Question No # 5 : Library System

Objective: String, List and basic control flow('if ' statements,loops)

You are working on a **Library System** where members borrow and return books. Your task is to analyze a list of transactions and determine the following:

1. The total number of books borrowed.
2. The total number of books returned.
3. The number of books that have not been returned.
4. The number of books returned late with a fine.
5. The total amount collected from fines on late returns.

Each transaction is represented as a string in the format '**xxxmmman**', where:

- **xxx** is the **BookID,** a unique identifier for each book (3 characters).
- **mmm** is the **MemberID**, a unique identifier for each library member (3 characters).
- **a** represents the **action** taken by the member:
  - 'B' for borrowing a book.
  - 'R' for returning a book.
- n represents the **number of days** associated with the transaction (integer).
- The symbol '**' at the end of the string indicates that the book has not been returned.

For example, consider the transaction string:

*A01001B10,B02002B6,C03003B7,A01001R7,B02002R9,C03003R***

This string indicates:

- Member **001** borrowed **BookID 'A01'** for 10 days and returned it in 7 days (no penalty).
- Member **002** borrowed **BookID 'B02'** for 6 days but returned it in 9 days (3 days late, so a fine of 2 units per day).
- Member **003** borrowed **BookID 'C03'** for 7 days and has not returned it (indicated by '**').

Output:

- Number of **Borrowed books**: 3
- Number of **Returned books**: 2
- Number of **Not returned books**: 1
- Number of **Books returned with a fine**: 1
- **Total amount collected** from late returns: 6 (3 days late × 2 units per day).

INPUT

A single line string containing library transactions separated by commas, with the sequence of borrowed books followed by their corresponding return entries.

Note: Input string is split in to list of entries using split (‘,’).

OUTPUT

5 lines

1. Number of Books Borrowed
2. Number of Books Returned
3. Number of Books Not Returned
4. Number of Books Returned with Fine
5. Total Amount collected from the Number of Books Returned with Fine

EXAMPLES

Input (from keyboard)	**Output (on-screen)**
A01001B10,B02002B6,A01001R7,B02002R2	2 2 0 0 0
A01001B10,B02002B6,C03003B7,A01001R12,B02002R7,C03003R10	3 3 0 3 12
A01001B10,B02002B6,C03003B12,D04004B8,A01001R**,B02002R10,C03003R**,D04004R8	4 2 2 1 8
A01001B10,B02002B6,A01001R**,B02002R**	2 0 2 0 0

Test Cases in Grader

Testcases will be grouped. Each group has the following criteria:

Testcases quantity	Testcase characteristics
50%	Mix of returned, not returned with fine
25%	All not returned
15%	All returned, with fine
10%	All returned, with no fine