**Technical Design Document Programming Exercise 7**  
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**Program Description:**  
This program takes a user-input paragraph and splits it into individual sentences using regular expressions. It then displays each sentence separately and counts the total number of sentences. The program ensures that numbers at the beginning of sentences are preserved correctly.

**Functions Used in the Program (Listed in Order of Execution):**

1. **Function Name:** split\_into\_sentences(paragraph)
   * **Description:** This function splits a paragraph into sentences while ensuring numbers at the beginning of sentences remain intact.
   * **Parameters:**
     + paragraph (string): The user-entered paragraph.
   * **Variables:**
     + pattern (string): Regular expression pattern to detect sentence boundaries.
   * **Logical Steps:**
     + Define a regex pattern that matches sentence-ending punctuation followed by whitespace.
     + Use re.split() to split the paragraph while keeping numbers at the start of sentences.
     + Strip extra whitespace from each sentence.
     + Return a list of sentences.
   * **Returns:**
     + List of sentences (each as a string).
2. **Function Name:** main()
   * **Description:** This function collects user input, calls the sentence-splitting function, and displays the results.
   * **Parameters:** None.
   * **Variables:**
     + paragraph (string): User input paragraph.
     + sentences (list): List of extracted sentences.
   * **Logical Steps:**
     + Prompt the user to enter a paragraph.
     + Call split\_into\_sentences() to process the paragraph.
     + Print each sentence with its index number.
     + Print the total count of sentences.
   * **Returns:** None.

**Logical Steps of the Program:**

1. Prompt the user to enter a paragraph.
2. Pass the paragraph to split\_into\_sentences().
3. Retrieve a list of sentences.
4. Display each sentence with an index number.
5. Display the total number of sentences.

**Testing Plan:**  
To ensure correctness, the program should be tested with the following inputs:

|  |  |  |
| --- | --- | --- |
| Input Type | Valid Example | Invalid Example |
| Simple Paragraph | "This is a test. It has two sentences." | "No period but two sentences" |
| Numbered Sentences | "1. First sentence. 2. Second sentence." | "1 First sentence 2 Second sentence" |
| Special Characters | "Wow! This is great. Isn't it?" | "No punctuation here" |

**Link to repository:** https://github.com/CarsonHarbin/COP2373