**The Hong Kong Polytechnic University**
**Department of Electronic and Information Engineering**

# EIE3320 Lab 2: Library Admin System

**Video demo instructions**

## Video Demo

**Program Testing (through video demo)**

- Provide a link of video in the report to demonstrate the program testing. Make sure the link is accessible by other people. If the link is not accessible, marks will be deducted. (You may test whether the link is accessible by using another browser or incognito window.)
- Record a video to demonstrate the validations of your program and confirmed that it is running correctly. Show the execution results of your program.
- Show all the basic features and the additional features that you implemented.
- The video demo is used to assess the features implemented. Make sure all the features are demonstrated.
- You may just record the screen without verbal explanation.
- No need to provide screen captures in the report.

## Steps to record video demo

1. **MyLinkedList class**
   - Show the code of your implementation for MyLinkedList class.
   - Use the given TestMyLinkedList to test your implementation of MyLinkedList class.

   The sample output for TestMyLinkedList:

```
(1) [America]
(2) [Canada, America]
(3) [Canada, America, Russia]
(4) [Canada, America, Russia, France]
(5) [Canada, America, Germany, Russia, France]
(6) [Canada, America, Germany, Russia, France, Norway]
(7) [Poland, Canada, America, Germany, Russia, France, Norway]
(8) [Canada, America, Germany, Russia, France, Norway]
(9) [Canada, America, Russia, France, Norway]
(10) [Canada, America, Russia, France]
(11) CANADA AMERICA RUSSIA FRANCE
(12) iterator.next(): Canada
(13) iterator.next(): America
(14) iterator.next(): Russia
(15) list after iterator.remove(): [Canada, America, France]
Before clearing the list, the list size is 3
After clearing the list, the list size is 0
```

   - Use the given TestMyLinkedListExtra to test your implementation of MyLinkedList class. Input "Jane" for the name and input "0" for index.

The sample output for TestMyLinkedListExtra:

```
[Tom, Susan, Kim, George, Peter, Jean, George, Jane, Denise, Jenny, Susan, Kathy, Jane]
Enter a name: Jane
Enter an index: 0
Jane is in the list? true
name at index 0 is Tom
Jane is at index 7
Jane is at last index 12
```

**2. MyQueue class**

- Show the code of your implementation for MyQueue class.
- Use the given TestMyQueue to test your implementation of MyQueue class.

The sample output:

```
(1) Queue: [Tom]
(2) Queue: [Tom, Susan]
(3) Queue: [Tom, Susan, Kim, Michael]
(4) Tom
(5) Susan
(6) Queue: [Kim, Michael]
   The size of the queue is 2
```

**3. Book class**

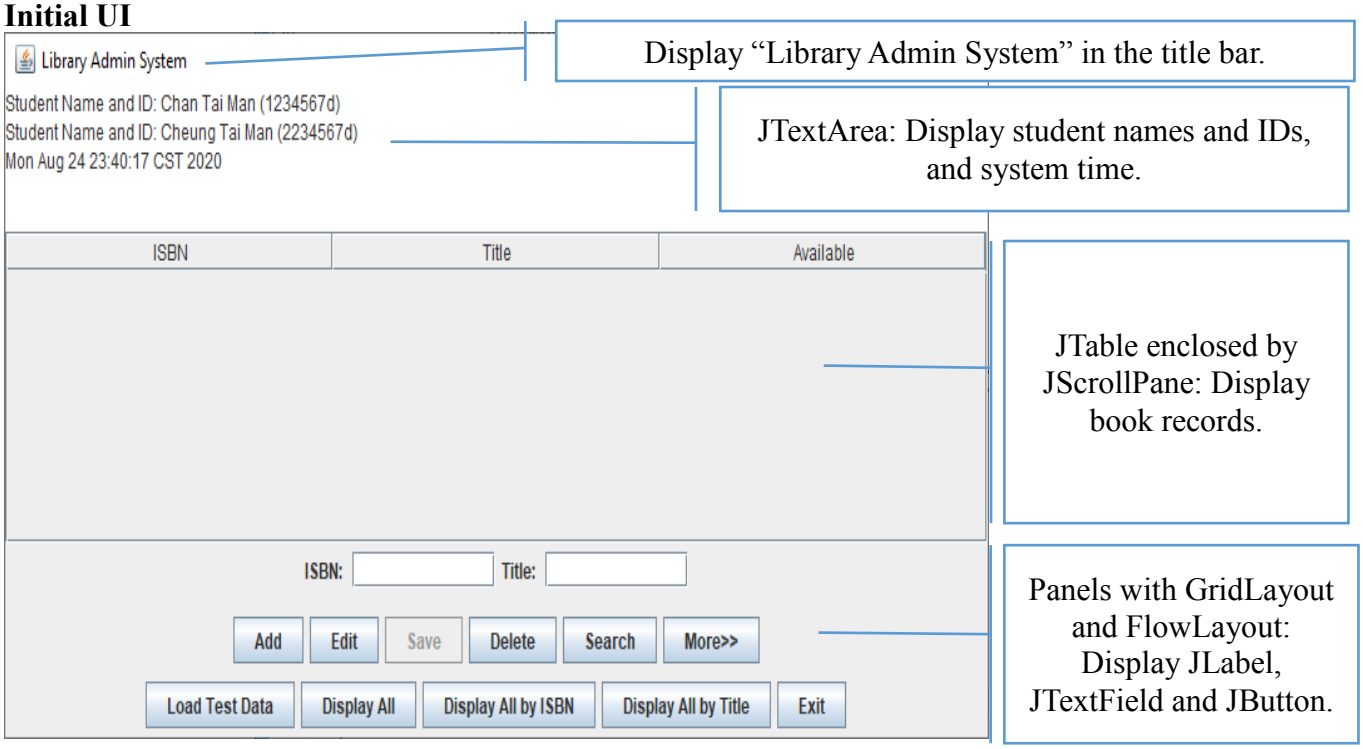
- Show the code of your implementation for Book class.
- Use the given TestBook to test your implementation of Book class.

The sample output:

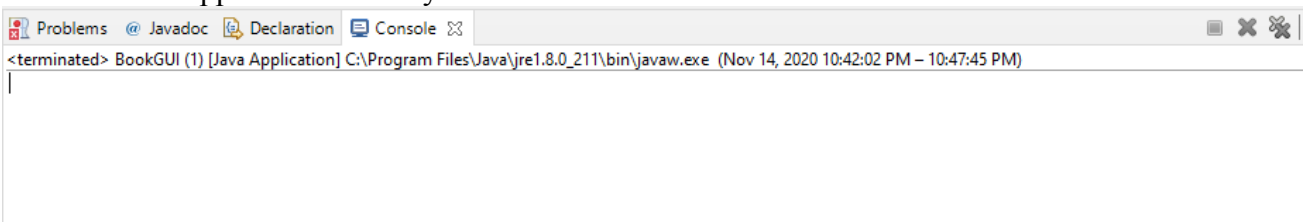
```
11111111 Book1: available
22222222 Book2: available
33333333 Book3: Not available
    Reserved queue: Borrower1 Borrower2 Borrower3
44444444 Book4: available
```

Show all the following ***Basic Features***:

**4. Initial UI**



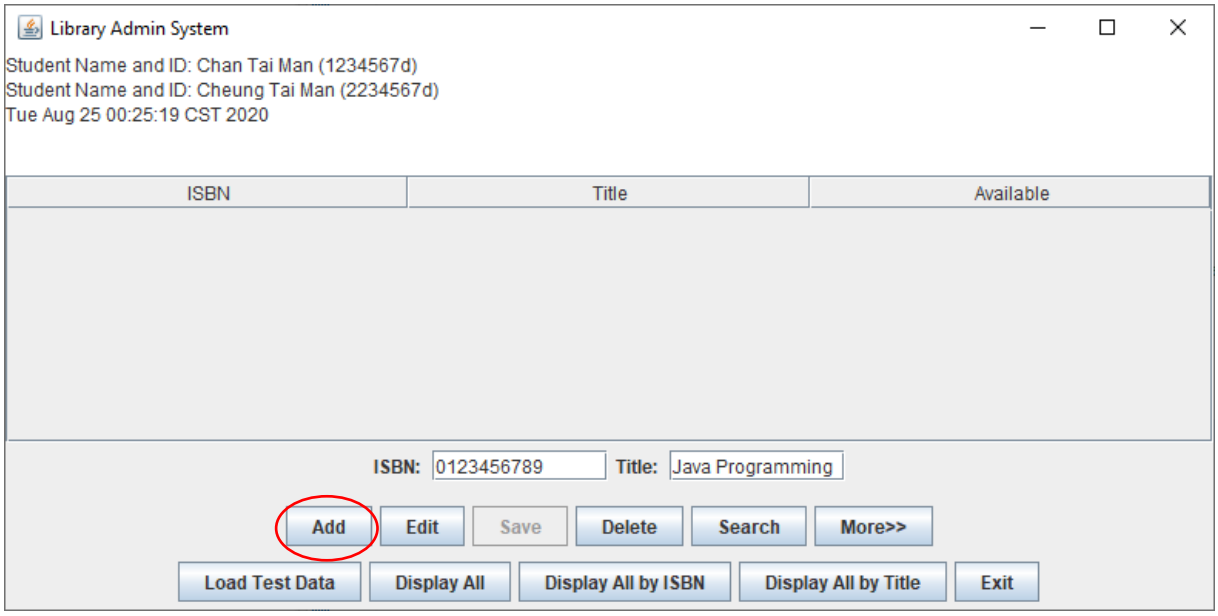

- Click "Delete" button, the error message would be displayed.
- Click "Edit" button, the error message would be displayed.
- Click "More" button, the error message would be displayed.
- Click the "X" button on the top right corner of the window, the application would be closed.
- Show that the application is really terminated.




- Run the application again.

