2021

LIBRARY DATABASE MANAGEMENT

DBMS PROJECT

Database Library System

intended to automate the library activities such as creating a new borrower, giving books to the borrowers, maintaining the details of all the item that were available in book

TEAM: NORMAL

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Then we would like to thank our parents and friends who have helped us with their valuable suggestions and guidance has been very helpful in various phases of completion of the project.

INTRODUCTION

A library is a collection of organized information and resources which is made accessible to a well-defined community for borrowing or reference sake. The collection of the resources and information are provided in digital or physical format in either a building/room or in a virtual space or even both. Library's resources and collections may include newspapers, books, films, prints, maps, CDs, tapes, videotapes, microform, database etc. The main aim of this system is to develop a new programmed system that will conveying ever lasting solution to the manual base operations and to make available a channel through which staff can maintain the record easily and customers can access the information about the library at whatever place they might find themselves.

Library Management System allows the user to store the book details and the customer details. The system is strong enough to withstand regressive yearly operations under conditions where the database is maintained and cleared over a certain time of span. The implementation of the system in the organization will considerably reduce data entry, time and also provide readily calculated reports.

OBJECTIVE

It keeps track of all the information about the books in the library, their cost, status and total number of books available in the Library. The user will find it easy in this automated system rather than using the manual writing system. The system contains a database where all the information will be stored safely.

DATA TYPES AND ITS DESCRIPTION

- INT (size): A medium integer. Signed range is from -2147483648 to 2147483647. Unsigned range is from 0 to 4294967295. The size parameter specifies the maximum display width (which is 255).

- CHAR (size): A FIXED length string (can contain letters, numbers, and special characters). The size parameter specifies the column length in characters - can be from 0 to 255. Default is 1.

- DATE: A date. Format: YYYY-MM-DD. The supported range is from '1000-01-01' to '9999-12-31'.

- FLOAT (size, d): A floating point number. The total number of digits is specified in *size*. The number of digits after decimal point id specified in *d* parameter.

DATA REQUIREMENTS

Entities

- Book
- Category
- Publisher
- Stack
- Member
- Issue_status
- Return_status

Attributes

❖ Book
- B_id
- Name
- Author
- Edition
- Price

❖ Category
- Cat_id
- Cat_name

❖ Publisher
- P_id
- Name
- Address
  - City
  - District
  - State
  - Pin

- Stack
  - S_id
  - Floor

- Member
  - M_id
  - Name
  - Address
    - City
    - District
    - State
    - Pin
  - Ph_no

