

```
1 package Task3;
2 import java.util.Scanner;
3
4 class Book {
5     private int bookID;
6     private String title;
7     private String author;
8     private boolean isAvailable;
9
10    public Book(int bookID, String title, String author) {
11        this.bookID = bookID;
12        this.title = title;
13        this.author = author;
14        this.isAvailable = true;
15    }
16    public int getBookID() {
17        return bookID;
18    }
19
20    public void setBookID(int bookID) {
21        this.bookID = bookID;
22    }
23
24    public String getTitle() {
25        return title;
26    }
27
28    public void setTitle(String title) {
29        this.title = title;
30    }
31
32    public String getAuthor() {
33        return author;
34    }
35
36    public void setAuthor(String author) {
37        this.author = author;
38    }
39 }
```

```

1 public boolean isAvailable() {
2     return isAvailable;
3 }
4
5 public void setAvailable(boolean available) {
6     isAvailable = available;
7 }
8
9 class Library {
10     private Book[] books;
11     private int size;
12     private static final int MAX_CAPACITY = 5;
13
14     public Library() {
15         this.books = new Book[MAX_CAPACITY];
16         this.size = 0;
17     }
18
19     // Method to add a book to the library
20     public void addBook(Book book) {
21         if (size < MAX_CAPACITY) {
22             books[size] = book;
23             size++;
24             System.out.println("Book added successfully!");
25         } else {
26             System.out.println("Library is full. Cannot add more books.");
27         }
28     }
29
30     // remove
31     public void removeBook(int bookID) {
32         for (int i = 0; i < size; i++) {
33             if (books[i].getBookID() == bookID) {
34                 for (int j = i; j < size - 1; j++) {
35                     books[j] = books[j + 1];
36                 }

```

```

6      System.out.println("Book removed successfully!");
7      return;
8  }
9  }
10 }
11 }
12 System.out.println("Book with ID " + bookID + " not found.");
13 }
14 }
15 // replace
16 public void replaceBook(int bookID, String newTitle, String newAuthor) {
17     for (int i = 0; i < size; i++) {
18         if (books[i].getBookID() == bookID) {
19             books[i].setTitle(newTitle);
20             books[i].setAuthor(newAuthor);
21             System.out.println("Book replaced successfully!");
22             return;
23         }
24     }
25     System.out.println("Book with ID " + bookID + " not found.");
26 }
27 // search
28 public void searchBook(int bookID) {
29     for (int i = 0; i < size; i++) {
30         if (books[i].getBookID() == bookID) {
31             System.out.println("Book found:");
32             System.out.println("Title: " + books[i].getTitle());
33             System.out.println("Author: " + books[i].getAuthor());
34             return;
35         }
36     }
37     System.out.println("Book with ID " + bookID + " not found.");
38 }
39 // display
40 public void displayBooks() {
41     if (size == 0) {
42         System.out.println("Library is empty.");
43         return;
44     }
45 }

```

```

116 }
117 System.out.println("Books in the library:");
118 for (int i = 0; i < size; i++) {
119     System.out.println("Book ID: " + books[i].getBookID());
120     System.out.println("Title: " + books[i].getTitle());
121     System.out.println("Author: " + books[i].getAuthor());
122     System.out.println("Available: " + books[i].isAvailable());
123     System.out.println();
124 }
125 }
126 }
127
128 public class BookManagementSystem {
129     public static void main(String[] args) {
130         Library library = new Library();
131         Scanner scanner = new Scanner(System.in);
132         int choice;
133
134         do {
135             System.out.println("Menu:");
136             System.out.println("1. Add a book");
137             System.out.println("2. Remove a book");
138             System.out.println("3. Replace a book");
139             System.out.println("4. Search for a book");
140             System.out.println("5. Display all books");
141             System.out.println("6. Exit");
142             System.out.print("Enter your choice: ");
143             choice = scanner.nextInt();
144
145             switch (choice) {
146                 case 1:
147                     addBook(library, scanner);
148                     break;
149                 case 2:
150                     removeBook(library, scanner);
151                     break;
152                 case 3:
153                     replaceBook(library, scanner);
154                     break;
155             }
156         } while (choice != 6);
157     }
158 }