**5. Add Book**

- While leaving the ISBN and Title text fields empty, click "Add" button would display the error message.
- Input "123" for ISBN while leaving Title field empty. Click "Add" button would display the error message.
- Input "123" for Title while leaving ISBN field empty. Click "Add" button would display the error message.
- Input "0123456789" for ISBN and "Java" for Title text fields. Click "Add" button would display the newly created Book in the JTable and clear the textfields.
- Input "0123456789" for ISBN text field again would display the error message.




## 6. Load Test Data

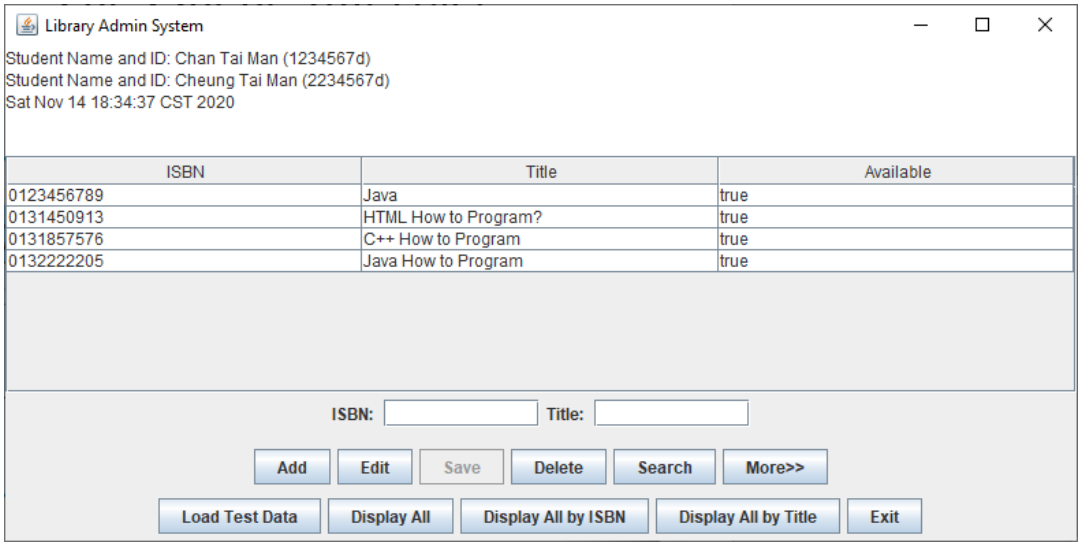
- On clicking “Load Test Data” button, the following 3 books will be appended to the current linked list. Then, all book records will be displayed in the JTable. The textfields are cleared.

  Title: "HTML How to Program"
  ISBN: "0131450913"

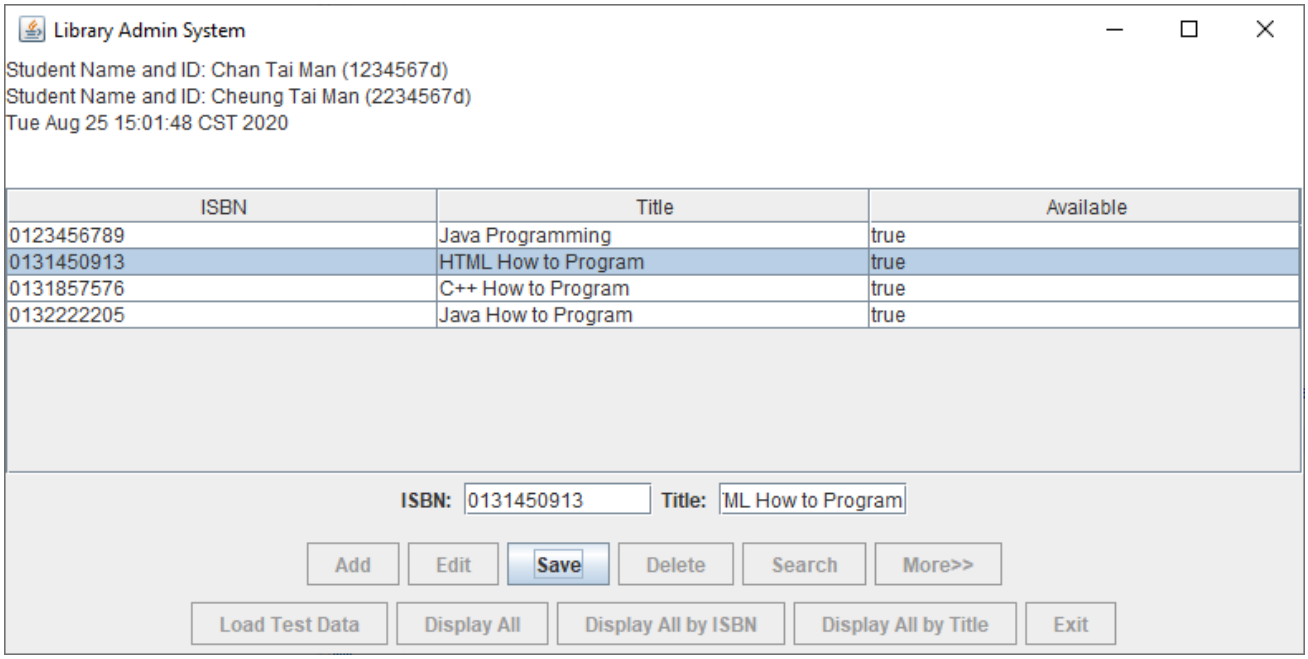
  Title: "C++ How to Program");
  ISBN: "0131857576");

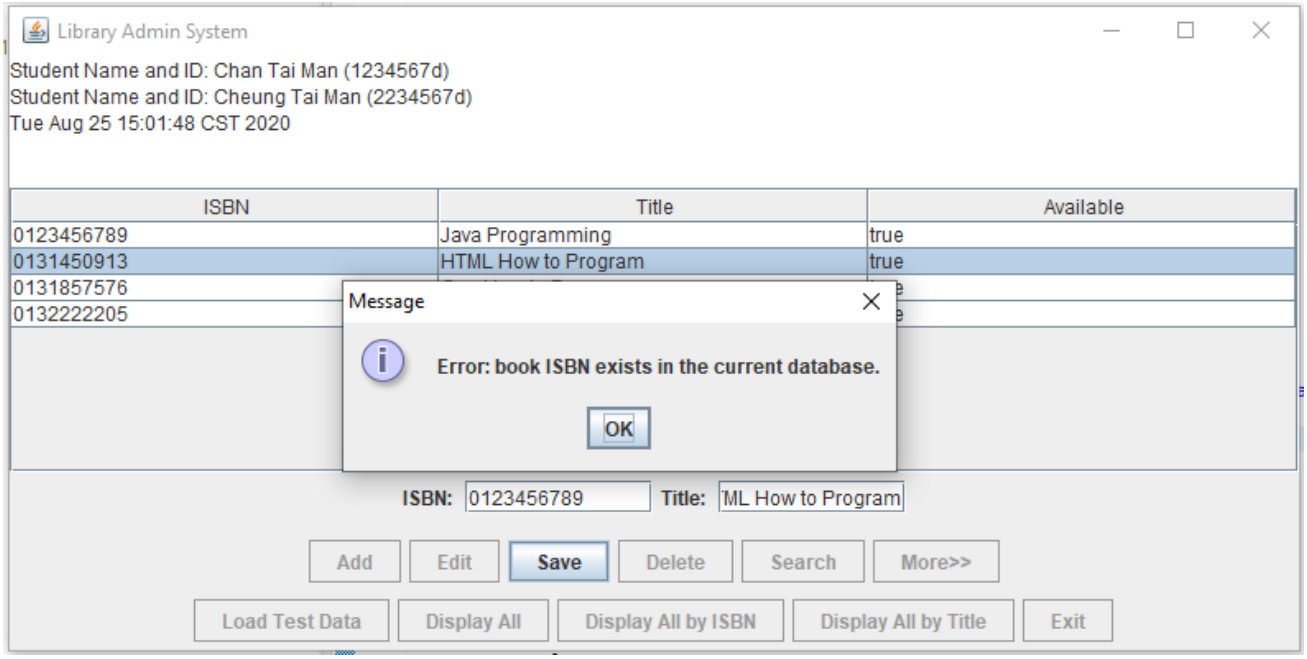
  Title: "Java How to Program");
  ISBN: "0132222205");

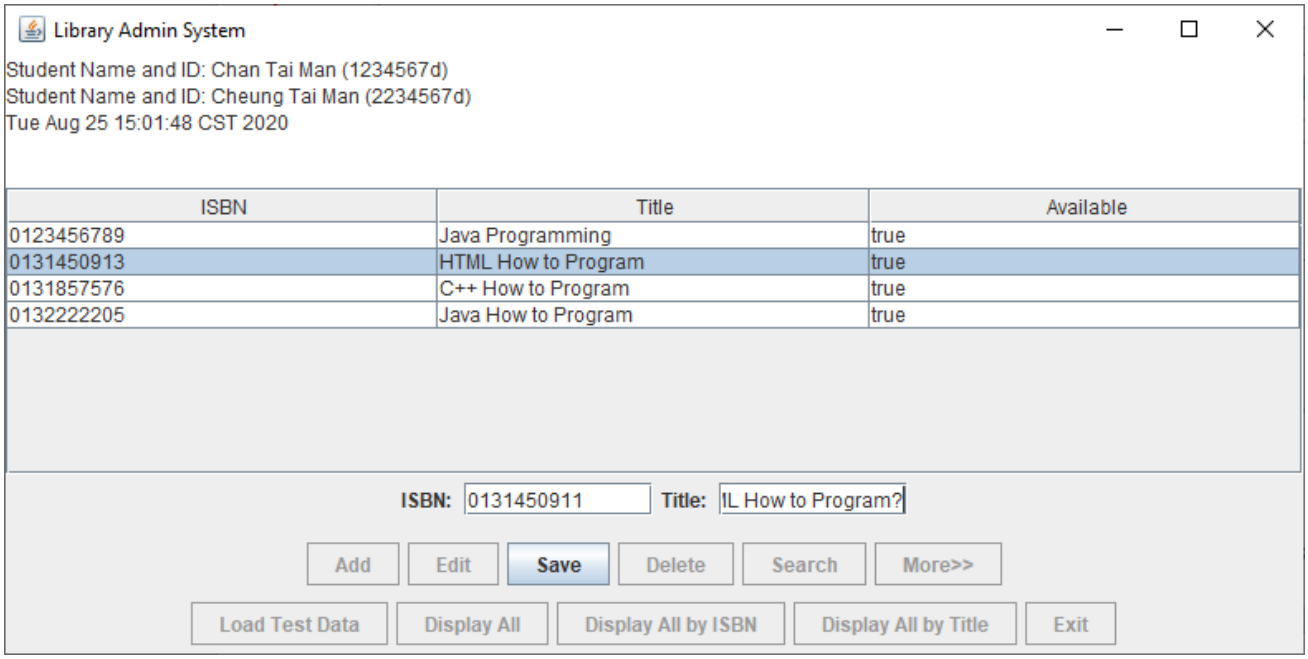
- Clicking “Load Test Data” button again would display the error message since the books are already in the database.
- Delete “HTML How to Program” and click “Load Test Data” button again. The “HTML How to Program” book will be added back and displayed in the table while the other two books cannot be added with error message displayed.

