```cpp
#include <iostream>
#include <string>
using namespace std;

class Book {
public:
    string bookID;
    string title;
    string author;
    bool available;

    Book(string id="", string t="", string a="") {
        bookID = id;
        title = t;
        author = a;
        available = true;
    }

    void issueBook() {
        if (available) {
            available = false;
            cout << "Book issued successfully.\n";
```

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        } else {
            cout << "Book is already issued.\n";
        }
    }

    void returnBook() {
        if (!available) {
            available = true;
            cout << "Book returned successfully.\n";
        } else {
            cout << "This book was not issued.\n";
        }
    }
};

class Library {
private:
    Book books[100];    // simple array
    int count;          // total number of books

public:
    Library() {
```

```
    count = 0;
}

void addBook(Book b) {
    if (count < 100) {
        books[count] = b;
        count++;
        cout << "Book added successfully.\n";
    } else {
        cout << "Library is full!\n";
    }
}

Book* searchByID(string id) {
    for (int i = 0; i < count; i++) {
        if (books[i].bookID == id)
            return &books[i];
    }
    return nullptr;
}

Book* searchByTitle(string t) {
```

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        for (int i = 0; i < count; i++) {
            if (books[i].title == t)
                return &books[i];
        }
        return nullptr;
    }

    void showStats() {
        int issued = 0, available = 0;
        for (int i = 0; i < count; i++) {
            if (books[i].available) available++;
            else issued++;
        }
        cout << "Total books: " << count << endl;
        cout << "Issued books: " << issued << endl;
        cout << "Available books: " << available << endl;
    }
};

int main() {
    Library lib;
    int choice;
```

```
do {
    cout << "\n--- Library Management System ---\n";
    cout << "1. Add Book\n";
    cout << "2. Issue Book\n";
    cout << "3. Return Book\n";
    cout << "4. Search by ID\n";
    cout << "5. Search by Title\n";
    cout << "6. Show Statistics\n";
    cout << "7. Exit\n";
    cout << "Enter your choice: ";
    cin >> choice;
    cin.ignore();

    if (choice == 1) {
        string id, title, author;
        cout << "Enter Book ID: ";
        getline(cin, id);
        cout << "Enter Book Title: ";
        getline(cin, title);
        cout << "Enter Author: ";
        getline(cin, author);
        Book b(id, title, author);
```

```
        lib.addBook(b);
    }
    else if (choice == 2) {
        string id;
        cout << "Enter Book ID to issue: ";
        getline(cin, id);
        Book* b = lib.searchByID(id);
        if (b) b->issueBook();
        else cout << "Book not found.\n";
    }
    else if (choice == 3) {
        string id;
        cout << "Enter Book ID to return: ";
        getline(cin, id);
        Book* b = lib.searchByID(id);
        if (b) b->returnBook();
        else cout << "Book not found.\n";
    }
    else if (choice == 4) {
        string id;
        cout << "Enter Book ID to search: ";
        getline(cin, id);
```

```
        Book* b = lib.searchByID(id);
        if (b) {
            cout << "ID: " << b->bookID << ", Title: " << b
                ->title
                << ", Author: " << b->author
                << ", Available: " << (b->available ? "Yes" :
                    "No") << endl;
        } else {
            cout << "Book not found.\n";
        }
    }
    else if (choice == 5) {
        string title;
        cout << "Enter Book Title to search: ";
        getline(cin, title);
        Book* b = lib.searchByTitle(title);
        if (b) {
            cout << "ID: " << b->bookID << ", Title: " << b
                ->title
                << ", Author: " << b->author
                << ", Available: " << (b->available ? "Yes" :
```

```
            getline(cin, title);
            Book* b = lib.searchByTitle(title);
            if (b) {
                cout << "ID: " << b->bookID << ", Title: " << b
                    ->title
                     << ", Author: " << b->author
                     << ", Available: " << (b->available ? "Yes" :
                         "No") << endl;
            } else {
                cout << "Book not found.\n";
            }
        }
        else if (choice == 6) {
            lib.showStats();
        }
    } while (choice != 7);

    cout << "Exiting program. Goodbye!\n";
    return 0;
}
```