Assignment 1

Important Submission Instructions for Assignment 1:

1. Deadline: The deadline for submitting your solutions is **Thursday, 20 February 2025, at 11:59 PM. Late submissions will not be accepted.**
2. Submission Guidelines:
   - Upload a separate Python file for each question to Google Drive.
   - Ensure that the folder containing your Python files is set to "Anyone with the link can view."
   - Copy the Drive folder link and submit it by filling out the Assignment 1 form (link available in the WhatsApp group description).
3. Do Not Use External Resources: Avoid using ChatGPT or any website to search for solutions. Our system will detect this, and it will affect your score.
4. Code from Scratch: Write your code entirely from scratch. Do not use built-in libraries.
5. Test Your Code: Ensure your code works correctly by testing it with various inputs before submitting.
6. Original Work: Your submission must be your own work. Copying or sharing code with others is strictly prohibited.

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Problem Solving

Number: 1

Topic: Algorithms + Math

Replace Digit with Word

Problem Statement:
Write a function that takes an integer n and returns a string where each digit is replaced with its corresponding English word.

Example 1:
Input: n = 123
Output: "OneTwoThree"
Example 2:
Input: n = 405
Output: "FourZeroFive"

Function Definition:

```
def replace_digit_with_word(n):
    # Complete the function
```

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Problem Solving

Number: 2

Topic: Algorithms + Math

Count of Specific Digit

Problem Statement:
Write a function that takes an integer n and a single-digit integer d, and returns the number of times d appears in n.

Example 1:
Input: n = 122333, d = 3
Output: 3
Explanation: The digit 3 appears three times in 122333.
Example 2:
Input: n = 456789, d = 1
Output: 0
Explanation: The digit 1 does not appear in 456789.

Function Definition:

```
def count_specific_digit(n, d):
    # Complete the function
```

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Problem Solving

Number: 3

Topic: Algorithms + Math

Sum of Digits Raised to Consecutive Powers

Problem Statement:
Write a function that takes an integer n and returns the sum of its digits, each raised to the power of their respective positions (1-based).

Example 1:
Input: n = 123
Output: 32
Explanation: 1^1 + 2^2 + 3^3 = 1 + 4 + 27 = 32
Example 2:
Input: n = 456
Output: 245
Explanation: 4^1 + 5^2 + 6^3 = 4 + 25 + 216 = 245

Function Definition:

```
def sum_of_digits_consecutive_powers(n):
    # Complete the function
```

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Problem Solving

Number: 4

Topic: Algorithms + Math

Check for All Unique Digits

Problem Statement:
Write a function that takes an integer n and returns True if all digits in n are unique, otherwise False.

Example 1:
Input: n = 1234
Output: True
Example 2:
Input: n = 1123
Output: False

Function Definition:

```
def has_all_unique_digits(n):
    # Complete the function
```

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Problem Solving

Number: 5

Topic: Algorithms + Math

Multiply Digits of a Number

Problem Statement:
Write a function that takes an integer n and returns the product of its digits.

Example 1:
Input: n = 234
Output: 24
Explanation: 2 * 3 * 4 = 24
Example 2:
Input: n = 405
Output: 0

Function Definition:

```
def multiply_digits(n):
    # Complete the function
```

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Problem Solving

Number: 6

Topic: Algorithms + Math

Check if Number Contains Digit

Problem Statement:
Write a function that takes an integer n and a single-digit integer d, and returns True if d is present in n, otherwise False.

Example 1:
Input: n = 789, d = 8
Output: True
Example 2:
Input: n = 123, d = 4
Output: False

Function Definition:

```
def contains_digit(n, d):
    # Complete the function
```

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Problem Solving

Number: 7

Topic: Algorithms + Math

Sum of Digits at Even Positions

Problem Statement:
Write a function that takes an integer n and returns the sum of the digits at even positions (1-based index from the right).

Example 1:
Input: n = 123456
Output: 12
Explanation: 2 + 4 + 6 = 12
Example 2:
Input: n = 98765
Output: 14

Function Definition:

```
def sum_even_position_digits(n):
    # Complete the function
```

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Problem Solving

Number: 8

Topic: Algorithms + Math

Swap First and Last Digit

Problem Statement:
Write a function that takes an integer n and returns a new number formed by swapping its first and last digits.

Example 1:
Input: n = 1234
Output: 4231
Example 2:
Input: n = 7009
Output: 9007

Function Definition:

```
def swap_first_last_digit(n):
    # Complete the function
```

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Problem Solving

Number: 9

Topic: Algorithms + Math

Find the Difference Between the Largest and Smallest Digit

Problem Statement:
Write a function that takes an integer n and returns the difference between its largest and smallest digit.
Example 1:
Input: n = 583
Output: 5
Explanation: The largest digit is 8, the smallest is 3, so 8 - 3 = 5.
Example 2:
Input: n = 4009
Output: 9
Explanation: The largest digit is 9, the smallest is 0, so 9 - 0 = 9.

Function Definition:

```
def digit_difference(n):
    # Complete the function
```

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Problem Solving

Number: 10

Topic: Algorithms + Math

Remove a Specific Digit from Number

Problem Statement:
Write a function that takes an integer n and a single-digit integer d, and returns a new number formed by removing all occurrences of d from n.

Example 1:
Input: n = 12345, d = 3
Output: 1245
Example 2:
Input: n = 10101, d = 1
Output: 0

Function Definition:

```
def remove_digit(n, d):
    # Complete the function
```

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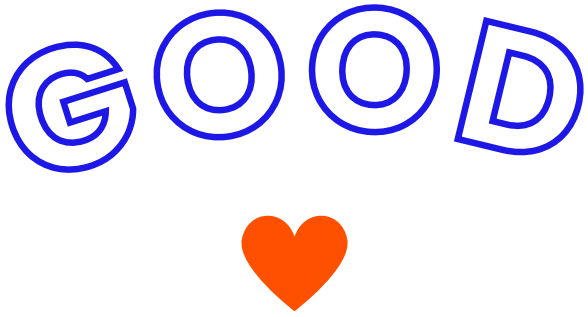
Assignment 1

Just don't give up



You can do anything