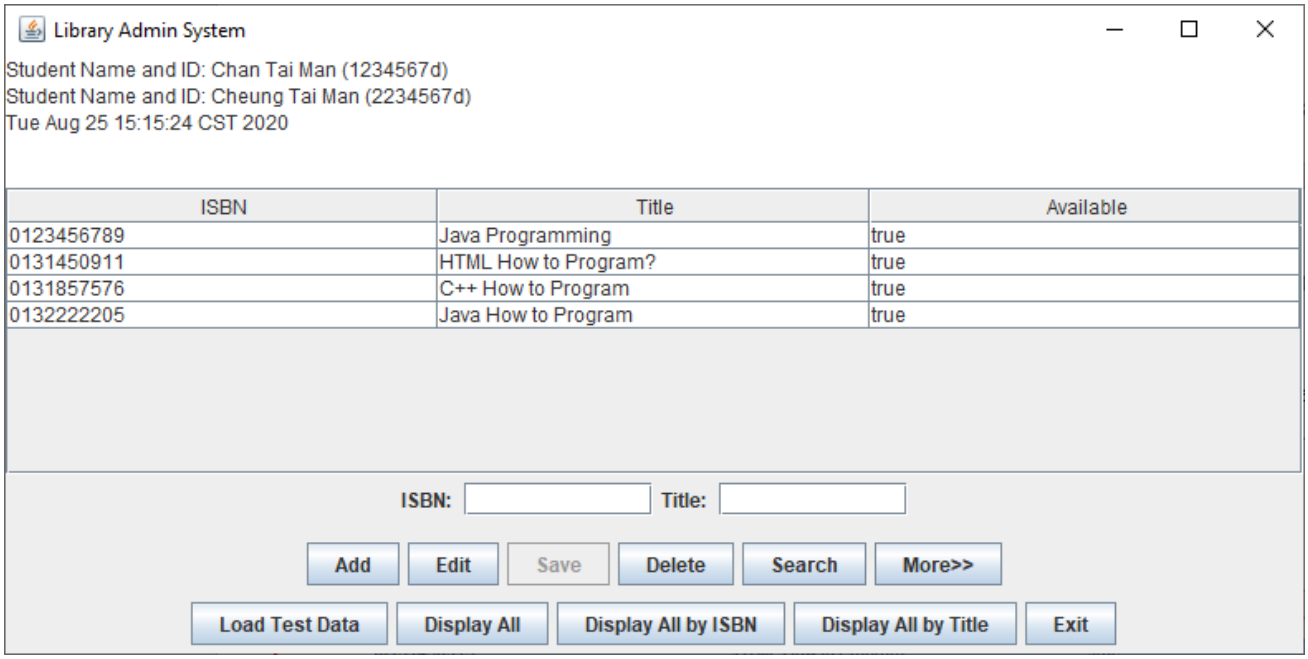


7. **Edit Book and Save**
   - Click the book record “HTML How to Program” in the JTable, then the Book ISBN and Title will be displayed in the textfields. Click the “Edit” button, then the “Save” button becomes enabled while all the other buttons are disabled. Change the ISBN to “0123456789” and click “Save” button would display the error message.
   - Change the ISBN back to “0131450913” and change the Title to “HTML How to Program?”. Click “Save” button would display all records with the updated information, disable the “Save” button, enable all the other buttons, and clear the text fields.
   - Input “0123456789” to the ISBN field and click “Edit” button, the title of the book will be displayed in the textfield. The “Save” button becomes enabled while all the other buttons are disabled. Change the ISBN to “012345678” and the Title to “Java Programming”. Click “Save” button would display all records with the updated information, disable the “Save” button, enable all the other buttons, and clear the text fields.
   - Input “123” to the ISBN field and click “Edit” button, the error message would be displayed.



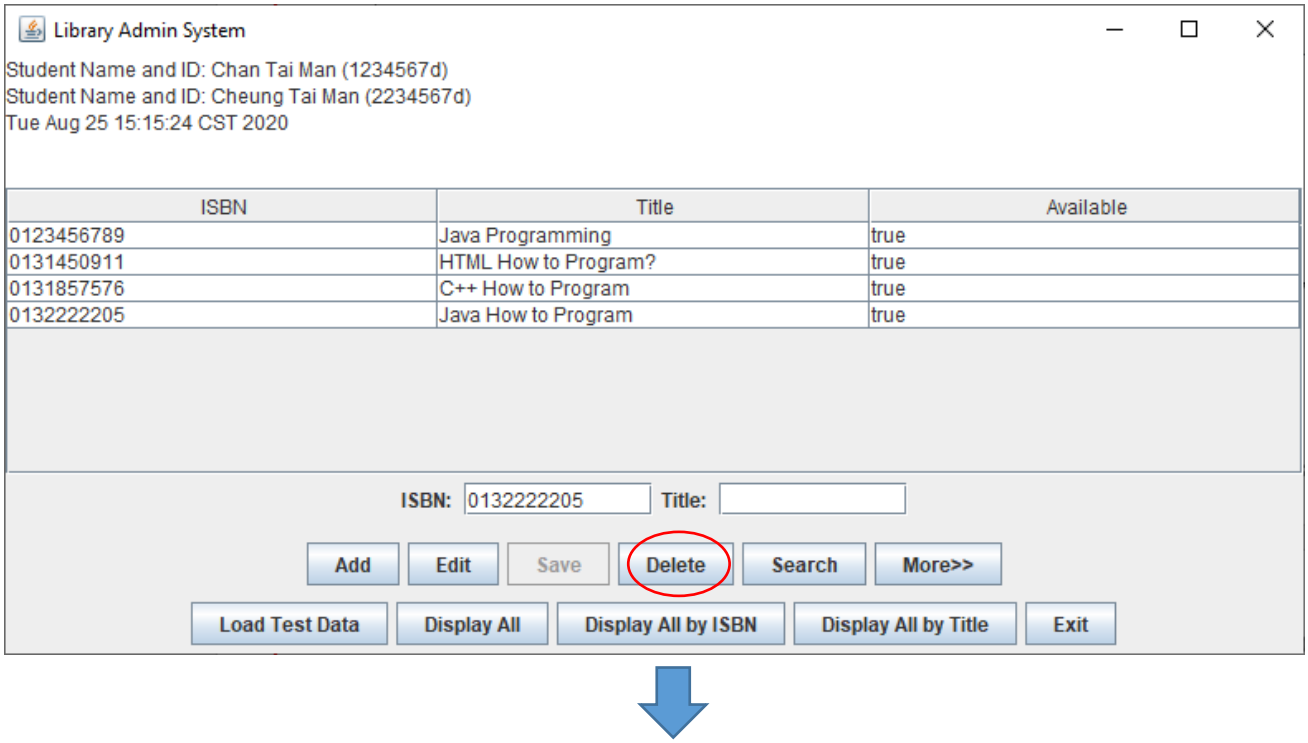

Library Admin System
Student Name and ID: Chan Tai Man (1234567d)
Student Name and ID: Cheung Tai Man (2234567d)
Tue Aug 25 15:01:48 CST 2020
ISBN
Title
Available
0123456789
Java Programming
true
0131450913
HTML How to Program
true
0131857576
0132222205
Message
Error: book ISBN exists in the current database.
OK
ISBN: 0123456789
Title: ML How to Program
Add
Edit
Save
Delete
Search
More>>
Load Test Data
Display All
Display All by ISBN
Display All by Title
Exit

