

Project 4: Capitalize It

Automated Text Capitalization in Pure Python

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Project Overview

The Problem

- People often don't use capital letters correctly on small devices.
- Inconsistent capitalization in texts, messages, and documents.
- Need for automated correction while preserving meaning.

The Solution

- Write a Python program that automatically fixes capitalization.
- Handle various punctuation and edge cases.
- Process multi-line text while preserving structure.

Step 1: First Character Capitalization

Capitalize First Non-Space Character

- Skip leading spaces.
- Find first visible character.
- Convert to uppercase.
- Example: " hello" → " Hello"

Step 2: Space Normalization

Clean Up Multiple Spaces

- Replace multiple spaces with single space.
- Preserve intentional line breaks ('`\n`').
- Maintain paragraph structure.
- Example: `"hello world"` → `"hello world"`

Step 3. Punctuation Spacing Challenge

Inconsistent Spacing Handling

- Ensure one space after punctuations.
- Remove excessive spaces before a punctuation.
- Add missing spaces when needed.
- Examples:
 - "Hello.World" → "Hello. World"
 - "Hello . World" → "Hello. World"

step 4: Sentence Capitalization

After Punctuation Marks

- Detect sentence endings: . ! ?
- Capitalize next non-space character.
- Example: "hello. world" → "Hello. World"

Step 5: Standalone "i" Replacement

Context-Aware "I" Capitalization

- Capitalize when 'i' and followed by spaces/punctuation.
- Preserve "i" inside words.
- Examples:
 - "i am" → "I am"
 - "(i think)" → "(I think)"

Step 6. Punctuations at the end of lines

Period at the end

- Add a period at the end of lines if there is no punctuation.
- Examples:
 - "hello world" → "Hello world."

Sample Input/Output 1

Basic Example

Input: "hello. how are you? i am fine."

Output: "Hello. How are you? I am fine."

Conclusion

Key Takeaways

- Pure Python implementation (no external libraries, ex : *regex*).
- Maintains text integrity while fixing capitalization and punctuations.

Applications

- Mobile keyboard corrections.
- Document formatting.
- Text generation.

Thank you for your attention!