Stairs

Write a recursive function to count the number of distinct ways to climb to the top of a staircase with n steps, where each time you can climb 1 or 2 steps.  
Example: climb\_stairs(3) = 3