Library Management System Database Project

By Fahad Ahammed

Project description:

Library Management System is a system which maintains the information about the books present in the library, their authors, the members of library to whom books are issued, library staff and all. It used the library record various transactions like issue of books, return of books, update book information's, added new member in the library. The system helps both students and library manager to keep a constant track of all the books available in the library. We created different entity sets and managed to connect them with relations because of that we can easily find out the cardinality and the type relations between the entity sets and successfully generated the SQL query and placed different complicated conditions to check its efficiency.

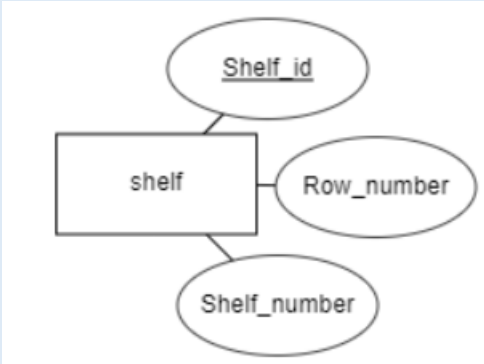(Ariful Islam Fardin – 2020-1-60-111)

Objective:

The main objective of the library management system is to manage the details of the Address, member, issue, books, librarian. Libraries carry out numerous activities, including book collection, systematic book arrangement, and book preservation. The most essential part of managing a library is making books accessible to readers. The technology makes it easier for students and library staff to keep track of all the books that are currently available at the library. Instructors can also benefit by borrowing books from the library. It assists us in managing and keeping track of the library's daily tasks, including book borrowing, book returns, due date calculations, etc. The system should provide details on the books held by the members. The ability for members to search for books by title, author, or subject is the system requirement for library administration. They ought to be able to find a book physically using its distinct identification number and rack number. The system ought to offer information about the books that each member has.

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Entity set:

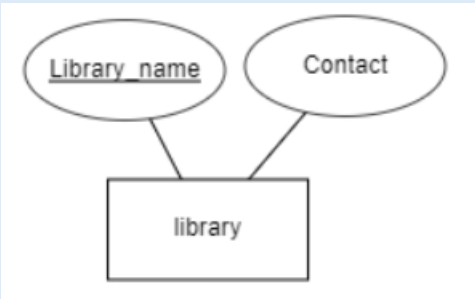## Entity set-1:

<table>
<tr><td colspan="4" align="center">shelf</td></tr>
<tr><td>Attributes</td><td>Types</td><td>Size</td><td rowspan="4"></td></tr>
<tr><td><u>Shelf_id</u></td><td>VARCHAR</td><td>5</td></tr>
<tr><td>Row_number</td><td>INT</td><td></td></tr>
<tr><td>Shelf_number</td><td>INT</td><td></td></tr>
</table>

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Entity set-2:

<table>
<tr><td colspan="4" align="center">library</td></tr>
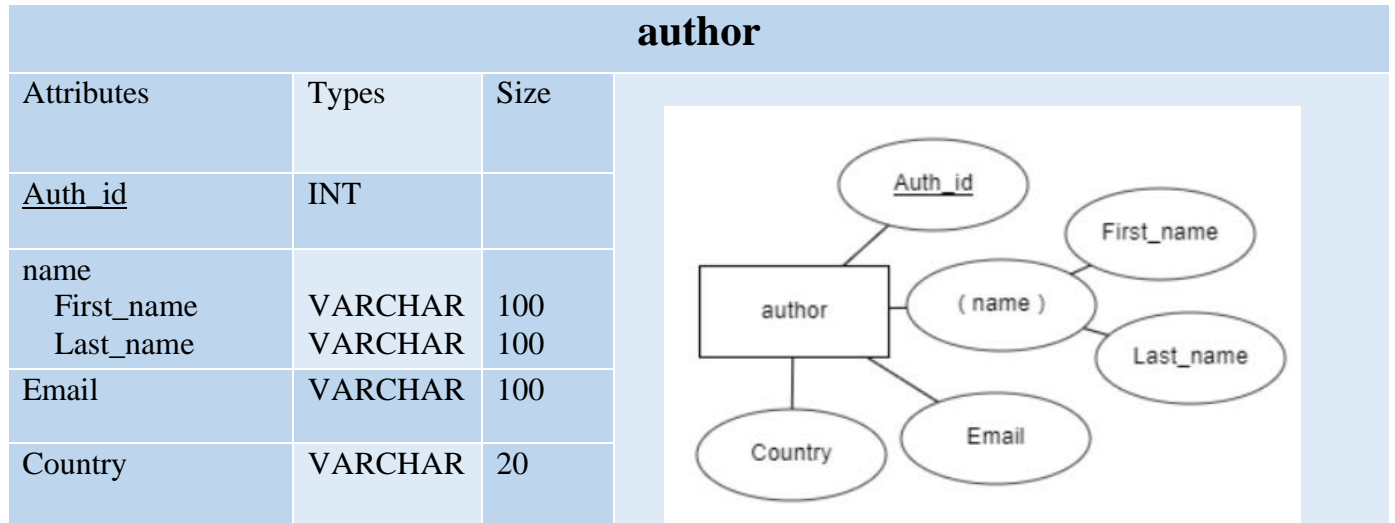<tr><td>Attributes</td><td>Types</td><td>Size</td><td rowspan="3"></td></tr>
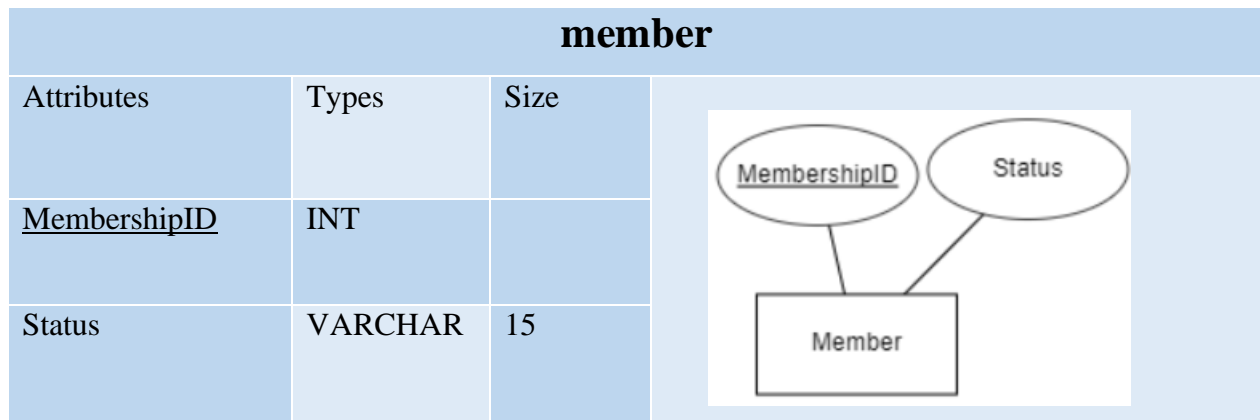<tr><td><u>Library_name</u></td><td>VARCHAR</td><td>20</td></tr>
<tr><td>Contact</td><td>VARCHAR</td><td>15</td></tr>
</table>

