

Josh Hickman
Max Loduca
Robert Colman Loch
CS 3380 Database Applications
11/30/19 Fall Semester

1. Problem Statement:

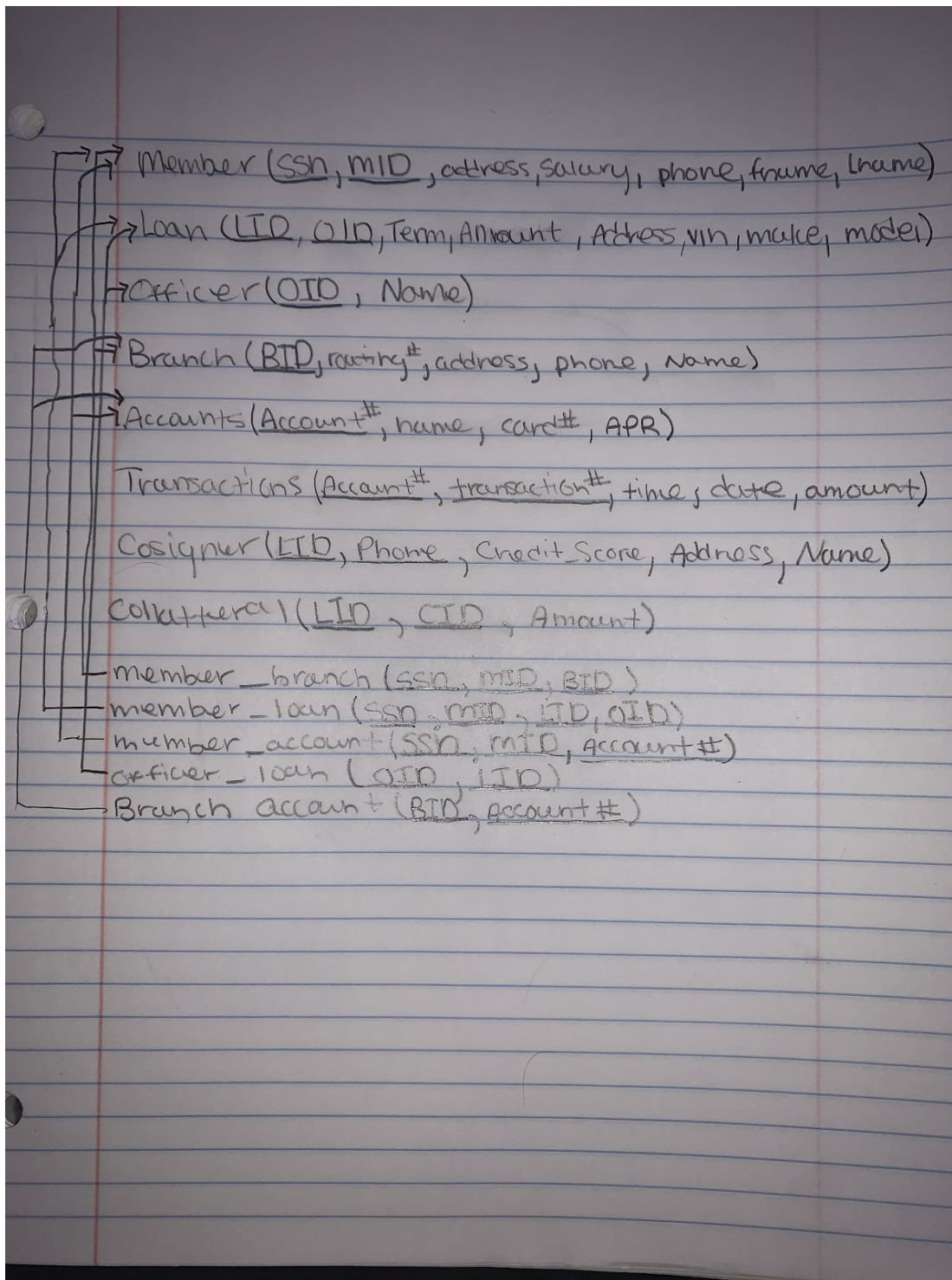
- a. Many Credit Unions lack the clean and concise online services that many banks offer for their customers and their accounts to combat this issue we will be creating a web application for a Credit Union that would allow its members to have the ability to access many of the Credit Union's services through internet-connected devices. The database will be essential in organizing every single aspect of the client-side interactions. Personal Information, Accounts, Loans, and Transactions will all be kept by the database to ensure a rapid and smooth experience for the members of the Credit Union. Allowing them to conduct their business without having to leave the comfort of their own home or office

2. Conceptual Database Design:

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- a. All Loans must be home, auto or personal and all accounts must be checking or savings.
- b. A loan officer can manage multiple loans but only one loan officer is allowed per loan.
- c. Some loans need a cosigner or collateral.
- d. Accounts may not have transactions as they could be a new account. Transactions are used to update the balance of the account.
- e. All members must open an account, multiple members can share a joint account, and members can open multiple accounts.
- f. All branches can manage multiple accounts.
- g. APR on a loan is derived from the amount of the loan and the credit score of the member. Allowing it to possibly change during the loan based on certain circumstances.
- h. A member's debt ratio and credit score are derived from member salary and current loan debt.
- i. The monthly payment on loans are calculated from the loan amount, term, and apr

3. Logical Database Design:



a. Member

Attribute	Type	Description
SSN	integer	Social Security Number
MID	integer	Unique Member ID
Address	string	Member address
Salary	float	Member annual income
Phone	bigint	Member phone number
Fname	string	Member first name
Lname	string	Member last name

b. Loan

Attribute	Type	Description
LID	integer	Unique loan id number
OID	Integer	The unique ID number of Loan Officer
Term	integer	Length of loan in months
Amount	float	Value of loan
Address	string	Address of home if the home loan (can be null)
VIN	string	Vehicle ID if the auto loan (can be null)
Make	string	Vehicle make if the auto loan (can be null)
Model	string	Vehicle model if the auto loan (can be null)

c. Officer

Attribute	Type	Description
OID	integer	The unique Officer ID number
Name	string	Loan officer name

d. Branch

Attribute	Type	Description
BID	integer	Unique Branch ID
Routing #	bigint	Routing number of the branch
Address	string	Address of the branch