- Issue_status
  - Issue_id
  - Issue_date

- Return_status
  - Return_id
  - Return_date

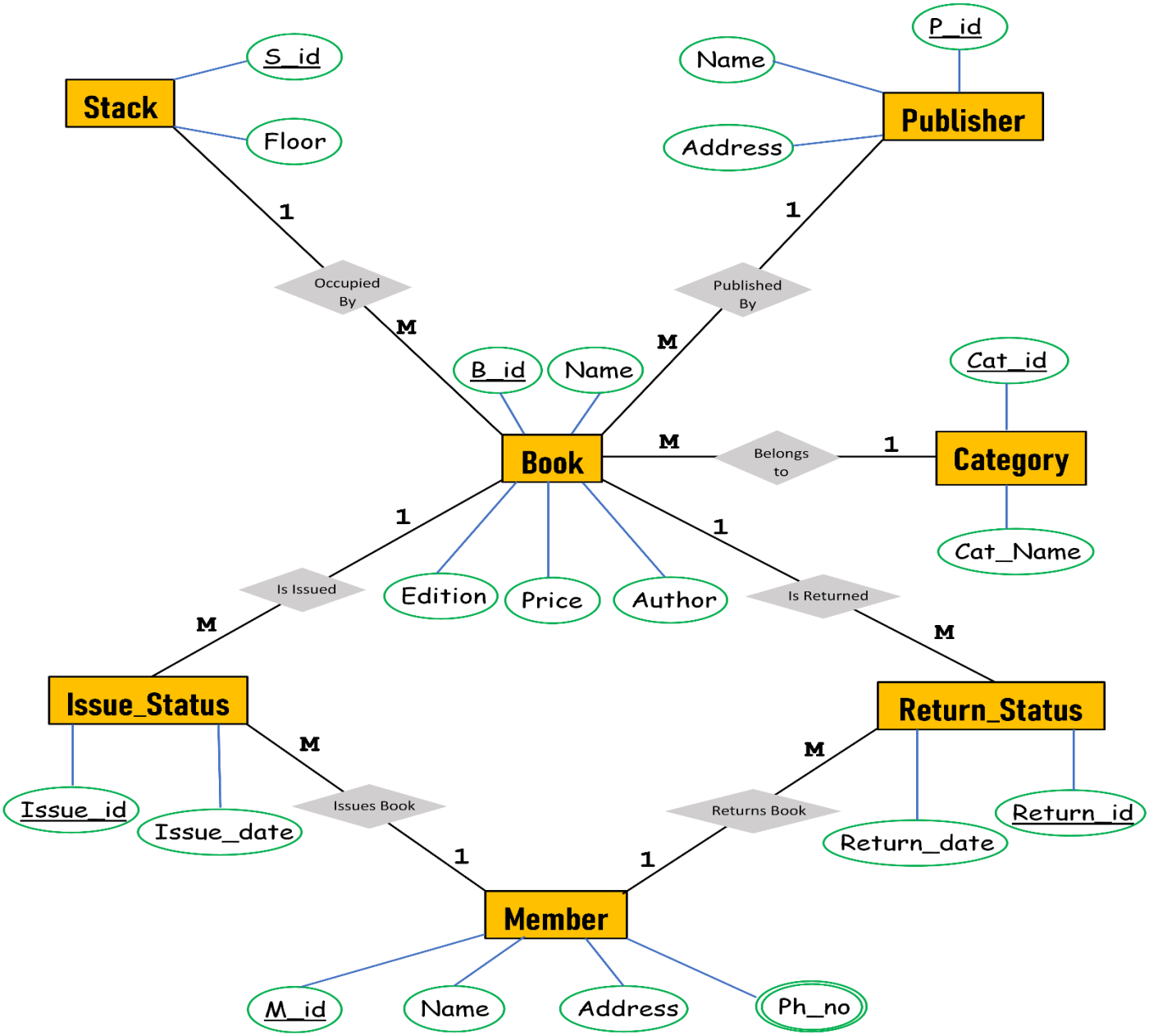
RELATIONSHIPS – CARDINALITY

- BOOK belongs to CATEGORY (M – 1)
- BOOK published by PUBLISHER (M – 1)
- STACK occupied by BOOK (1 – M)
- BOOK's ISSUE STATUS (1 – M)
- BOOK's RETURN STATUS (1 – M)
- MEMBER's ISSUE STATUS (1 – M)
- MEMBER's RETURN STATUS (1 – M)

ENTITY – RELATIONSHIP DIAGRAM

Entity Relationship Diagram is used in modern database software engineering to illustrate logical structure of database. It is a relational schema database modelling method used to Model a system and approach. This approach commonly used in database design. The diagram created using this method is called ER-diagram.

The ER-diagram depicts the various relationships among entities, considering each object as entity. Entity is represented as rectangle shape and relationship represented as diamond shape. It depicts the relationship between data object. The ER-diagram is the notation that is used to conduct the data modelling activity.

