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I confirm that I understand my coursework needs to be submitted online via Google Classroom under the relevant module page before the deadline in order for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a marks of zero will be awarded.

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1. Introduction

A database is the systematic assortment for the raw data and information of an organization. The database can be controlled, manipulated and managed with the help of system or software, which is called Database Management System. (Dr. Satinder Bal Gupta, 2009)

The database I have created is about the Library Database Management System. It shows how all the data are managed within the library. The Library Database Management System makes it easy and simple for it's user to access to the books and study materials and also helps the librarian to keep the track and records of all the activities. This database helps to maintain all the information related to books and study materials. It keeps the information about the public demands of the books, the types of books the readers are mostly interested in. It also keeps the records of all the books that were borrowed by the readers and the time they were returned. And also the records of the usefulness of the books available in the library.

2. Database Model

My database of library is made up of five different tables and they are Library, Author, Books, Members and Records. The ‘Library’ stores the information like Name, location, Email, Phone no. Similarly, ‘Books’ stores the information about the name of the book along with it’s price and writer’s name. ‘Author’ stores the information about the writers of the specific books and associated with study material. ‘Member’ stores the information about the readers or customers. ‘Record’ keeps the information about the dates in which the books were taken and returned by the members.

2.1 Entity Relationship Diagram

An element relationship outline (ERD) is an information displaying procedure that represents a data framework's substances and the connections between those elements. An ERD is a calculated and illustrative model of information used to speak to the element structure foundation. (Techopedia, n.d.)

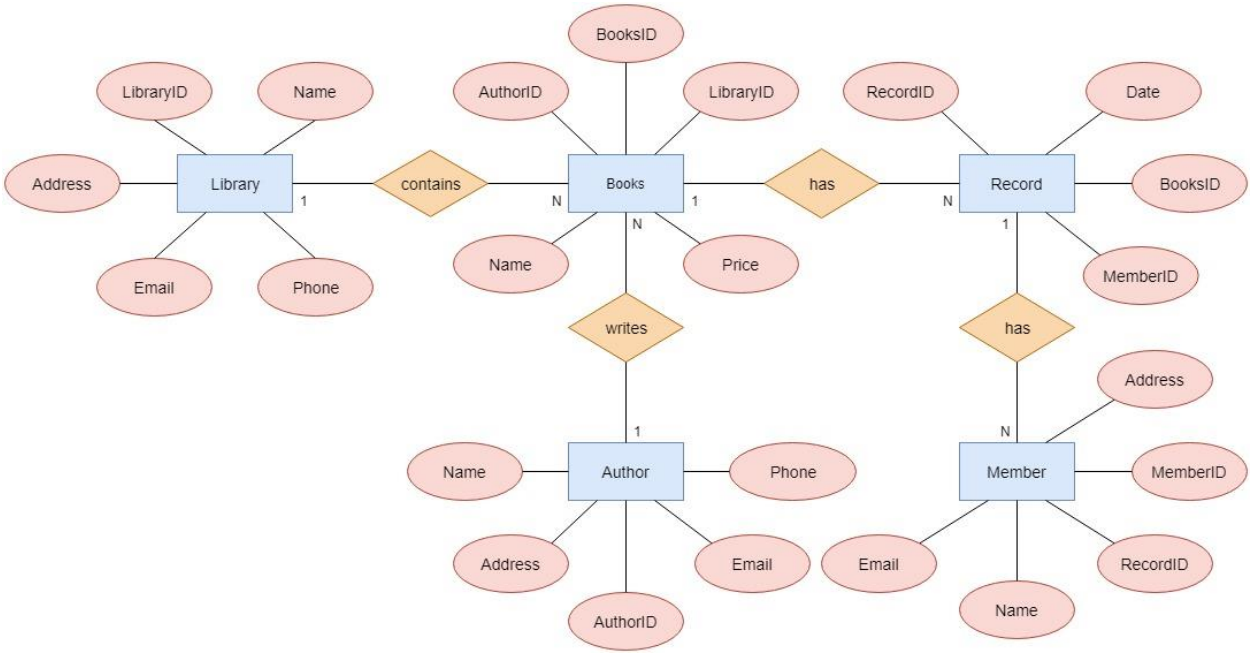

Figure 1: ER Diagram

2.2 Relational Diagram

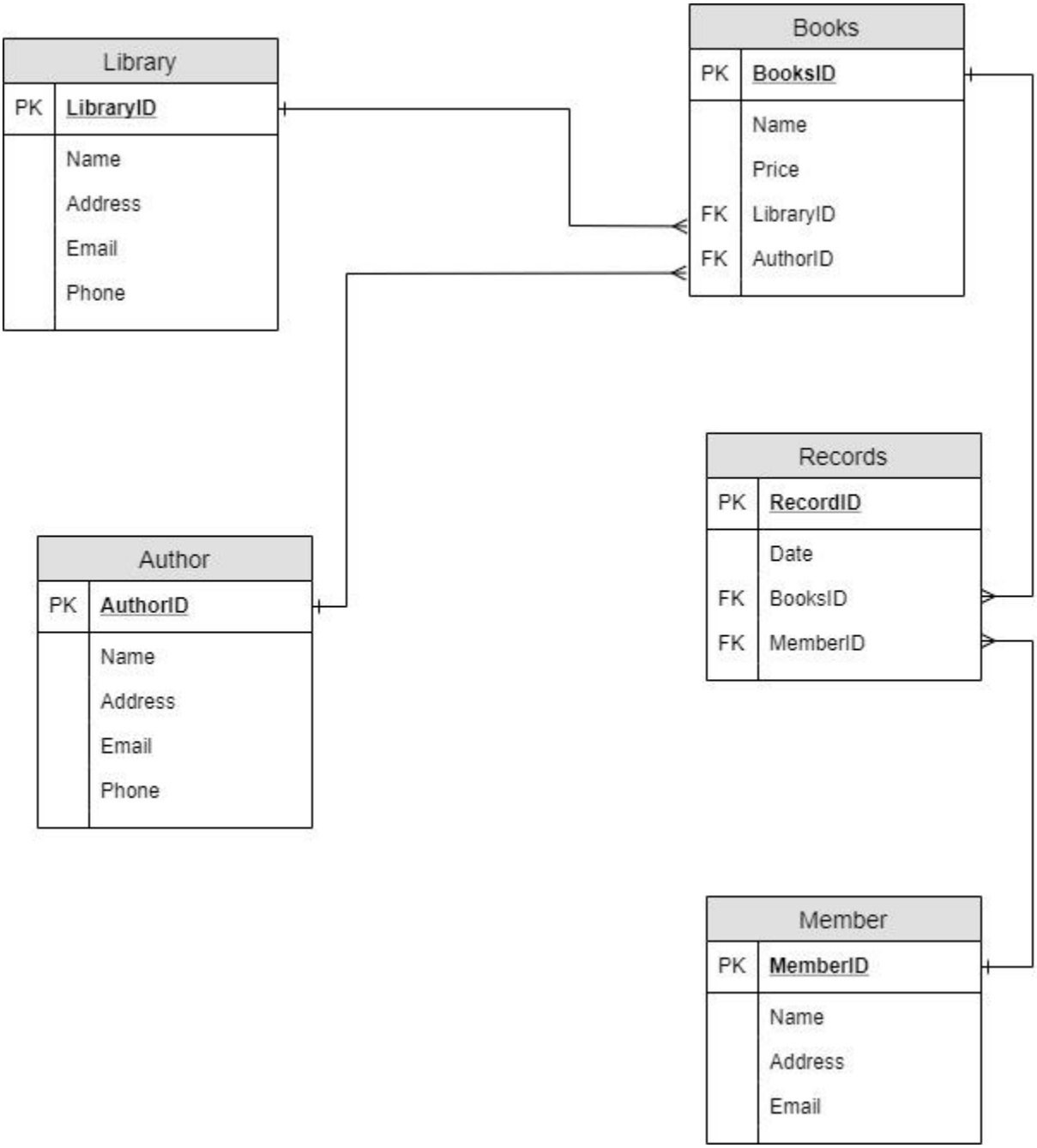

Figure 2: Relational Diagram

Table Library:

This table consist five columns and they are Name, LibraryID, Address, Email and Phone. The primary key in this table is LibraryID as each Library is assigned with their unique registration number. Name column gives the name of the library, Address gives the location, Email gives the mailID and Phone gives the contact number of the library.

Table Author:

This table contains also contain five columns and they are Name, Address, Phone, AuthorID and Email. Here, the primary key is AuthorID as all the authors have their own unique ID. Moreover, the column Name gives the name of Author. Similarly, Address gives the residential place, Phone gives the contact and Email gives the mailID of the Author.

Table Books:

This table contains five columns and they are Name, Price, LibraryID, BooksID and AuthorID. Here, the primary key is BooksID as the Books are assigned with their own unique certified numbers. The foreign keys in this table are LibraryID and BooksID references to Library and Books respectively. The Name gives the names of the books and price gives the amount of the books.

Table Member

This table gives the information about the readers or the people with the membership card of the library. This table has four columns namely Name, Email, Address, MemberID and Address. Here, the primary key is MemberID is the primary key as all the members have different and unique ID number. The name column gives the name of the member, Email gives the mailID and address gives the residential place of the member.

Table Record:

This table gives the information of the record that has been kept of all the books. This table contains four columns as well. The columns are RecordID, MemberID, BooksID and date. Here, the primary key is RecordID as it is the ID of the diferent records in the library. The foreign keys in this table are BooksID and MemberID references to the Books and Member respectively. The date column gives the information about the date on which the books were taken and returned.