Phone	int	Branch phone number
Name	string	Branch name

e. Accounts

Attribute	Type	Description
Account #	bigint	Unique account number
Name	string	Nickname of account
Card #	string	Card number associated with checking account if checking account (can be null)
APR	float	APR associated with the account if savings account (can be null)

f. Transactions

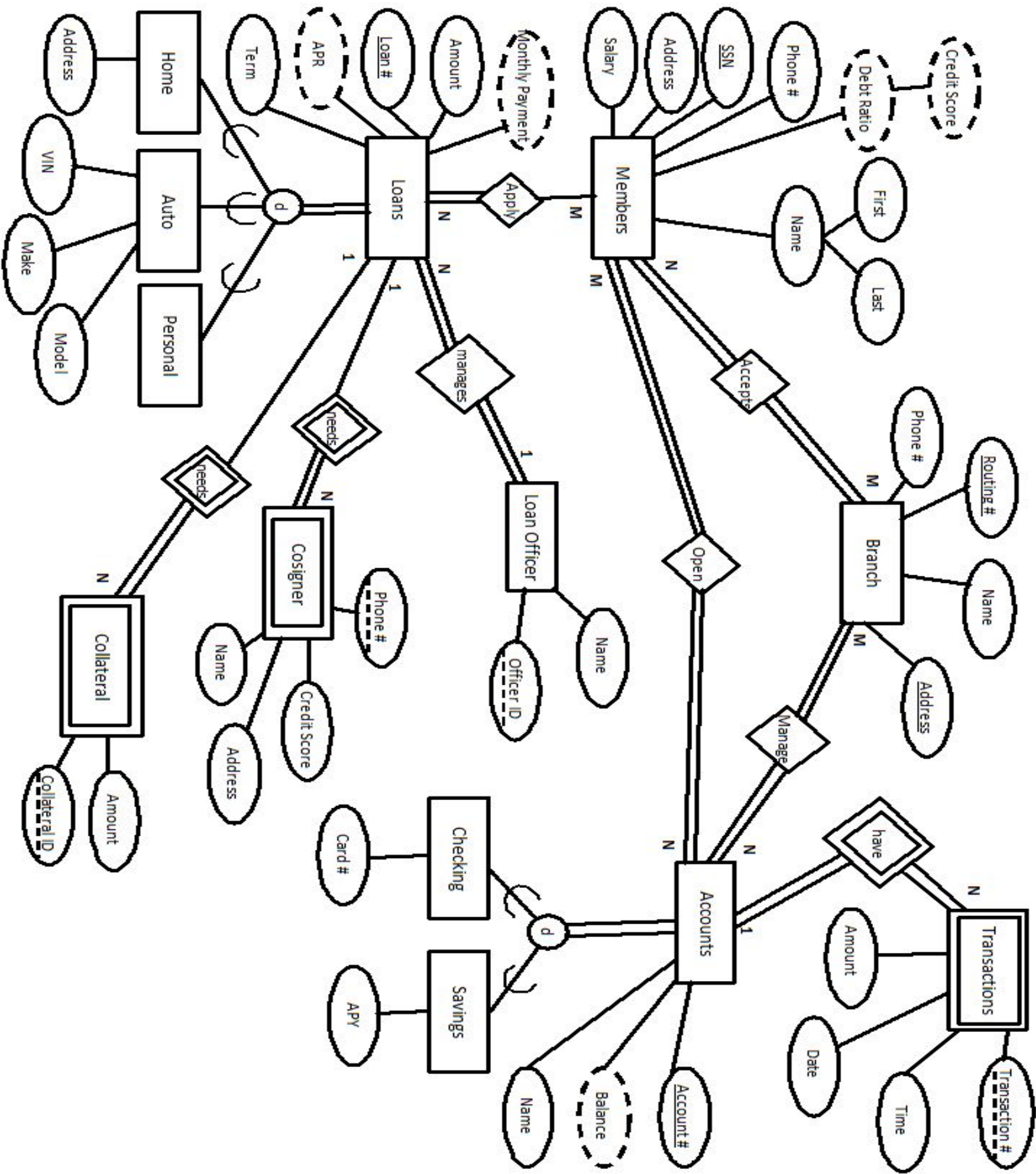
Attribute	Type	Description
Account #	bigint	Account number of the account used in the transaction
Transaction #	bigint	Incrementing number detailing the number of transactions over the life of the account. (ex: first transaction = 1)
Time	float	Time transaction occurs
Date	int	Date transaction occurs
Amount	string	Amount of transaction, positive or negative depending on if adding or removing money from the account.

g. Cosigner

Attribute	Type	Description
LID	bigint	Loan ID of the loan being cosigned
Phone	integer	Cosigner phone number, unique within the loan they signed
Credit Score	integer	Cosigner credit score
Address	string	Cosigner address
Name	string	Cosigner name

h. Collateral

Attribute	Type	Description
LID	integer	Loan Id of loan needing collateral
CID	integer	Collateral ID
Amount	float	Value of the collateral

