

Project 3 - Documentation

1. User Manual

(a) Login Screen

- i. User will enter their DB Logons
- ii. **NOTE: Login Menu will validate input**

(b) Main Menu

- i. Retrieve ISBN, title, genre name, publication date, name of the publisher, edition number and description of each book.
- ii. Retrieve for a book first, middle and last names of its authors.
- iii. Retrieve ISBN, title and barcode of every book copy.
- iv. Retrieve card number, first, middle and last name of every member.
- v. Retrieve info (ISBN, title, barcode, date borrowed and number of renewals) of every loan that was not finalized for a chosen member.
- vi. Register in the system the return of a book a chosen member borrowed.
- vii. Borrow a book copy to a chosen member.
- viii. Renew a loan of a book copy to a chosen member.
- ix. Retrieve how much money a chosen member owns to the library.
- x. Retrieve for a member ISBN, title, barcode, date borrowed, date returned and fee for every book he owns money for to the library.
- xi. Register in the system, for a member, a payment for a loan of a book copy that was overdue.
- xii. **NOTE: All Menus will validate input**

2. Functionality

(a) Retrieve ISBN, title, genre name, publication date, name of the publisher, edition number and description of each book.

- i. select BOOK.ISBN, BOOK.title, GENRE.name, BOOK.date_published, BOOK.publisher, BOOK.edition, BOOK.description from BOOK natural join GENRE order by BOOK.title asc

(b) Retrieve for a book first, middle and last names of its authors.

- i. select BOOK.title, AUTHOR.first_name, AUTHOR.middle_name, AUTHOR.last_name from AUTHOR natural join BOOK_AUTHOR natural join BOOK where BOOK.title = ?

(c) Retrieve ISBN, title and barcode of every book copy.

- i. select COPY.ISBN, BOOK.title, COPY.barcode from COPY natural join BOOK order by COPY.barcode asc

(d) Retrieve card number, first, middle and last name of every member.

- i. select MEMBER.card_no, MEMBER.first_name, MEMBER.middle_name, MEMBER.last_name from MEMBER order by MEMBER.card_no asc

(e) Retrieve info (ISBN, title, barcode, date borrowed and number of renewals) of every loan that was not finalized for a chosen member.

- i. select sel.ISBN, sel.title, sel.barcode, sel.date_borrowed, sel.renewals_no from ((select BOOK.ISBN, BOOK.title, BORROW.barcode, BORROW.date_borrowed, BORROW.renewals_no from BOOK natural join COPY natural join BORROW natural join MEMBER where MEMBER.card_no = ? and BORROW.date_returned is null and BORROW.renewals_no = 0 and datediff(NOW(), BORROW.date_borrowed) > 14) union (select BOOK.ISBN, BOOK.title, BORROW.barcode, BORROW.date_borrowed, BORROW.renewals_no from BOOK natural join COPY natural join BORROW natural join MEMBER where MEMBER.card_no = ? and BORROW.date_returned is null and BORROW.renewals_no = 1 and datediff(NOW(), BORROW.date_borrowed) > 28) union (select BOOK.ISBN, BOOK.title, BORROW.barcode,