2.3 Creation Screenshots

Creation of the database ‘Library’ and the tables Library, Author, Books, Member and record.

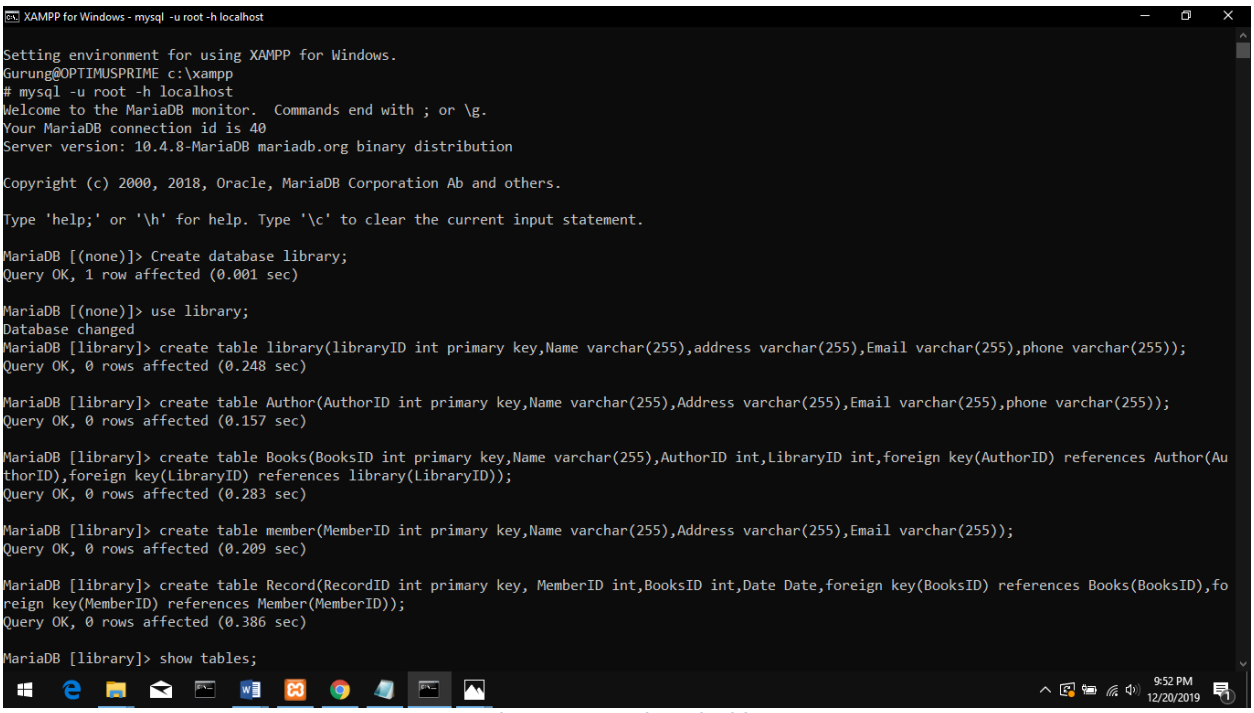

Figure 3: Creation of tables

2.4 Insertion Screenshots

Insertion of values in table Library

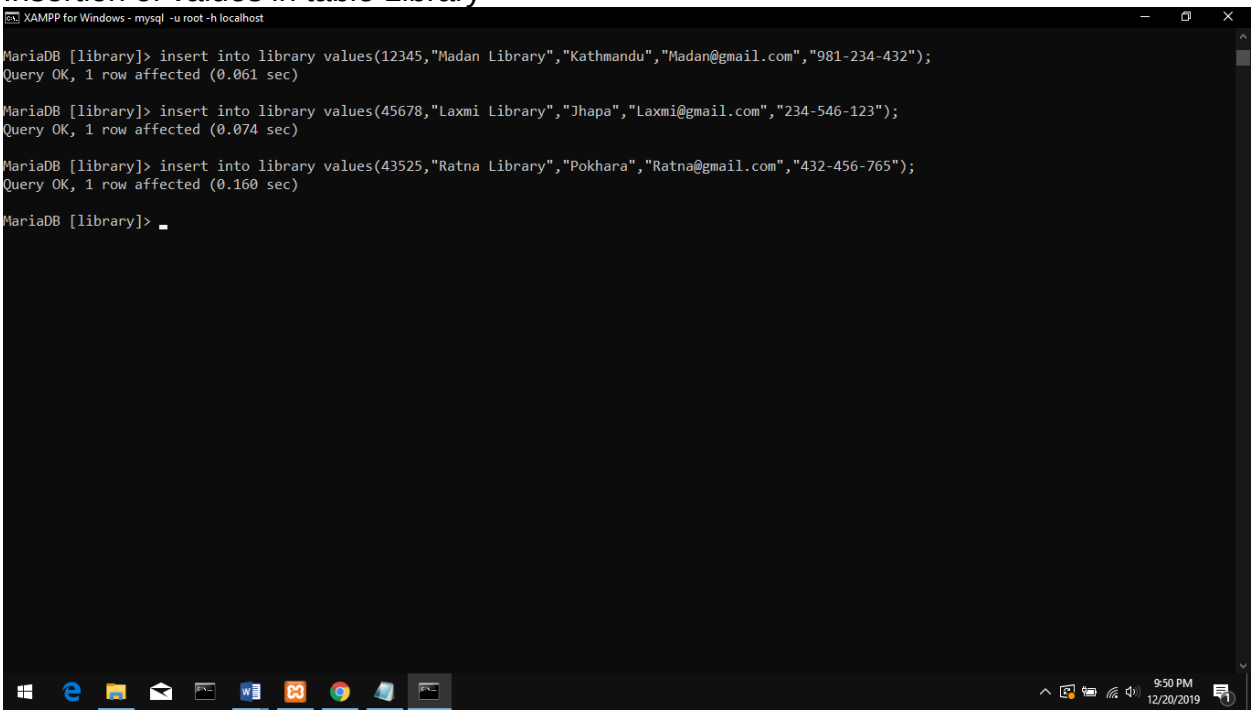

Figure 4:Insertiion into table 1

Insertion of values in table Author

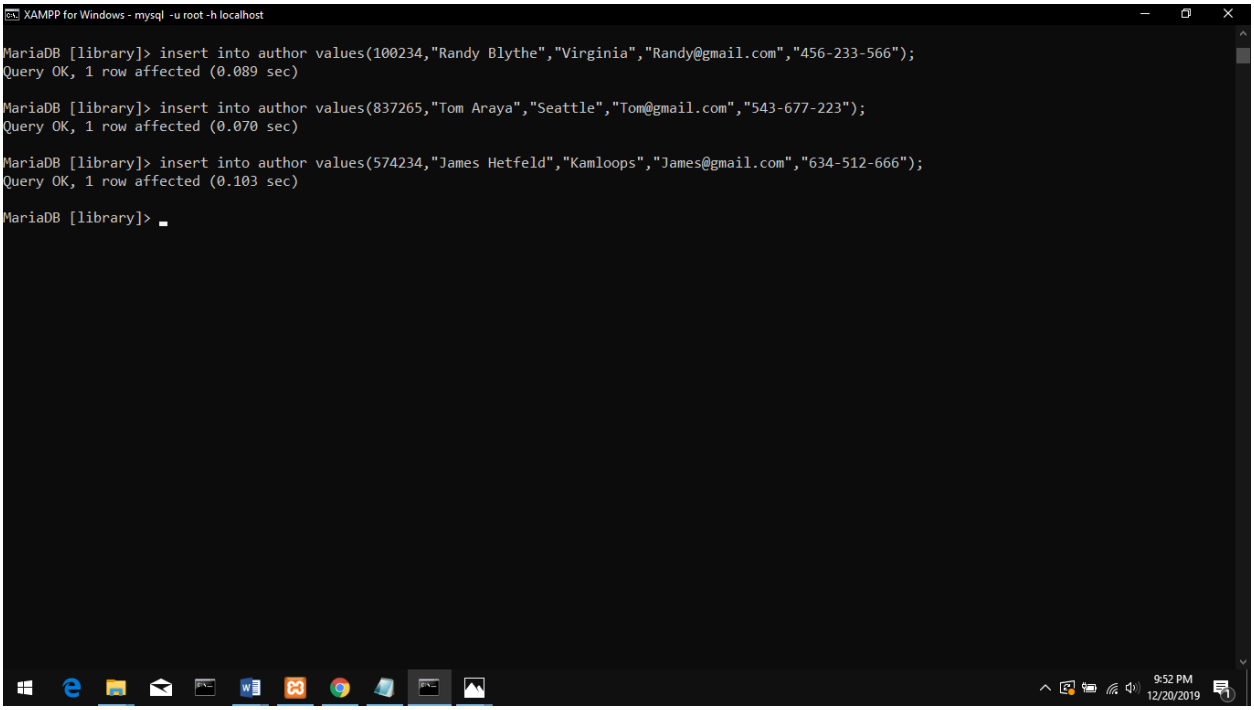

Figure 5:Insertion into table 2

Insertion of values in table Books

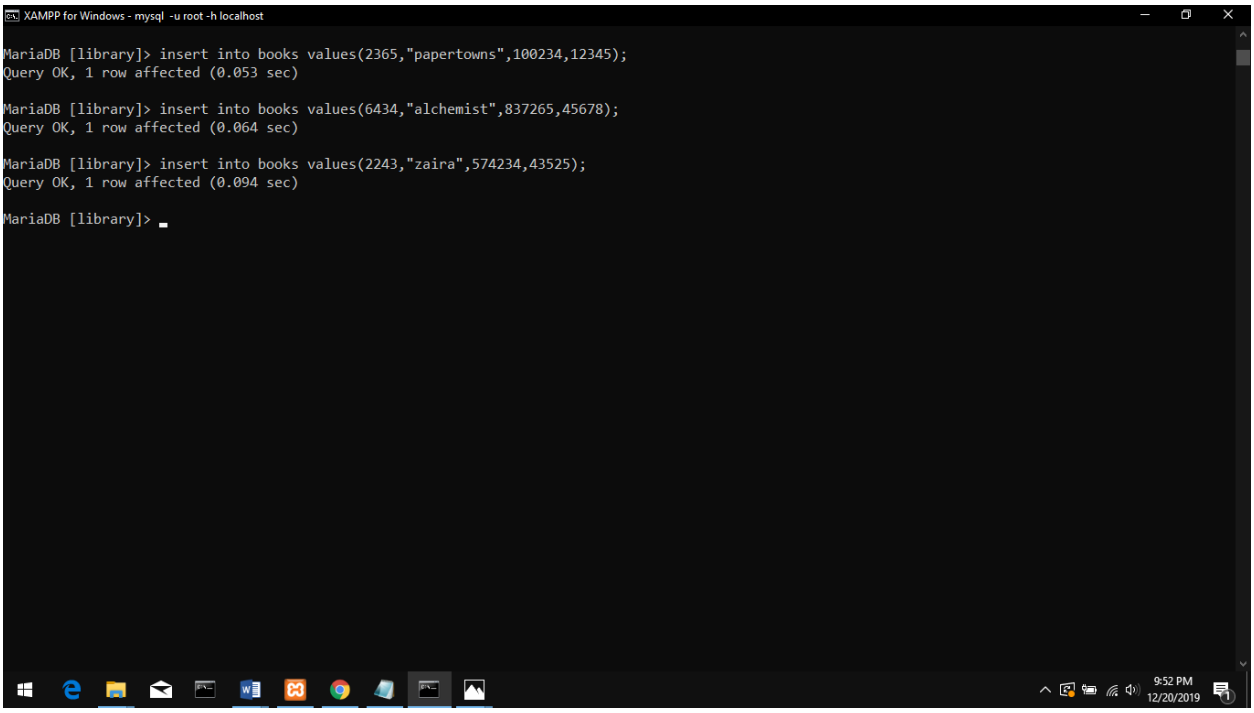

Figure 6: Insertion into table 3

Insertion of values in table Member

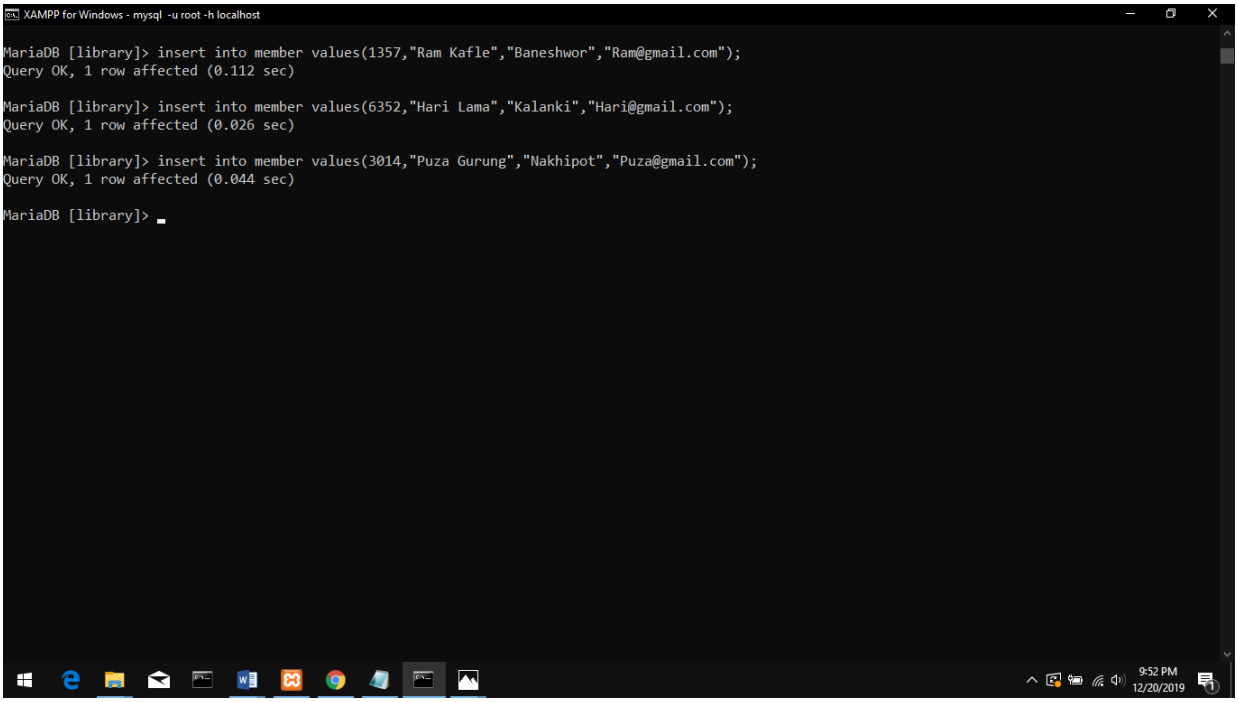

Figure 7:Insertion into table 4

Insertion of values in table Record

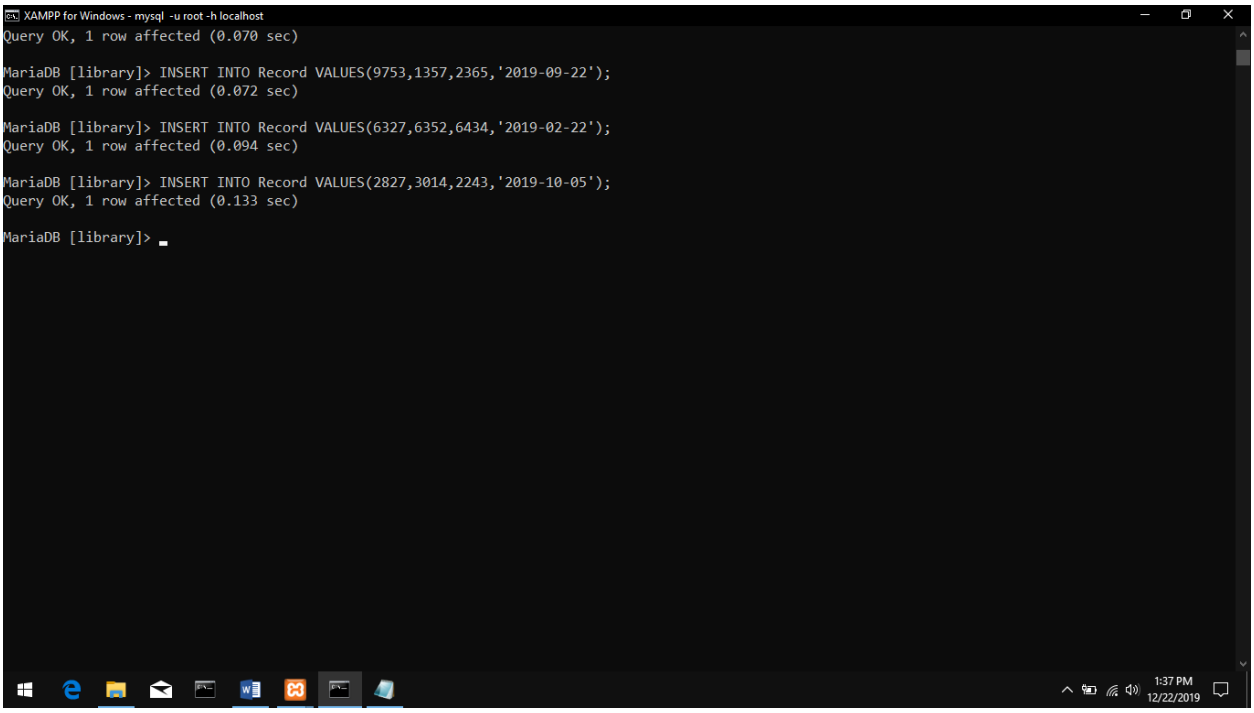

Figure 8:Insertion into table 5

2.5 Description Screenshots

Description of table Library

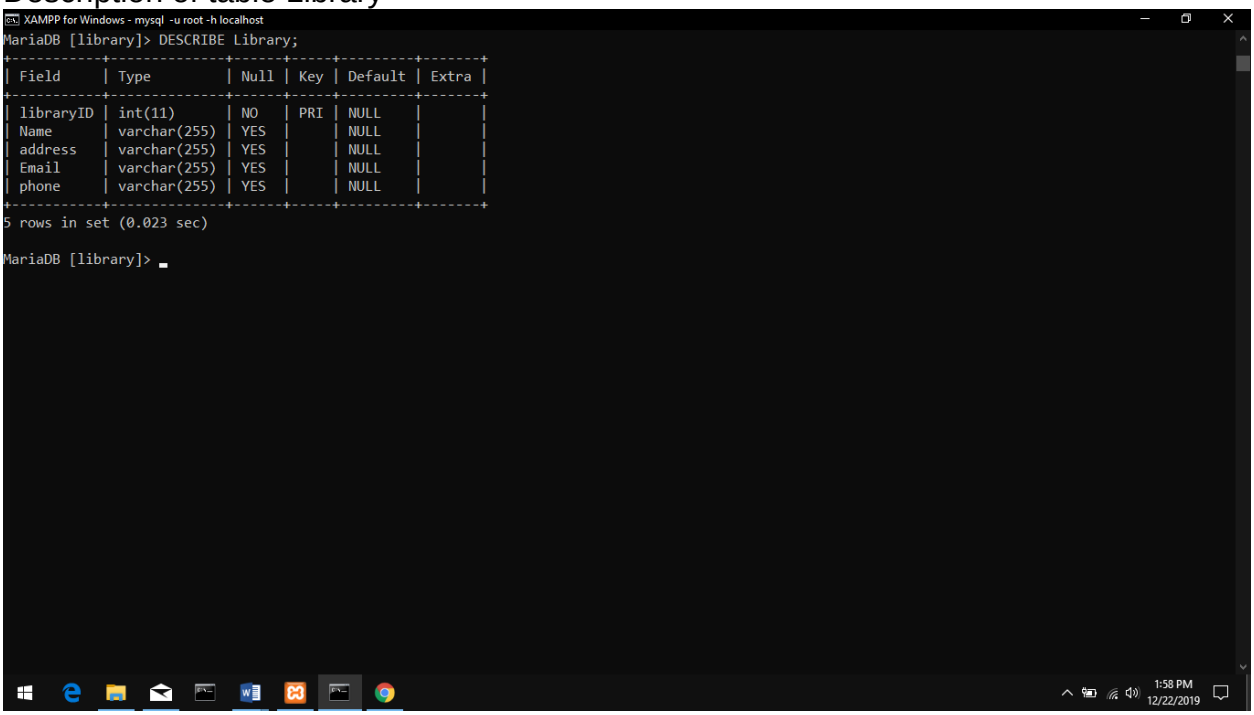

Figure 9: Description of table 1

Description of table Author

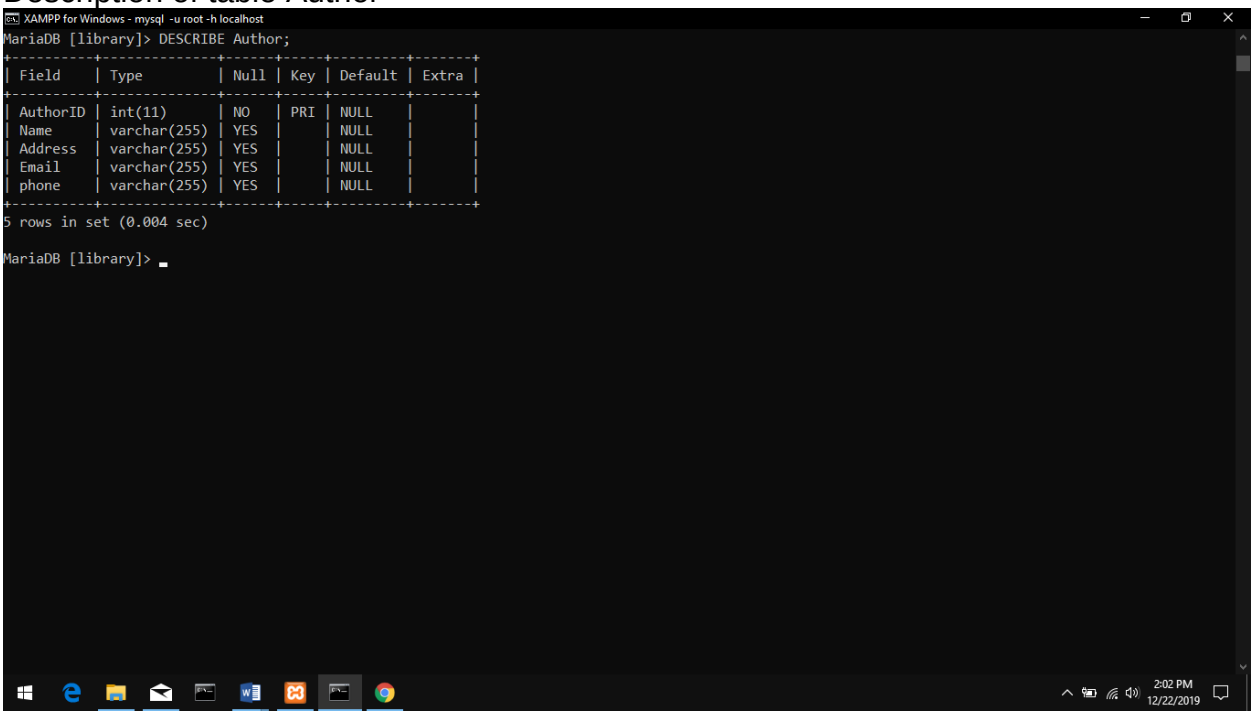

Figure 10: Description of table 2

Description of table Books

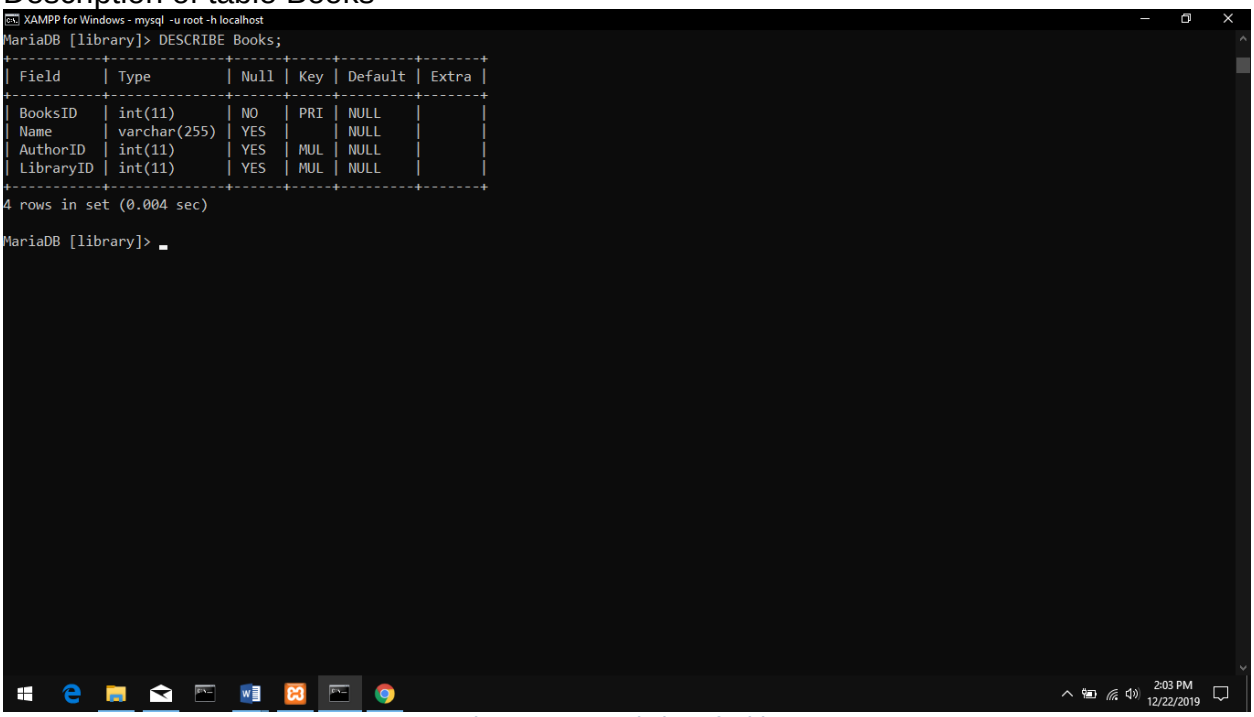

Figure 11: Description of table 3

Description of table Member