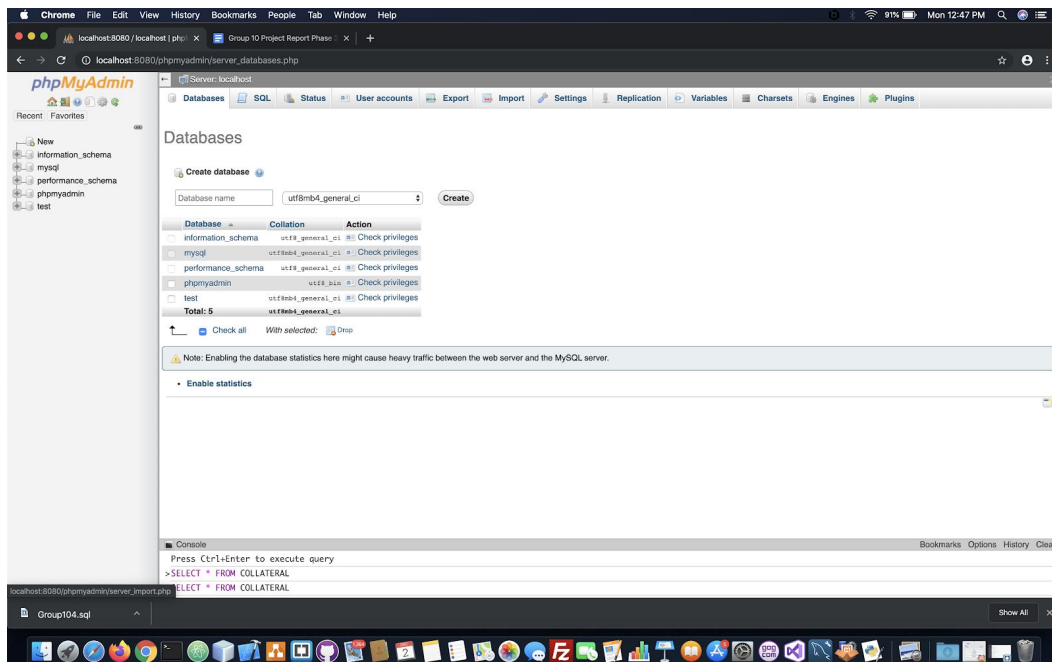


User Manual

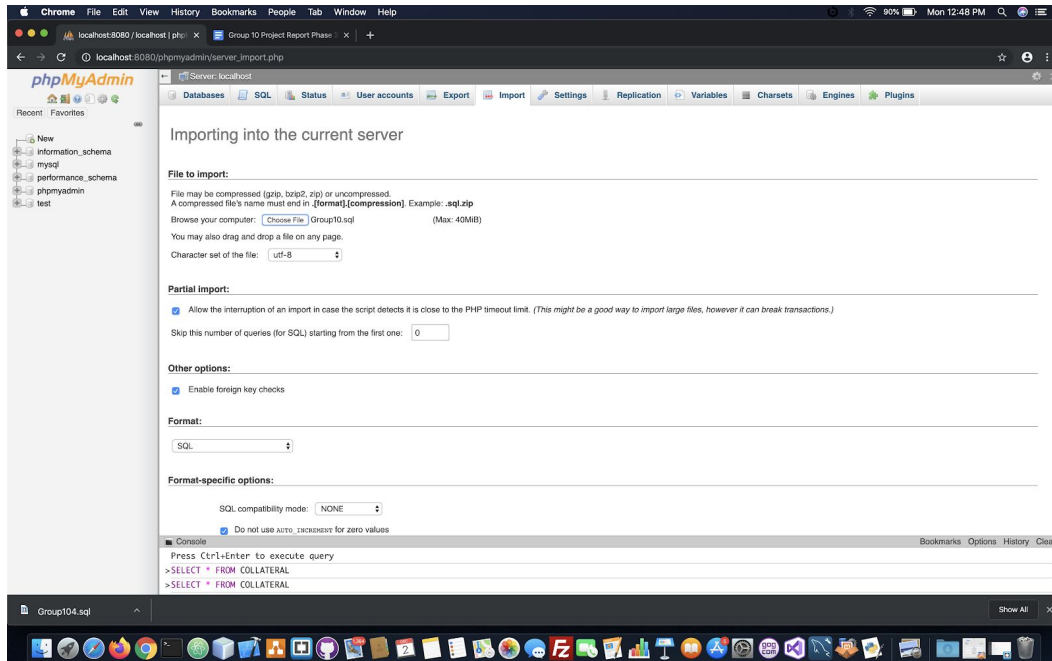
We use Xampp phpMyAdmin administration tool for the database implementation and maintenance. Once you have Xampp installed and running, open a web browser and type - localhost:8080 into the address bar (use the port number you enabled in the Xampp application). On that webpage in the upper right hand there will be a link for phpMyAdmin which will take you to the database interface.

You may resize the images by clicking on them and expanding if needed.

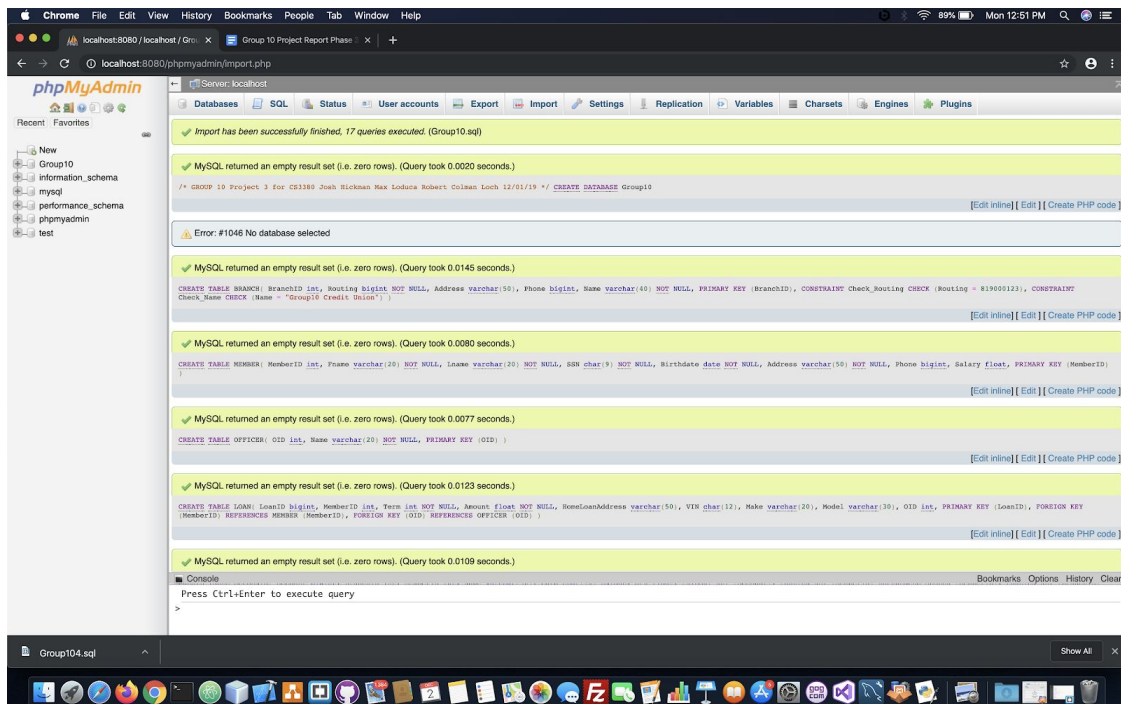
1. Here you will just import the Group10.sql file which will populate the database with the Credit Union implementation.



