Database Systems
Final Project
Order Processing System

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- **Overview:**

Book Store offers you over one million titles across categories such as Science's Books, History & Art, Geography and Religion.

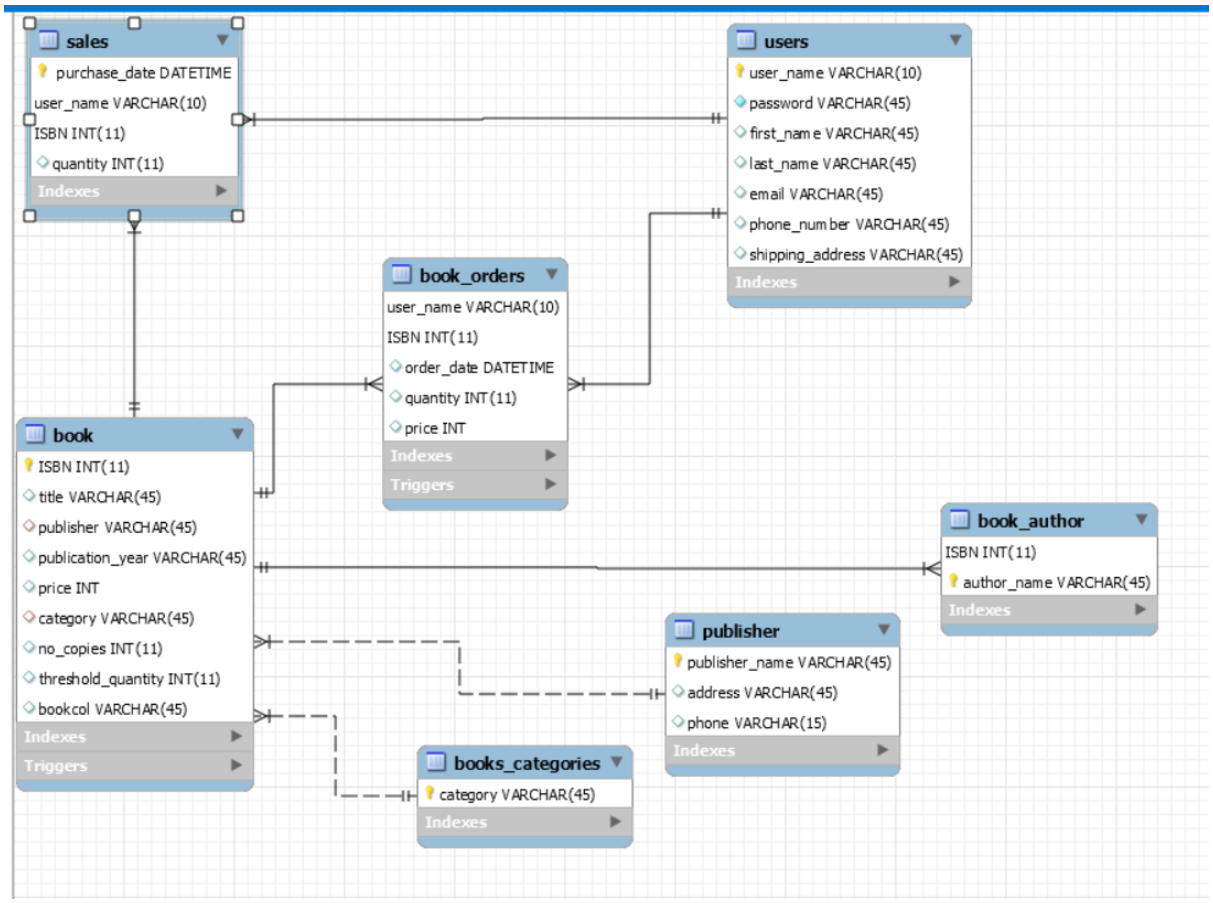
Reading books is the favourite pastime of many people. If you're bitten by the book-bug too, then there is a massive collection of books for you to read. From bestsellers to new & future releases, the choices are exhaustive when you visit Largest Bookstore.

- **Problem statement:**

You are required to analyze , design and implement a database system to support the operations of a simplified online bookstore.

Also, you are required to create the necessary forms to perform these operations.

- **The Database EER diagram:**



- **Triggers:**

1. **Books_before_insert**: to ensure that the number of available copies of a certain book never goes below threshold, before inserting into the 'Book' relation.

```
DELIMITER ;;
 CREATE TRIGGER books_BEFORE_INSERT BEFORE INSERT ON book
 FOR EACH ROW BEGIN
 IF ( NEW.no_copies < NEW.threshold_quantity) THEN
   SIGNAL SQLSTATE '45000'
   SET MESSAGE_TEXT = 'NO OF COPIES INSERTED CANNOT BE LESS THAN THE THRESHOLD';
END IF;
END ;;
DELIMITER ;
```

2. **Books_before_update:** to ensure that the number of available copies of a certain book never goes below 0, before updating the ‘Book’ relation.

```
DELIMITER ;;
CREATE TRIGGER books_BEFORE_UPDATE BEFORE UPDATE ON book
FOR EACH ROW BEGIN
IF (NEW.no_copies < 0) THEN
   SIGNAL SQLSTATE '45000'
   SET MESSAGE_TEXT = 'NO OF COPIES CANNOT BE NEGATIVE';
END IF;
END ;;
DELIMITER ;
```

3. **Books_after_update** places a new order to the ‘Order’ relation when the number of available copies of a certain book drops down below its specified threshold on updating the ‘Book’ relation.

```
DELIMITER ;;
CREATE TRIGGER books_AFTER_UPDATE AFTER UPDATE ON books
FOR EACH ROW BEGIN

if new.no_copies < new.threshold_quantity then
insert into book_orders (ISBN,order_date,quantity,price) values
   (NEW.ISBN,NOW(),NEW.threshold_quantity  - new.no_copies, NEW.price * (NEW.threshold_quantity  - new.no_copies));
 end if;

END ;;
DELIMITER ;
```