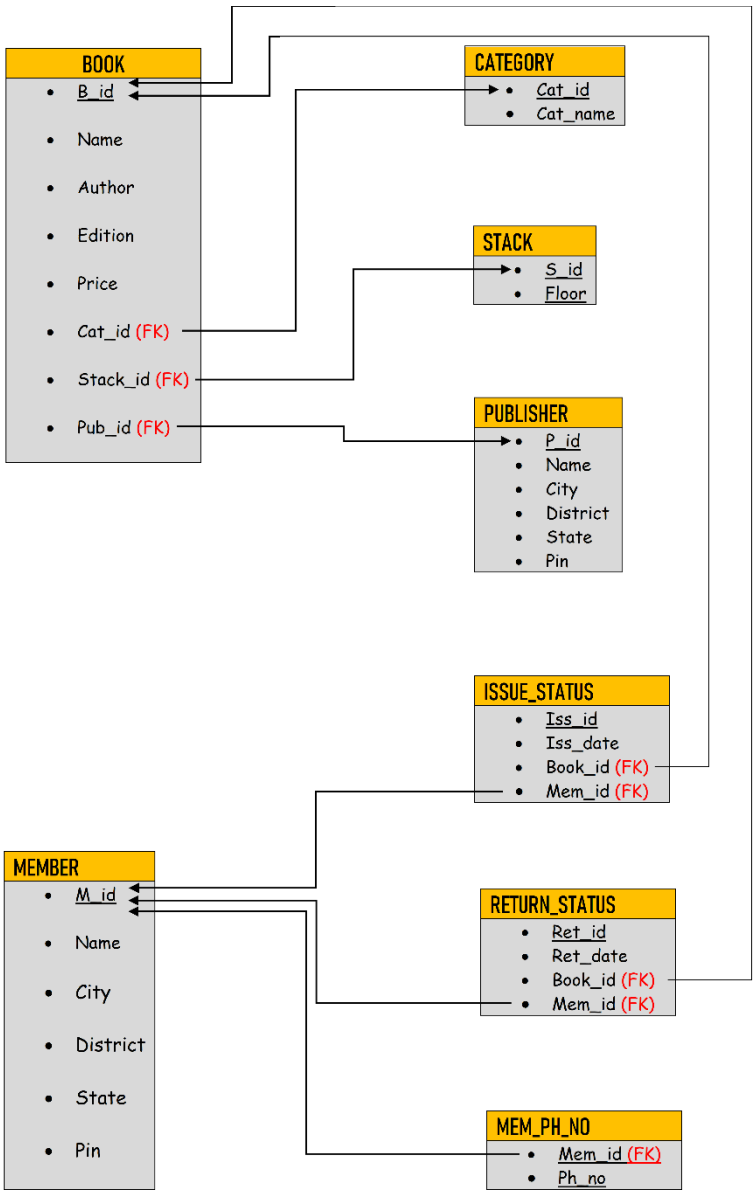


SCHEMA DIAGRAM

A schema is the structure behind data organization. It is a visual representation of how different table relationships enable the schema's underlying mission business rules for which the database is created. Database schema defines its entities and the relationship among them.

It contains a descriptive detail of the database, which can be depicted by means of schema diagrams. It's the database designers who design the schema to help programmers understand the database and make it useful.

Schema diagrams have an important function because they force database developers to transpose ideas to paper. This provides an overview of the entire database, while facilitating future database administrator work.



CREATING DATABASE USING MYSQL

CREATING DATABASE

```
mysql> create database Library;
Query OK, 1 row affected (0.43 sec)

mysql> use library;
Database changed
```

CREATING TABLES

CREATING MEMBER TABLE

```
mysql> create table member(
    -> M_ID char(6) primary key,
    -> Name char(30),
    -> City char(40),
    -> District char(40),
    -> State char(30),
    -> Pin_NO char(6));
Query OK, 0 rows affected (1.54 sec)
```

CREATING PUBLISHER TABLE

```
mysql> create table publisher(
    -> P_ID char(6) primary key,
    -> Name char(100),
    -> City char(40),
    -> District char(40),
    -> State char(30),
    -> Pin_NO char(6));
Query OK, 0 rows affected (1.92 sec)
```

CREATING STACK TABLE

```
mysql> create table stack(
    -> S_ID char(8) primary key,
    -> Floor char(6));
Query OK, 0 rows affected (1.01 sec)
```

CREATING CATEGORY TABLE

```
mysql> create table category(
    -> Cat_ID char(6) primary key,
    -> Cat_Name char(40));
Query OK, 0 rows affected (1.56 sec)
```

CREATING BOOK TABLE

```
mysql> create table book(
    -> B_ID char(7) primary key,
    -> Name char(60),
    -> Author char(100),
    -> Edition char(10),
    -> Price float(5,2),
    -> Cat_ID char(6),
    -> Stack_ID char(8),
    -> Publication_ID char(6),
    -> Member_ID char(6),
    -> foreign key(Cat_ID) references Category(Cat_ID) on update cascade on delete
restrict,
    -> foreign key(Stack_ID) references Stack(S_ID) on update cascade on delete
restrict,
    -> foreign key(Publication_ID) references Publisher(P_ID) on update cascade on
delete restrict,
    -> foreign key(Member_ID) references Member(M_ID) on update cascade on
delete restrict);
Query OK, 0 rows affected, 1 warning (1.35 sec)
```

