



The Longest story of NiCE Realm

by Guild of Coday



Keytara always loved books. They told stories, they held knowledge, laughter, and power. She spent hours in the Library of the NiCE Realm every day since her childhood. Books were all around her; she could travel the maze of bookshelves endlessly.

Keytara could turn left and find books about the sea and travel, turn right—and find a love story that made her heart warm.



Her mother was the Librarian, and soon it would be Keytara's turn to become guardian of knowledge. But to become one, she must tell her mother a single number: the Number of the Longest Story.



Many books mentioned other books, either by quote or subtle reference. Keytara, like any Librarian before her, created her own catalogue in which she put all the references between books that she could find. She decided to use the number of letters in each reference as a measure of connection between books.



"The more letters, the stronger the connection," she thought. "And if the Book of Pirates has a quote from the Book of Treasures, it does not mean that the Book of Treasures references the Book of Pirates." She continued to ponder her catalogue.



"So, to find the Longest Story, I will have to follow references between books in my catalogue. But how exactly? I have already tried to move through each and every reference—and it takes too long and never tells a proper story. But... what if I always move between books, but each next reference is stronger?" Keytara's thoughts rushed; she felt that she was onto something.



"Yes, yes, it will work! The Book of Pirates has thirty words that mention the Book of Treasures. The Book of Treasures also mentions the Book of Alchemy, but the quote is only twenty-five words. Should I read a book that has a weaker connection? No, the Longest Story cannot be built on such a loose connection—it should only become stronger. I will call it the Rule of Ever-growing Connection."



Keytara looked into her catalogue. The Book of Alchemy referenced the Book of Transmutation, but this reference in her catalogue was a couple of pages earlier. "No, I shouldn't move back in my catalogue as well. All stories move forward, even if they seem to move back. I will call it the Rule of Only Forward!" She chuckled, imagining herself as captain of a ship, yelling this as a command to her crew.

"Sometimes, I will have to read the same book multiple times. But that's all right—I love books." Keytara was ready to start her pursuit immediately but stopped, thinking.

"Of course! It is simply the story which contains the maximum number of references between books while also following my Rule of Only Forward and Rule of Ever-growing Connection! I just need to say a number of those references!"

Example

Number of books, 1..100000

Book with
reference,
1..number of books,
inclusive

6 5

1 2 1

2 3 2

3 4 3

5 4 10

4 6 11

Number of references, 1..100000

Book which is referenced,
1..number of books, inclusive

Number of words in reference,
0..100000 inclusive

Output: 4