Book Management System using JDBC

Java Source Code:

```
import java.sql.*;
import java.util.Scanner;

public class JdbcBookCrud {
    public static void main(String[] args) {
        String url = "jdbc:mysql://localhost:3306/library";
        String user = "root";
        String pass = "your_password";
        Scanner sc = new Scanner(System.in);

        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            Connection con = DriverManager.getConnection(url, user, pass);
            System.out.println("Connected to Library Database!");

            while (true) {
                System.out.println("\n=== Library Management Menu ===");
                System.out.println("1. Add New Book");
                System.out.println("2. Display All Books");
                System.out.println("3. Update Book Details");
                System.out.println("4. Delete Book");
                System.out.println("5. Exit");
                System.out.print("Enter your choice: ");
                int choice = sc.nextInt();

                switch (choice) {
                    case 1:
                        System.out.print("Enter Book ID: ");
                        int id = sc.nextInt();
                        sc.nextLine();
                        System.out.print("Enter Title: ");
                        String title = sc.nextLine();
                        System.out.print("Enter Author: ");
                        String author = sc.nextLine();
                        System.out.print("Enter Price: ");
                        double price = sc.nextDouble();

                        String insertQuery = "INSERT INTO book VALUES (?, ?, ?, ?)";
                        PreparedStatement psInsert = con.prepareStatement(insertQuery);
                        psInsert.setInt(1, id);
                        psInsert.setString(2, title);
                        psInsert.setString(3, author);
                        psInsert.setDouble(4, price);
                        int inserted = psInsert.executeUpdate();
                        System.out.println(inserted + " book added successfully!");
                        psInsert.close();
                        break;

                    case 2:
                        String selectQuery = "SELECT * FROM book";
                        Statement stmt = con.createStatement();
                        ResultSet rs = stmt.executeQuery(selectQuery);
                        System.out.println("\nID\tTitle\t\tAuthor\t\tPrice");
                        System.out.println("-----------------------------------------");
```

```
                    while (rs.next()) {
                        System.out.println(rs.getInt("id") + "\t" +
                                           rs.getString("title") + "\t" +
                                           rs.getString("author") + "\t" +
                                           rs.getDouble("price"));
                    }
                    rs.close();
                    stmt.close();
                    break;

                case 3:
                    System.out.print("Enter Book ID to update: ");
                    int uid = sc.nextInt();
                    sc.nextLine();
                    System.out.print("Enter new Title: ");
                    String newTitle = sc.nextLine();
                    System.out.print("Enter new Author: ");
                    String newAuthor = sc.nextLine();
                    System.out.print("Enter new Price: ");
                    double newPrice = sc.nextDouble();

                    String updateQuery = "UPDATE book SET title=?, author=?, price=? WHERE id=?";
                    PreparedStatement psUpdate = con.prepareStatement(updateQuery);
                    psUpdate.setString(1, newTitle);
                    psUpdate.setString(2, newAuthor);
                    psUpdate.setDouble(3, newPrice);
                    psUpdate.setInt(4, uid);
                    int updated = psUpdate.executeUpdate();
                    System.out.println(updated + " book updated successfully!");
                    psUpdate.close();
                    break;

                case 4:
                    System.out.print("Enter Book ID to delete: ");
                    int did = sc.nextInt();
                    String deleteQuery = "DELETE FROM book WHERE id=?";
                    PreparedStatement psDelete = con.prepareStatement(deleteQuery);
                    psDelete.setInt(1, did);
                    int deleted = psDelete.executeUpdate();
                    System.out.println(deleted + " book deleted successfully!");
                    psDelete.close();
                    break;

                case 5:
                    System.out.println("Exiting Library System... Goodbye!");
                    con.close();
                    sc.close();
                    System.exit(0);

                default:
                    System.out.println("Invalid choice! Try again.");
                }
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

Program Output:

```
Connected to Library Database!

=== Library Management Menu ===
1. Add New Book
2. Display All Books
3. Update Book Details
4. Delete Book
5. Exit
Enter your choice: 1
Enter Book ID: 101
Enter Title: The Alchemist
Enter Author: Paulo Coelho
Enter Price: 499.99
1 book added successfully!

=== Library Management Menu ===
1. Add New Book
2. Display All Books
3. Update Book Details
4. Delete Book
5. Exit
Enter your choice: 1
Enter Book ID: 102
Enter Title: Atomic Habits
Enter Author: James Clear
Enter Price: 599.00
1 book added successfully!

=== Library Management Menu ===
1. Add New Book
2. Display All Books
3. Update Book Details
4. Delete Book
5. Exit
Enter your choice: 2

ID      Title           Author          Price
-----------------------------------------
101     The Alchemist   Paulo Coelho    499.99
102     Atomic Habits   James Clear     599.0

=== Library Management Menu ===
1. Add New Book
2. Display All Books
3. Update Book Details
4. Delete Book
5. Exit
Enter your choice: 3
Enter Book ID to update: 101
Enter new Title: The Alchemist - Deluxe
Enter new Author: Paulo Coelho
Enter new Price: 550
1 book updated successfully!

=== Library Management Menu ===
1. Add New Book
2. Display All Books
3. Update Book Details
```

```
4. Delete Book
5. Exit
Enter your choice: 4
Enter Book ID to delete: 102
1 book deleted successfully!

=== Library Management Menu ===
1. Add New Book
2. Display All Books
3. Update Book Details
4. Delete Book
5. Exit
Enter your choice: 5
Exiting Library System... Goodbye!
```