

```
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    }
}
```

```
0  public boolean isAvailable() {
1      return isAvailable;
2  }
3
4  public void setAvailable(boolean available) {
5      isAvailable = available;
6  }
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                 }
37             }
38         }
39     }
40 }
```

```
8     System.out.println("Book removed successfully!");
9     return;
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
28 // search
29 public void searchBook(int bookID) {
30     for (int i = 0; i < size; i++) {
31         if (books[i].getBookID() == bookID) {
32             System.out.println("Book found:");
33             System.out.println("Title: " + books[i].getTitle());
34             System.out.println("Author: " + books[i].getAuthor());
35             return;
36         }
37     }
38     System.out.println("Book with ID " + bookID + " not found.");
39 }
40
41 // display
42 public void displayBooks() {
43     if (size == 0) {
44         System.out.println("Library is empty.");
45         return;
46     }
47 }
```

```
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             }
155         } while (choice != 6);
156     }
157 }
```

```
2     case 3:
3         replaceBook(library, scanner);
4         break;
5     case 4:
6         searchBook(library, scanner);
7         break;
8     case 5:
9         library.displayBooks();
0         break;
1     case 6:
2         System.out.println("Exiting...");
3         break;
4     default:
5         System.out.println("Invalid choice. Please try again.");
6     }
7 } while (choice != 6);
8
9 scanner.close();
0
1
2
3 public static void addBook(Library library, Scanner scanner) {
4     System.out.print("Enter book ID: ");
5     int bookID = scanner.nextInt();
6     scanner.nextLine();
7     System.out.print("Enter title: ");
8     String title = scanner.nextLine();
9     System.out.print("Enter author: ");
0     String author = scanner.nextLine();
1     Book newBook = new Book(bookID, title, author);
2     library.addBook(newBook);
3 }
4 public static void removeBook(Library library, Scanner scanner) {
5     System.out.print("Enter book ID to remove: ");
6     int removeID = scanner.nextInt();
7     library.removeBook(removeID);
8 }
9 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 public static void removeBook(Library library, Scanner scanner) {
25     System.out.print("Enter book ID to remove: ");
26     int removeID = scanner.nextInt();
27     library.removeBook(removeID);
28 }
29 public static void replaceBook(Library library, Scanner scanner) {
30     System.out.print("Enter book ID to replace: ");
31     int replaceID = scanner.nextInt();
32     scanner.nextLine(); // Consume newline character
33     System.out.print("Enter new title: ");
34     String newTitle = scanner.nextLine();
35     System.out.print("Enter new author: ");
36     String newAuthor = scanner.nextLine();
37     library.replaceBook(replaceID, newTitle, newAuthor);
38 }
39 public static void searchBook(Library library, Scanner scanner) {
40     System.out.print("Enter book ID to search: ");
41     int searchID = scanner.nextInt();
42     library.searchBook(searchID);
43 }
44 }
```

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...
```