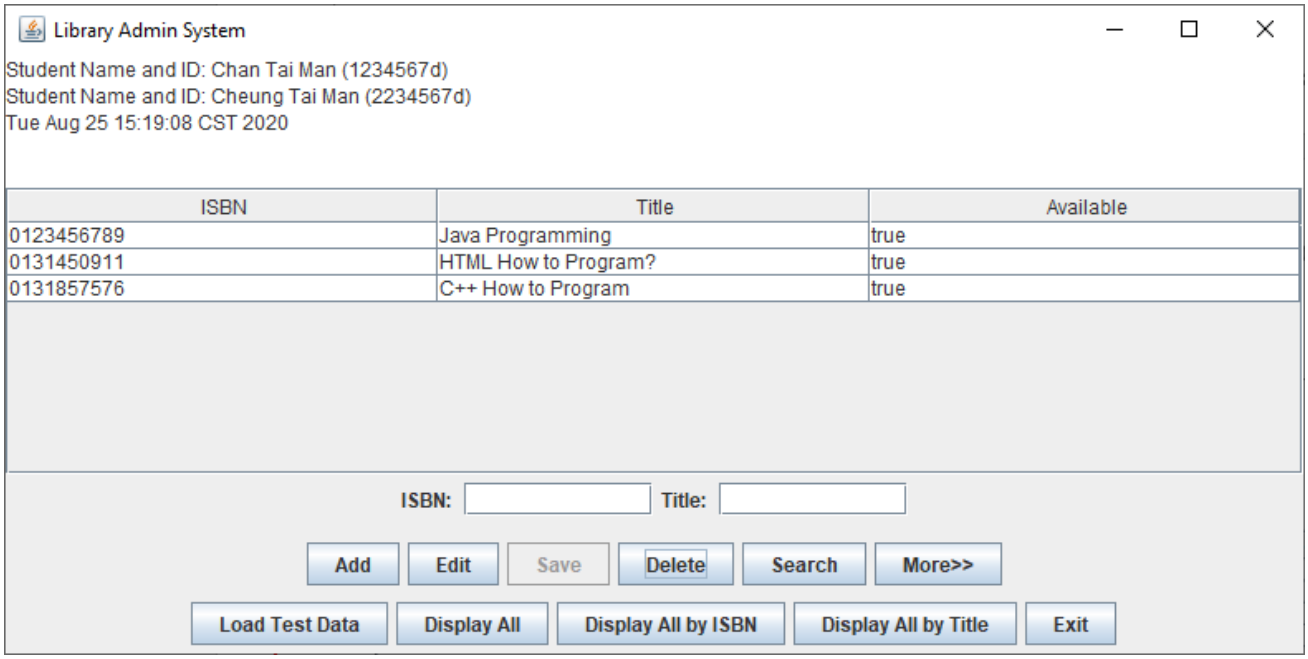

Library Admin System
Student Name and ID: Chan Tai Man (1234567d)
Student Name and ID: Cheung Tai Man (2234567d)
Tue Aug 25 15:01:48 CST 2020
ISBN
Title
Available
0123456789
Java Programming
true
0131450913
HTML How to Program
true
0131857576
C++ How to Program
true
0132222205
Java How to Program
true
ISBN: 0131450911
Title: IL How to Program?
Add
Edit
Save
Delete
Search
More>>
Load Test Data
Display All
Display All by ISBN
Display All by Title
Exit



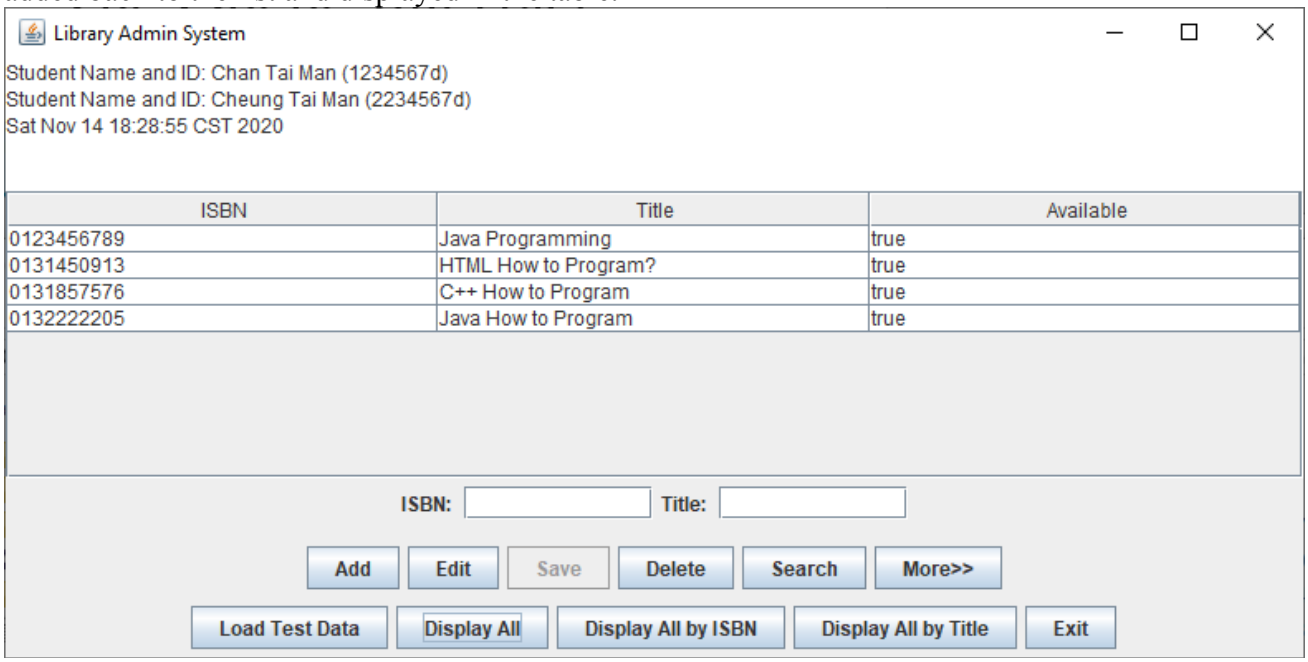

## 8. Delete Book

- Click the book record "Java How to Program" in the JTable, then the Book ISBN and Title will be displayed in the textfields. Empty the Title field. Clicking the "Delete" button would display all records with the selected book removed and clear the text fields.
- Input "123" to the ISBN field and click "Delete" button, the error message would be displayed.



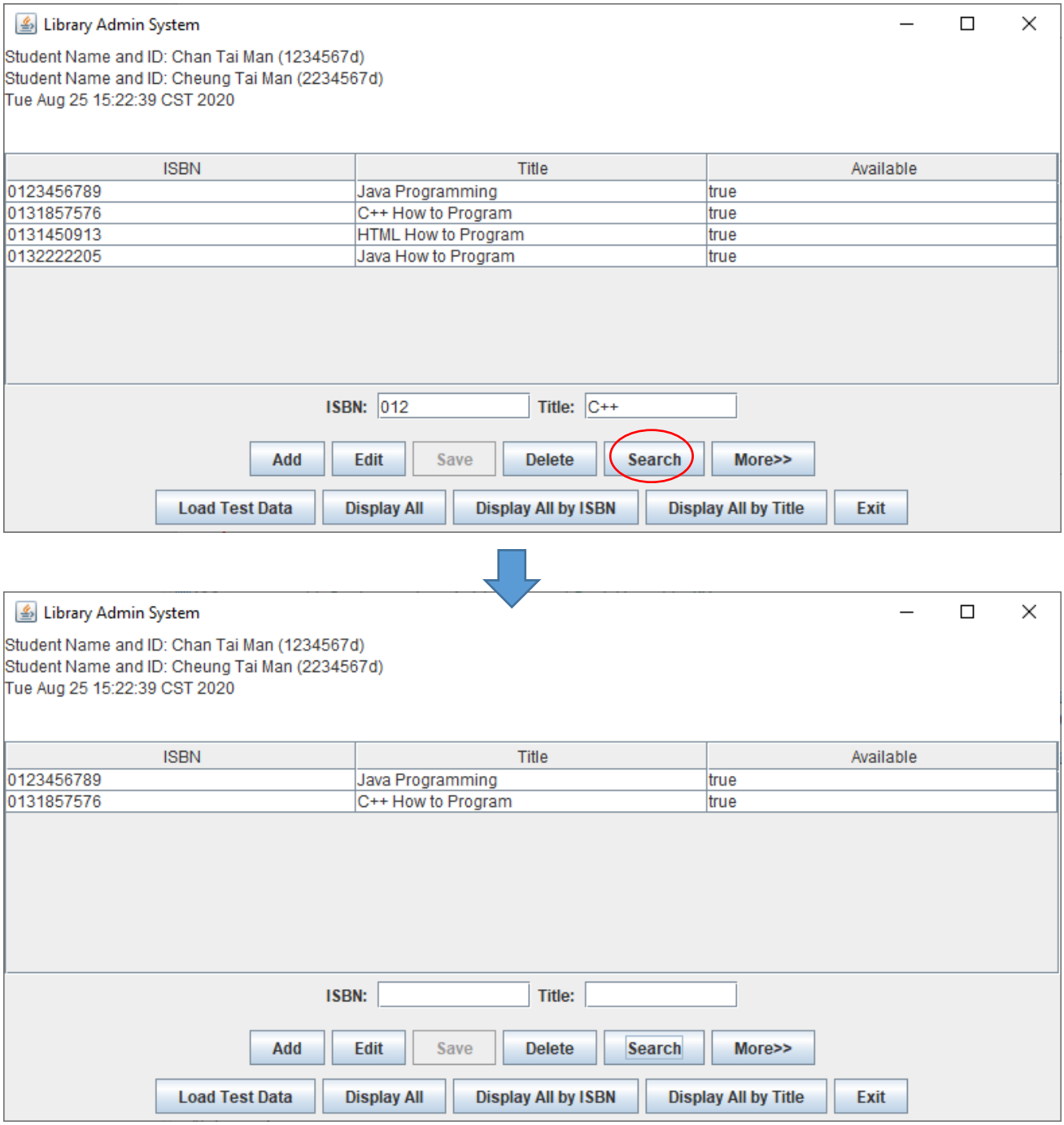



- Click "Load Test Data" button. "HTML How to Program?" and "C++ How to Program" cannot be added and so error message would be displayed. But "Java How to Program" would be added back to the list and displayed in the table.