(Anika Tabassum Tanha – 2020-1-60-090)

Entity set-3:

author			
Attributes	Types	Size	
Auth_id	INT		

name
   First_name
   Last_name
	
	VARCHAR
	VARCHAR
		
		100
		100	

Email	VARCHAR	100	
Country	VARCHAR	20	

(Aryan Ahamed – 2020-1-60-067)

Entity set-4:

member			
Attributes	Types	Size	
MembershipID	INT		
Status	VARCHAR	15	

(Sayed Fuad Al Labib – 2020-1-60-107)

Entity set-5:

instructor			
Attributes	**Types**	**Size**	
<u>Inst_id</u>	VARCHAR	20	
name			
First_name	VARCHAR	100	
Last_name	VARCHAR	100	
Dept_name	VARCHAR	10	
Email	VARCHAR	50	
Date_of_birth	DATE		
address			
Street	VARCHAR	15	
City	VARCHAR	15	
Postal_code	INT		
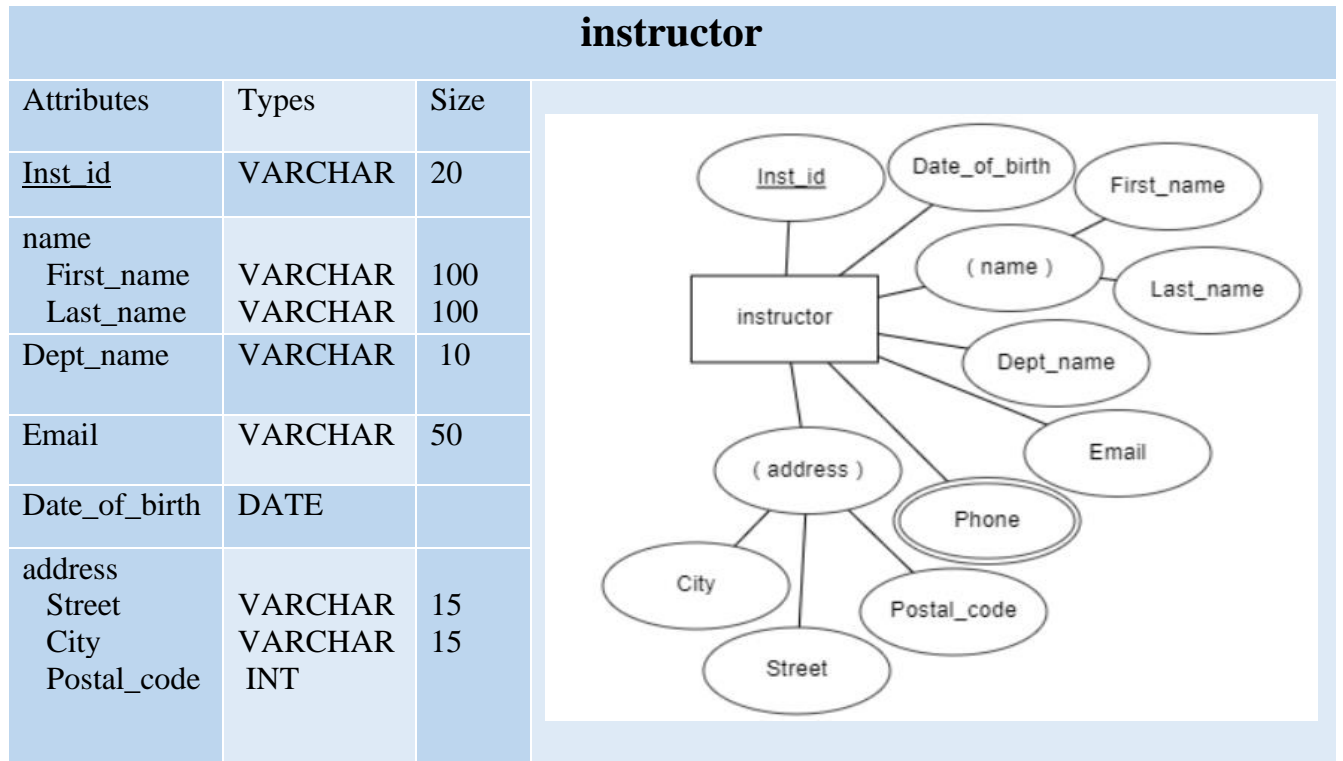
(Fahad Ahammed – 2020-2-60-174)

Entity set-6:

staff			
Attributes	**Types**	**Size**	
<u>Staff_id</u>	INT		
name			
First_name	VARCHAR	100	
Last_name	VARCHAR	100	
Email	VARCHAR	50	
{Phone}	VARCHAR	15	
address			
City	VARCHAR	15	
Street	VARCHAR	15	
Postal_code	INT		

(Aryan Ahamed – 2020-1-60-067)

Entity set-7:

student			
Attributes	**Types**	**Size**	
Std_id	VARCHAR	15	
name First_name Last_name	VARCHAR VARCHAR	100 100	
Dept_name	VARCHAR	10	
Semester	VARCHAR	15	
Email	VARCHAR	50	
address Street City Postal_code	VARCHAR VARCHAR INT	20 15	
Date_of_birth	DATE		

(Anika Tabassum Tanha – 2020-1-60-090)

Entity set-8:

book		
Attributes	**Types**	**Size**
Serial	INT	
ISBN	VARCHAR	20
Name	VARCHAR	100
Number_of_pages	INT	
Publication	VARCHAR	50
Edition	VARCHAR	5
Publish_date	DATE	

(Fahad Ahammed – 2020-2-10-174)

Entity set-9(Weak entity set):

