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**AI LAB TASK: 4**

**Introduction**

In this lab task I created three small Python programs. The first one is for checking card numbers using the LUHN algorithm. The second one is for removing punctuations from a sentence. The third one is for arranging the words of a sentence in alphabetical order.

**Functions Used**

I used three functions with different names. The function check\_card() is used for the LUHN algorithm. The function clean\_string() is used to remove punctuations from a string. The function arrange\_words() is used to sort the words in a sentence. Each function is written in a simple way using loops, conditions, and basic string handling.

**Problems Faced and Solutions**

The first problem I faced was in the LUHN program because the digits had to be doubled in a specific order. I solved it by reversing the number and then working on every second digit. The second problem I faced was when removing punctuations because characters like “!” and “,” were mixing with words. I solved it by checking only letters, digits and spaces before adding them to the new string.

**Advantages**

1. The programs are very short and simple.
2. Functions are written with clear names.
3. The same code can be reused with other inputs.

**Disadvantages**

1. No error handling for wrong inputs.
2. Sorting is case sensitive.
3. LUHN algorithm works only for numbers in string form.