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- BORROW.date_borrowed, BORROW.renewals_no from BOOK natural join COPY natural join BORROW natural join MEMBER where MEMBER.card_no = ? and BORROW.date_returned is null and BORROW.renewals_no = 2 and datediff(NOW(), BORROW.date_borrowed) > 42)) sel
- (f) Register in the system the return of a book a chosen member borrowed.
- update BORROW set date_returned = NOW() where barcode = ? and date_borrowed in (select tOut from (select max(date_borrowed) as tOut from BORROW where card_no = ?) tRes)
- (g) Borrow a book copy to a chosen member.
- insert into BORROW values(?,?,NOW(),null,0, 0)
- (h) Renew a loan of a book copy to a chosen member.
- update BORROW set renewals_no = renewals_no + 1 where barcode = ? and date_borrowed in (select tOut from (select max(date_borrowed) as tOut from BORROW where card_no = ?) tRes)
- (i) Retrieve how much money a chosen member owns to the library.
- select sel.card_no, sum(sel.MoneyOwed) as MoneyOwed from ((select MEMBER.card_no, (datediff(NOW(), BORROW.date_borrowed) - 14) * 0.25 as MoneyOwed from BOOK natural join COPY natural join BORROW natural join MEMBER where MEMBER.card_no = ? and (BORROW.paid = 0 or BORROW.paid is null) and BORROW.date_returned is null and BORROW.renewals_no = 0 and datediff(NOW(), BORROW.date_borrowed) > 14) union (select MEMBER.card_no, (datediff(NOW(), BORROW.date_borrowed) - 28) * 0.25 as MoneyOwed from BOOK natural join COPY natural join BORROW natural join MEMBER where MEMBER.card_no = ? and (BORROW.paid = 0 or BORROW.paid is null) and BORROW.date_returned is null and BORROW.renewals_no = 1 and datediff(NOW(), BORROW.date_borrowed) > 28) union (select MEMBER.card_no, (datediff(NOW(), BORROW.date_borrowed) - 42) * 0.25 as MoneyOwed from BOOK natural join COPY natural join BORROW natural join MEMBER where MEMBER.card_no = ? and (BORROW.paid = 0 or BORROW.paid is null) and BORROW.date_returned is null and BORROW.renewals_no = 2 and datediff(NOW(), BORROW.date_borrowed) > 42)) sel group by sel.card_no
- (j) Retrieve for a member ISBN, title, barcode, date borrowed, date returned and fee for every book he owns money for to the library.
- select sel.ISBN, sel.title, sel.barcode, sel.date_borrowed, sel.date_returned, sel.MoneyOwed from ((select BOOK.ISBN, BOOK.title, BORROW.barcode, BORROW.date_borrowed, BORROW.date_returned, (datediff(NOW(), BORROW.date_borrowed) - 14) * 0.25 as MoneyOwed from BOOK natural join COPY natural join BORROW natural join MEMBER where MEMBER.card_no = ? and (BORROW.paid = 0 or BORROW.paid is null) and BORROW.date_returned is null and BORROW.renewals_no = 0 and datediff(NOW(), BORROW.date_borrowed) > 14) union (select BOOK.ISBN, BOOK.title, BORROW.barcode, BORROW.date_borrowed, BORROW.date_returned, (datediff(NOW(), BORROW.date_borrowed) - 28) * 0.25 as MoneyOwed from BOOK natural join COPY natural join BORROW natural join MEMBER where MEMBER.card_no = ? and (BORROW.paid = 0 or BORROW.paid is null) and BORROW.date_returned is null and BORROW.renewals_no = 1 and datediff(NOW(), BORROW.date_borrowed) > 28) union (select BOOK.ISBN, BOOK.title, BORROW.barcode, BORROW.date_borrowed, BORROW.date_returned, (datediff(NOW(), BORROW.date_borrowed) - 42) * 0.25

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as MoneyOwed from BOOK natural join COPY natural join BORROW natural join  
MEMBER where MEMBER.card_no = ? and (BORROW.paid = 0 or  
BORROW.paid is null) and BORROW.date_returned is null and  
BORROW.renewals_no = 2 and datediff(NOW(), BORROW.date_borrowed) > 42))  
sel
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- (k) Register in the system, for a member, a payment for a loan of a book copy that was overdue.
 - i. update BORROW
 - ii. set paid = 1
 - iii. where barcode = ? and (paid = 0 or paid is null) and date_borrowed in (select tOut from (select max(date_borrowed) as tOut from BORROW where card_no = ?) tRes)
- 3. Assumptions
 - (a) E: Assumption that a loan isn't finalized until a return date is set
 - (b) I & J: Money charged is calculated as $0.25 * (X \text{ days late})$. X days late accounts for renewals and normal checkout windows
- 4. Build Info
 - (a) After Extracting Archive
 - i. Open Eclipse, import Java project
 - ii. Select Project3
 - iii. Right click the project, highlight buildpath, select add external archives.
 - iv. Click on mysql-connector-j-8.0.31.jar from Project3
 - v. Click Run Program while Program.java is open on screen
- 5. Video Link
 - (a) <https://youtu.be/NTxoNEQBoWI>