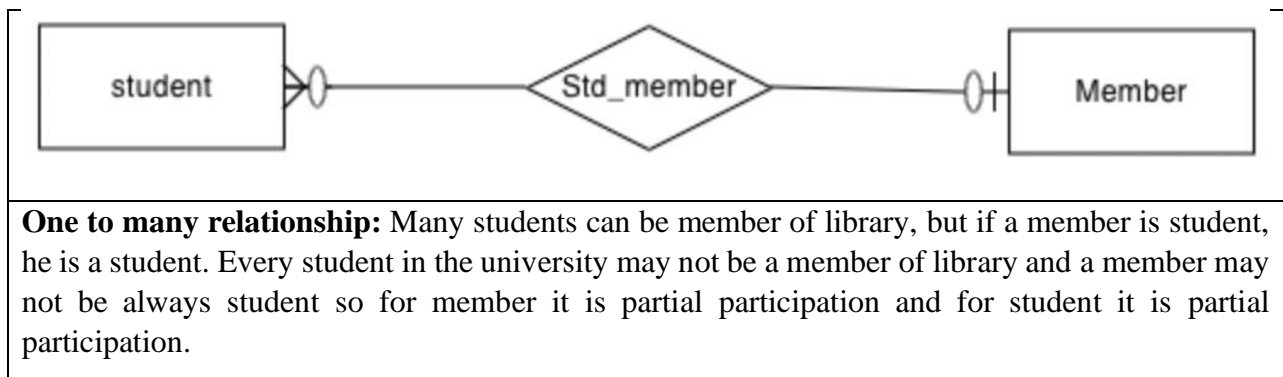| issue			
Attributes	Types	Size	
Borrow_date	DATE		
Number_of_books	INT		
Fine	NUMERIC	5, 2	
Return_date	DATE		
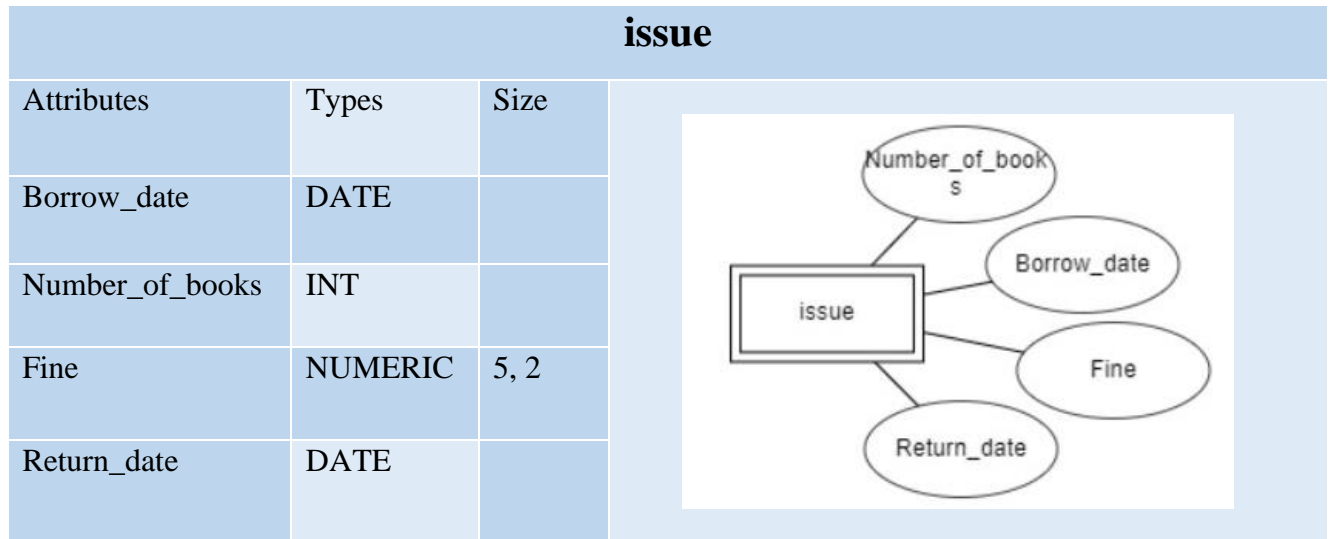
(Ariful Islam Fardin – 2020-1-60-111)

Cardinality and Participation Constraints:

➢ Student and Member relationship:

One to many relationship: Many students can be member of library, but if a member is student, he is a student. Every student in the university may not be a member of library and a member may not be always student so for member it is partial participation and for student it is partial participation.

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➢ Member and Instructor relationship:
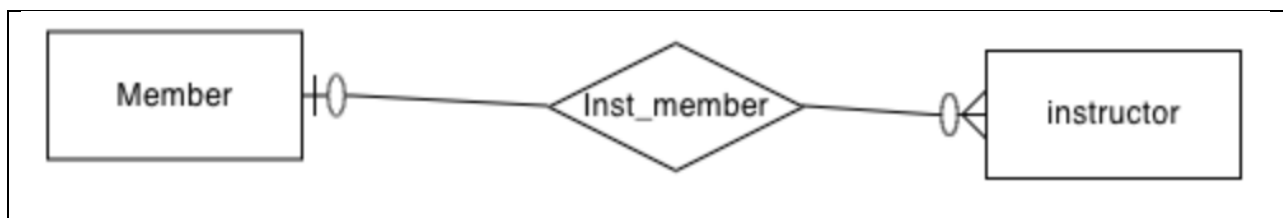
Many to one relationship: In this relationship if a member is an instructor, he/she will be an instructor but many instructors to be member. All instructor may not member and all members are not instructor so for member it is partial participation and for instructor it also partial participation.

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➢ Author and Book relationship:
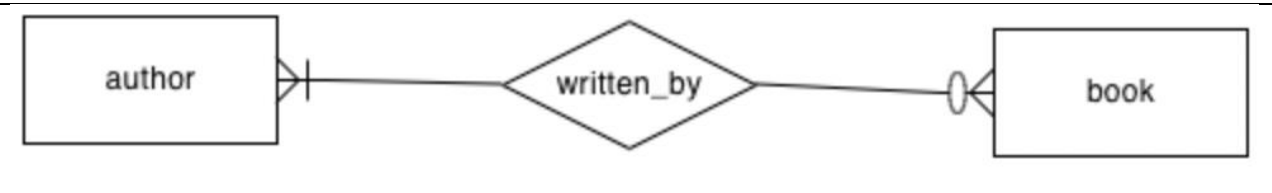
Many to many relationship: An author can write several books, and a book can be written by several authors. For author table no need information about books but for record a book need information about the writer, author partial participation and for books total participation.
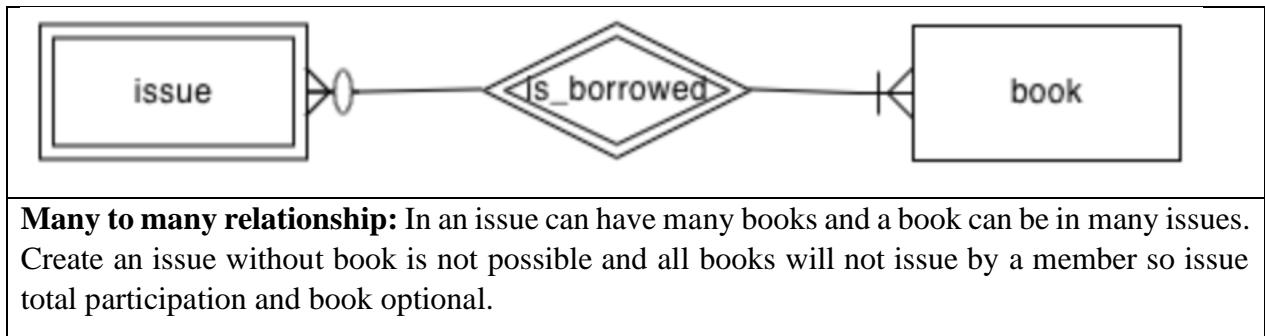
(Fahad Ahammed – 2020-2-10-174)

