# Python Programs Documentation

## 1. Luhn Algorithm

The Luhn algorithm is a simple checksum formula used to validate identification numbers such as credit card numbers. It helps detect accidental errors like a mistyped digit.

### Advantages:

• Widely used for credit card validation.  
• Detects common data entry errors.  
• Simple and efficient to implement.

## 2. Removing Punctuations from a String

This program cleans up text by removing punctuation marks like commas, periods, exclamation marks, etc. It is useful in text preprocessing tasks such as Natural Language Processing (NLP).

### Advantages:

• Helps in preparing clean text data.  
• Improves accuracy in text analysis tasks.  
• Useful in applications like search engines and chatbots.

## 3. Sorting a Sentence Alphabetically

This program takes a sentence and arranges its words in alphabetical order. It demonstrates the use of basic string manipulation and sorting in Python.

### Advantages:

• Useful in organizing textual data.  
• Can help in creating dictionaries or indexes.  
• Makes it easier to search and analyze text.