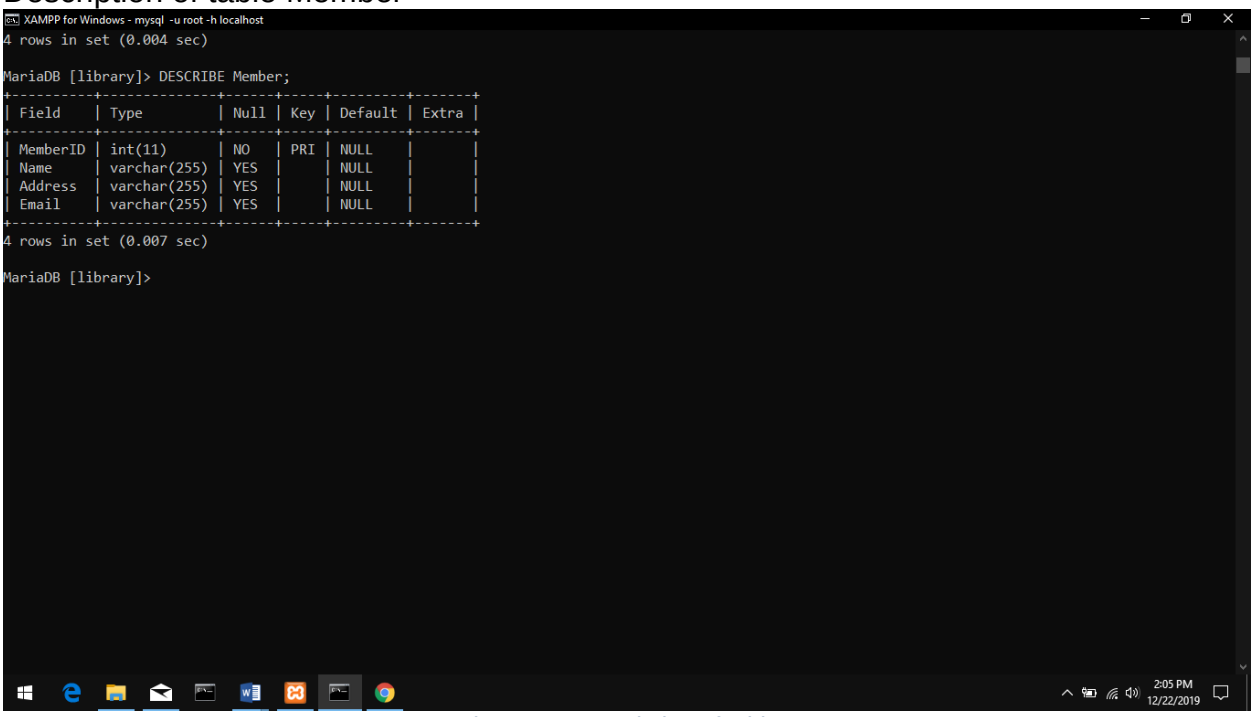

Figure 12: Description of table 4

Description of table Record

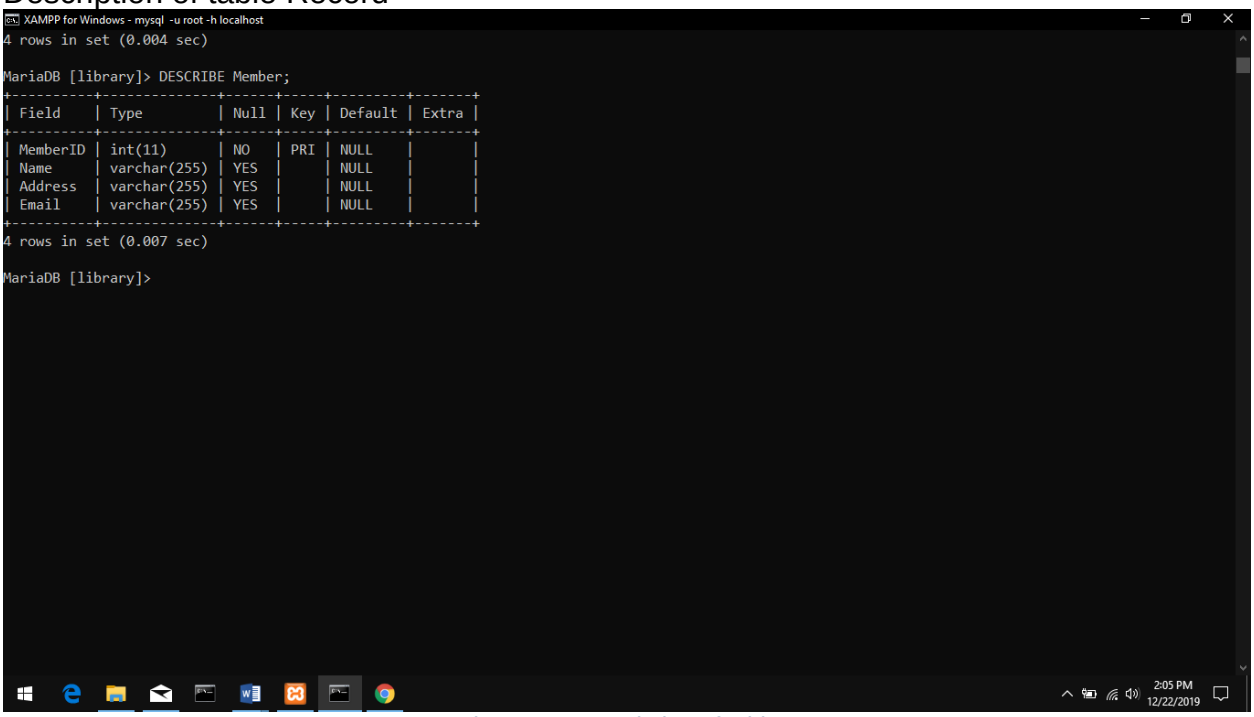

Figure 13: Description of table 5

3. Data Dictionary

A data dictionary reference contains a rundown of all documents in the database, the quantity of records in each record, and the names and sorts of each field. Most database the executives frameworks keep the information word reference escaped the clients to keep them from inadvertently annihilating its substance (Beal, n.d.)

Entity Name	Entity description	Column Name	Column description	Datatype	Length	Primary key	Foreign key	Nullable	Unique	Notes
Library	Library is a collection of books and other informative materials	Name	Name of the library	VARCHAR	255	False	False	True	False	
		Library_ID	Standard Identifier for Library registered, or ISO	INT		True	False	False	True	
		Address	Location where the Library is located	VARCHAR	255	False	False	True	False	
		Email	Mail ID of library	VARCHAR	255	False	False	True	True	
		Phone	Contact no. or phone no. of library	VARCHAR	255	False	False	True	True	

Table 1: Data Dictionary for Library