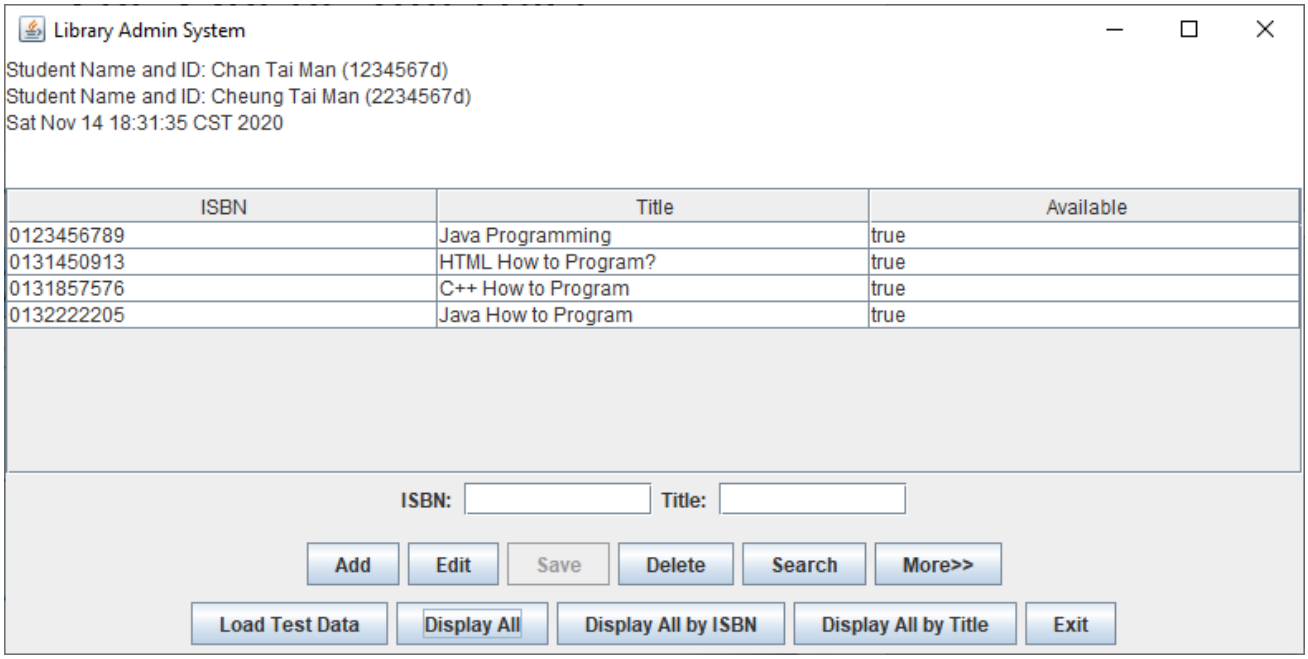

**9. Search Book**

- Input "012" for ISBN and click "Search" button. Only "Java Programming" would be displayed.
- Input "013" for ISBN and click "Search" button. "HTML How to Program?" and "C++ How to Program" and "Java How to Program" would be displayed.
- Input "012" for ISBN and input "C++" for Title fields. Click "Search" button. Only "Java Programming" and "C++ How to Program" would be displayed.



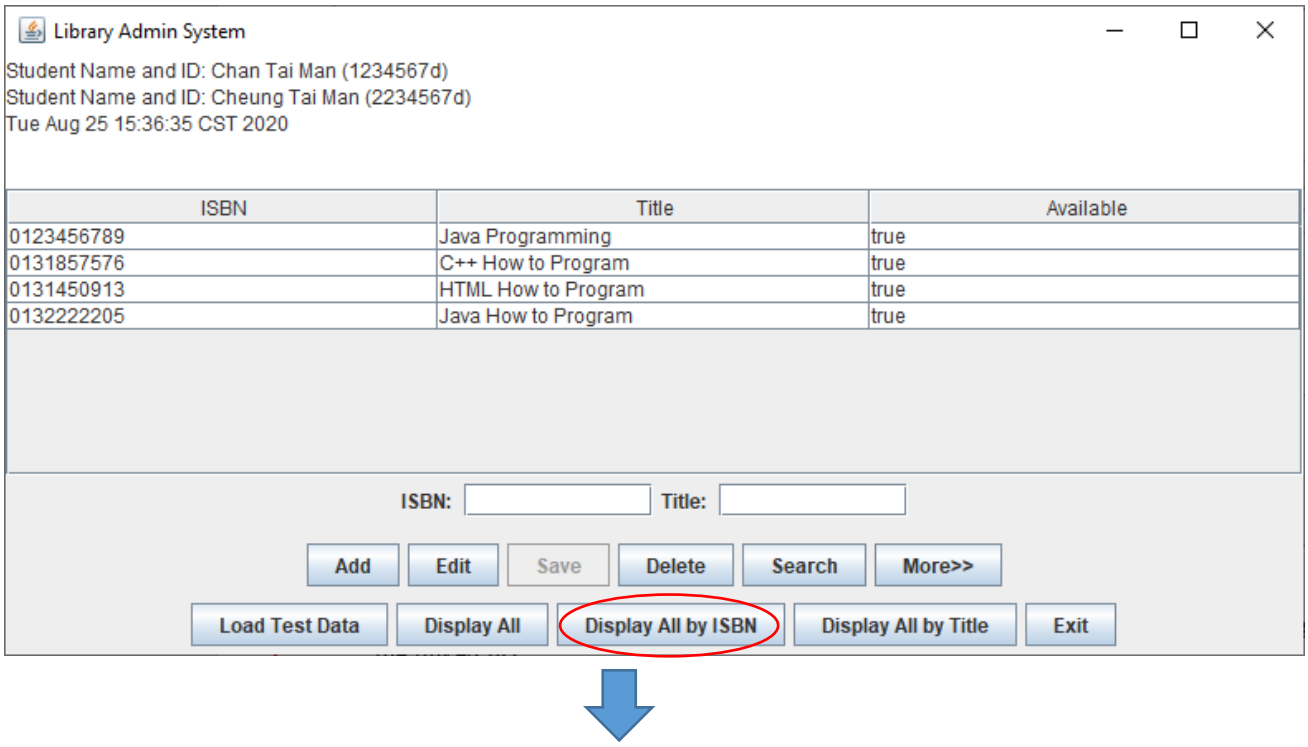

**10. Display All Books**

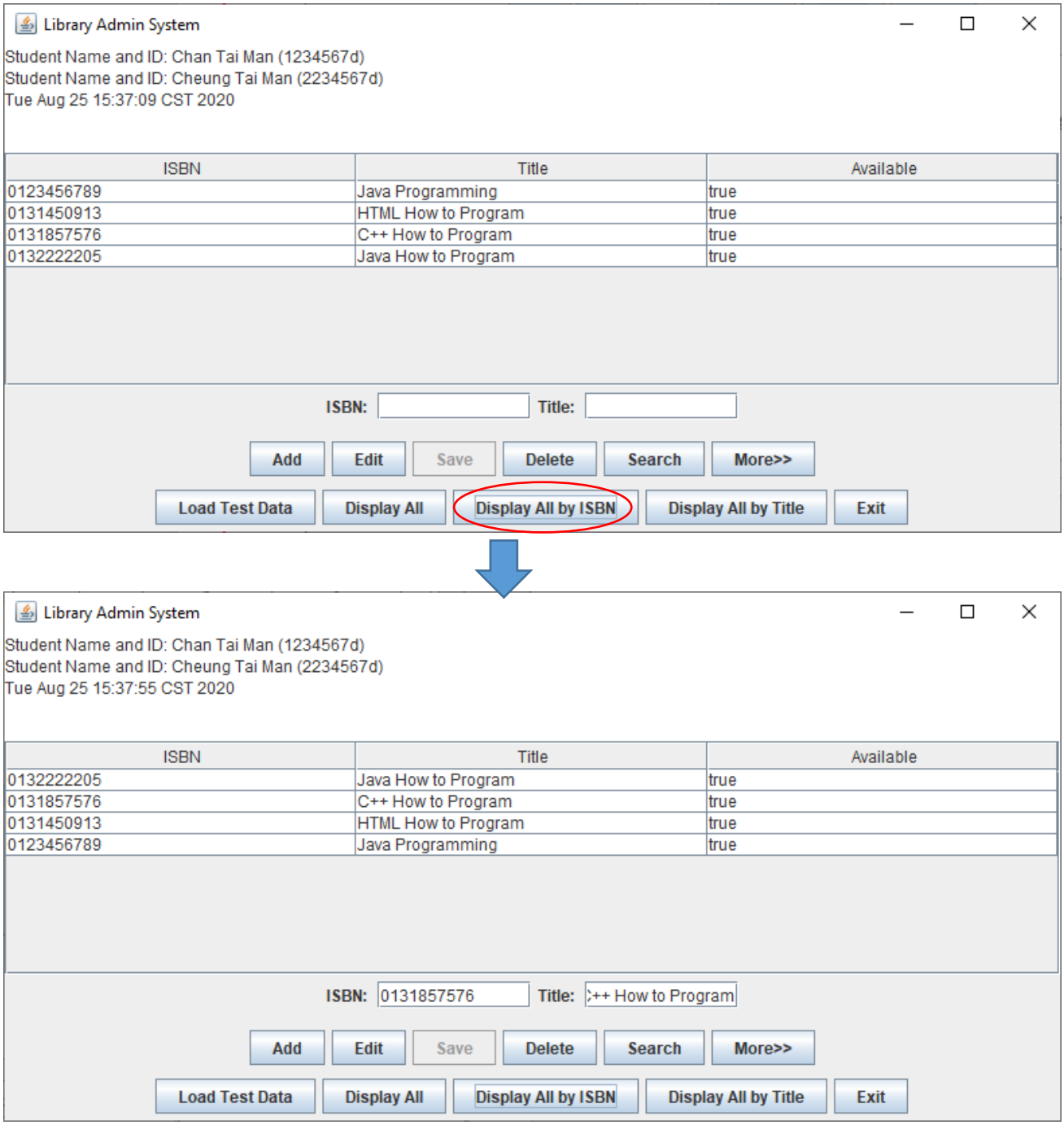
On clicking "Display All" button, display all book records following the order of adding nodes to the linked list.