CREATING ISSUE_STATUS TABLE

```
mysql> create table issue_status(
    -> Iss_ID char(6) primary key,
    -> Iss_Date date,
    -> Book_ID char(7),
    -> Member_ID char(6),
    -> foreign key(Book_ID) references Book(B_ID) on update cascade on delete
restrict,
    -> foreign key(Member_ID) references Member(M_ID) on update cascade on
delete restrict);
Query OK, 0 rows affected (2.34 sec)
```

CREATING RETURN_STATUS TABLE

```
mysql> create table return_status(
    -> Ret_ID char(6) primary key,
    -> Ret_Date date,
    -> Book_ID char(7),
    -> Member_ID char(6),
    -> foreign key(Book_ID) references Book(B_ID) on update cascade on delete
restrict,
    -> foreign key(Member_ID) references Member(M_ID) on update cascade on
delete restrict);
Query OK, 0 rows affected (1.81 sec)
```

CREATING MEMBER_PHONE_NUMBER

```
mysql> create table member_phone_number(
    -> Member_ID char(6),
    -> Phone_Number char(12)
    -> primary key(Member_ID,Phone_Number),
    -> foreign key(Member_ID) references Member(M_ID));
Query OK, 0 rows affected, 1 warning (1.55 sec)
```

TABLES IN DATABASE

```
mysql> show tables;
+-----------------------+
|    Tables_in_library  |
+-----------------------+
|          book         |
|        category       |
|       issue_status    |
|        member         |
| member_phone_number   |
|       publisher       |
|      return_status    |
|         stack         |
+-----------------------+
8 rows in set (0.16 sec)
```

TABLE DESCRIPTIONS

BOOK TABLE DESCRIPTION

```
mysql> desc book;
+---------------+-----------+------+-----+---------+-------+
| Field         | Type      | Null | Key | Default | Extra |
+---------------+-----------+------+-----+---------+-------+
| B_ID          | char(7)   | NO   | PRI | NULL    |       |
| Name          | char(60)  | YES  |     | NULL    |       |
| Author        | char(100) | YES  |     | NULL    |       |
| Edition       | char(10)  | YES  |     | NULL    |       |
| Price         | float(5,2)| YES  |     | NULL    |       |
| Cat_ID        | char(6)   | YES  | MUL | NULL    |       |
| Stack_ID      | char(8)   | YES  | MUL | NULL    |       |
| Publication_ID| char(6)   | YES  | MUL | NULL    |       |
| Member_ID     | char(6)   | YES  | MUL | NULL    |       |
+---------------+-----------+------+-----+---------+-------+
9 rows in set (0.13 sec)
```

CATEGORY TABLE DESCRIPTION

```
mysql> desc category;
+----------+----------+------+-----+---------+-------+
| Field    | Type     | Null | Key | Default | Extra |
+----------+----------+------+-----+---------+-------+
| Cat_ID   | char(6)  | NO   | PRI | NULL    |       |
| Cat_Name | char(40) | YES  |     | NULL    |       |
+----------+----------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

MEMBER TABLE DESCRIPTION

```
mysql> desc member;
+----------+----------+------+-----+---------+-------+
| Field    | Type     | Null | Key | Default | Extra |
+----------+----------+------+-----+---------+-------+
| M_ID     | char(6)  | NO   | PRI | NULL    |       |
| Name     | char(30) | YES  |     | NULL    |       |
| City     | char(40) | YES  |     | NULL    |       |
| District | char(40) | YES  |     | NULL    |       |
| State    | char(30) | YES  |     | NULL    |       |
| Pin_NO   | char(6)  | YES  |     | NULL    |       |
+----------+----------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