Entity name	Entity description	Column name	Column description	Data type	length	Primary key	Foreign key	Nullable	unique	notes
Books	The study materials found in library written by it's specific authors	Name	Name of the books	VARCHAR	255	False	False	True	True	
		Author_ID	ID of the author that uniquely identifies him, or ORC ID	INT		False	True	True	True	
		Books_ID	ISO numbers of books	INT		True	False	False	True	
		Library_ID	Standard Identifier for Library registered, or ISO	INT		False	True	True	True	

Table 2: Data Dictionsry for Books

Entity Name	Entity description	Column Name	Column description	Datatype	Length	Primary key	Foreign key	Nullable	Unique	Notes
Author	Name	Name of the author	VARCHAR	255	False	False	True	False		
	Address	Place where the author lives	VARCHAR	255	False	False	True	False		
	Email	Mail id of the author	VARCHAR	255	False	False	True	True		
	phone	Contact number of the author	VARCHAR	255	False	False	True	True		

Table 3: Data Dictionary for Author

Entity Name	Entity description	Column Name	Column description	Datatype	Length	Primary key	Foreign key	Nullable	Unique	Notes
member	The user, reader or the customer of the library	MemberID	The membership ID card	INT		True	False	True	True	
		Name	Name of the member	VARCHAR	255	False	False	True	False	
		Address	The residential place of the member	VARCHAR	255	False	False	True	False	
		Email	Mail ID of the member	VARCHAR	255	False	False	True	True	

Table 4: Data Dictionary for Member

Entity Name	Entity description	Column Name	Column description	Datatype	Length	Primary key	Foreign key	Nullable	Unique	Notes
Record	The records of all the books and study materials taken by the readears	RecordID	The unique ID of different record books	INT		True	False	True	True	
		MemberID	The membership ID card	INT		False	True	True	True	
		BooksID	ISO numbers of books	INT		False	True	True	True	
		Date	Date when the books were taken and returned by the readers	VARCHAR	255	False	False	True	False	

Table 5: Data Dictionary for Record

4. Queries

Select * from Library where name=”Madan library”;

This query shows all the Libraries along with their data which has it’s name as ‘Madan Library’.

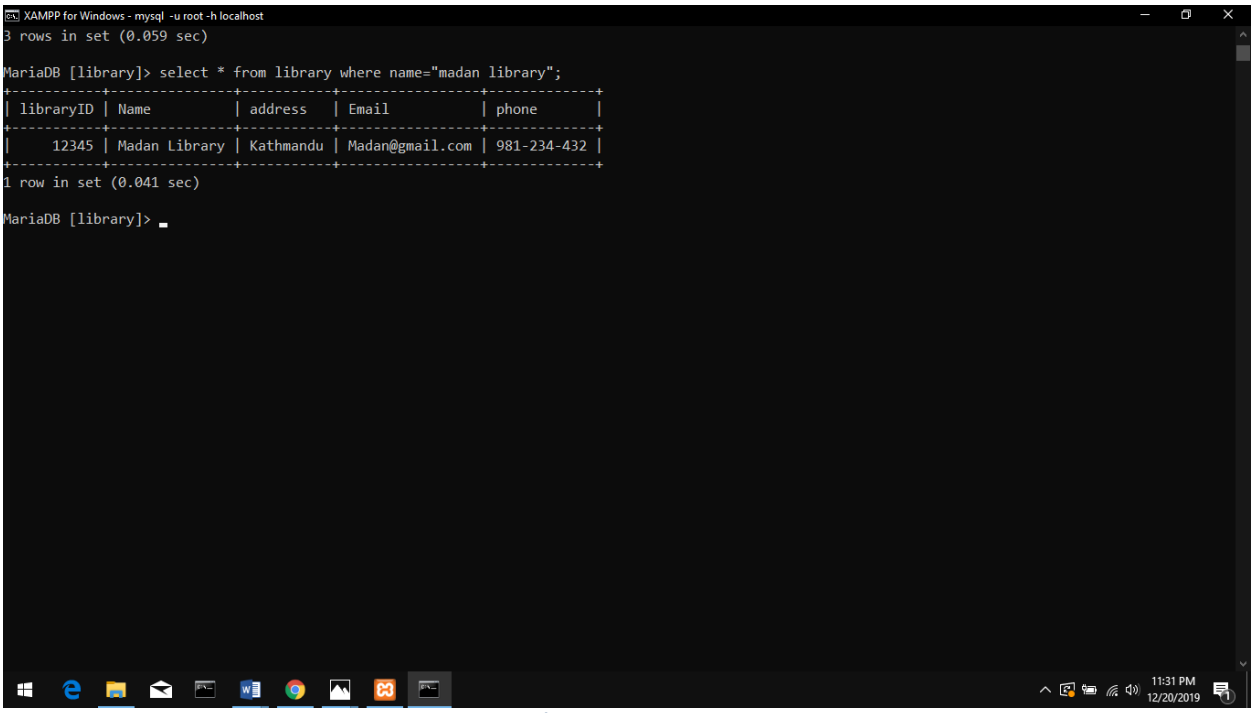

Figure 14: Query 1

Select * from library where name like=”m%”;

This query gives all the data of the library whose name start with letter ‘m’.