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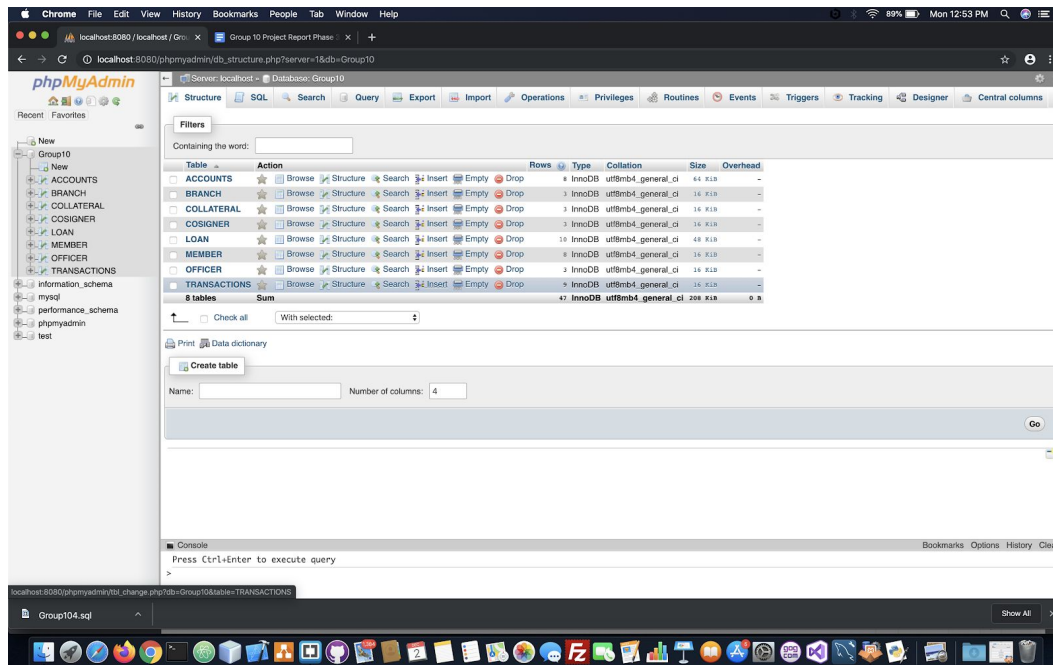


On successful load and initialization you will see all of the different tables and insertions as green boxes showing a good load. If you see a red box with an error message here, contact your database administrator.

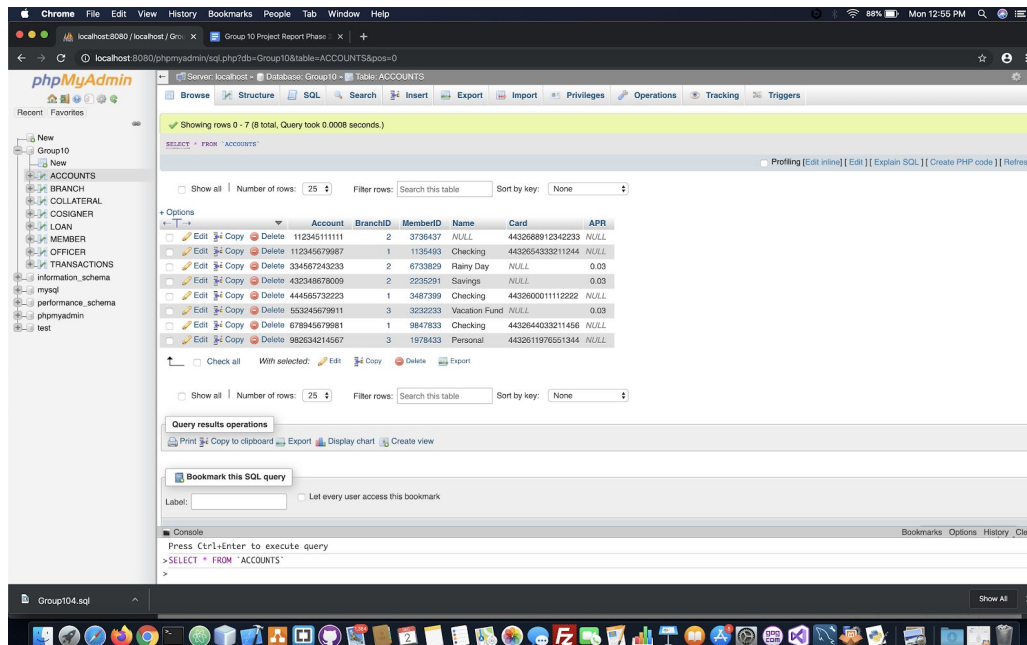


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- Once the database is initialized to look at the different tables and data therein, select the database on the left named Group10.