PUBLISHER TABLE DESCRIPTION

```
mysql> desc publisher;
+----------+----------+------+-----+---------+-------+
| Field    | Type     | Null | Key | Default | Extra |
+----------+----------+------+-----+---------+-------+
| P_ID     | char(6)  | NO   | PRI | NULL    |       |
| Name     | char(100)| YES  |     | NULL    |       |
| City     | char(40) | YES  |     | NULL    |       |
| District | char(40) | YES  |     | NULL    |       |
| State    | char(30) | YES  |     | NULL    |       |
| Pin_NO   | char(6)  | YES  |     | NULL    |       |
+----------+----------+------+-----+---------+-------+
```

6 rows in set (0.00 sec)

ISSUE_STATUS TABLE DESCRIPTION

```
mysql> desc issue_status;
+-----------+---------+------+-----+---------+-------+
| Field     |  Type   | Null | Key | Default | Extra |
+-----------+---------+------+-----+---------+-------+
| Iss_ID    | char(6) | NO   | PRI | NULL    |       |
| Iss_Date  | date    | YES  |     | NULL    |       |
| Book_ID   | char(7) | YES  | MUL | NULL    |       |
| Member_ID | char(6) | YES  | MUL | NULL    |       |
+-----------+---------+------+-----+---------+-------+
4 rows in set (0.10 sec)
```

RETURN_STATUS TABLE DESCRIPTION

```
mysql> desc  return_status;
+-----------+---------+------+-----+---------+-------+
|   Field   |  Type   | Null | Key | Default | Extra |
+-----------+---------+------+-----+---------+-------+
| Ret_ID    | char(6) | NO   | PRI | NULL    |       |
| Ret_Date  | date    | YES  |     | NULL    |       |
| Book_ID   | char(7) | YES  | MUL | NULL    |       |
| Member_ID | char(6) | YES  | MUL | NULL    |       |
+-----------+---------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

STACK TABLE DESCRIPTION

```
mysql> desc stack;
+-------+---------+------+-----+---------+-------+
| Field |  Type   | Null | Key | Default | Extra |
+-------+---------+------+-----+---------+-------+
| S_ID  | char(8) | NO   | PRI | NULL    |       |
| Floor | char(6) | YES  |     | NULL    |       |
+-------+---------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

MEMBER_PHONE_NUMBER TABLE DESCRIPTION

```
mysql> desc member_phone_number;
+--------------+---------+------+-----+---------+-------+
|      Field       |   Type   |  Null | Key | Default  |  Extra |
+--------------+---------+------+-----+---------+-------+
| Member_ID      |  char(6) |   NO   | PRI |   NULL   |        |
| Phone_Number | char(12) |   NO   |  PRI |   NULL   |        |
+--------------+---------+-------+-----+---------+--------+
2 rows in set (0.12 sec)
```

INSERTING RECORDS

INSERTING RECORDS IN MEMBER TABLE

```
mysql> insert into member(M_ID,Name,City,District,State,Pin_NO)Values
-> ('MEM101','Aditya Dawn','Kasba','Kolkata','West Bengal','700107'),
   -> ('MEM102','Anubhab Paul','Behala','Kolkata','West Bengal','700034'),
   -> ('MEM103','Arpita Banik','Dunlop','Kolkata','West Bengal','700108'),
   -> ('MEM104','Asmita Das','Barasat','North 24 Parganas','West Bengal','743248'),
   -> ('MEM105','Dipta Chatterjee','Serampore','Hooghly','West Bengal','712201'),
   -> ('MEM106','Nilavo Baral','Uttarpara','Hooghly','West Bengal','712232'),
   -> ('MEM107','Pranta Saha','Barasat','North 24 Parganas','West Bengal','743248'),
   -> ('MEM108','Promita Ghosh','Sodepur','North 24 Parganas','West Bengal','700110'),
   -> ('MEM109','Rituparna Kundu','Serampore','Hooghly','West Bengal','712201'),
   -> ('MEM110','Souryadip Das','Asansol','Bardhaman','West Bengal','713301');
Query OK, 10 rows affected (0.17 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

MEMBER TABLE

```
mysql> select * from member;