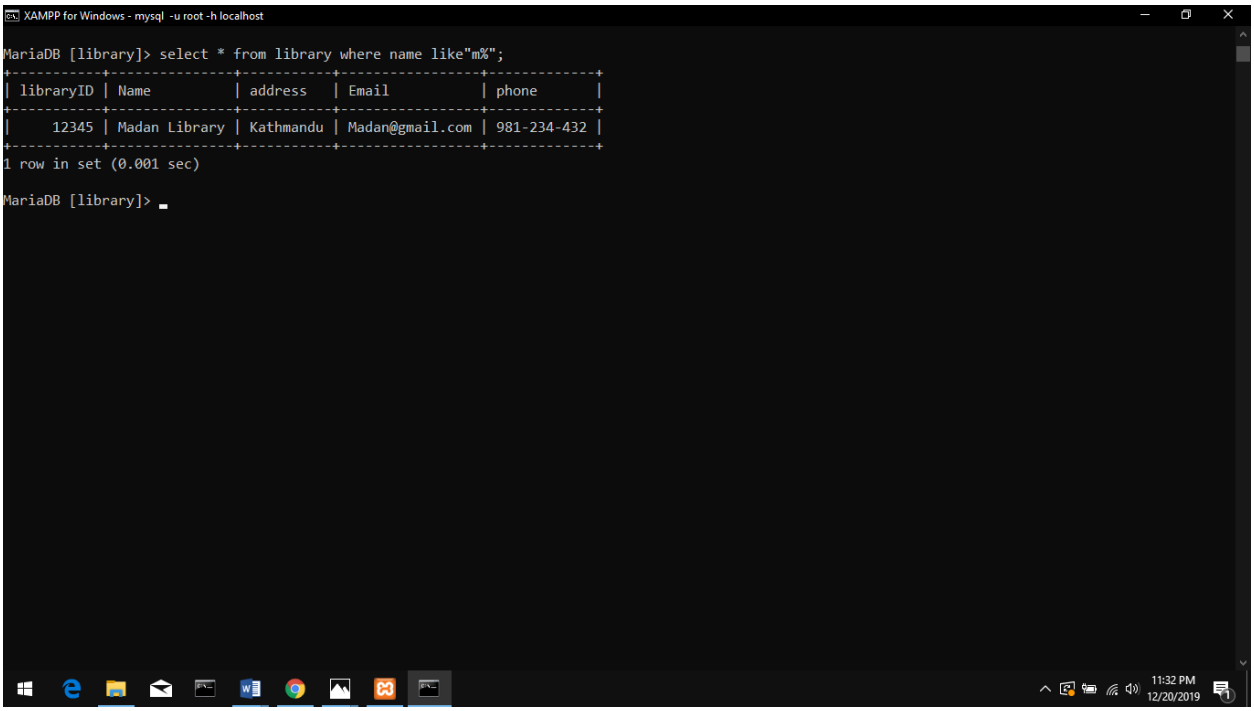

Figure 15: Query 15

Select * from Select * from author where AuthorID>54334;

This query gives all the information of the authors whose AuthorID is greater than 54334.

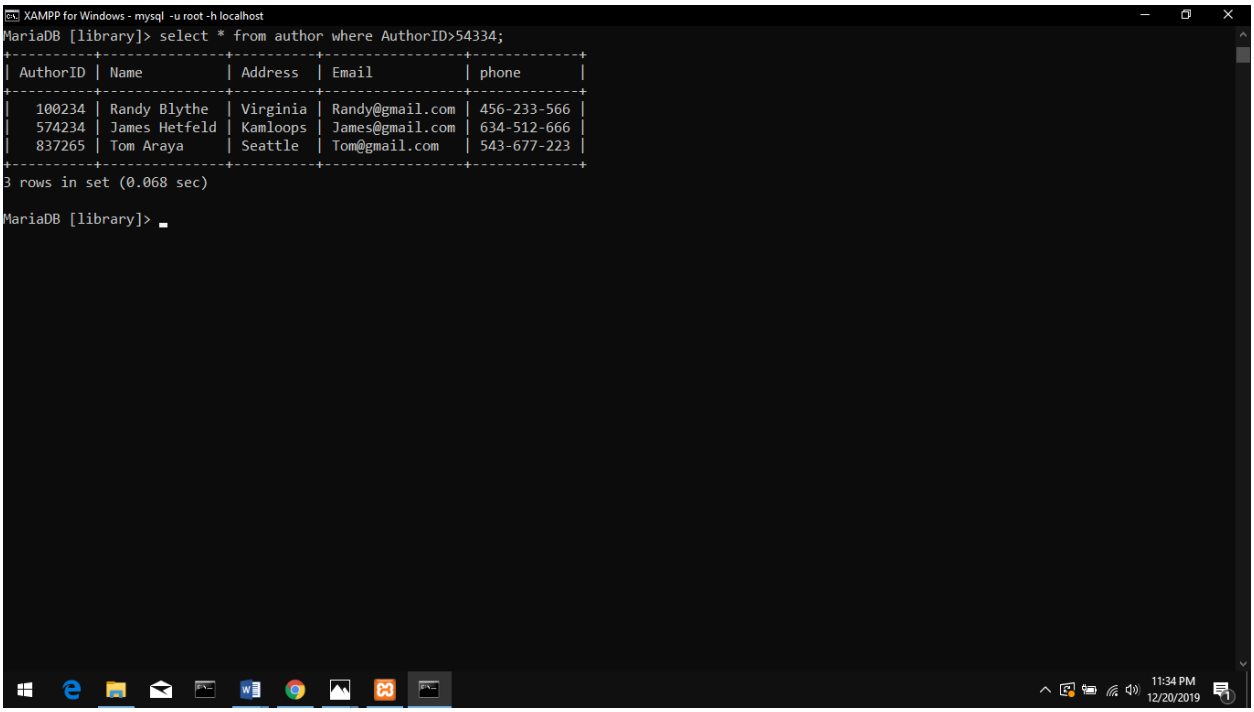

Figure 16: Query 3

Select * from books order by AuthorID;

This query shows all the information of the authors with their AuthorID in descending order.

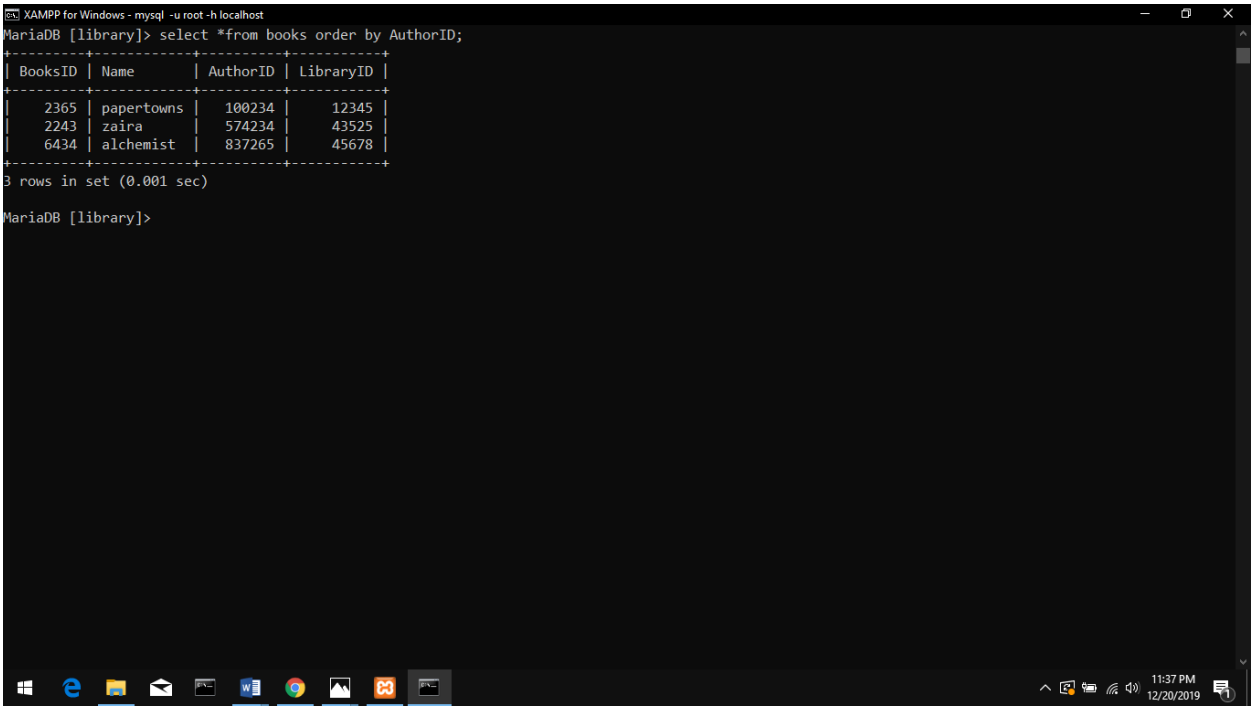

Figure 17: Query 4

Select BooksID from Books union AuthorID from Author;

This query shows all the BooksID of the books and AuthorID of Author combined together