**11. Display All Books by ISBN**

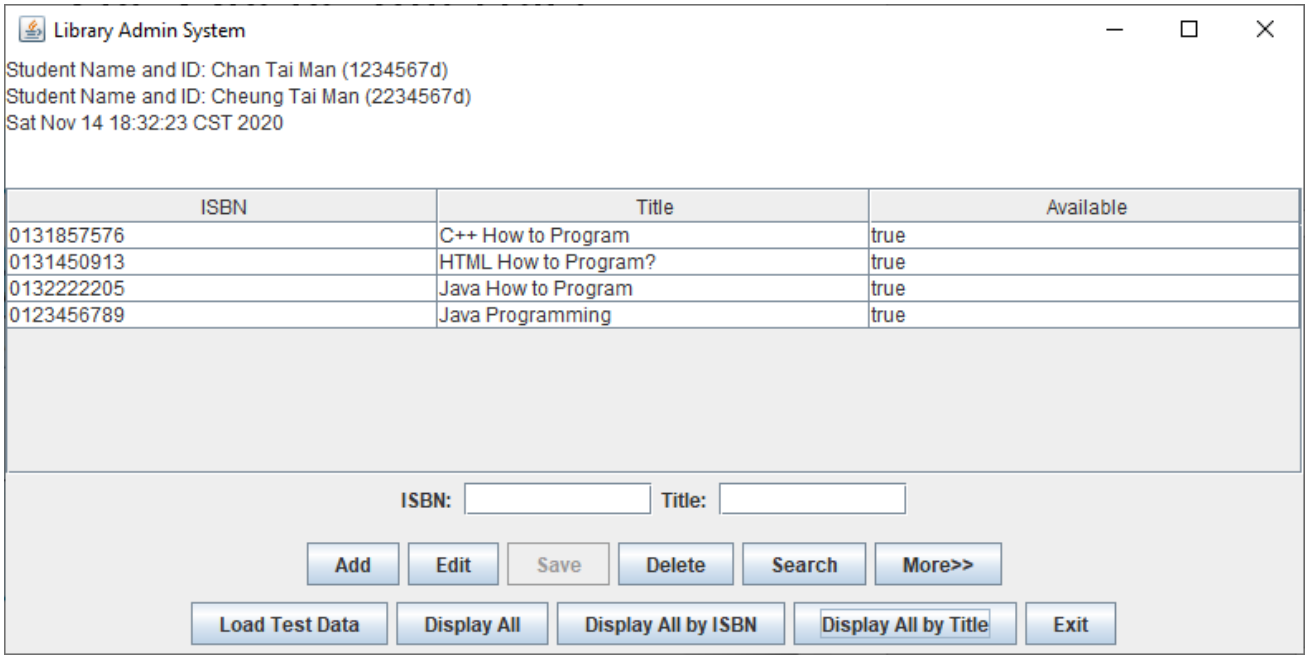
On clicking "Display All by ISBN" button, display all book records in ascending order of Book ISBN. If the button is clicked again, display all book records in reversed order on subsequent clicks of the button.



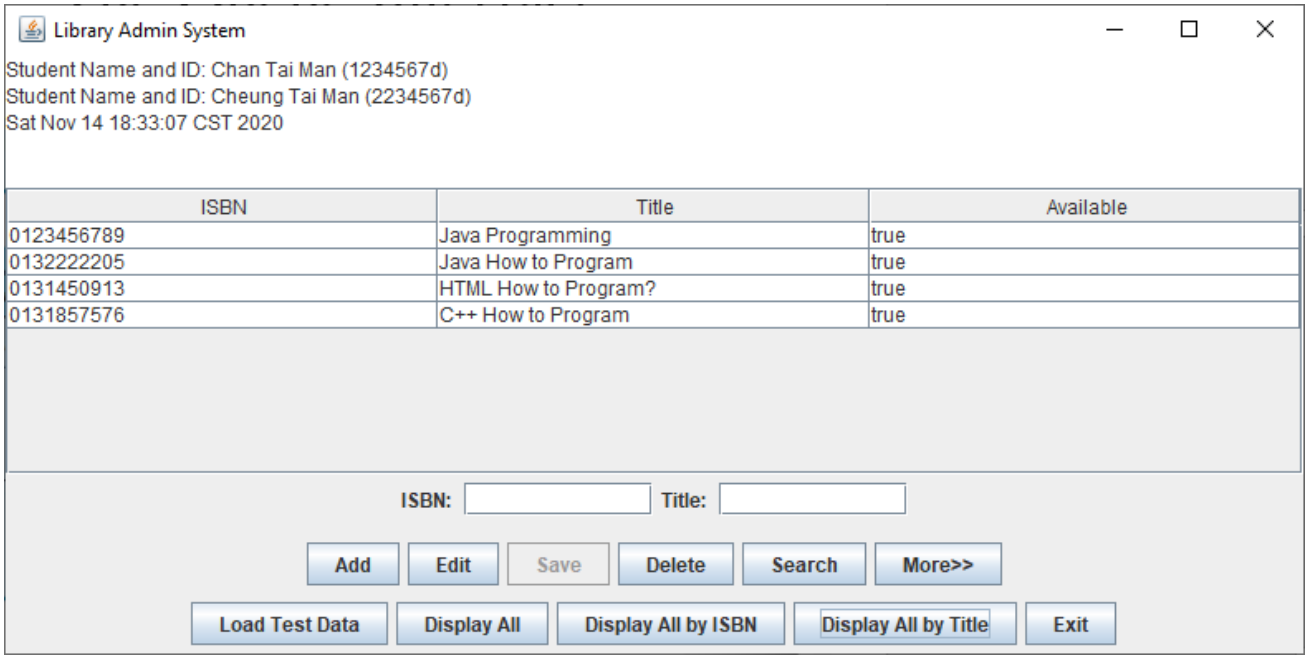



**12. Display All Books by Title**

- On clicking "Display All by Title" button, display all book records in ascending order of Book Title.



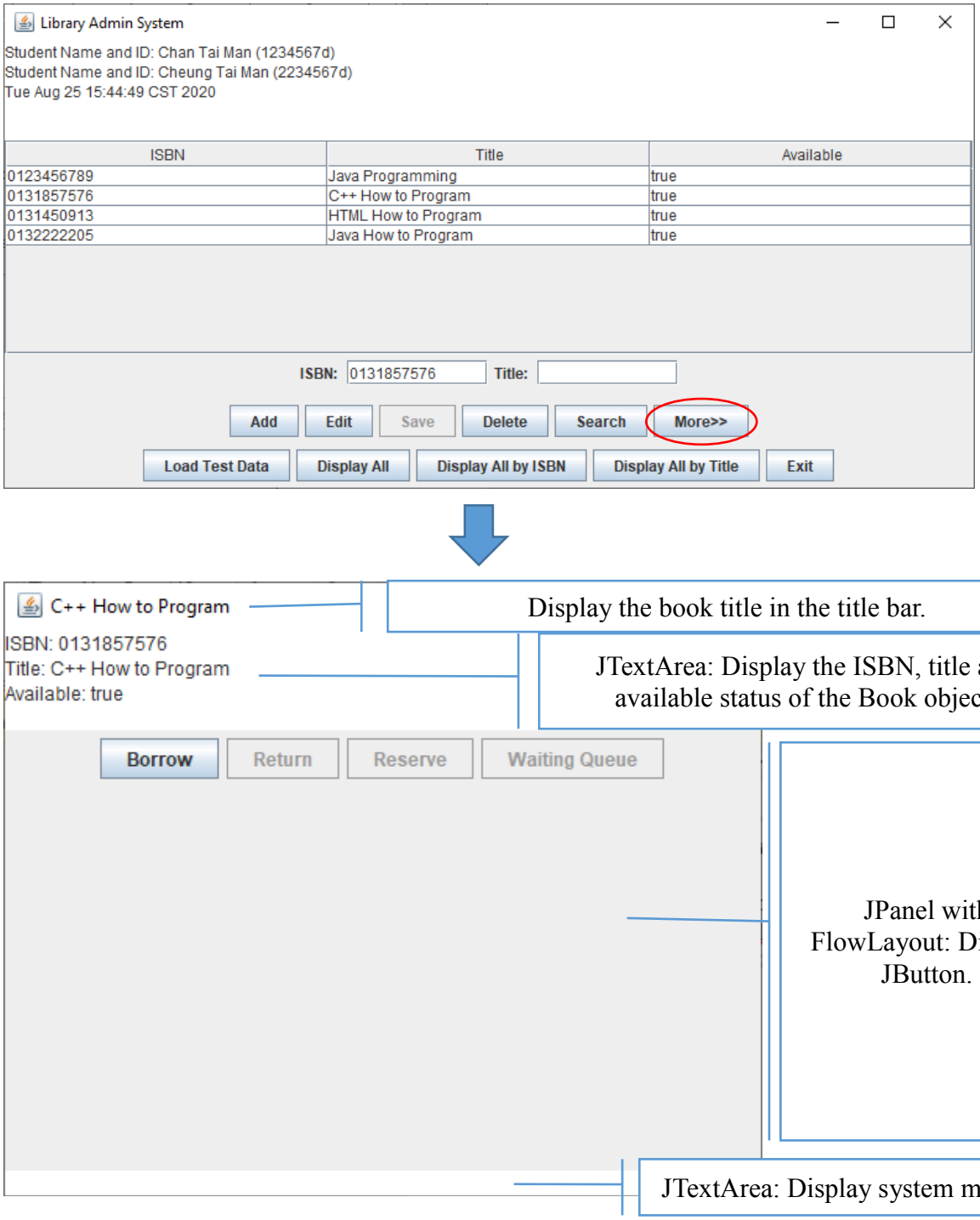

- If the button is clicked again, display all book records in reversed order on subsequent clicks of the button.