➢ Book and Shelf relationship:
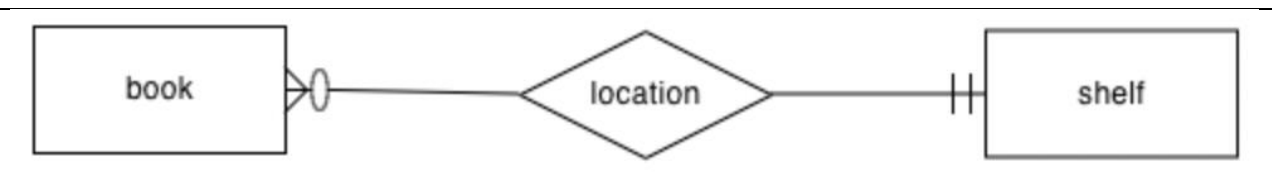
One to many relationship: A book will locate in a specific shelf but in a shelf have many books. For record a book need information about its location but a shelf may not have books on it. So, participation for book is total and for shelf is partial.
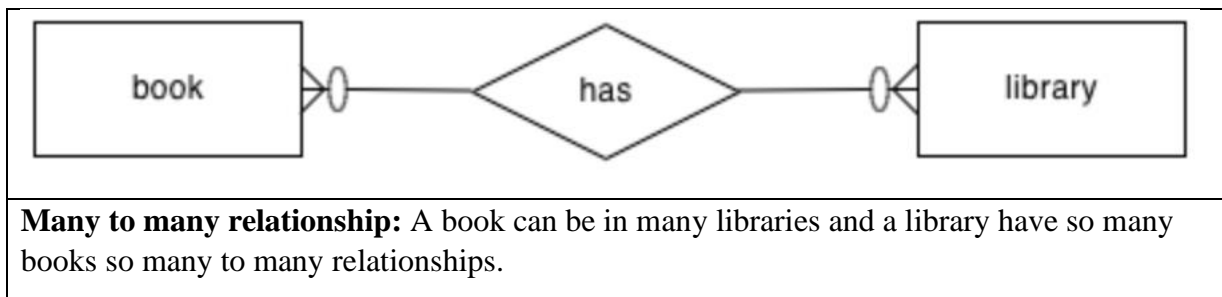
(Sayed Fuad Al Labib – 2020-1-60-107)
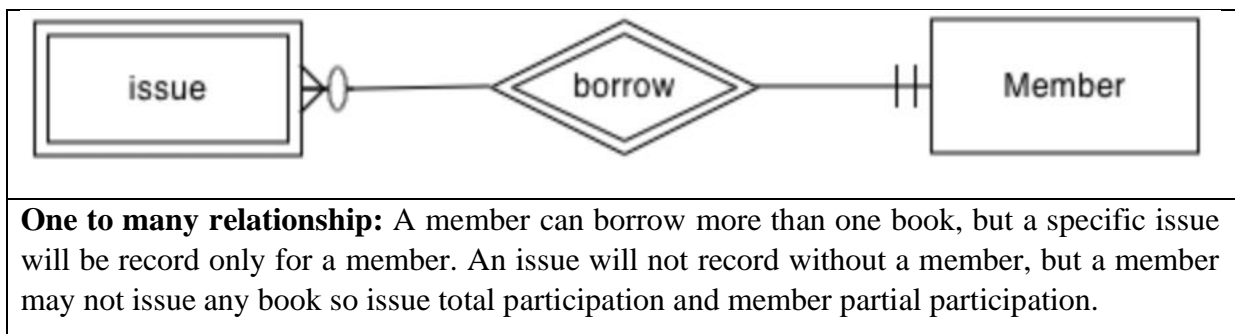
➢ Issue and Book relationship:

Many to many relationship: In an issue can have many books and a book can be in many issues. Create an issue without book is not possible and all books will not issue by a member so issue total participation and book optional.

(Aryan Ahamed – 2020-1-60-067)

➢ Book and Library relationship:

Many to many relationship: A book can be in many libraries and a library have so many books so many to many relationships.

(Fahad Ahammed – 2020-2-10-174)

➢ Issue and Member relationship:

One to many relationship: A member can borrow more than one book, but a specific issue will be record only for a member. An issue will not record without a member, but a member may not issue any book so issue total participation and member partial participation.

➢ Member and Library relationship:

One to many relationship: In a library there are many members and, in this database, only this library's member will be recorded. For create library table no need to record about member but for a member need library so member total participation and library optional participation.
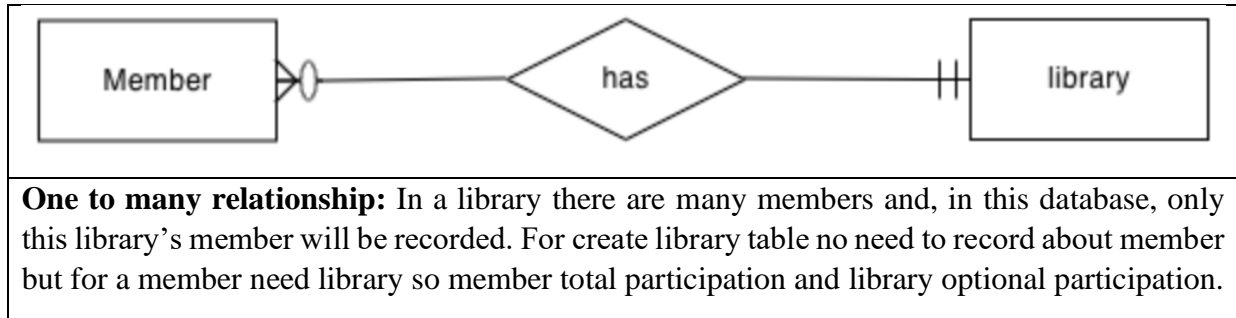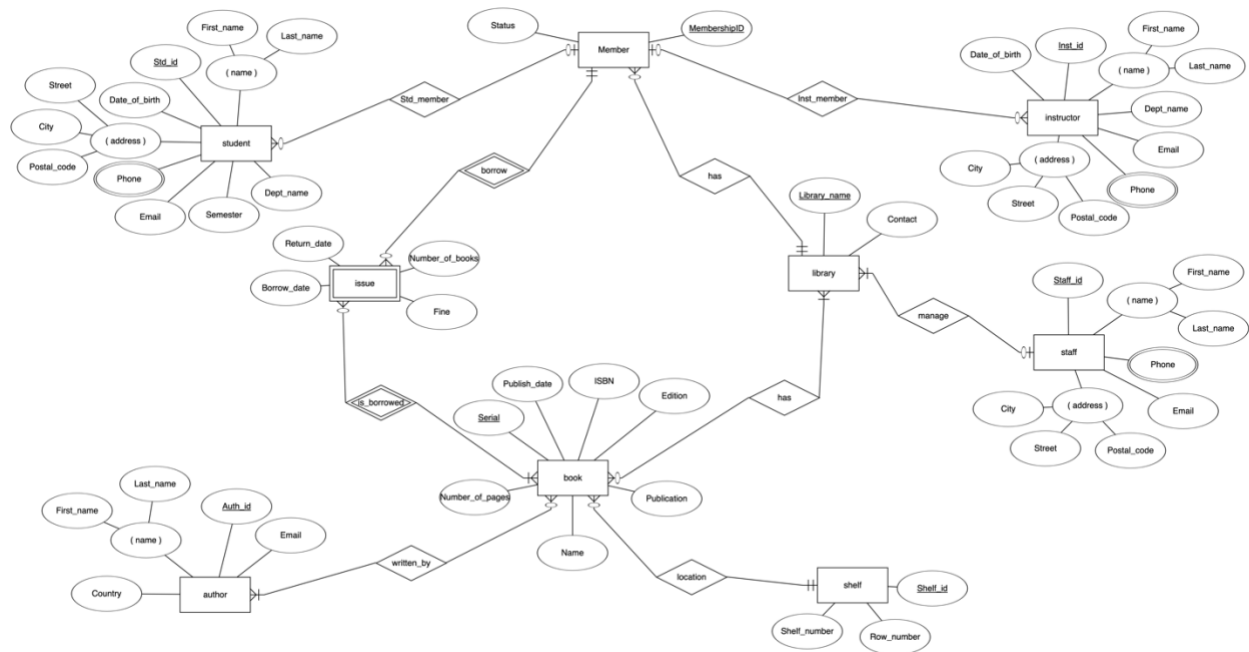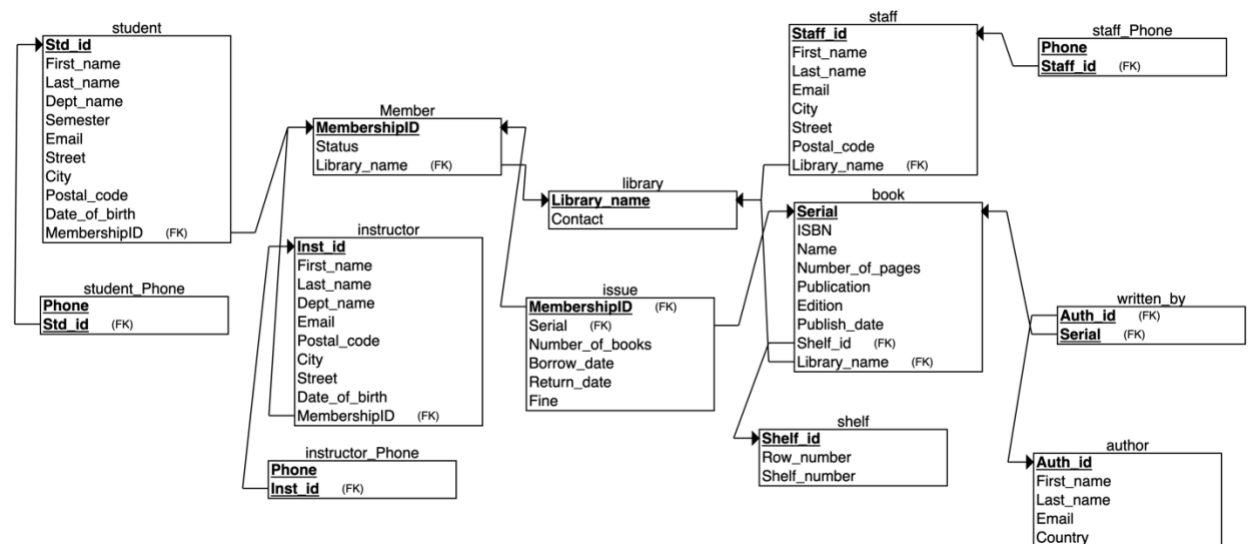
(Fahad Ahammed – 2020-2-10-174)

ER Diagram:

(Fahad Ahammed – 2020-2-10-174) (Aryan Ahamed – 2020-1-60-067)

Relational Schema:

(Fahad Ahammed – 2020-2-10-174) (Aryan Ahamed – 2020-1-60-067)