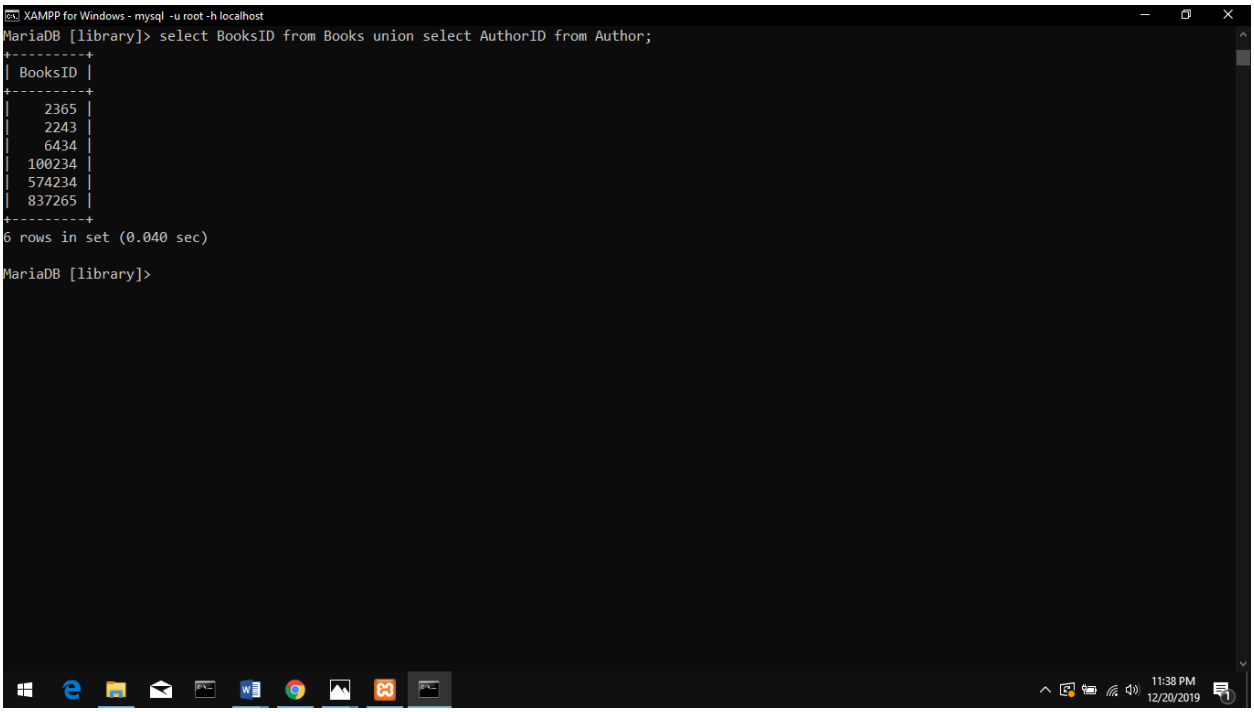

Figure 18: Query 5

Select memberID from member group by address;

This query shows all the memberID of the member grouped by their addresses in descending order.

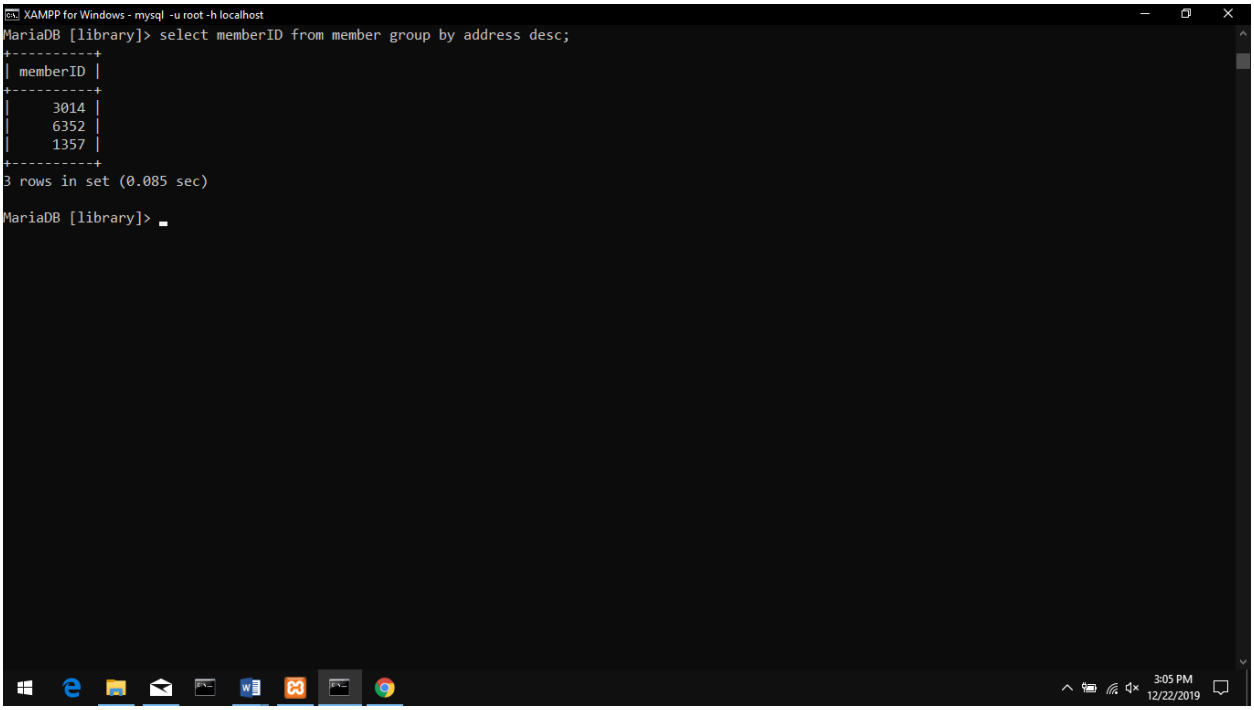

Figure 19: Query 6

Select BooksID from books where BooksID%2=0;

This query gives all the books ID with even numbers or booksID that can be divided with 2.

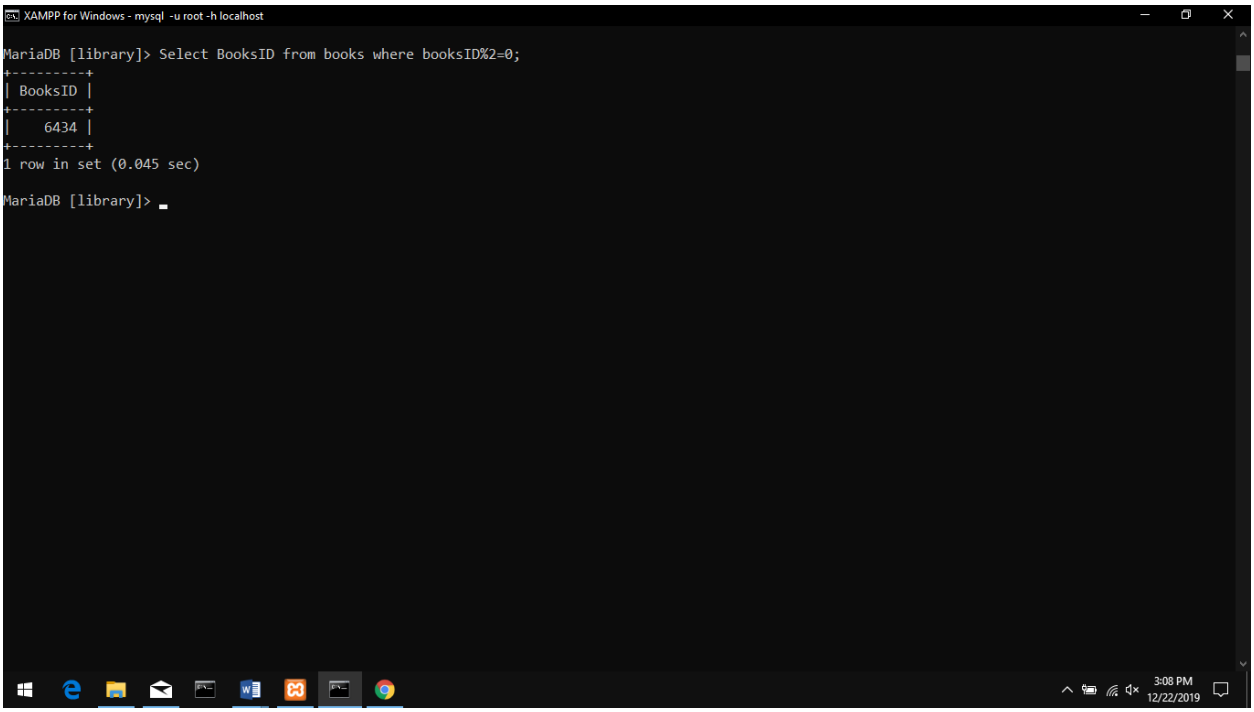

Figure 20: Query 7

Select RecordID from Record order by memberID desc;

This query shows all the RecordID in which the memberID is in descending order.

