Querying the Document ★

23/25 challenges solved

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A document is represented as a collection paragraphs, a paragraph is represented as a collection of sentences, a sentence is represented as a collection of words and a word is represented as a collection of lower-case ([a-z]) and upper-case ([A-Z]) English characters.

You will convert a raw text document into its component paragraphs, sentences and words. To test your results, queries will ask you to return a specific paragraph, sentence or word as described below.

Alicia is studying the C programming language at the University of Dunkirk and she represents the words, sentences, paragraphs, and documents using pointers:

- A word is described by **`char*`**.
- A sentence is described by **`char**`**. The words in the sentence are separated by one space (" "). The last word does not end with a space(" ").
- A paragraph is described by **`char***`**. The sentences in the paragraph are separated by one period (".").
- A document is described by **`char****`**. The paragraphs in the document are separated by one newline("\n"). The last paragraph does not end with a newline.

For example:

> Learning C is fun.
> Learning pointers is more fun.It is good to have pointers.

- The only sentence in the first paragraph could be represented as:

```
char** first_sentence_in_first_paragraph = {"Learning", "C", "is", "fun"};
```

- The first paragraph itself could be represented as:

```
char*** first_paragraph = {{"Learning", "C", "is", "fun"}};
```

- The first sentence in the second paragraph could be represented as:

```
char** first_sentence_in_second_paragraph = {"Learning", "pointers", "is", "more", "fun"};
```

- The second sentence in the second paragraph could be represented as:

```
char** second_sentence_in_second_paragraph = {"It", "is", "good", "to", "have", "pointers"};
```

- The second paragraph could be represented as:

```
char*** second_paragraph = {{"Learning", "pointers", "is", "more", "fun"}, {"It", "is", "good", "to",
```

- Finally, the document could be represented as:

```
char**** document = {{{"Learning", "C", "is", "fun"}}, {{"Learning", "pointers", "is", "more", "fun"}
```

Alicia has sent a document to her friend Teodora as a string of characters, i.e. represented by **char*** not **char****. Help her convert the document to **char**** form by completing the following functions:

- **char**** get_document(char* text)** to return the document represented by **char****.
- **char*** kth_paragraph(char**** document, int k)** to return the k^{th} paragraph.
- **char** kth_sentence_in_mth_paragraph(char****document, int k, int m)** to return the k^{th} sentence in the m^{th} paragraph.
- **char* kth_word_in_mth_sentence_of_nth_paragraph(char**** document, int k, int m, int n)** to return the k^{th} word in the m^{th} sentence of the n^{th} paragraph.

Input Format

The first line contains the integer $paragraph\_count$.
Each of the next $paragraph\_count$ lines contains a paragraph as a single string.
The next line contains the integer q, the number of queries.
Each of the next q lines or groups of lines contains a query in one of the following formats:

- 1 The first line contains $1\ k$:
  - The next line contains an integer x, the number of sentences in the k^{th} paragraph.
  - Each of the next x lines contains an integer $a[i]$, the number of words in the i^{th} sentence.
  - This query corresponds to calling the function **kth_paragraph**.
- 2 The first line contains $2\ k\ m$:
  - The next line contains an integer x, the number of words in the k^{th} sentence of the m^{th} paragraph.
  - This query corresponds to calling the function **kth_sentence_in_mth_paragraph.**
- 3 The only line contains $3\ k\ m\ n$:
  - This query corresponds to calling the function **kth_word_in_mth_sentence_of_nth_paragraph.**

Constraints

- The text which is passed to the **get_document** has words separated by a space (" "), sentences separated by a period (".") and paragraphs separated by a newline("\n").
- The last word in a sentence does not end with a space.
- The last paragraph does not end with a newline.
- The words contain only upper-case and lower-case English letters.
- $1 \leq$ number of characters in the entire document ≤ 1000
- $1 \leq$ number of paragraphs in the entire document ≤ 5

Output Format

Print the paragraph, sentence or the word corresponding to the query to check the logic of your code.

Sample Input 0

```
2
Learning C is fun.
```

```
Learning pointers is more fun.It is good to have pointers.
3
1 2
2
5
6
2 1 1
4
3 1 1 1
```

Sample Output 0

```
Learning pointers is more fun.It is good to have pointers.
Learning C is fun
Learning
```

Explanation 0

The first query corresponds to returning the second paragraph with **2** sentences of lengths **5** and **6** words.

The second query correspond to returning the first sentence of the first paragraph. It contains **4** words.

The third query corresponds to returning the first word of the first sentence of the first paragraph.

Change Theme Language: C

```
}

void print_word(char* word) {
    printf("%s", word);
}

void print_sentence(char** sentence) {
    int word_count;
    scanf("%d", &word_count);
    for(int i = 0; i < word_count; i++){
        printf("%s", sentence[i]);
        if( i != word_count - 1)
            printf(" ");
    }
}

void print_paragraph(char*** paragraph) {
    int sentence_count;
    scanf("%d", &sentence_count);
    for (int i = 0; i < sentence_count; i++) {
        print_sentence(*(paragraph + i));
        printf(".");
    }
}
```

Line: 137 Col: 2

Upload Code as File Test against custom input Run Code Submit Code

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23/25 challenges solved.

92%

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You solved this challenge. Would you like to challenge your friends?

Next Challenge

Test case 0

Test case 1

Test case 2

Test case 3

Test case 4

Compiler Message

Success

Hidden Test Case

Unlock this testcase for 5 hackos.

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