PRAKTIKUM PEMROGRAMAN 1

Nama : Danar Fathurahman
NIM : 24/538200/PA/22828
Prodi : Ilmu Komputer (KOM-B)

Problem Statement:
You are tasked with developing a small inventory management system for a bookstore. The system should be able to:

- Add new books to the inventory.
- Check if a book is already in the inventory.
- Remove books from the inventory.

Requirements:

- Each book is identified by a unique ISBN (International Standard Book Number).
- The system should efficiently handle book additions, lookups, and deletions.
- Provide a brief description of how the chosen data structure supports these operations.

Tasks:

1. Write an Algorithm: Outline a step-by-step algorithm to handle each of the tasks mentioned in the problem statement. Use pseudocode to represent the algorithm clearly.
2. Choose a Data Structure: Select an appropriate data structure to implement the inventory system. Justify your choice based on the efficiency of the operations (addition, lookup, removal).
3. Explain Your Choice: Provide a brief explanation of how the chosen data structure supports the operations required by the inventory management system and how it impacts performance.

ANSWER:

Saya menggunakan struktur data Set, karena masing-masing buku memiliki ID tersendiri, sehingga saat melakukan pencarian dalam sebuah inventori akan lebih cepat. Maka dari itu, fungsi-fungsi seperti menambahkan, mengecek dan menghilangkan suatu buku dapat dijalankan dengan efektif dan efisien. Pseudocode beserta penjelasan masing-masing baris ada di halaman terakhir.

PSEUDOCODE

```
Start Program
    Input the name of the bookset in the database
    If there is no bookset:                    // If there is no bookset
        Create a new Set of bookset            // Create new bookset
    Else:                                      // Else if there is a bookset
        Open the Set of bookset                // Open the bookset

    Choose function (ADDITION, LOOKUP, DELETION)

    Function ADDITION
    Input: Book ID or ISBN
    Output: Success or Failure message

    For each element in the bookset:           // Check every book in the bookset
        If ID is found in the bookset:         // If there is a duplicate
            Print "gagal ditambahkan"          // Print failed
            Return False                       // Function failed
    Add book to bookset                        // If there is no duplicate, add book
    Print "sukses"                             // Print success
    Return True                                // Success

    Function LOOKUP
    Input: Book ID or ISBN
    Output: Found or Not Found message

    For each element in the bookset:           // Check every book in the bookset
        If ID is found in the bookset:         // If book is found in bookset
            Print "ditemukan"                  // Print found
            Return True                        // Success
    Print "tak ditemukan"                      // Print not found
    Return False                               // Failed

    Function DELETION
    Input: Book ID or ISBN
    Output: Success or Failure message

    For each element in the bookset:           // Check every book in the bookset
        If ID is found in the bookset:         // If book is found in bookset
            Remove the book                    // Remove the book that has same ID
            Print "sukses"                     // Print success
            Return True                        // Success
    Print "gagal"                              // Print not found
    Return False                               // Failed
End Program
```