SQL Schema:

```sql
CREATE TABLE shelf
(
  Shelf_id VARCHAR(5),
  Row_number INT NOT NULL,
  Shelf_number INT NOT NULL,
  PRIMARY KEY (Shelf_id)
);

CREATE TABLE library
(
  Library_name VARCHAR(15),
  Contact VARCHAR(15) NOT NULL,
  PRIMARY KEY (Library_name)
);

CREATE TABLE book
(
  Serial INT AUTO_INCREMENT,
  Name VARCHAR(100) NOT NULL,
  Shelf_id VARCHAR(5) NOT NULL,
  ISBN VARCHAR(20),
  Number_of_pages INT,
  Publication VARCHAR(50),
  Edition VARCHAR(5),
  Publish_date DATE,
  Library_name VARCHAR(15),
  PRIMARY KEY (Serial),
  FOREIGN KEY (Shelf_id) REFERENCES shelf(Shelf_id),
  FOREIGN KEY (Library_name) REFERENCES library(Library_name)
);

CREATE TABLE author
(
  Auth_id INT AUTO_INCREMENT,
  First_name VARCHAR(100) NOT NULL,
  Last_name VARCHAR(100),
  Email VARCHAR(50),
  Country VARCHAR(20),
  PRIMARY KEY (Auth_id)
);
```

```
CREATE TABLE Member
(
  MembershipID INT AUTO_INCREMENT,
  Status VARCHAR(15) NOT NULL,
  Library_name VARCHAR(15),
  PRIMARY KEY (MembershipID),
  FOREIGN KEY (Library_name) REFERENCES library(Library_name)
);

CREATE TABLE written_by
(
  Auth_id INT AUTO_INCREMENT,
  Serial INT,
  PRIMARY KEY (Auth_id, Serial),
  FOREIGN KEY (Auth_id) REFERENCES author(Auth_id),
  FOREIGN KEY (Serial) REFERENCES book(Serial)
);

CREATE TABLE instructor
(
  Inst_id VARCHAR(20),
  First_name VARCHAR(100) NOT NULL,
  Last_name VARCHAR(100),
  Dept_name VARCHAR(10) NOT NULL,
  Email VARCHAR(50),
  Postal_code INT,
  City VARCHAR(20),
  Street VARCHAR(20),
  Date_of_birth DATE,
  MembershipID INT,
  PRIMARY KEY (Inst_id),
  FOREIGN KEY (MembershipID) REFERENCES Member(MembershipID)
);

CREATE TABLE staff
(
  Staff_id INT AUTO_INCREMENT,
  First_name VARCHAR(100) NOT NULL,
  Last_name VARCHAR(100),
  Email VARCHAR(50),
  City VARCHAR(20),
  Street VARCHAR(20),
```

```
  Postal_code INT,
  Library_name VARCHAR(15) NOT NULL,
  PRIMARY KEY (Staff_id),
  FOREIGN KEY (Library_name) REFERENCES library(Library_name)
);

CREATE TABLE student
(
  Std_id VARCHAR(20),
  First_name VARCHAR(100) NOT NULL,
  Last_name VARCHAR(100),
  MembershipID INT,
  Dept_name VARCHAR(10) NOT NULL,
  Semester VARCHAR(20) NOT NULL,
  Email VARCHAR(50),
  Street VARCHAR(20),
  City VARCHAR(20),
  Postal_code INT,
  Date_of_birth DATE,
  PRIMARY KEY (Std_id),
  FOREIGN KEY (MembershipID) REFERENCES Member(MembershipID)
);

CREATE TABLE issue
(
  MembershipID INT NOT NULL,
  Serial INT NOT NULL,
  Borrow_date DATE NOT NULL,
  Return_date DATE NOT NULL,
  Number_of_books INT CHECK (Number_of_books <= 2 AND Number_of_books > 0),
  Fine NUMERIC(5,2),
  PRIMARY KEY (MembershipID),
  FOREIGN KEY (MembershipID) REFERENCES Member(MembershipID),
  FOREIGN KEY (Serial) REFERENCES book(Serial)
);

CREATE TABLE instructor_Phone
(
  Phone VARCHAR(15) NOT NULL,
  Inst_id VARCHAR(20) NOT NULL,
  PRIMARY KEY (Phone, Inst_id),
  FOREIGN KEY (Inst_id) REFERENCES instructor(Inst_id)
);
```

```sql
CREATE TABLE staff_Phone
(
  Phone VARCHAR(15) NOT NULL,
  Staff_id INT NOT NULL,
  PRIMARY KEY (Phone, Staff_id),
  FOREIGN KEY (Staff_id) REFERENCES staff(Staff_id)
);

CREATE TABLE student_Phone
(
  Phone VARCHAR(15) NOT NULL,
  Std_id VARCHAR(20) NOT NULL,
  PRIMARY KEY (Phone, Std_id),
  FOREIGN KEY (Std_id) REFERENCES student(Std_id)
);
```

(Ariful Islam Fardin – 2020-1-60-111)

(Anika Tabassum Tanha – 2020-1-60-090)

(Fahad Ahammed – 2020-2-10-174)

(Sayed Fuad Al Labib – 2020-1-60-107)

(Aryan Ahamed – 2020-1-60-067)

Tables:

Library

Library_name	Contact
EWU Library	09666775577

Instructor

Inst_id	First_name	Last_name	Dept_name	Email	Postal_code	City	Street	Date_of_birth	MembershipID
1001	TJ	Taskid Jabed	CSE	tj@ewubd.edu	1212	Dhaka	Jahurul Islam	NULL	1
1002	DAWR	Ahamed Reza	CSE	dawr@ewubd.edu	1212	Dhaka	Jahurul Islam	NULL	2
1003	MI	Maheen Islam	CSE	mi@ewubd.edu	1212	Dhaka	Jahurul Islam	NULL	3
1004	MRA	Ruhul Amin	MPS	mra@ewubd.edu	1212	Dhaka	Jahurul Islam	NULL	4
1005	MKR	Mostofa Kamal Rasel	CSE	mkr@ewund.edu	1212	Dhaka	Jahurul Islam	NULL	5

Instructor_Phone

Phone	Inst_id
01512345678	1004
01612345678	1003
01712345678	1001
01812345678	1001
01812345678	1005
01912345678	1002

Student

Std_id	First_name	Last_name	MembershipID	Dept_name	Semester	Email	Street	City	Postal_code	Date_of_birth
2020-1-60-001	Bob	B	9	CSE	Spring2020	2020-1-60-001@std.ewubd.edu	Jahurul Islam	Dhaka	1212	*NULL*
2020-2-60-001	Tom	T	10	CSE	Summer2020	2020-2-60-001@std.ewubd.edu	Jahurul Islam	Dhaka	1212	2000-02-06
2021-2-50-111	Job	J	8	MPS	Summer2021	2021-2-50-111@std.ewubd.edu	*NULL*	Dhaka	1361	1999-03-09
2021-3-80-101	Ramim	R	7	EEE	Fall2021	2021-3-80-101@std.ewubd.edu	*NULL*	Dhaka	1222	2000-03-09

Student_phone

Phone	Std_id
01521583475	2021-2-50-111
01712345600	2020-1-60-001
01712345611	2020-2-60-001
01712345999	2021-3-80-101
01812345111	2021-2-50-111