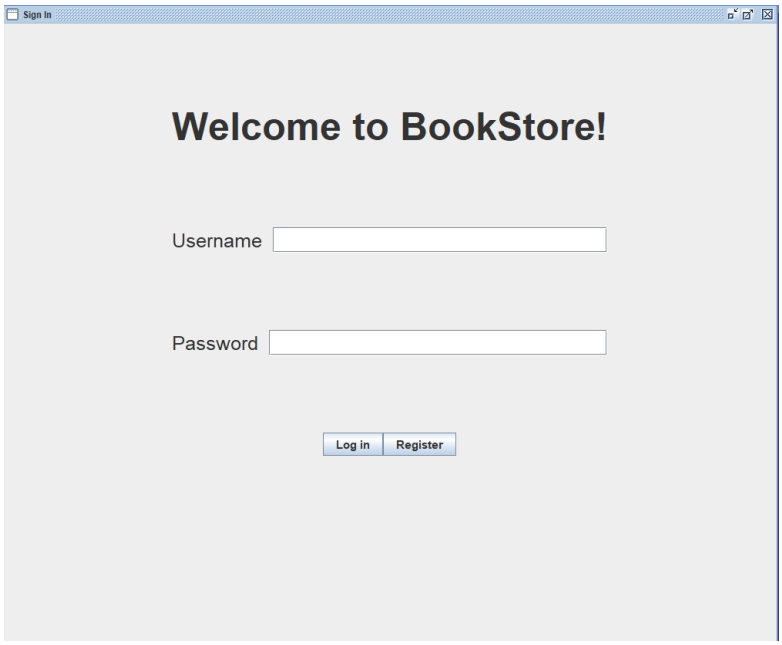
4. **book_order_before_delete:** deletion of a record from the ‘Order’ relation indicates that this order has been received, so the quantity of books in the order are added to the available copies of the

```
DELIMITER ;;
CREATE TRIGGER book_orders_BEFORE_DELETE BEFORE DELETE ON book_orders
FOR EACH ROW BEGIN
UPDATE book SET book.no_copies = (book.no_copies + OLD.quantity)
where book.ISBN = OLD.ISBN;
END ;;
DELIMITER ;
```

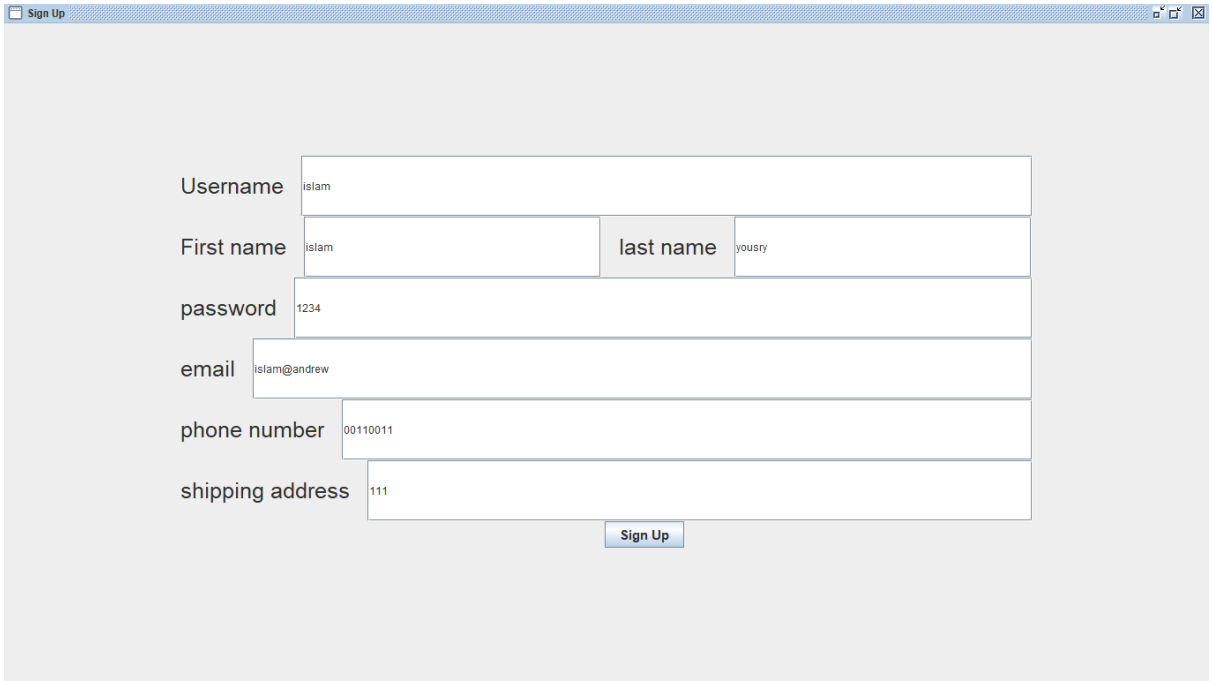
specified book.

Screenshots:

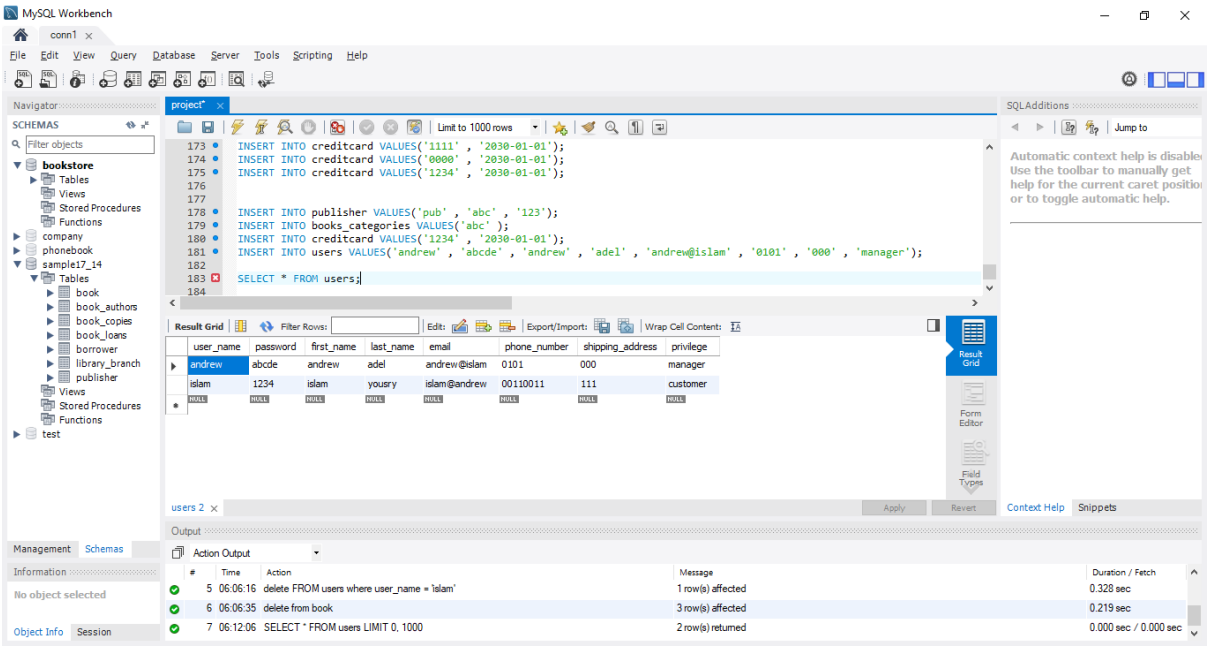
1) Sign in or Register:



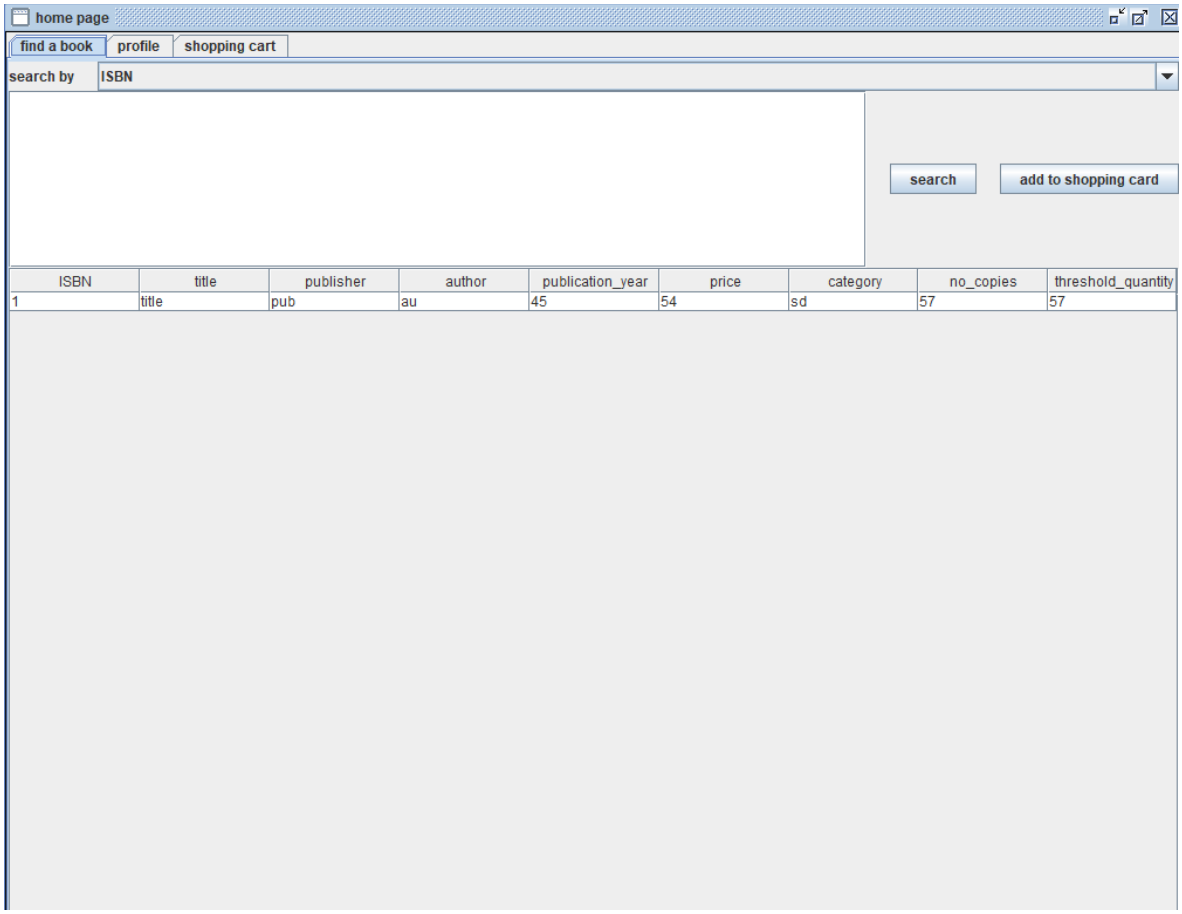
2) sign up(Register)