## 13. Select Book with more options

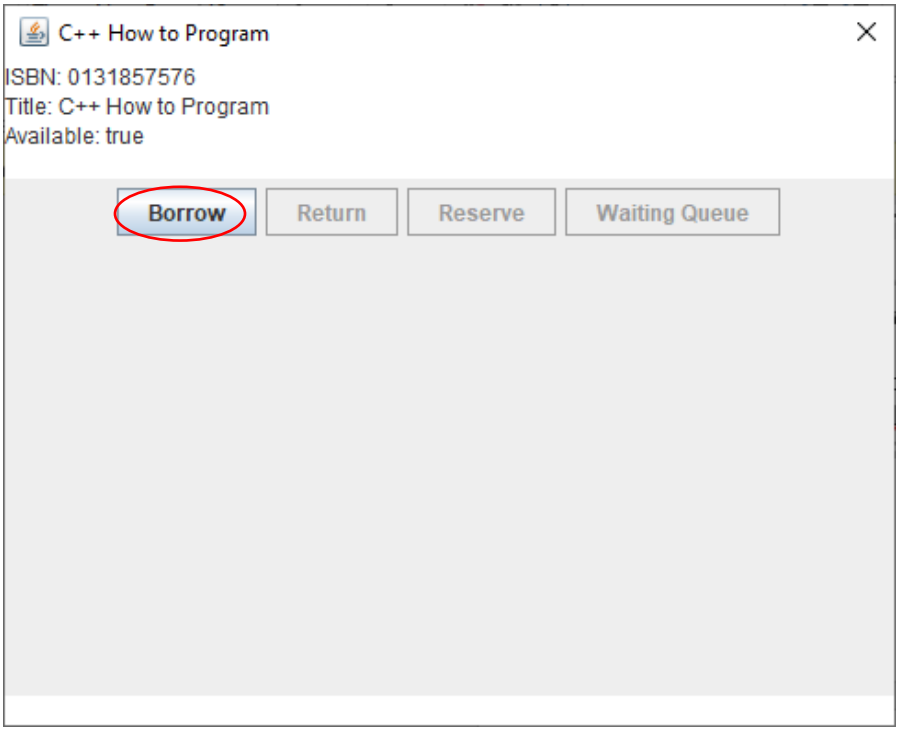
### 13.1. Display a new page with more options

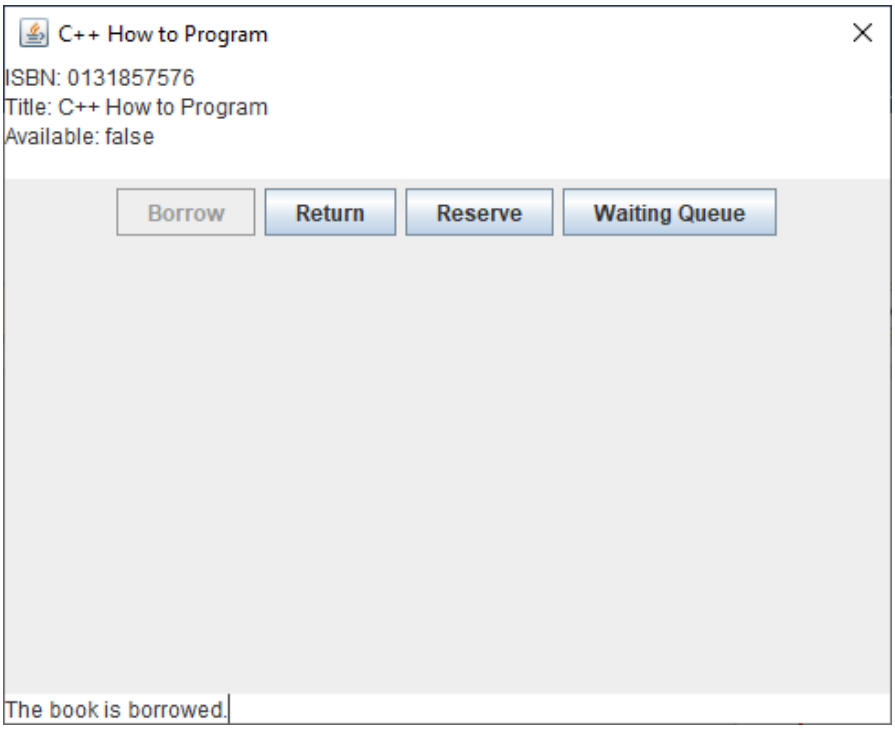
- Click the book record "C++ How to Program" in the JTable, then the Book ISBN and Title will be displayed in the textfields.
- Clear the Title textfield and click the "More" button.




## 13.2. Borrow Book

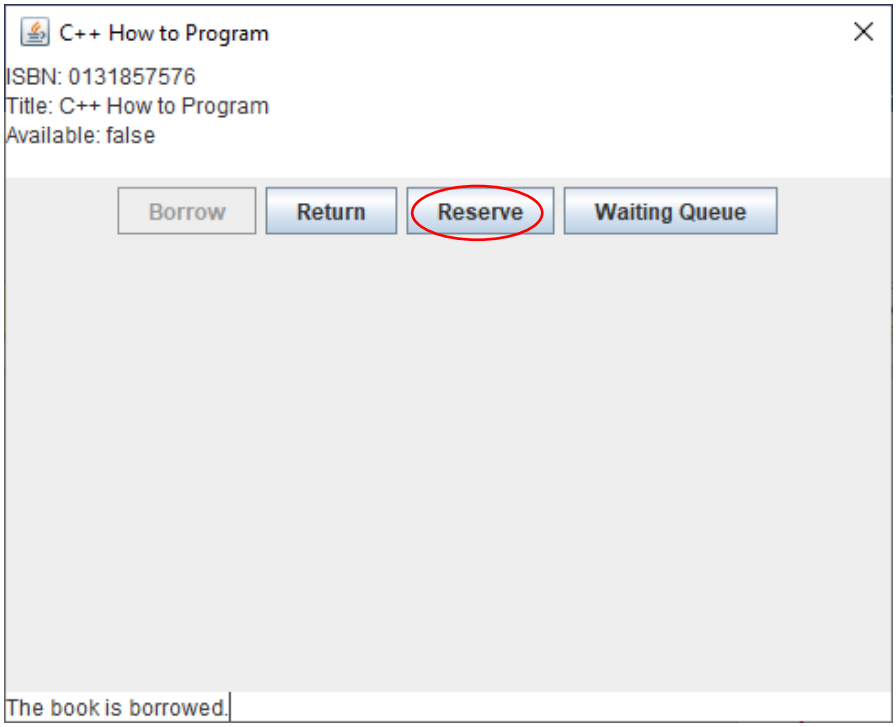
- The “Borrow” button is enabled while all the other buttons are disabled. On clicking the “Borrow” button, the book available status is set to false. The “Borrow” button becomes disabled while all the other buttons becomes enabled. Display the updated available status at the top and display the message "The book is borrowed." at the bottom.

