Lab 4 task

LUHN Algorithm (Credit Card Validation)

- **Input**:

The user is asked to input a credit card number
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- **Reversing the Card Number**:

The card number is converted to a string (if it's not already) and reversed. This is done because the Luhn algorithm works by starting from the right-most digit.

- **Iterating Over the Digits**:

A `for` loop is used to iterate through each digit of the reversed card number.

The `enumerate` function gives both the index `i` and the digit.

Double Every Second Digit:

For every second digit (starting from the right), i.e., at indices 1, 3, 5, ..., the digit is doubled.

If the doubled value is greater than 9, 9 is subtracted from it to get a valid value for that digit (this is part of the Luhn checksum rule).

- **Summing the Digits**:

The sum of all digits (after the transformation) is calculated in `total`.

Validation:

After the loop, the function checks if the sum (`total`) is divisible by 10.

If it is, the card number is valid; otherwise, it's invalid.

- **Output**:

Based on the result of `luhn_algorithm()`, the program prints whether the card number is valid or invalid.

Remove Punctuation from a String

Import `string` Module:

Function to Remove Punctuation:

This function takes the input string and removes all punctuation using the `translate()` method.

This creates a translation table that maps all punctuation characters to `None` (i.e., removes them).

Input:

The program asks the user to input a string.

Remove Punctuation:

processes the string and removes any punctuation.

Output:

The cleaned string (without punctuation) is printed.

Sort the Words in a Sentence Alphabetically

Input:

The program asks the user to input a sentence.

Splitting the Sentence into Words:

This splits the input sentence into individual words by spaces and stores them in the `words` list.

Sorting the Words Alphabetically:

The list of words is sorted in alphabetical order.

Uses the default lexicographical order, which works for most alphabetic characters.

Joining Words into a Sentence:

The sorted list of words is joined back into a single string with spaces between the words.

Output:

The sorted sentence is printed to the console.