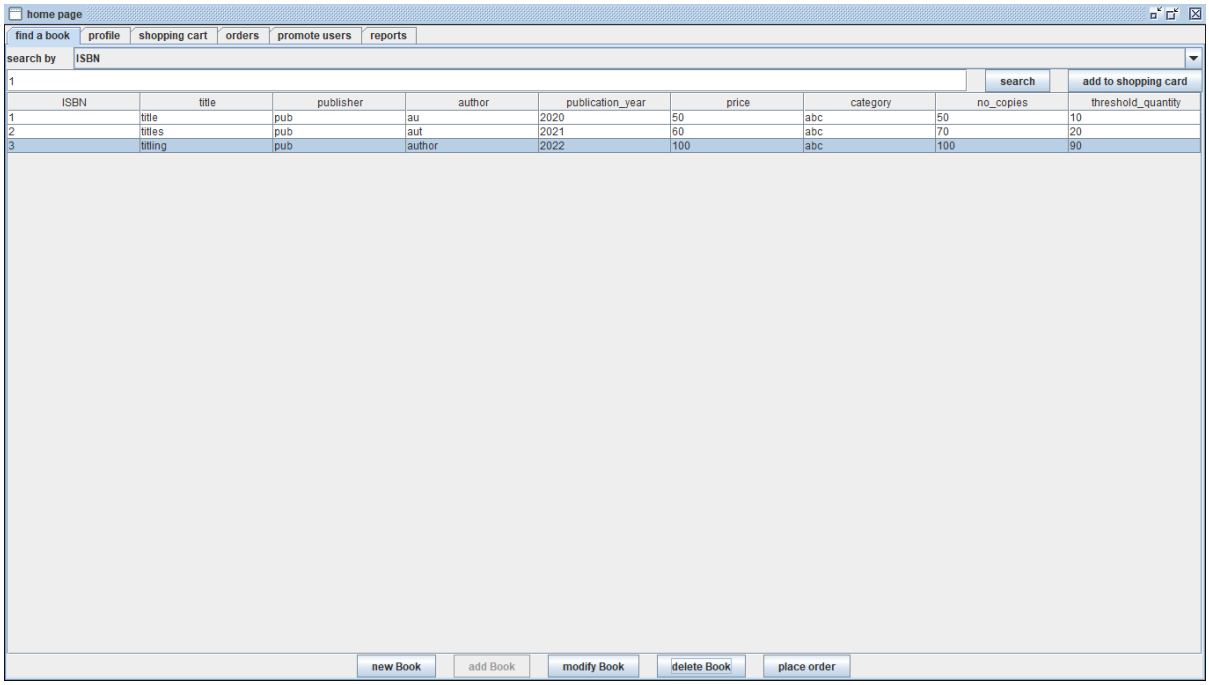
3) Users

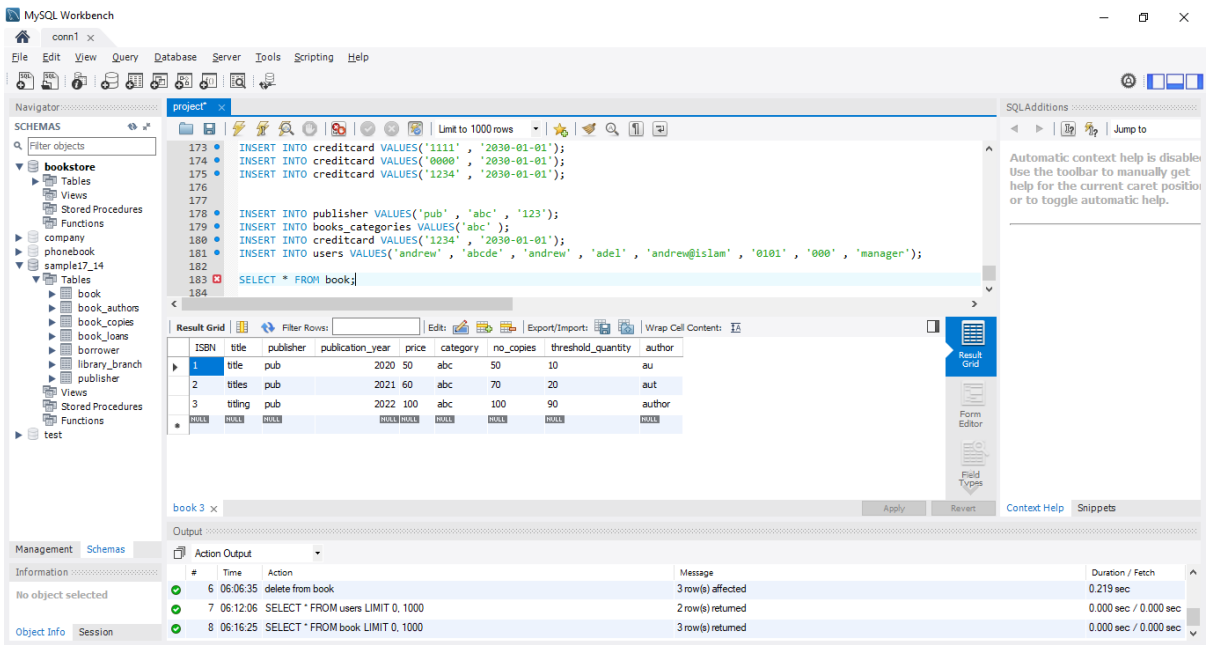


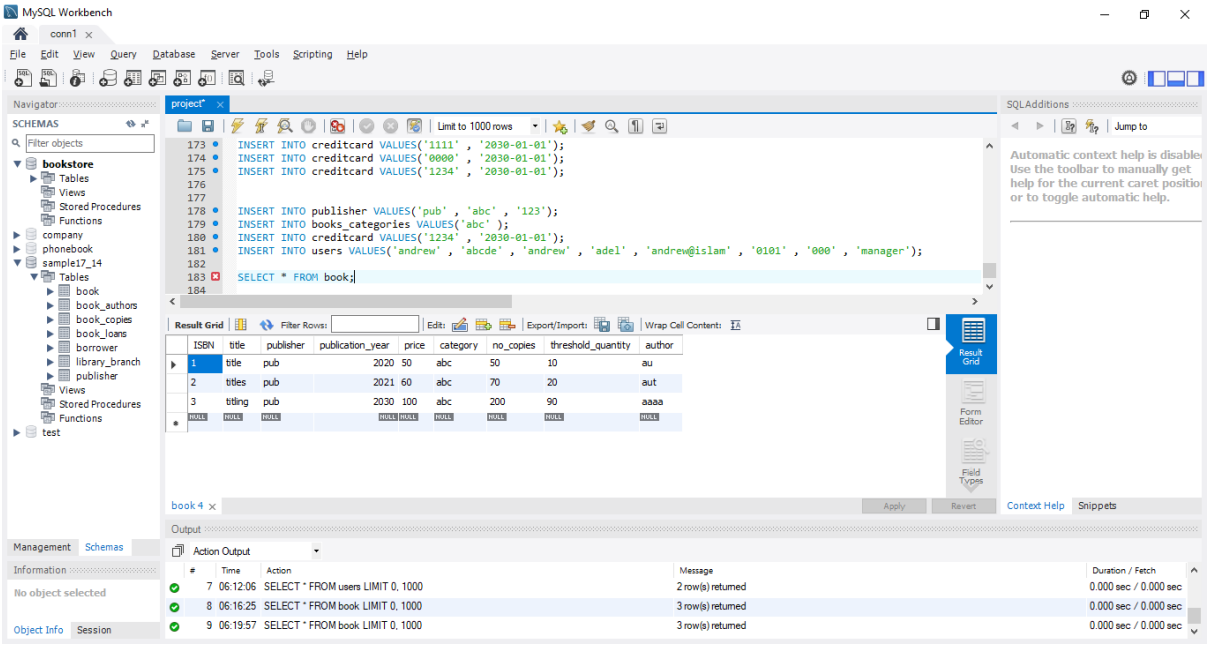
4) Home page



5) Add

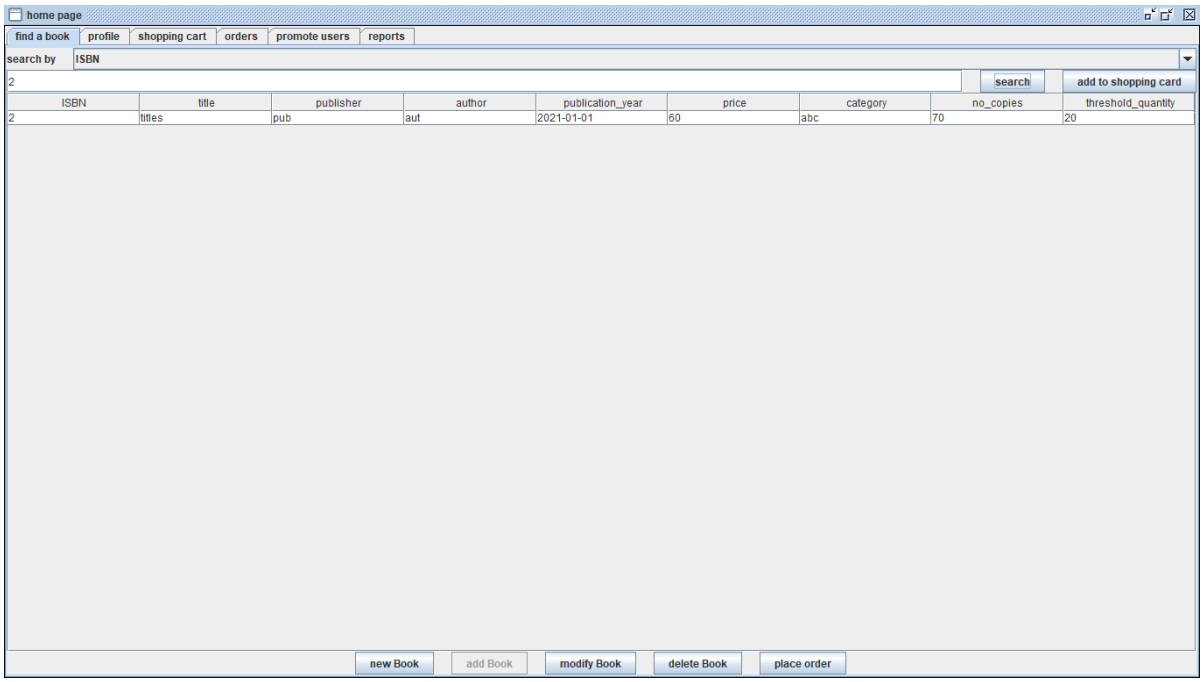

home page
find a book
profile
shopping cart
orders
promote users
reports
search by
ISBN
1
search
add to shopping card
ISBN
title
publisher
author
publication_year
price
category
no_copies
threshold_quantity
1 title pub au 2020 50 abc 50 10
2 titles pub aut 2021 60 abc 70 20
3 titling pub author 2022 100 abc 100 90
new Book
add Book
modify Book
delete Book
place order


MySQL Workbench
conn1
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
bookstore
company
phonebook
sample17_14
test
project*
INSERT INTO creditcard VALUES('1111' , '2030-01-01');
INSERT INTO creditcard VALUES('0000' , '2030-01-01');
INSERT INTO creditcard VALUES('1234' , '2030-01-01');
INSERT INTO publisher VALUES('pub' , 'abc' , '123');
INSERT INTO books_categories VALUES('abc');
INSERT INTO creditcard VALUES('1234' , '2030-01-01');
INSERT INTO users VALUES('andrew' , 'abcde' , 'andrew' , 'adel' , 'andrew@islam' , '0101' , '000' , 'manager');
SELECT * FROM book;
Result Grid
ISBN title publisher publication_year price category no_copies threshold_quantity author
1 title pub 2020 50 abc 50 10 au
2 titles pub 2021 60 abc 70 20 aut
3 titling pub 2022 100 abc 100 90 author
Output
Action Output
6 06:06:35 delete from book 3 row(s) affected 0.219 sec
7 06:12:06 SELECT * FROM users LIMIT 0, 1000 2 row(s) returned 0.000 sec / 0.000 sec
8 06:16:25 SELECT * FROM book LIMIT 0, 1000 3 row(s) returned 0.000 sec / 0.000 sec