Author

Auth_id	First_name	Last_name	Email	Country
1	Thomas	H. Cormen	cormen@gmail.com	USA
2	Brian	W. Kernighan	kernighan@gmail.com	Canada
3	Daniel	Liang	daniel@hotmail.com	USA
4	Robert	Sedgewick	robert@yahoo.com	USA
5	Kazi Nazrul	Islam	nationalpoet@govt.bd	Bangladesh
6	Rabindranath	Tagore	tagore@govt.in	India
7	Humayun	Ahmed	humayun@ahmed.me	Bangladesh

Book

Serial	Name	Shelf_id	ISBN	Number_of_pages	Publication	Edition	Publish_date	Library_name
1	Introduction to algorithms	A1	9780262033848	1312	The MIT Press	3rd	1989-01-01	EWU Library
2	The C Programming Language	A2	9780131103627	288	Pretice Hall	2nd	1988-03-22	EWU Library
3	Introduction to Java programming	B1	9780133813487	1344		7th	1997-01-12	EWU Library
4	Algorithms	B2	9780321573513	967		4th	1983-01-01	EWU Library
5	Agni-veena	C1	9845553095	120		1st	1922-10-01	EWU Library
6	Gitanjali	C1	9780333422175	104		1st	1910-01-01	EWU Library
7	Jochona O Jononir Golpo	C1	9848682767	527	Onnona	2nd	2004-02-01	EWU Library

Issue

MembershipID	Serial	Borrow_date	Return_date	Number_of_books	Fine
2	7	2022-09-04	2022-09-11	1	NULL
7	3	2022-09-05	2022-09-12	1	NULL
10	1	2022-09-04	2022-09-08	1	NULL

Member

MembershipID	Status	Library_name
1	Instructor	EWU Library
2	Instructor	EWU Library
3	Instructor	EWU Library
4	Instructor	EWU Library
5	Instructor	EWU Library
6	Student	EWU Library
7	Student	EWU Library
8	Student	EWU Library
9	Student	EWU Library
10	Student	EWU Library
11	Student	EWU Library

Shelf

Shelf_id	Row_number	Shelf_number
A1	10	2
A2	10	2
B1	10	3
B2	10	3
C1	12	2

Staff

Staff_id	First_name	Last_name	Email	City	Street	Postal_code	Library_name
1	Kazi	Anuar	anuar@ewubd.edu	Dhaka	Jahurul Islam	1212	EWU Library
2	Hossain	Alam	alam@ewubd.edu	Dhaka	Jatrabari	1310	EWU Library
3	Kajol	Rahman	rah@ewubd.edu	Dhaka	Nuzrul Avenue	1310	EWU Library

Staff_phone

Phone	Staff_id
01511122234	2
01512121212	1
01521212121	2
01999121212	3

Written_by

Auth_id	Serial
1	1
2	2
3	3
4	4
5	5
6	6
7	7

Some Special in SQL Project:

It's not allowed to take more than 2 books for a member:

CREATE TABLE issue (Serial VARCHAR(10), Number_of_books INT NOT NULL, PRIMARY KEY (Serial), CHECK (Number_of_books <=2 AND Number_of_books >0));

The serial for all books will be auto incremented:

CREATE TABLE book (Serial INT AUTO_INCREMENT, Name VARCHAR(100) NOT NULL, Shelf_id VARCHAR(5) NOT NULL, ISBN VARCHAR(20), Number_of_pages INT, Publication VARCHAR(50), Edition VARCHAR(5), Publish_date DATE, Library_name VARCHAR(15), PRIMARY KEY (Serial), FOREIGN KEY (Shelf_id) REFERENCES shelf(Shelf_id), FOREIGN KEY (Library_name) REFERENCES library(Library_name));
(Fahad Ahammed – 2020-2-10-174)

Delete Query:

SQL:

```
1 row affected. (Query took 0.0002 seconds.)

DELETE from issue WHERE Return_date in(SELECT Return_date FROM issue WHERE Return_date ='2022-09-11');

[ Edit inline ] [ Edit ] [ Create PHP code ]
```

Result:

←T→				MembershipID	Serial	Borrow_date	Return_date	Number_of_books	Fine
☐	🖉 Edit	░ Copy	⊖ Delete	7	3	2022-09-05	2022-09-12	1	NULL
☐	🖉 Edit	░ Copy	⊖ Delete	10	1	2022-09-04	2022-09-08	1	NULL

(Sayed Fuad Al Labib – 2020-1-60-107)

Update Query:

SQL:

```
1 row affected. (Query took 0.0001 seconds.)

UPDATE instructor SET City ='Rajshahi' WHERE MembershipID IN(SELECT MembershipID FROM member WHERe MembershipID = 4);

[ Edit inline ] [ Edit ] [ Create PHP code ]
```

Result:

←T→				Inst_id	First_name	Last_name	Dept_name	Email	Postal_code	City	Street	Date_of_birth	MembershipID
☐	🖉 Edit	░ Copy	⊖ Delete	1001	TJ	Taskid Jabed	CSE	tj@ewubd.edu	1212	Dhaka	Jahurul Islam	NULL	1
☐	🖉 Edit	░ Copy	⊖ Delete	1002	SHK	Saddam Hossain Khan	EEE	shk@ewubd.edu	1212	Dhaka	Jahurul Islam	NULL	2
☐	🖉 Edit	░ Copy	⊖ Delete	1003	DACY	Dr. Anup Chowdhury	BBA	Anup@ewubd.edu	1212	Dhaka	Jahurul Islam	NULL	3
☐	🖉 Edit	░ Copy	⊖ Delete	1004	MRA	Ruhul Amin	MPS	mra@ewubd.edu	1212	Rajshahi	Jahurul Islam	NULL	4
☐	🖉 Edit	░ Copy	⊖ Delete	1005	MKR	Mostofa Kamal Rasel	CSE	mkr@ewund.edu	1212	Dhaka	Jahurul Islam	NULL	5

(Sayed Fuad Al Labib – 2020-1-60-107)

Sub Query:

1. **Write a query to display the member id and status who have taken the book with book serial 7.**

SQL:

Showing rows 0 - 0 (1 total, Query took 0.0004 seconds.)

SELECT MembershipID,STATUS FROM member where MembershipID in (select MembershipID FROM issue where Serial='7');

Result:

Showing rows 0 - 0 (1 total, Query took 0.0004 seconds.)

SELECT MembershipID,STATUS FROM member where MembershipID in (select MembershipID FROM issue where Serial='7');

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

☐ Show all | Number of rows: 25 ⌄   Filter rows: Search this table

Extra options

←T→			MembershipID	STATUS
☐ 🖉 Edit ⌗ Copy ⊖ Delete			2	Instructor

(Anika Tabassum Tanha – 2020-1-60-090)

2. **Find out the shelf Id, publication date, edition from the book where number of pages are less than 400.**

SQL:

Showing rows 0 - 3 (4 total, Query took 0.0002 seconds.)

