

Assignment : Functions

Objective:

The goal of this assignment is to reinforce your understanding of Python functions by creating practical programs that involve defining, calling, and utilizing functions effectively.

Problems:

1. Greet a User:

Write a function called `greet_user` that takes a name as input and prints a personalized greeting message.

Input Example: "Alice"

Output Example: "Hello, Alice! Welcome to Python programming."

2. Calculate Factorial:

Write a recursive function `factorial(n)` to calculate the factorial of a given number.

Input Example: 5

Output Example: 120

3. Temperature Converter:

Write a function `convert_temperature` that takes a temperature in Celsius and converts it to Fahrenheit. Use the formula:

$$F = (C \times \frac{9}{5}) + 32$$

Input Example: 25

Output Example: 77.0

4. Grade Calculator:

Write a function `calculate_grade` that accepts a student's marks and returns the grade based on the following criteria:

- Marks ≥ 90 : Grade A
- Marks ≥ 80 : Grade B
- Marks ≥ 70 : Grade C

- Marks < 70: Grade D

Input Example: 85

Output Example: "Grade B"

5. Sum of Arbitrary Numbers:

Create a function `sum_numbers(*args)` that accepts any number of integers and returns their sum.

Input Example: 1, 2, 3, 4, 5

Output Example: 15

6. Dictionary Info Printer:

Write a function `print_info(**kwargs)` that takes key-value pairs as input and prints them in the format:

"Key: Value"

Input Example: name="Alice", age=25, city="Dhaka"

Output Example:

name: Alice

age: 25

city: Dhaka

7. BMI Calculator:

Write a function `calculate_bmi(weight, height)` that calculates the Body Mass Index (BMI) given weight in kilograms and height in meters.

The formula is:

$$BMI = \frac{weight}{height^2}$$

Input Example: weight = 70, height = 1.75

Output Example: 22.86

8. Find Largest Number:

Write a function `find_largest(a, b, c)` that takes three numbers as input and returns the largest among them.

Input Example: 5, 10, 3

Output Example: 10

9. **Palindrome Checker:**

Write a function `is_palindrome(word)` that checks whether a given word is a palindrome.

Input Example: "radar"

Output Example: True

10. **Multiplication Table Generator:**

Write a function `generate_table(number)` that prints the multiplication table of a given number up to 10.

Input Example: 5

Output Example:

```
5 x 1 = 5
5 x 2 = 10
...
5 x 10 = 50
```

Submission Instructions:

1. Submit your assignment as screenshots.
2. Make sure to include comments explaining your code.
3. Ensure that your code is well-indented and readable.

Good luck!!!