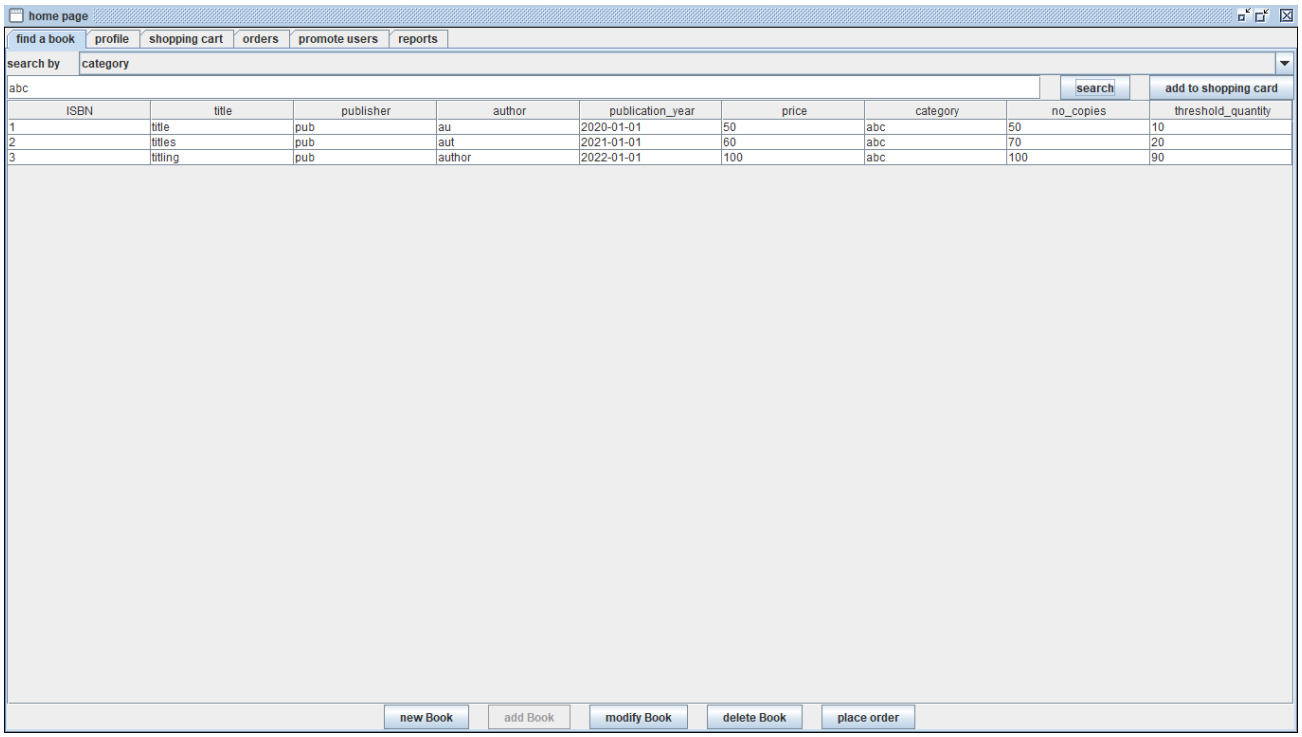


6) Search

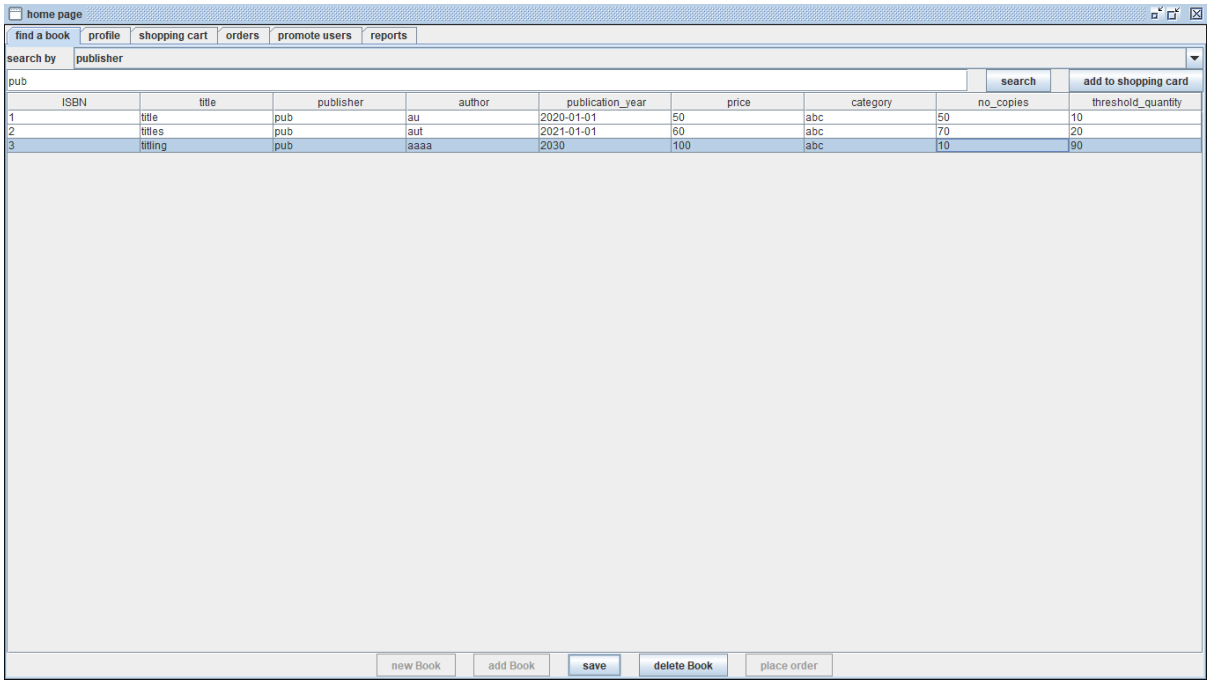
- **Search by ISBN**



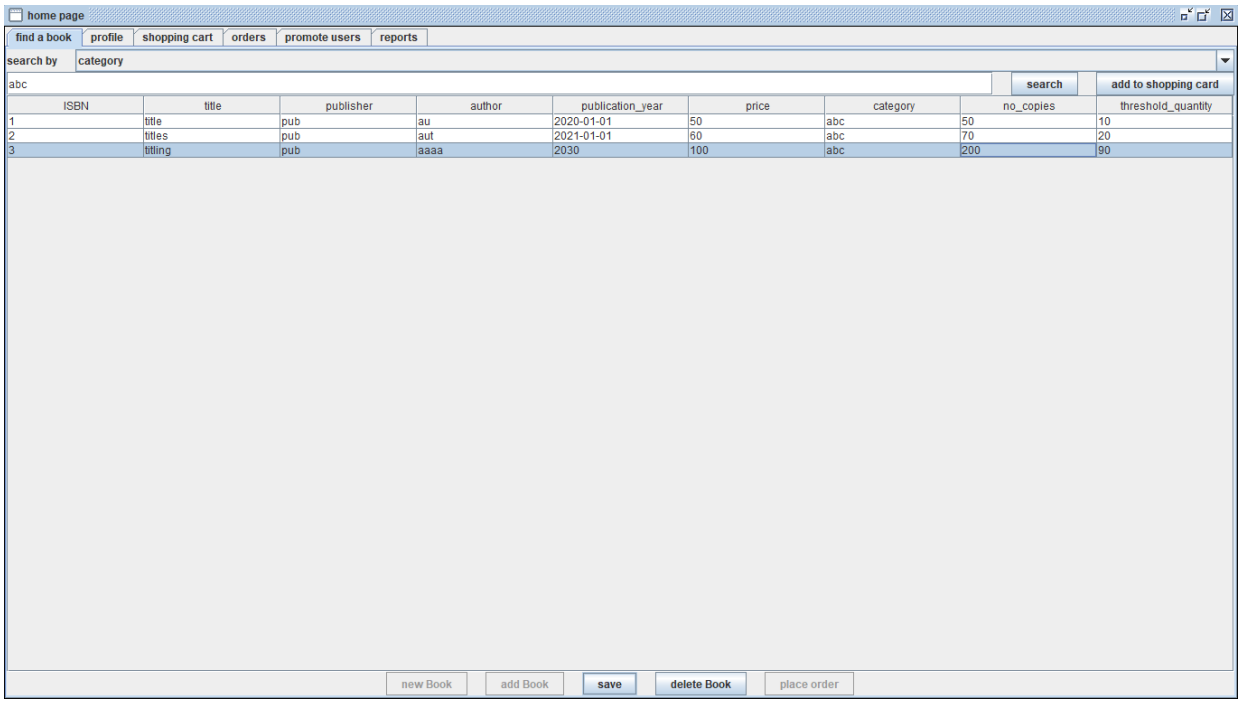
- **Search by Category**

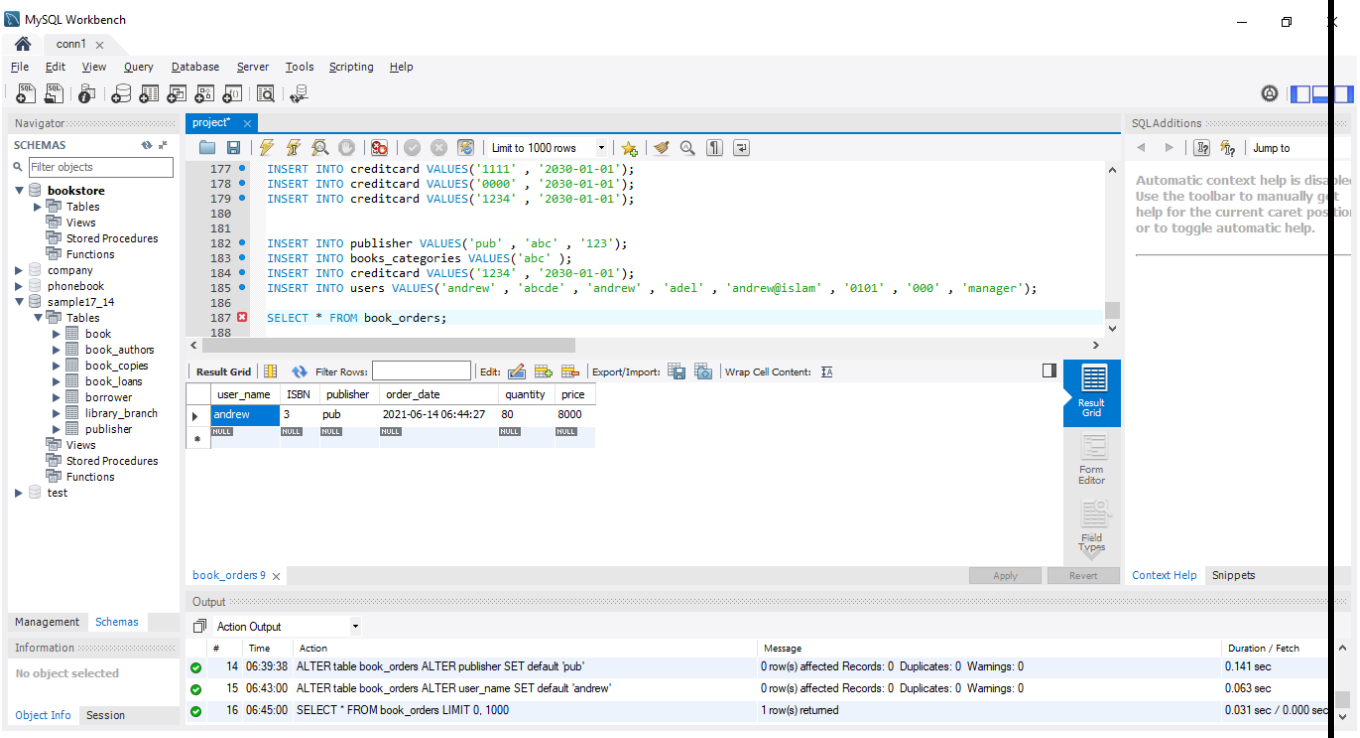


- **Search by Publisher**

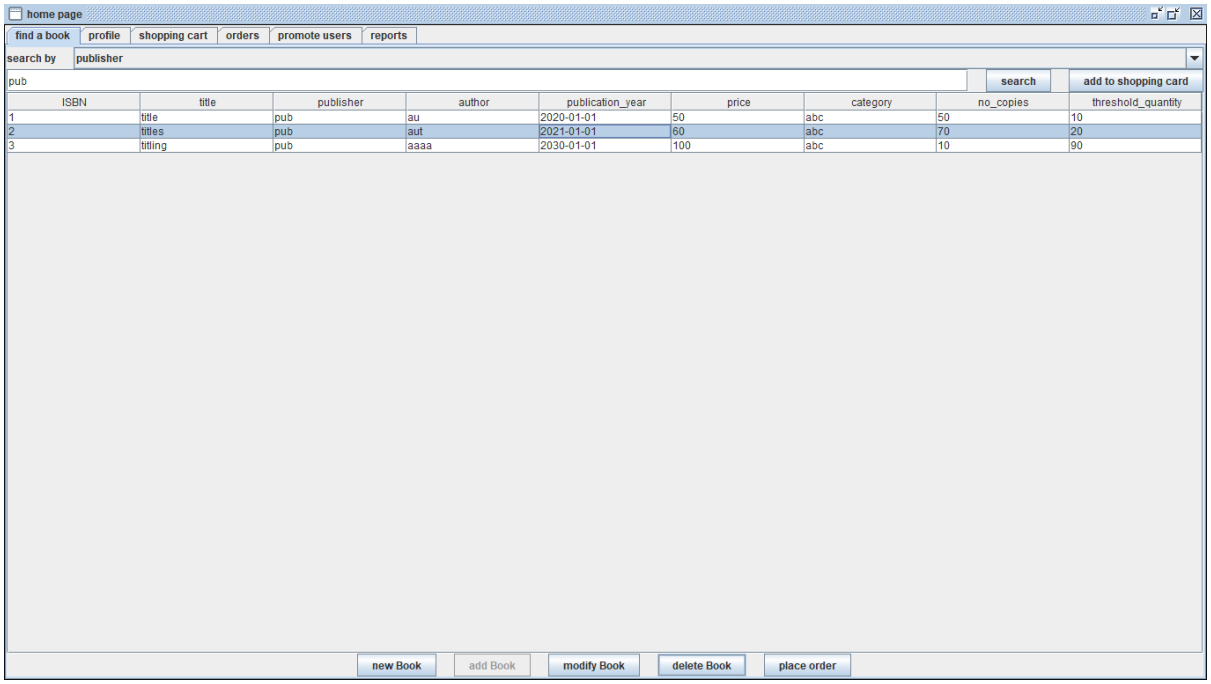


7) Modify


home page
find a book
profile
shopping cart
orders
promote users
reports
search by
category
abc
search
add to shopping card
ISBN
title
publisher
author
publication_year
price
category
no_copies
threshold_quantity
1 title pub au 2020-01-01 50 abc 50 10
2 titles pub aut 2021-01-01 60 abc 70 20
3 titling pub aaaa 2030 100 abc 200 90
new Book
add Book
save
delete Book
place order


MySQL Workbench
conn1
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
bookstore
Tables
Views
Stored Procedures
Functions
company
phonebook
sample17_14
book
book_authors
book_copies
book_loans
borrower
library_branch
publisher
test
project*
INSERT INTO creditcard VALUES('1111' , '2030-01-01');
INSERT INTO creditcard VALUES('0000' , '2030-01-01');
INSERT INTO creditcard VALUES('1234' , '2030-01-01');
INSERT INTO publisher VALUES('pub' , 'abc' , '123');
INSERT INTO books_categories VALUES('abc');
INSERT INTO creditcard VALUES('1234' , '2030-01-01');
INSERT INTO users VALUES('andrew' , 'abcde' , 'andrew' , 'adel' , 'andrew@islam' , '0101' , '000' , 'manager');
SELECT * FROM book_orders;
Result Grid
user_name ISBN publisher order_date quantity price
andrew 3 pub 2021-06-14 06:44:27 80 8000
book_orders 9
Output
Action Output
14 06:39:38 ALTER table book_orders ALTER publisher SET default 'pub' 0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0 0.141 sec
15 06:43:00 ALTER table book_orders ALTER user_name SET default 'andrew' 0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0 0.063 sec
16 06:45:00 SELECT * FROM book_orders LIMIT 0, 1000 1 row(s) returned 0.031 sec / 0.000 sec