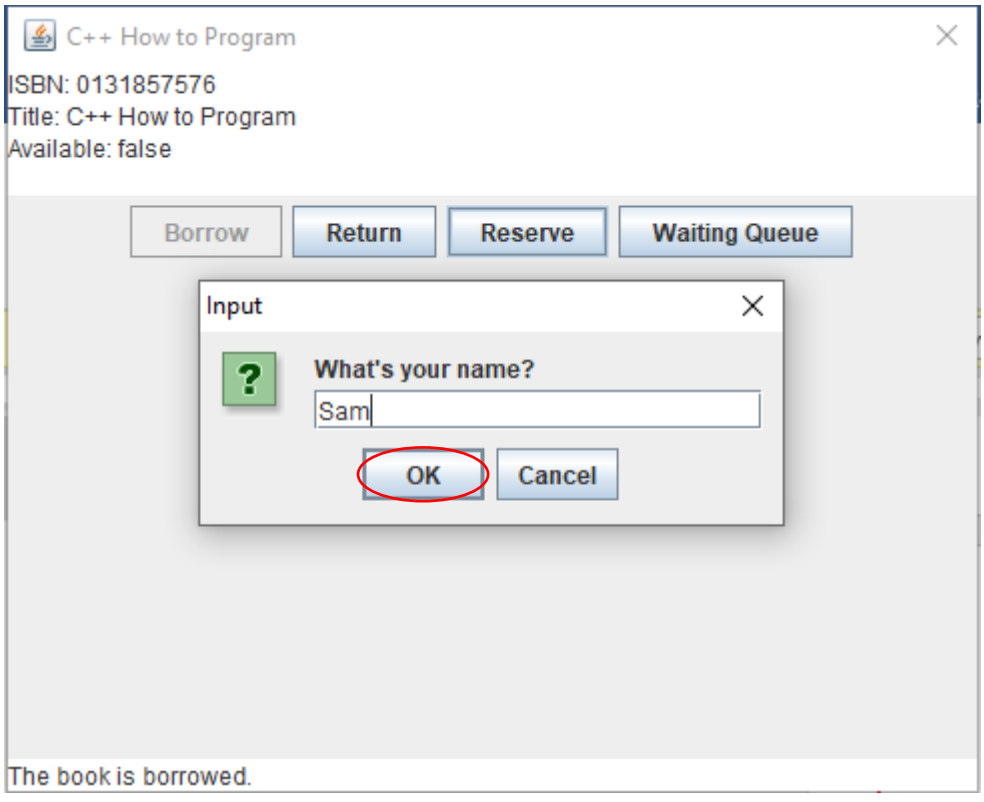


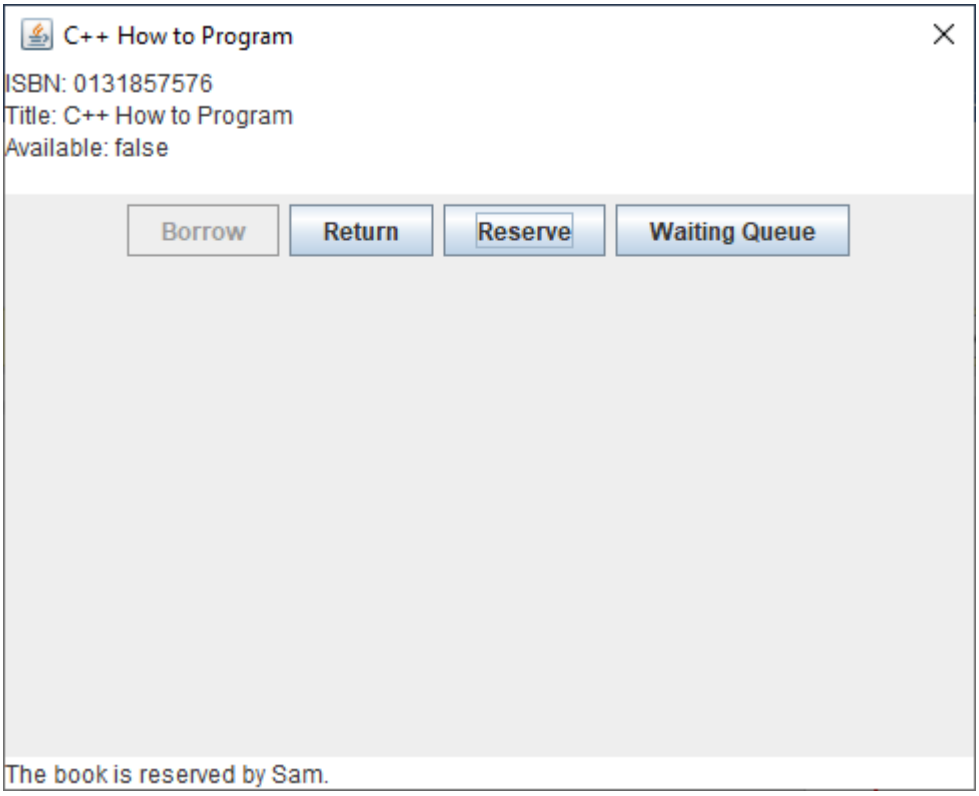




### 13.3. Reserve Book

- Now the book is not available, click the “Reserve” button. An input dialog would be popped up to prompt for the user’s name. Input “Sam” for the borrower’s name and click “OK”. The message "The book is reserved by Sam.” would be displayed at the bottom.


C++ How to Program
ISBN: 0131857576
Title: C++ How to Program
Available: false
Borrow
Return
Reserve
Waiting Queue
The book is borrowed.

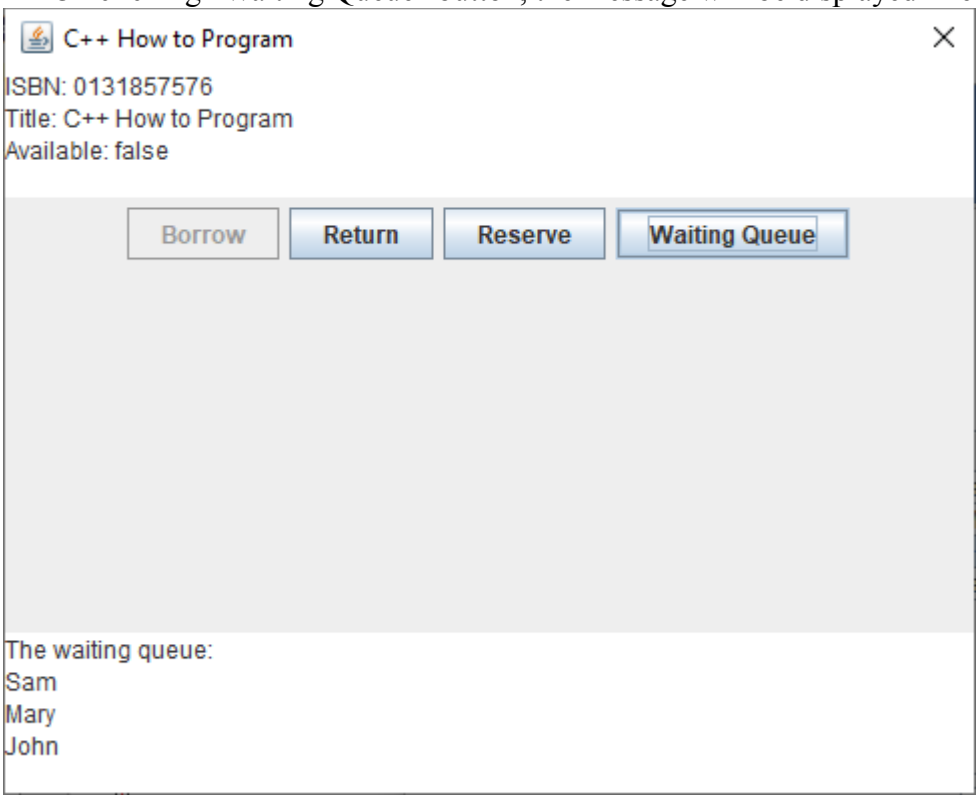

C++ How to Program
ISBN: 0131857576
Title: C++ How to Program
Available: false
Borrow
Return
Reserve
Waiting Queue
Input
What's your name?
Sam
OK
Cancel
The book is borrowed.




- Click “Reserve” again and input “Mary” as the borrower’s name.
- Click “Reserve” again and input “John” as the borrower’s name.

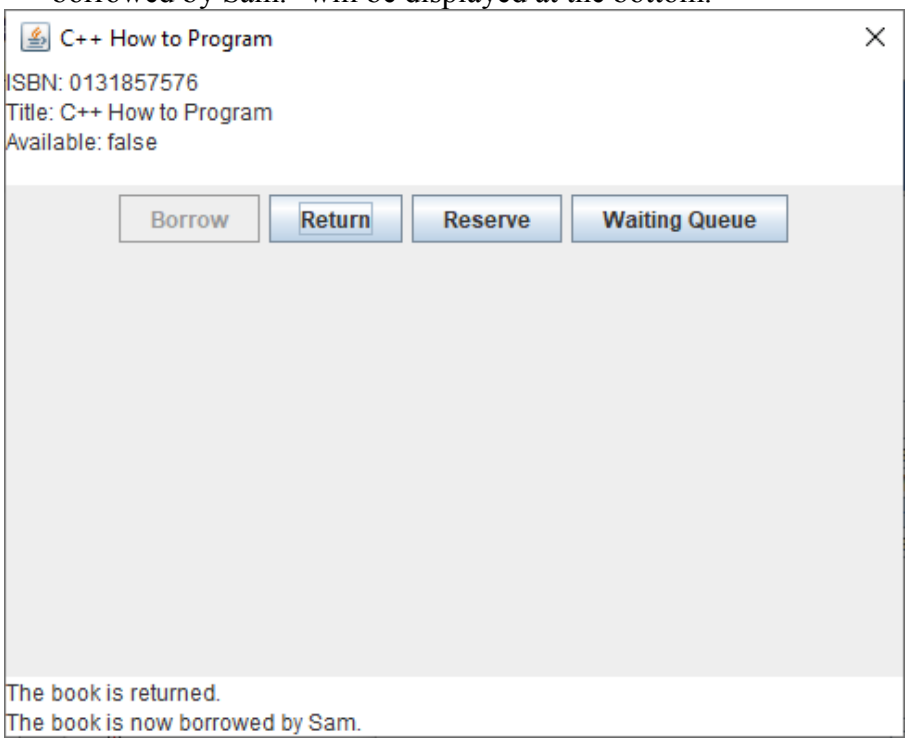
### 13.4. Display waiting queue

- On clicking “Waiting Queue” button, the message will be displayed like the following.

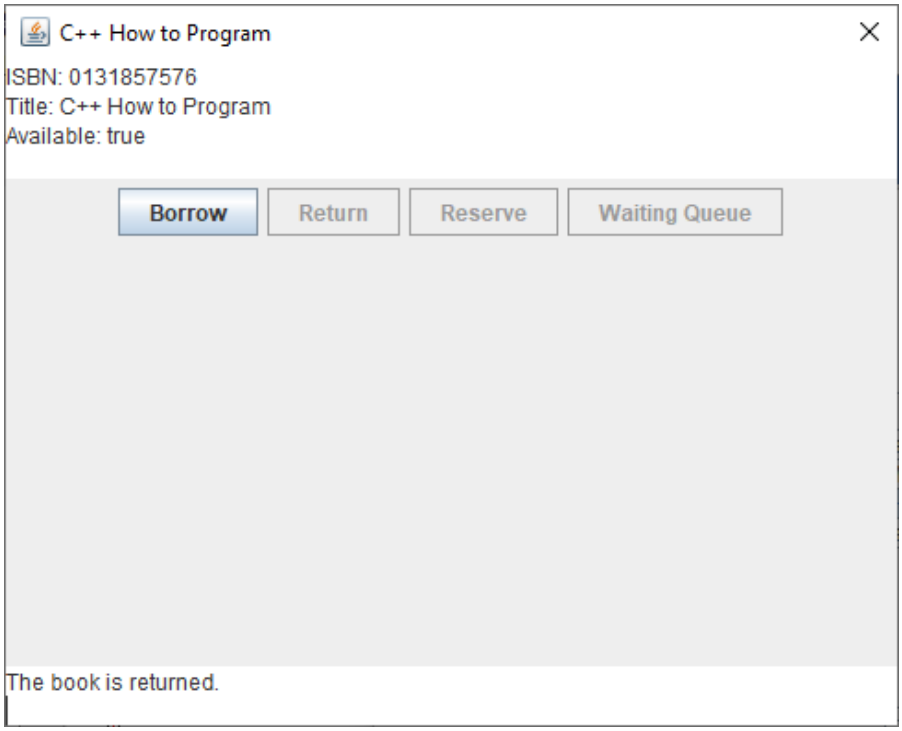


### 13.5. Return Book

- On clicking the “Return” button, the message "The book is returned. The book is now borrowed by Sam." will be displayed at the bottom.




- Click the “Return” button again, the message "The book is returned. The book is now borrowed by Mary." will be displayed at the bottom.
- Click the “Return” button again, the message "The book is returned. The book is now borrowed by John." will be displayed at the bottom.
- Click the “Return” button again, the message "The book is returned." will be displayed at the bottom. Now there is no user in the reserved queue of the Book object, the available status would be turned to true. The “Borrow” button becomes enabled and all the other buttons become disabled.




- Close the dialog by clicking the "X" button on the top right corner of the window.

**14. Additional Features**

- Demonstrate any additional features you have implemented.

**15. Exit application**

- On clicking the "Exit" button, the application would be closed.