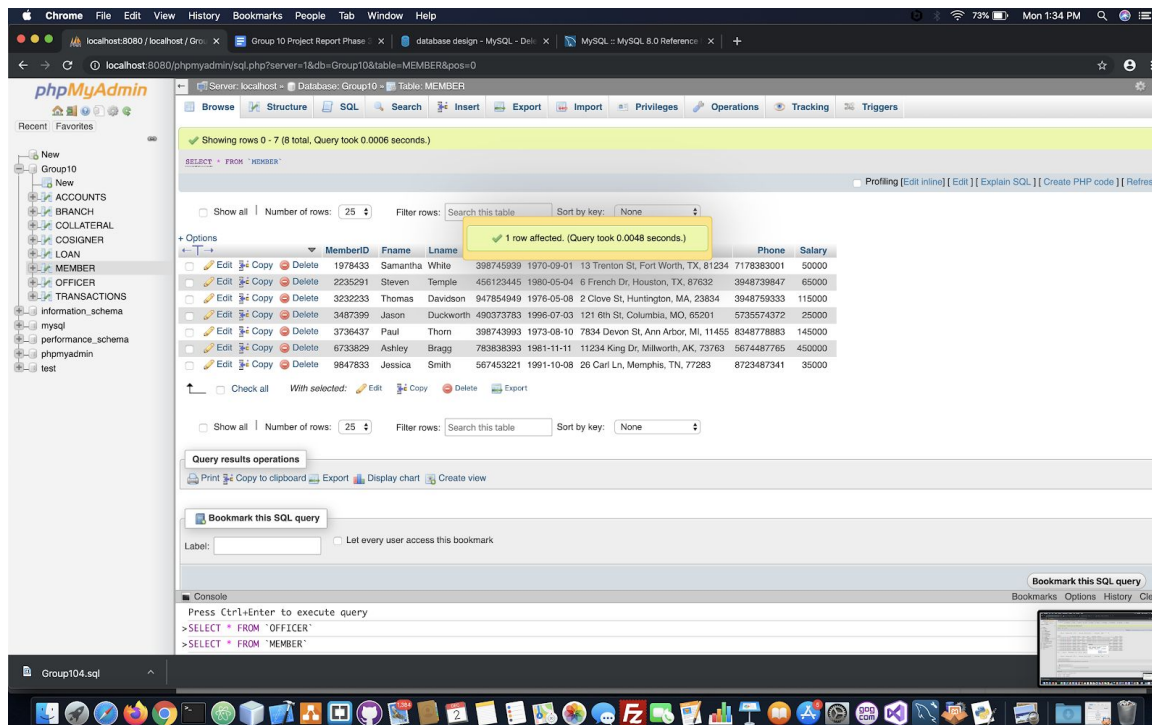
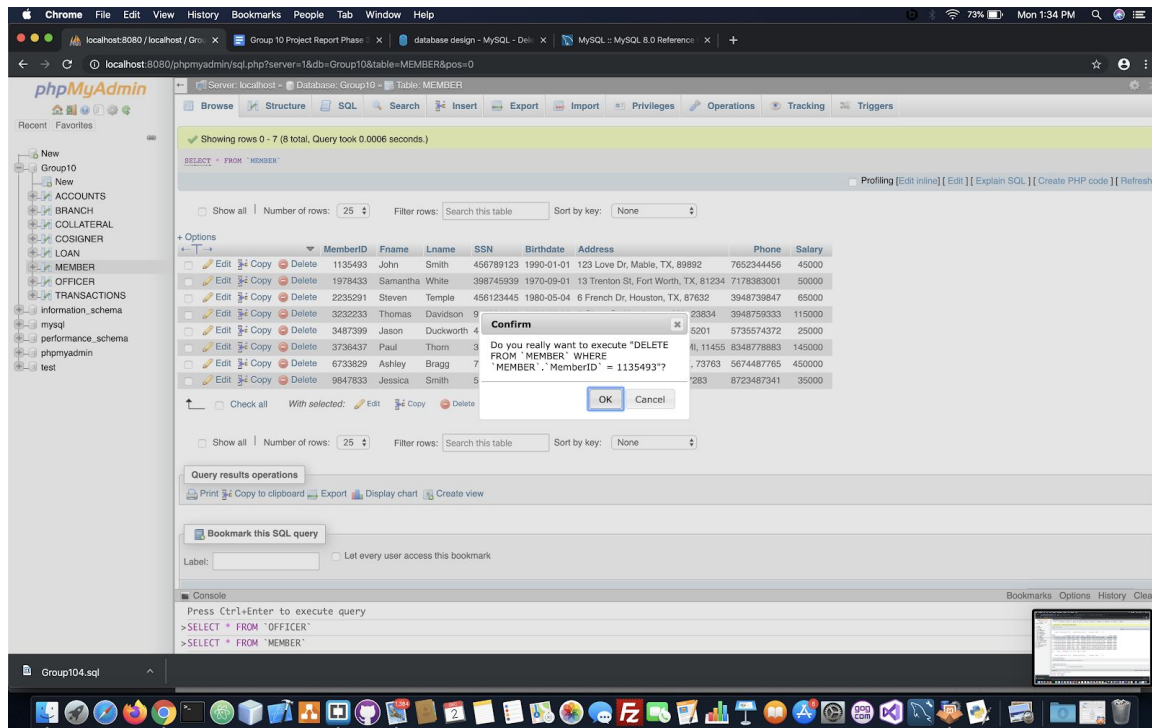


- Click on the name of whichever table you want to access data for, say Accounts. You will then see the data in that table.



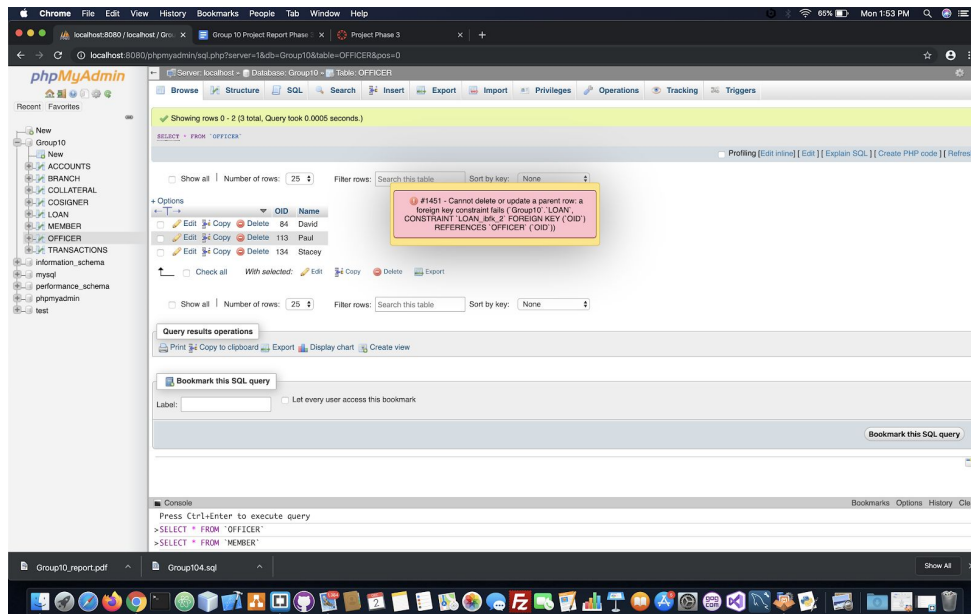
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On this screen you can edit each row or delete that row by using the provided interface icons on that corresponding row. For deletion:

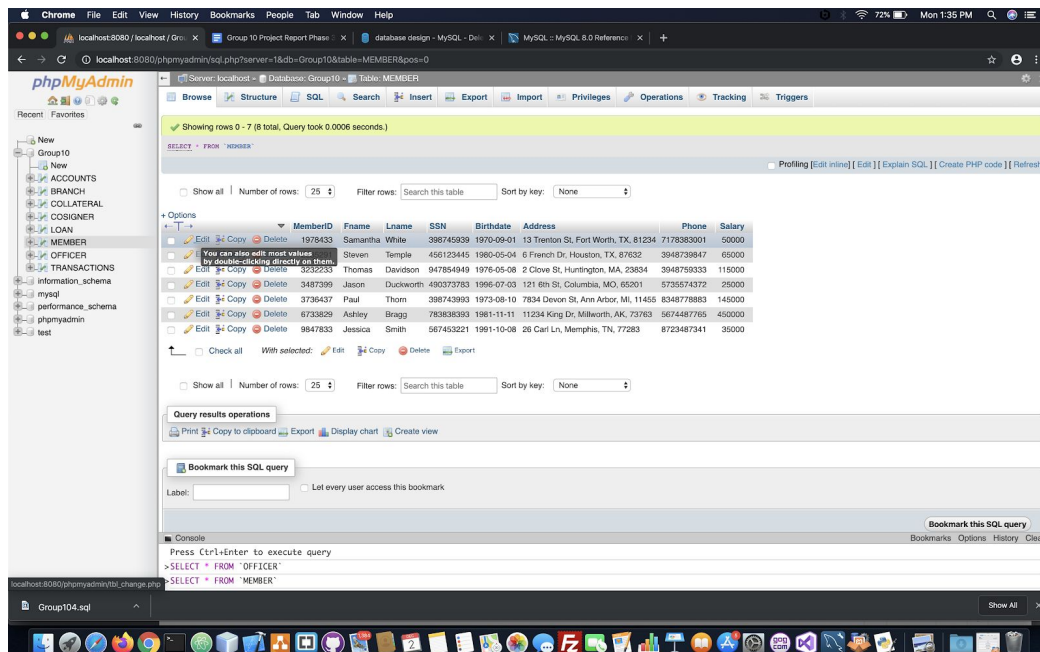


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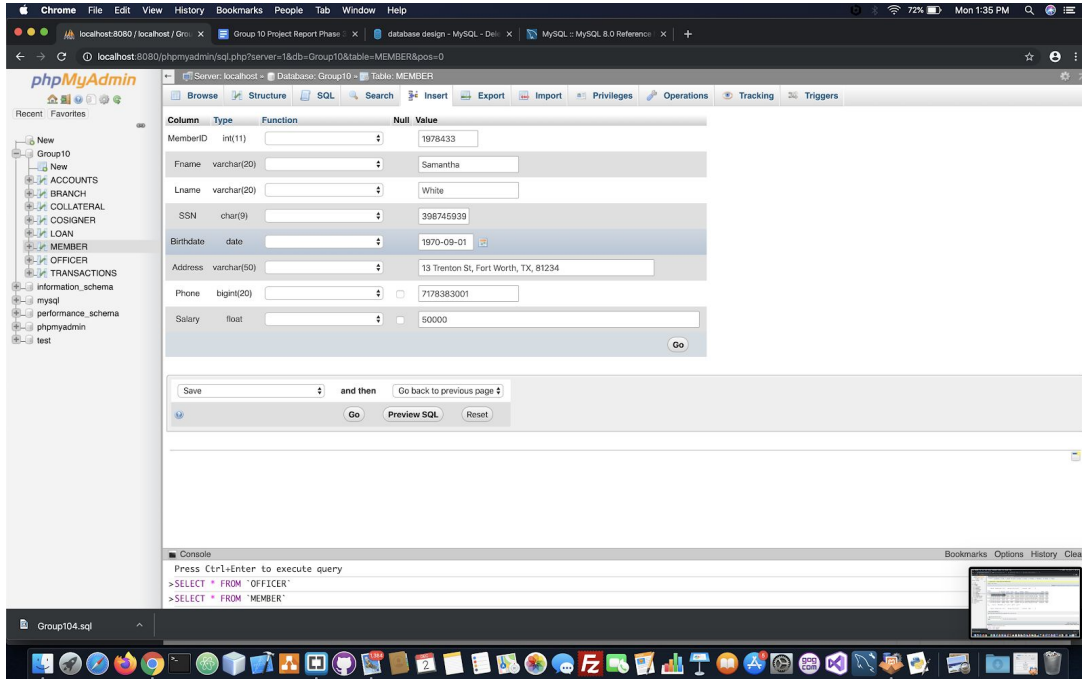
You will not be able to delete a loan officer from the table, so that it doesn't interfere with a current members loan. Also records retained for potential need for information at a later date. This error will occur.