+--------+-----------------+-----------+------------------+-------------+--------+
| M_ID   | Name            | City      | District         | State       | Pin_NO |
+--------+-----------------+-----------+------------------+-------------+--------+
| MEM101 | Aditya Dawn     | Kasba     | Kolkata          | West Bengal | 700107 |
| MEM102 | Anubhab Paul    | Behala    | Kolkata          | West Bengal | 700034 |
| MEM103 | Arpita Banik    | Dunlop    | Kolkata          | West Bengal | 700108 |
| MEM104 | Asmita Das      | Barasat   | North 24 Parganas | West Bengal | 743248 |
| MEM105 | Dipta Chatterjee | Serampore | Hooghly          | West Bengal | 712201 |
| MEM106 | Nilavo Baral    | Uttarpara | Hooghly          | West Bengal | 712232 |
| MEM107 | Pranta Saha     | Barasat   | North 24 Parganas | West Bengal | 743248 |
| MEM108 | Promita Ghosh   | Sodepur   | North 24 Parganas | West Bengal | 700110 |
| MEM109 | Rituparna Kundu | Serampore | Hooghly          | West Bengal | 712201 |
| MEM110 | Souryadip Das   | Asansol   | Bardhaman        | West Bengal | 713301 |
+--------+-----------------+-----------+------------------+-------------+--------+
10 rows in set (0.04 sec)
```

INSERTING RECORDS IN PUBLISHER TABLE

```
mysql> insert into publisher(P_ID,Name,City,District,State,Pin_NO)Values
    -> ('PUB101','The World Press Private Limited','Kolkata','Kolkata','West
Bengal','700073')
    -> ('PUB102','New Central Book Agency (P) Ltd','Kolkata','Kolkata','West
Bengal','700009');
    -> ('PUB103','Levant Bookes','Kolkata','Kolkata','West Bengal','700014'),
    -> ('PUB104','Sultan Chand & Sons','Daryaganj','New Delhi','New Delhi','110002');
Query OK, 4 rows affected (0.29 sec)
Records: 4  Duplicates: 0  Warnings: 0
mysql> insert into publisher(P_ID,Name,City,State,Pin_NO)Values
    -> ('PUB105','McGraw-Hill Education','2 Penn Plaza','New York','10121')
    -> ('PUB106','Riverhead Books','New York City','New York','110003');
Query OK, 2row affected (0.21 sec)
```

PUBLISHER TABLE

```
mysql> select * from publisher;
+-------+------------------------------+-------------+----------+-------------+--------+
| P_ID  | Name                         | City        | District | State       | Pin_NO |
+-------+------------------------------+-------------+----------+-------------+--------+
| PUB101 | The World Press Private Limited | Kolkata     | Kolkata  | West Bengal | 700073 |
| PUB102 | New Central Book Agency (P) Ltd | Kolkata     | Kolkata  | West Bengal | 700009 |
| PUB103 | Levant Bookes                | Kolkata     | Kolkata  | West Bengal | 700014 |
| PUB104 | Sultan Chand & Sons          | Daryaganj   | New Delhi | New Delhi  | 110002 |
| PUB105 | McGraw-Hill Education        | 2 Penn Plaza | NULL    | New York    | 10121  |
| PUB106 | Riverhead Books              | New York City | NULL   | New York    | 110003 |
| PUB107 | Springer                     | New York City | NULL   | York City   | 101213 |
+-------+------------------------------+-------------+----------+-------------+--------+
7 rows in set (0.11 sec)
```

INSERTING RECORDS IN STACK TABLE

```
mysql> insert into stack(S_ID,Floor)values
    -> ('Stack101','First'),
    -> ('Stack102','First'),
    -> ('Stack201','Second'),
    -> ('Stack202','Second');
Query OK, 4 rows affected (0.35 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

STACK TABLE

```
mysql> select * from stack;
+----------+--------+
| S_ID     | Floor  |
+----------+--------+
| Stack101 | First  |
| Stack102 | First  |
| Stack201 | Second |
| Stack202 | Second |
+----------+--------+
4 rows in set (0.02 sec)
```

INSERTING RECORDS IN CATEGORY TABLE

```
mysql> insert into category(Cat_ID,Cat_Name)values
    -> ('CAT001','Mathematics'),
    -> ('CAT002','Statistics'),
    -> ('CAT003','Computer Science');
    -> ('CAT004','Mystery Thriller'),
    -> ('CAT005','Philosophy');
Query OK, 5 rows affected (0.18 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

CATEGORY TABLE