```



```

2         case 3:
3             replaceBook(library, scanner);
4             break;
5         case 4:
6             searchBook(library, scanner);
7             break;
8         case 5:
9             library.displayBooks();
10            break;
11        case 6:
12            System.out.println("Exiting...");
13            break;
14        default:
15            System.out.println("Invalid choice. Please try again.");
16    }
17    } while (choice != 6);
18
19    scanner.close();
20 }

```

```

21
22
23 public static void addBook(Library library, Scanner scanner) {
24     System.out.print("Enter book ID: ");
25     int bookID = scanner.nextInt();
26     scanner.nextLine();
27     System.out.print("Enter title: ");
28     String title = scanner.nextLine();
29     System.out.print("Enter author: ");
30     String author = scanner.nextLine();
31     Book newBook = new Book(bookID, title, author);
32     library.addBook(newBook);
33 }
34
35 public static void removeBook(Library library, Scanner scanner) {
36     System.out.print("Enter book ID to remove: ");
37     int removeID = scanner.nextInt();
38     library.removeBook(removeID);
39 }
40
41 public static void replaceBook(Library library, Scanner scanner) {

```

```
8 scanner.close();
9 }
10
11
12
13 public static void addBook(Library library, Scanner scanner) {
14     System.out.print("Enter book ID: ");
15     int bookID = scanner.nextInt();
16     scanner.nextLine();
17     System.out.print("Enter title: ");
18     String title = scanner.nextLine();
19     System.out.print("Enter author: ");
20     String author = scanner.nextLine();
21     Book newBook = new Book(bookID, title, author);
22     library.addBook(newBook);
23 }
24
25 public static void removeBook(Library library, Scanner scanner) {
26     System.out.print("Enter book ID to remove: ");
27     int removeID = scanner.nextInt();
28     library.removeBook(removeID);
29 }
30
31 public static void replaceBook(Library library, Scanner scanner) {
32     System.out.print("Enter book ID to replace: ");
33     int replaceID = scanner.nextInt();
34     scanner.nextLine(); // Consume newline character
35     System.out.print("Enter new title: ");
36     String newTitle = scanner.nextLine();
37     System.out.print("Enter new author: ");
38     String newAuthor = scanner.nextLine();
39     library.replaceBook(replaceID, newTitle, newAuthor);
40 }
41
42 public static void searchBook(Library library, Scanner scanner) {
43     System.out.print("Enter book ID to search: ");
44     int searchID = scanner.nextInt();
45     library.searchBook(searchID);
46 }
47 }
```

Menu:

1. Add a book
2. Remove a book
3. Replace a book
4. Search for a book
5. Display all books
6. Exit

Enter your choice: 1

Enter book ID: 4034

Enter title: Introduction to oops programming

Enter author: Kirubavathi

Book added successfully!

Menu:

1. Add a book
2. Remove a book
3. Replace a book
4. Search for a book
5. Display all books
6. Exit

Enter your choice: 3

Enter book ID to replace: 4034

Enter new title: Java programming

Enter new author: Kiruba

Book replaced successfully!

Menu:

1. Add a book
2. Remove a book
3. Replace a book
4. Search for a book
5. Display all books
6. Exit

Enter your choice: 4

Enter book ID to search: 4034

Book found:

Title: Java programming

Author: Kiruba

Menu:

Book found:
Title: Java programming
Author: Kiruba
Menu:
1. Add a book
2. Remove a book
3. Replace a book
4. Search for a book
5. Display all books
6. Exit
Enter your choice: 5
Books in the library:
Book ID: 4034
Title: Java programming
Author: Kiruba
Available: true

Menu:
1. Add a book
2. Remove a book
3. Replace a book
4. Search for a book
5. Display all books
6. Exit
Enter your choice: 2
Enter book ID to remove: 4034
Book removed successfully!

Menu:
1. Add a book
2. Remove a book
3. Replace a book
4. Search for a book
5. Display all books
6. Exit
Enter your choice: 6
Exiting...