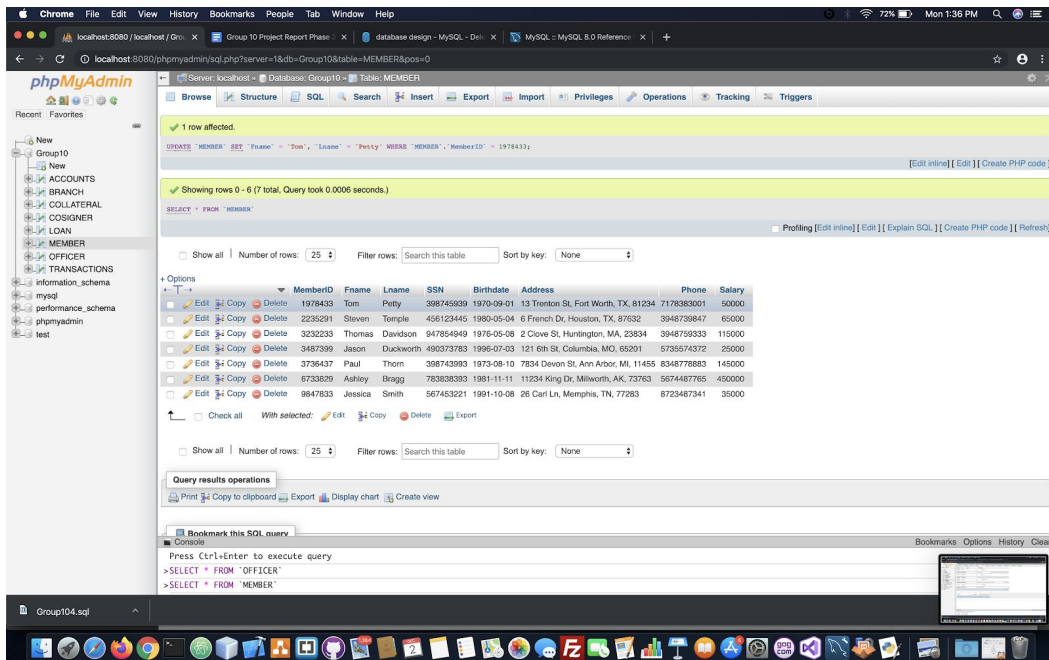
For editing:



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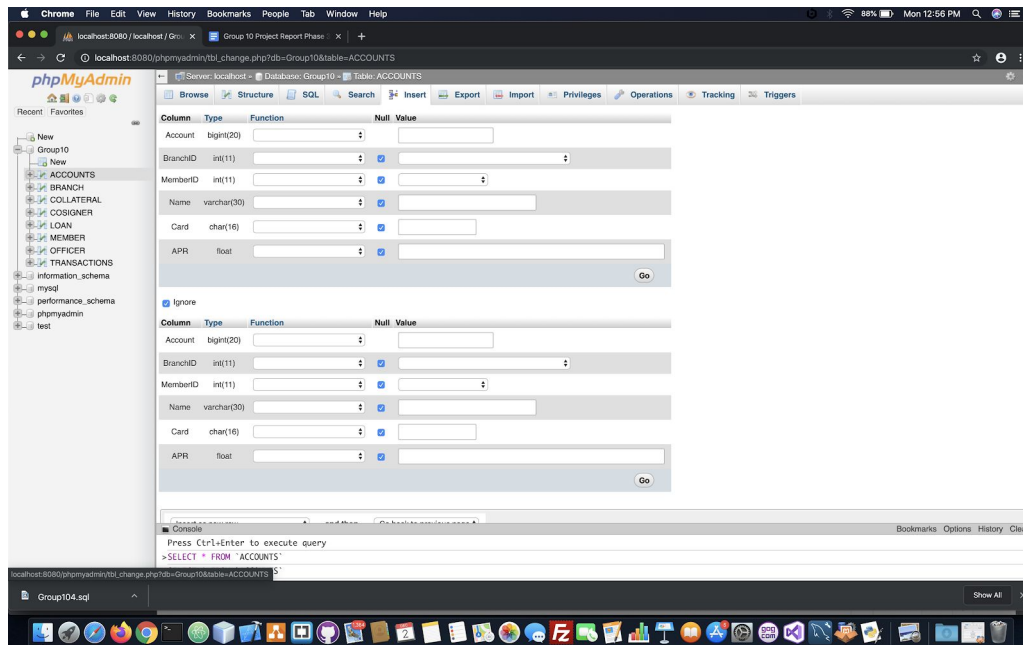
Click on the Go button just below the fields



Tada.

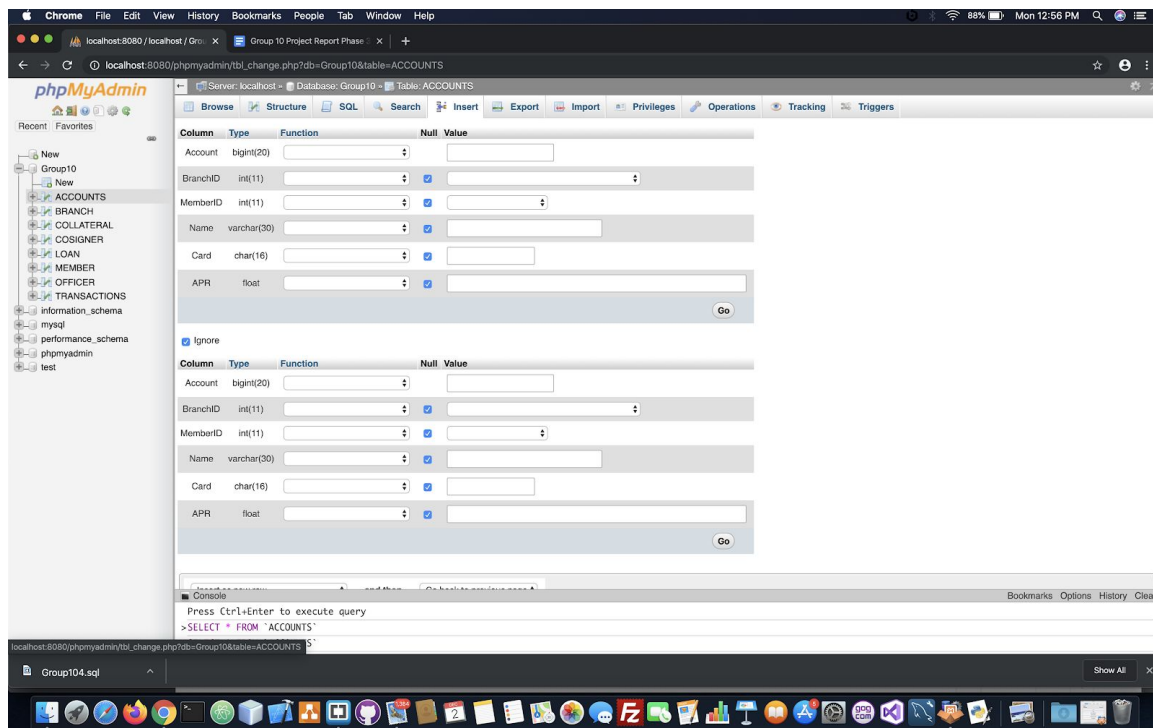
If you wish to add a new record to that table, then at the top bar there is an insert button. Once you click that you will see. ****Please Note that if adding a new branch to the database, the routing number for that institution must be: 819000123 and the name of the branch must be "Group10 Credit Union". You will not be able to add a branch if those values aren't the same.**