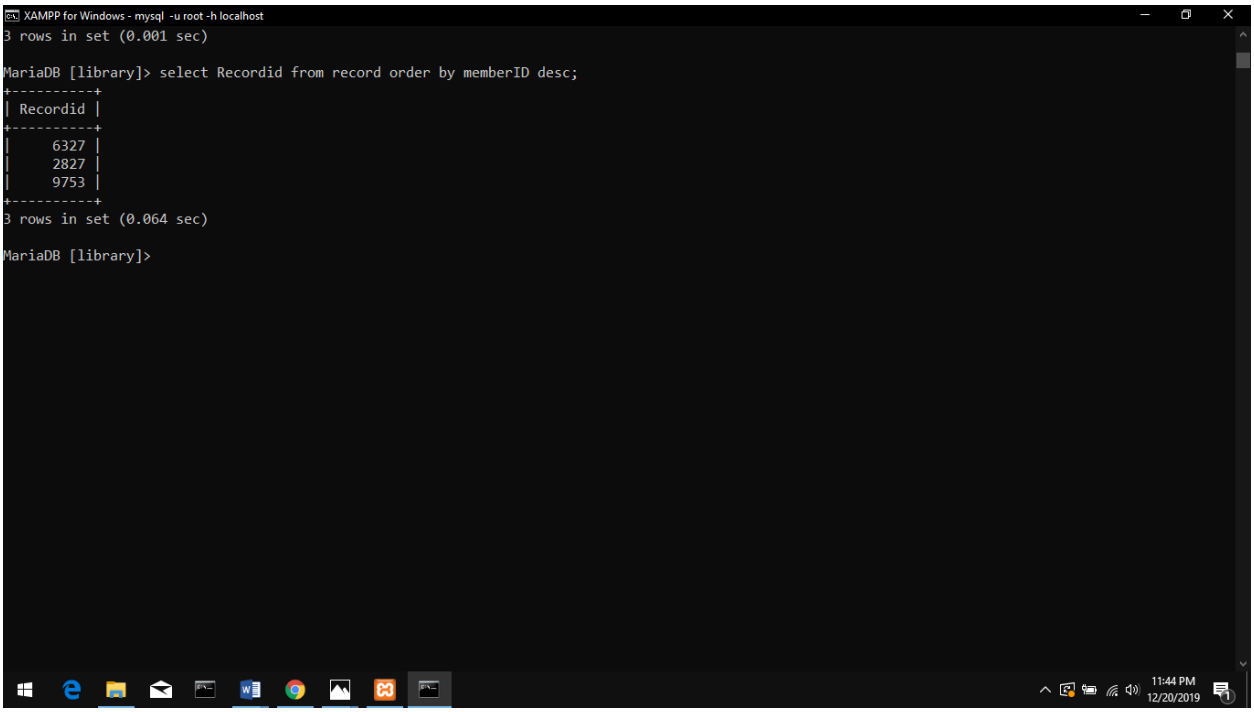

Figure 21: Query 8

Select min(BooksID) from books;

This query shows the booksID with the least or minimum number.

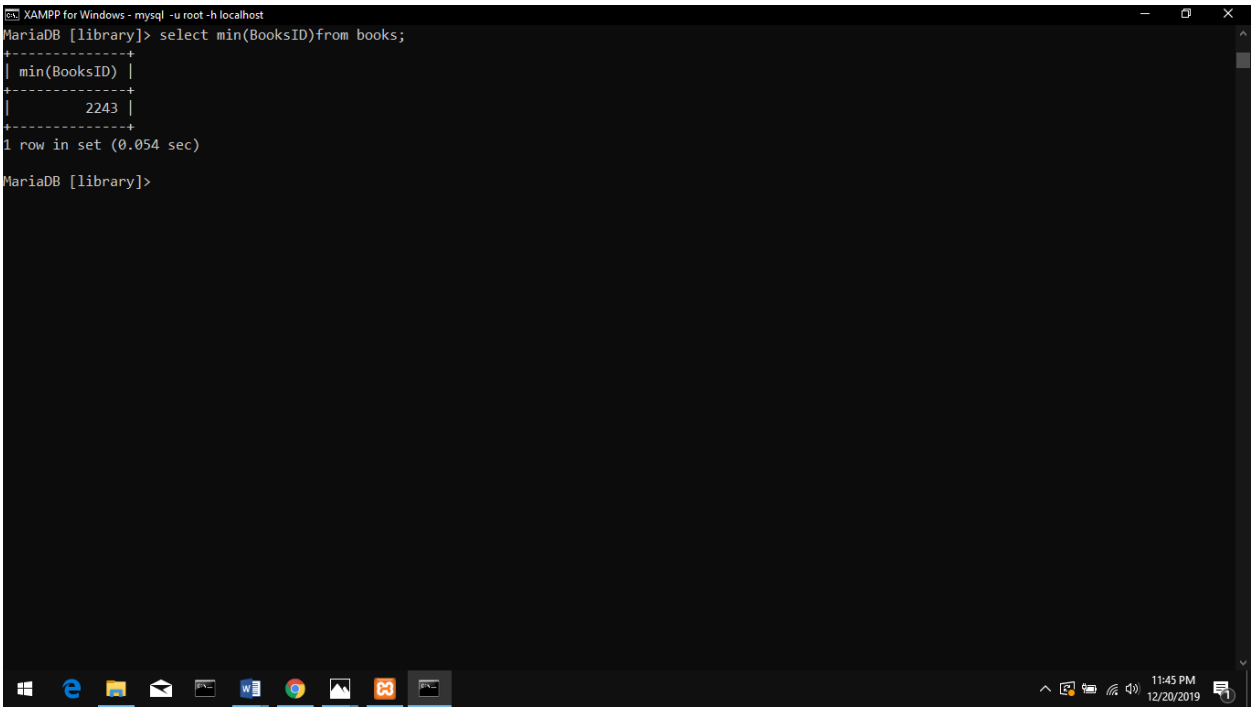

Figure 22: Query 9

Select mac(memberID) from member;

This query shows the memberID with the highest or maximum value.

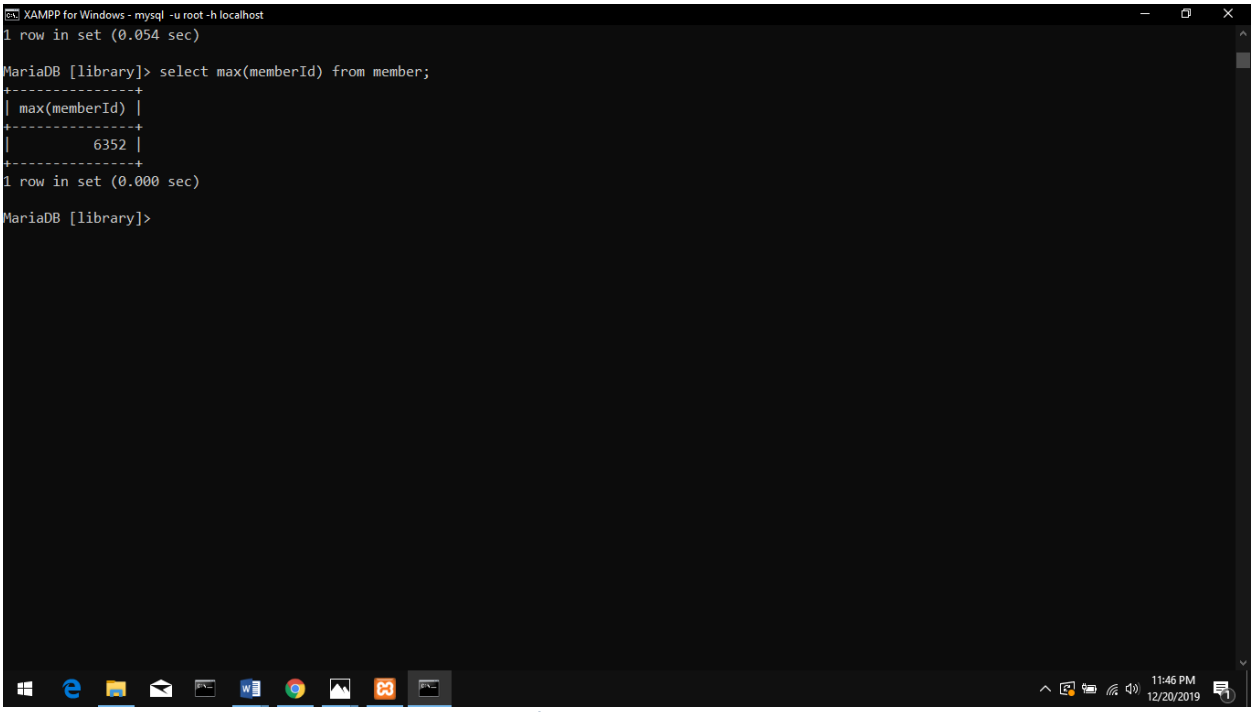

Figure 23: Query 10

5. Conclusion

After the completion of this coursework, I could find myself familiar to the knowledge of Database Management System (DBMS) along with the knowledge of MySQL. I was able to learn about the queries used in MySQL and use it too. I was able to learn about Entity Relationship Diagram (ERD) and Relational Database Management System (RDBMS). In addition, it enhanced my research skill. Along with this assignment, I was able to gain some knowledge how the Library database management system works. Most importantly, I learned about the Primary keys, foreign keys, and their use.

This module and coursework has helped me to learn how the database is managed in different organizations and companies. It also has managed in developing my research skill. However, there were some difficulties but they somehow taught me how to overcome the problems that might occur while making database. This coursework has helped me in every possible way it could.

6. References

- Beal, V., n.d. *Webopedia.* [Online]
  Available at: https://www.webopedia.com/TERM/D/data_dictionary.html
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- https://www.techopedia.com/definition/1200/entity-relationship-diagram-erd, 2019. *Techopedia.* s.l.:s.n.
- Techopedia, n.d. *https://www.techopedia.com/definition/1200/entity-relationship-diagram-erd.* s.l.:s.n.