SELECT Shelf_id,Publication,Edition,Publish_date FROM book as b WHERE b.Shelf_id in(SELECT Shelf_id FROM book WHERE Number_of_pages<400);

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Result:

Showing rows 0 - 3 (4 total, Query took 0.0002 seconds.)

```sql
SELECT Shelf_id,Publication,Edition,Publish_date FROM book as b WHERE b.Shelf_id in(SELECT Shelf_id FROM book WHERE Number_of_pages<400);
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 ⌄ Filter rows: Search this table Sort by key: None ⌄

Extra options

←T→	▼	Shelf_id	Publication	Edition	Publish_date
☐ 🖊Edit ꤷ Copy ⊖ Delete		A2	Pretice Hall	2nd	1988-03-22
☐ 🖊Edit ꤷ Copy ⊖ Delete		C1		1st	1922-10-01
☐ 🖊Edit ꤷ Copy ⊖ Delete		C1		1st	1910-01-01
☐ 🖊Edit ꤷ Copy ⊖ Delete		C1	Onnona	2nd	2004-02-01

↑ ☐ Check all   With selected: 🖊Edit   ꤷ Copy   ⊖ Delete   🖼Export

(Sayed Fuad Al Labib – 2020-1-60-107)

Join Queries:

1. **Write a query to display the book ISBN number and book name of the books which are borrowed on the date "5th September 2022".**

SQL:

> ✔ Showing rows 0 - 0 (1 total, Query took 0.0003 seconds.)
>
> SELECT ISBN,Name FROM book INNER JOIN issue ON book.Serial=issue.Serial WHERE Borrow_date='2022-09-05';
>
> ☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Result:

ISBN	Name
9780133813487	Introduction to Java programming

2. **Find the student ID, name, and serial of each member of EEE dept who have issue book.**

SQL:

> ✔ Showing rows 0 - 0 (1 total, Query took 0.0012 seconds.)
>
> SELECT Std_id,Semester,Serial FROM student NATURAL JOIN issue WHERE Dept_name='EEE';
>
> ☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Result:

Std_id	Semester	Serial
2021-3-80-101	Fall2021	3

(Ariful Islam Fardin – 2020-1-60-111)

3. List all student's first name, book's name and the borrow's taken date.

SQL:

✔ Showing rows 0 - 1 (2 total, Query took 0.0003 seconds.)

Select student.First_name,student.Std_id,book.Name,issue.Borrow_date from student join issue on student.MembershipID = issue.MembershipID join book on book.Serial = issue.Serial;

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Result:

First_name	Std_id	Name	Borrow_date
Tom	2020-2-60-001	Introduction to algorithms	2022-09-04
Ramim	2021-3-80-101	Introduction to Java programming	2021-09-05

(Anika Tabassum Tanha – 2020-1-60-090)

4. Show all staff contact information

SQL:

SELECT First_name, Last_name, Email, Phone FROM staff NATURAL JOIN staff_Phone;

Result:

First_name	Last_name	Email	Phone
Kazi	Anuar	anuar@ewubd.edu	01512121212
Hossain	Alam	alam@ewubd.edu	01511122234
Hossain	Alam	alam@ewubd.edu	01521212121
Kajol	Rahman	rah@ewubd.edu	01999121212

(Aryan Ahamed – 2020-1-60-067)

5. **Find out the shelf number, row number of the books as well as their publications Using right outer join operation where they will appear order by their shelf number.**

SQL:

Showing rows 0 - 6 (7 total, Query took 0.0008 seconds.) [Shelf_number: 2... - 3...]

SELECT book.Name,book.Publication,shelf.Shelf_number,shelf.Row_number FROM book RIGHT JOIN shelf ON book.Shelf_id = shelf.Shelf_id ORDER BY shelf.Shelf_number;

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Result:

Name	Publication	Shelf_number ▲ 1	Row_number
Introduction to algorithms	The MIT Press	2	10
The C Programming Language	Pretice Hall	2	10
Agni-veena		2	12
Gitanjali		2	12
Jochona O Jononir Golpo	Onnona	2	12
Introduction to Java programming		3	10
Algorithms		3	10

(Fahad Ahammed – 2020-2-10-174)

Views and Materialized Views:

Views

> **Find Book Location**

SQL:

> ✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0004 seconds.)
>
> CREATE VIEW book_location AS SELECT Name, row_number, shelf_number FROM book NATURAL JOIN shelf;
>
> [Edit inline] [Edit] [Create PHP code]

Result:

SELECT * FROM `book_location`

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

		Name	row_number	shelf_number
Edit 🖉 Copy 🗐 Delete ⊘		Introduction to algorithms	10	2
Edit 🖉 Copy 🗐 Delete ⊘		The C Programming Language	10	2
Edit 🖉 Copy 🗐 Delete ⊘		Introduction to Java programming	10	3
Edit 🖉 Copy 🗐 Delete ⊘		Algorithms	10	3
Edit 🖉 Copy 🗐 Delete ⊘		Agni-veena	12	2
Edit 🖉 Copy 🗐 Delete ⊘		Gitanjali	12	2
Edit 🖉 Copy 🗐 Delete ⊘		Jochona O Jononir Golpo	12	2

(Aryan Ahamed – 2020-1-60-067)

> **View for showing all members:**

SQL:

> ✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0009 seconds.)
>
> CREATE VIEW All_member AS (SELECT First_name, Last_name, Dept_name FROM instructor,Member WHERE instructor.MembershipID = Member.MembershipID)
> UNION (SELECT First_name, Last_name, Dept_name FROM student,Member WHERE student.MembershipID = Member.MembershipID);

Result:

(Fahad Ahammed -2020-2-60-174)

Materialized Views:

SQL:

```
1  CREATE MATERIALIZED VIEW book_location as
2  SELECT name, row_number, shelf_number
3  FROM book NATURAL JOIN shelf;
```

Conclusion:

After we have completed the project, we are sure the problems in the existing system would overcome. The "LIBRARY MANAGEMENT SYSTEM" process made computerized to reduce human errors and to increase the efficiency. We successfully maintain all records and it made much efficiency. as all the records are stored in database in proper ways. All the members are given particular unique id so that staff can be tracks all info of those members. It also helps to get all information of the particular member and available book in the library.

(Ariful Islam Fardin – 2020-1-60-111)