8) Delete


home page
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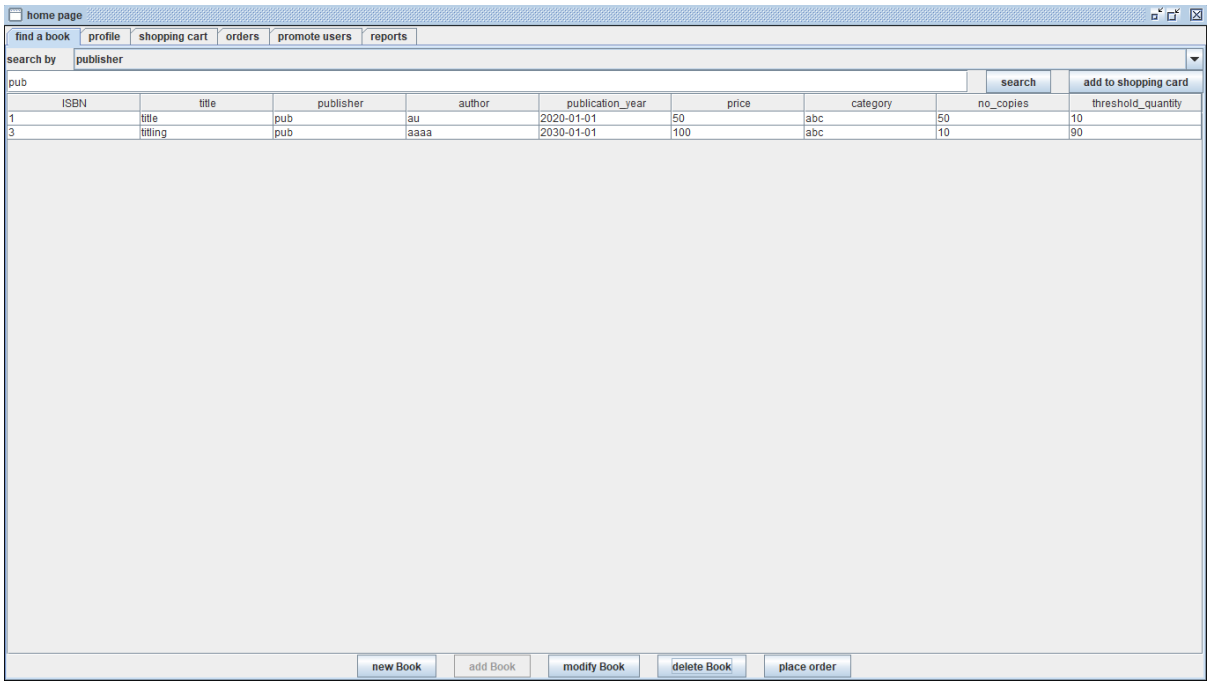
1 title pub au 2020-01-01 50 abc 50 10
2 titles pub aut 2021-01-01 60 abc 70 20
3 titling pub aaaa 2030-01-01 100 abc 10 90
new Book
add Book
modify Book
delete Book
place order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publisher
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add to shopping card
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publisher
author
publication_year
price
category
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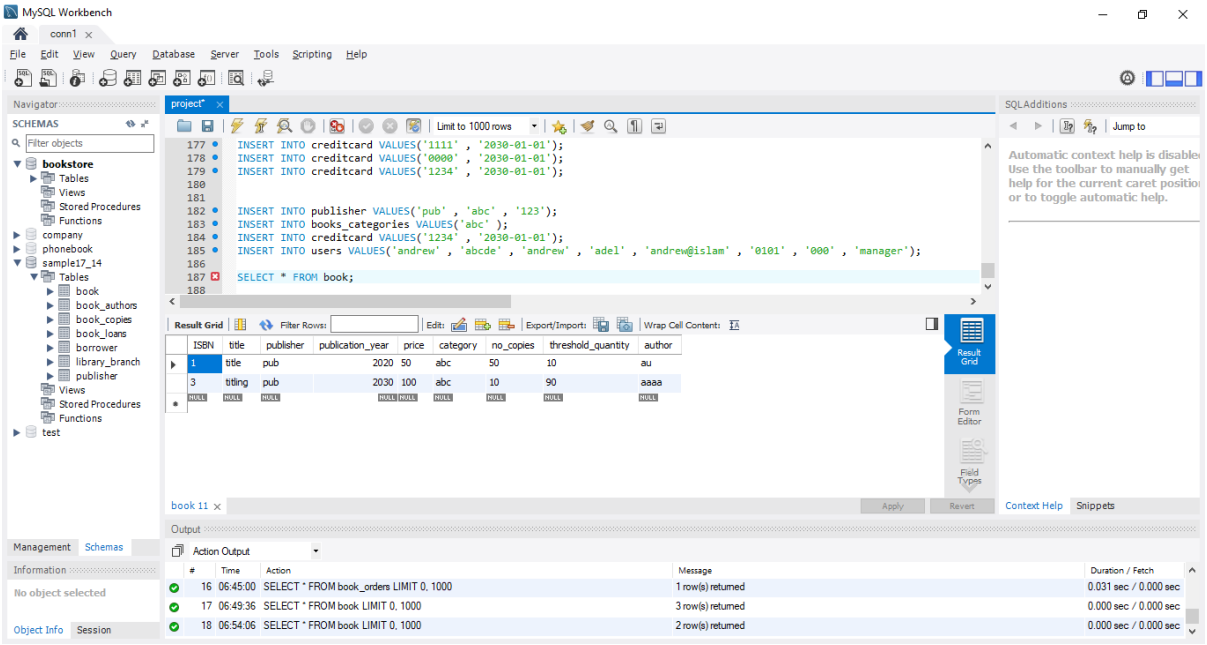
threshold_quantity
1 title pub au 2020-01-01 50 abc 50 10
3 titling pub aaaa 2030-01-01 100 abc 10 90
new Book
add Book
modify Book
delete Book
place order


MySQL Workbench
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File Edit View Query Database Server Tools Scripting Help
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Tables
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book_copies
book_loans
borrower
library_branch
publisher
Views
Stored Procedures
Functions
test
Management Schemas
Information
No object selected
Object Info Session
project*
Limit to 1000 rows
177 INSERT INTO creditcard VALUES('1111' , '2030-01-01');
178 INSERT INTO creditcard VALUES('0000' , '2030-01-01');
179 INSERT INTO creditcard VALUES('1234' , '2030-01-01');
180
181
182 INSERT INTO publisher VALUES('pub' , 'abc' , '123');
183 INSERT INTO books_categories VALUES('abc');
184 INSERT INTO creditcard VALUES('1234' , '2030-01-01');
185 INSERT INTO users VALUES('andrew' , 'abcde' , 'andrew' , 'adel' , 'andrew@islam' , '0101' , '000' , 'manager');
186
187 SELECT * FROM book;
188
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
ISBN title publisher publication_year price category no_copies threshold_quantity author
1 title pub 2020 50 abc 50 10 au
3 titling pub 2030 100 abc 10 90 aaaa
NULL
Result Grid
Form Editor
Field Types
book 11
Apply
Revert
SQLAdditions
Jump to
Automatic context help is disable
Use the toolbar to manually get
help for the current caret positio
or to toggle automatic help.
Context Help Snippets
Output
Action Output
Time Action Message Duration / Fetch
16 06:45:00 SELECT * FROM book_orders LIMIT 0, 1000 1 row(s) returned 0.031 sec / 0.000 sec
17 06:49:36 SELECT * FROM book LIMIT 0, 1000 3 row(s) returned 0.000 sec / 0.000 sec
18 06:54:06 SELECT * FROM book LIMIT 0, 1000 2 row(s) returned 0.000 sec / 0.000 sec