

Dear students, please do the following assignment to practice functions:

#### Basic Function Questions

1. Write a function to calculate the area of a circle given its radius.
2. Create a function that takes two numbers and returns their sum.
3. Write a function to find the factorial of a number using recursion.
4. Write a function that takes a string and returns it reversed.
5. Create a function to check if a given number is prime.
6. Write a function to count the vowels in a given string.

#### Intermediate Function Questions

1. Create a function that takes a list of numbers and returns the largest number.
2. Write a function to find the nth Fibonacci number using recursion.
3. Write a function to check whether a string is a palindrome.
4. Create a function that takes a list of integers and returns the sum of all even numbers.
5. Write a function to calculate the GCD (Greatest Common Divisor) of two numbers.
6. Create a function that accepts a dictionary and returns the key with the highest value.

#### Advanced Function Questions

1. Write a function that calculates the power of a number without using the `**` operator.
2. Create a function that converts a given temperature from Celsius to Fahrenheit and vice versa.
3. Write a function to flatten a nested list.
4. Create a function to check if two strings are anagrams.
5. Write a function that takes a list and removes all duplicate elements.
6. Create a function that takes a string and counts the frequency of each character.

#### Real-world Scenarios

1. Write a function that takes a list of employee salaries and calculates the average salary.
2. Create a function to generate a random password of given length, containing uppercase, lowercase, numbers, and special characters.