```
mysql> select * from category;
+--------+------------------+
| Cat_ID | Cat_Name         |
+--------+------------------+
| CAT001 | Mathematics      |
| CAT002 | Statistics       |
| CAT003 | Computer Science |
| CAT004 | Mystery Thriller |
| CAT005 | Philosophy       |
| CAT006 | Story            |
| CAT007 | Machine Learning |
+--------+------------------+
7 rows in set (0.03 sec)
```

INSERTING RECORDS IN MEMBER_PHONE_NUMBER TABLE

```
mysql> insert into member_phone_number(Member_ID,Phone_Number)values
    -> ('MEM101','8902690755'),
    -> ('MEM101','8902962751'),
    -> ('MEM102','9748899369'),
    -> ('MEM103','9051153323'),
    -> ('MEM104','7003435412'),
    -> ('MEM104','7003338413'),
    -> ('MEM105','6290031421'),
    -> ('MEM105','7003456281'),
    -> ('MEM106','8981304081'),
    -> ('MEM107','8697767632'),
    -> ('MEM107','7063120867'),
    -> ('MEM108','7685031503'),
    -> ('MEM109','8697424948'),
    -> ('MEM110','9804305751'),
    -> ('MEM110','9832707558');
Query OK, 15 rows affected (0.20 sec)
Records: 15  Duplicates: 0  Warnings: 0
```

MEMBER_PHONE_NUMBER TABLE

```
mysql> select * from  member_phone_number;
+-----------+--------------+
| Member_ID  | Phone_Number |
+-----------+--------------+
| MEM101       | 8902690755      |
| MEM101       | 8902962751      |
| MEM102       | 9748899369      |
| MEM103       | 9051153323       |
| MEM104       | 7003338413       |
| MEM104       | 7003435412       |
| MEM105       | 6290031421        |
| MEM105       | 7003456281       |
| MEM106       | 8981304081        |
| MEM107       | 7063120867        |
| MEM107       | 8697767632        |
| MEM108       | 7685031503        |
| MEM109       | 8697424948       |
| MEM110       | 9804305751       |
| MEM110       | 9832707558       |
+-----------+--------------+
15 rows in set (0.11 sec)
```

INSERTING RECORDS IN BOOK TABLE

