# Python-Functions Assignment

## 1. The len() Function

The len() function in Python is used to determine the number of items in an object, such as a list, string, tuple, or dictionary. Below is an example of its usage.

Example:  
numbers = [10, 20, 30, 40, 50]  
print("Length of the list:", len(numbers)) # Output: Length of the list: 5

## 2. greet(name) Function

This function takes a person's name as input and prints a greeting message. Below is the implementation and an example of its usage.

def greet(name):  
 """Greets a person with their name."""  
 print(f"Hello, {name}!")  
  
Example:  
greet("Alice") # Output: Hello, Alice!

## 3. find\_maximum(numbers) Function

This function takes a list of integers and returns the maximum value without using the built-in max() function. It uses a loop to iterate through the list and compares values.

def find\_maximum(numbers):  
 """Finds the maximum value in a list without using the built-in max() function."""  
 if not numbers:  
 return None # Return None if the list is empty  
  
 max\_value = numbers[0] # Assume the first number is the maximum  
 for num in numbers:  
 if num > max\_value:  
 max\_value = num  
 return max\_value  
  
Example:  
values = [10, 15, 7, 30, 22]  
print("Maximum value:", find\_maximum(values)) # Output: Maximum value: 30

## 4. Local vs Global Variables

A local variable is defined within a function and can only be accessed inside that function. A global variable is defined outside any function and can be accessed anywhere in the program.

Example:  
global\_var = "I am global"  
  
def variable\_scope\_example():  
 local\_var = "I am local" # This is a local variable  
 print("Inside function, local\_var:", local\_var)  
 print("Inside function, global\_var:", global\_var)  
  
variable\_scope\_example()  
print("Outside function, global\_var:", global\_var)  
  
Output:  
Inside function, local\_var: I am local  
Inside function, global\_var: I am global  
Outside function, global\_var: I am global

## 5. calculate\_area(length, width=5) Function

This function calculates the area of a rectangle. If only the length is provided, the function assumes the width is 5. Below is the implementation and examples of its usage.

def calculate\_area(length, width=5):  
 """Calculates the area of a rectangle. If the width is not provided, it defaults to 5."""  
 return length \* width  
  
Example:  
print("Area with both length and width:", calculate\_area(10, 4)) # Output: 40  
print("Area with only length:", calculate\_area(10)) # Output: 50