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4. If you wish to run a specific Query (a function to get a specific pool of data such as all members who have a loan that doesn't include loan officer Stacey), click on the Group10 database name on the left side, then a tab at the top will say Query. You will see this when you click on Query.

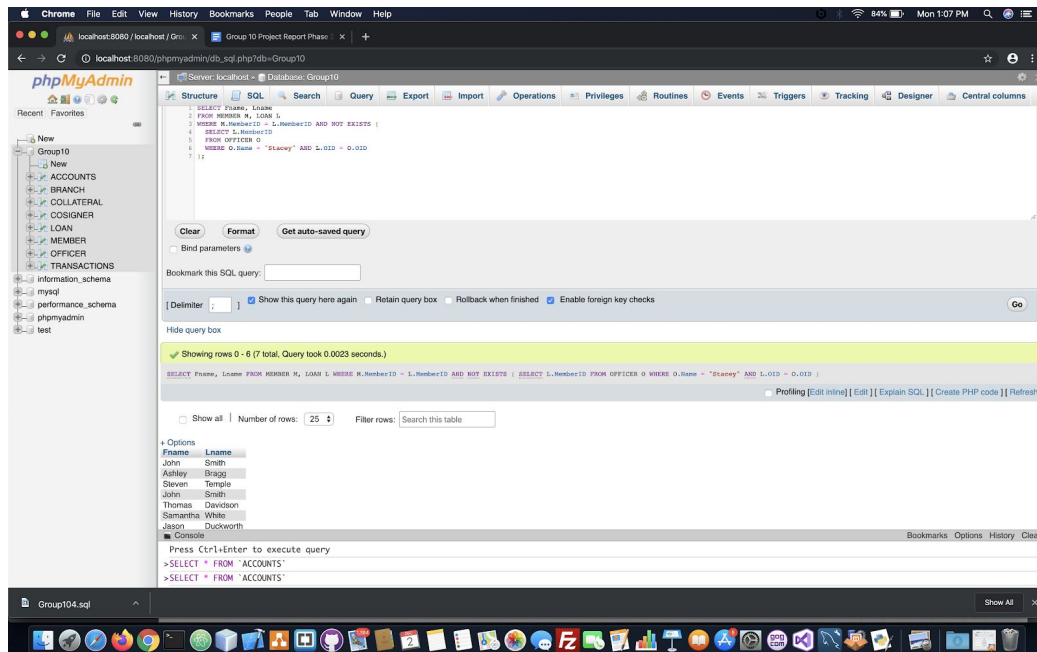
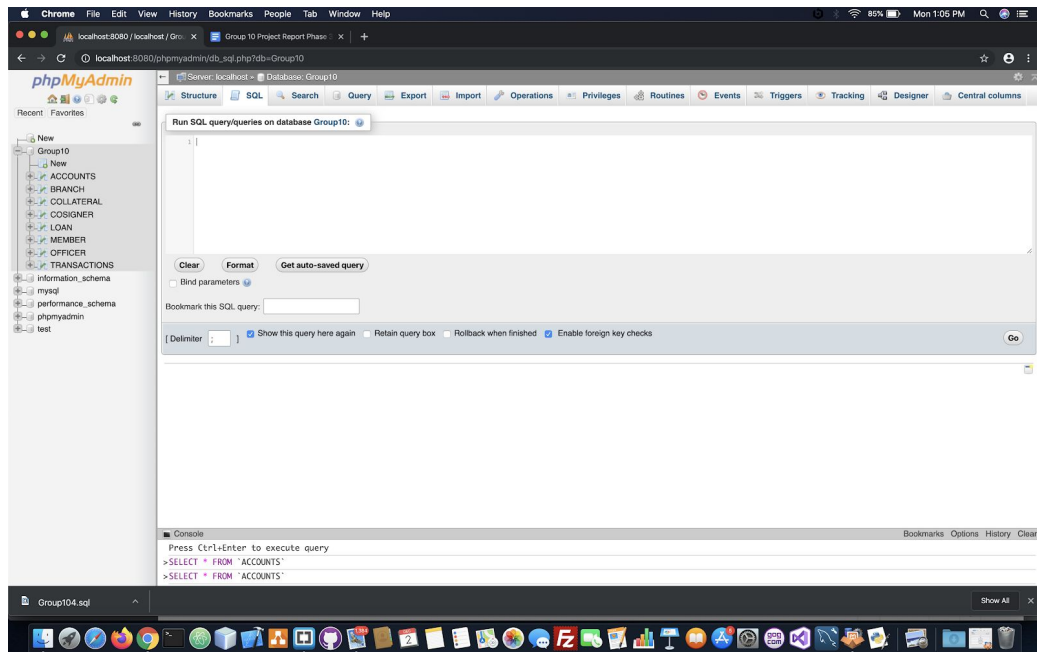
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From here you may use the database to find a variety of data, such as account balances, etc.

5. If you have someone who knows the MySQL language, you may also write your own queries which will return the immediate result in the same window.

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This concludes the user manual, for further inquiries or problems, contact your database administrator.