```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

// structure to store book information
struct Book
{

    char title[50];

    char author[50];

    int id;

    int is_available; // 1 if available, 0 if borrowed
};

// function prototypes
void add_book();

void display_books();

void search_book();

void borrow_book();

void return_book();

// global variables
struct Book library[100];

int num_books = 0; // current number of books in library

int main()
{

    int choice;

    printf("Welcome to the Library Management System\n");

    while (1)
    {

        printf("\nMenu:\n");

        printf("1. Add Book\n");

        printf("2. Display Books\n");
```

```
        printf("3. Search Book\n");
        printf("4. Borrow Book\n");
        printf("5. Return Book\n");
        printf("6. Exit\n");
        printf("Enter your choice: ");
        scanf("%d", &choice);
        switch (choice)
        {
        case 1:
            add_book();
            break;
        case 2:
            display_books();
            break;
        case 3:
            search_book();
            break;
        case 4:
            borrow_book();
            break;
        case 5:
            return_book();
            break;
        case 6:
```

```
            printf("Goodbye!\n");

            exit(0);

        default:

            printf("Invalid choice. Try again.\n");

            break;
        }
    }

    return 0;
}

void add_book()
{

    if (num_books == 100)
    {

        printf("Library is full. Cannot add more books.\n");

        return;
    }

    struct Book new_book;

    printf("Enter the title of the book: ");

    scanf(" %[^\n]", new_book.title);

    printf("Enter the author of the book: ");

    scanf(" %[^\n]", new_book.author);

    printf("Enter the ID of the book: ");

    scanf("%d", &new_book.id);

    new_book.is_available = 1; // book is available by default

    library[num_books] = new_book;

    num_books++;

    printf("Book added successfully.\n");
}
```

```c
void

display_books()
{

    if (num_books == 0)
    {

        printf("Library is empty.\n");

        return;
    }

    printf("List of Books:\n");

    for (int i = 0; i < num_books; i++)
    {

        printf("Title: %s, Author: %s, ID: %d, Availability: %s\n",
               library[i].title, library[i].author, library[i].id,
               library[i].is_available ? "Available" : "Borrowed");
    }
}

void

search_book()
{

    if (num_books == 0)
    {

        printf("Library is empty.\n");

        return;
    }

    int id;

    printf("Enter the ID of the book to search: ");

    scanf("%d", &id);

    for (int i = 0; i < num_books; i++)
    {

        if (library[i].id == id)
```

```
        {

            printf("Title: %s, Author: %s, ID: %d, Availability: %s\n",
                   library[i].title, library[i].author, library[i].id,
                   library[i].is_available ? "Available" : "Borrowed");

            return;
        }
    }

    printf("Book with ID %d not found.\n");
}

void borrow_book()
{

    if (num_books == 0)
    {

        printf("Library is empty.\n");

        return;
    }

    int id;

    printf("Enter the ID of the book to borrow: ");

    scanf("%d", &id);

    for (int i = 0; i < num_books; i++)
    {

        if (library[i].id == id)
        {

            if (library[i].is_available)
            {

                library[i].is_available = 0;

                printf("Book '%s' borrowed successfully.\n",
                       library[i].title);

                return;
            }
            else
            {
```

```
                printf("Book '%s' is not available for borrowing.\n",
                       library[i].title);

                return;
            }
        }
    }

    printf("Book with ID %d not found.\n", id);
}

void return_book()
{

    if (num_books == 0)
    {

        printf("Library is empty.\n");

        return;
    }

    int id;

    printf("Enter the ID of the book to return: ");

    scanf("%d", &id);

    for (int i = 0; i < num_books; i++)
    {

        if (library[i].id == id)
        {

            if (!library[i].is_available)
            {

                library[i].is_available = 1;

                printf("Book '%s' returned successfully.\n",
                       library[i].title);

                return;
            }
            else
            {
```

```
                printf("Book '%s' has not been borrowed.\n",
                       library[i].title);

                return;
            }
        }
    }

    printf("Book with ID %d not found.\n", id);
}
```