**BSAI-3B**  
**Lab\_Task\_4**  
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**Task 1: LUHN Algorithm**

**Overview:**

The **Luhn Algorithm** is used to verify the validity of a card number (e.g., credit card, debit card).  
It checks whether a card number is **valid** or **invalid** by applying a series of calculations.

**How It Works:**

1. User enters a card number.
2. Spaces are removed for consistency.
3. The number is reversed for processing.
4. Starting from the right:
   * Every second digit is doubled.
   * If the doubled value > 9 → subtract 9.
5. Sum all digits.
6. If the total sum is divisible by 10 → **Valid Card Number**.  
   Otherwise → **Invalid Card Number**.

**Example Run:**

Input: 4539 1488 0343 6467  
Output: **Valid Card Number**

**Features:**

* Detects card number validity quickly.
* Ignores spaces automatically.
* Implements the Luhn rule step by step.

**Task 2: Remove Punctuations from a String**

**Overview:**

This program removes all **punctuation marks** from a given string.  
It ensures only **alphabets, numbers, and spaces** remain in the text.

**How It Works:**

1. User enters a string.
2. Program scans each character.
3. If the character is **not punctuation**, it is added to the result.
4. Final cleaned string is displayed.

**Example Run:**

Input: Hello!!! How are you???  
Output: Hello How are you

**Features:**

* Removes all common punctuation symbols.
* Simple character-by-character check.
* Works with any sentence entered by the user.

**Task 3: Sort a Sentence in Alphabetical Order**

**Overview:**

This program sorts all words of a sentence in **alphabetical order**.

**How It Works:**

1. User enters a sentence.
2. The sentence is split into words.
3. The words are sorted alphabetically.
4. The sorted sentence is displayed.

**Example Run:**

Input: Python makes coding easy and fun  
Output: Python and coding easy fun makes

**Features:**

* Sorts words alphabetically.
* Works with any user input.
* Uses Python’s built-in sorting for efficiency.