```
mysql> insert into
book(B_ID,Name,Author,Edition,Price,Cat_ID,Stack_ID,Publication_ID)values
    -> ('BOOK101','Fundamentals of Statistics Volume One','A.M.Gun M.K.Gupta
B.Dasgupta','Seventh',350.00,'CAT002','Stack102','PUB101'),
    -> ('BOOK102','Fundamentals of Statistics Volume Two','A.M.Gun M.K.Gupta
B.Dasgupta','Seventh',350.00,'CAT002','Stack102','PUB101')
    -> ('BOOK103','Higher Algebra Abstract &
Linear','S.K.Mapa','Fifteenth',470.00,'CAT001','Stack101','PUB103')
    -> ('BOOK104','Higher Algebra
Classical','S.K.Mapa','Eighth',550.00,'CAT001','Stack101','PUB103'),
    -> ('BOOK105','An Outline of Statistical Theory Volume One','A.M.Gun M.K.Gupta
B.Dasgupta','Seventh',350.00,'CAT002','Stack102','PUB101'),
    -> ('BOOK106','An Outline of Statistical Theory Volume Two','A.M.Gun M.K.Gupta
B.Dasgupta','Fourth',350.00,'CAT002','Stack102','PUB101'),
    -> ('BOOK107','Fundamentals Of Mathematical Statistics','S.C.Gupta
V.K.Kapoor','Eleventh',590.00,'CAT002','Stack102','PUB104'),
    -> ('BOOK108','Fundamentals Of Applied Statistics','S.C.Gupta
V.K.Kapoor','Eleventh',630.00,'CAT002','Stack102','PUB104'),
    -> ('BOOK109','Da vinci Code','Dan
Brown','Third',260.00,'CAT004','Stack201','PUB106')
    -> ('BOOK110','The kite runner','Khaled
Hosseini','Third',260.00,'CAT006','Stack201','PUB106')
    -> ('BOOK110','The kite runner','Khaled
Hosseini','Third',260.00,'CAT006','Stack201','PUB106')
    -> ('BOOK111','An Introduction to Statistical Learning','Gareth James Daniela
Witten','Fourth',650.00,'CAT007','Stack202','PUB107')
    -> ('BOOK112','Programming in ANSI C','E
Balagurusamy','Seventh',450.00,'CAT003','Stack202','PUB105');
Query OK, 12 row affected (3.26 sec)
```

BOOK TABLE

mysql> select * from book;

B_ID	Name	Author	Edition	Price	Cat_ID	Stack_ID	Publication_ID
BOOK101	Fundamentals of Statistics Volume One	A.M.Gun M.K.Gupta B.Dasgupta	Seventh	350.00	CAT002	Stack102	PUB101
BOOK102	Fundamentals of Statistics Volume Two	A.M.Gun M.K.Gupta B.Dasgupta	Seventh	350.00	CAT002	Stack102	PUB101
BOOK103	Higher Algebra Abstract & Linear	S.K.Mapa	Fifteenth	470.00	CAT001	Stack101	PUB103
BOOK104	Higher Algebra Classical	S.K.Mapa	Eighth	550.00	CAT001	Stack101	PUB103
BOOK105	An Outline of Statistical Theory Volume One	A.M.Gun M.K.Gupta B.Dasgupta	Seventh	350.00	CAT002	Stack102	PUB101
BOOK106	An Outline of Statistical Theory Volume Two	A.M.Gun M.K.Gupta B.Dasgupta	Fourth	350.00	CAT002	Stack102	PUB101
BOOK107	Fundamentals Of Mathematical Statistics	S.C.Gupta V.K.Kapoor	Eleventh	590.00	CAT002	Stack102	PUB104
BOOK108	Fundamentals Of Applied Statistics	S.C.Gupta V.K.Kapoor	Eleventh	630.00	CAT002	Stack102	PUB104
BOOK109	Da vinci Code	Dan Brown	Third	260.00	CAT004	Stack201	PUB106
BOOK110	The kite runner	Khaled Hosseini	Third	260.00	CAT006	Stack201	PUB106
BOOK111	An Introduction to Statistical Learning	Gareth James Daniela Witten	Fourth	650.00	CAT007	Stack202	PUB107
BOOK112	Programming in ANSI C	E Balagurusamy	Seventh	450.00	CAT003	Stack202	PUB105

12 rows in set (0.01 sec)

INSERTING RECORDS IN ISSUE_STATUS TABLE

```
mysql> insert into issue_status(Iss_ID,Iss_Date,Book_ID,Member_ID)values
    -> ('ISS101','2021-03-01','BOOK101','MEM105'),
    -> ('ISS102','2021-03-06','BOOK111','MEM101'),
    -> ('ISS103','2021-03-06','BOOK107','MEM101'),
    -> ('ISS104','2021-03-10','BOOK103','MEM103'),
    -> ('ISS105','2021-03-10','BOOK105','MEM109'),
    -> ('ISS106','2021-03-10','BOOK106','MEM109'),
    -> ('ISS107','2021-04-12','BOOK109','MEM104'),
    -> ('ISS108','2021-04-20','BOOK101','MEM110'),
    -> ('ISS109','2021-04-20','BOOK102','MEM110'),
    -> ('ISS110','2021-04-28','BOOK112','MEM102'),
    -> ('ISS111','2021-05-02','BOOK108','MEM101'),
    -> ('ISS112','2021-05-08','BOOK110','MEM104');
Query OK, 12 rows affected (0.46 sec)
Records: 12  Duplicates: 0  Warnings: 0
```

ISSUE_STATUS TABLE

```
mysql> select * from issue_status;
+--------+------------+---------+-----------+
| Iss_ID | Iss_Date   | Book_ID | Member_ID |
+--------+------------+---------+-----------+
| ISS101 | 2021-03-01 | BOOK101 | MEM105    |
| ISS102 | 2021-03-06 | BOOK111 | MEM101    |
| ISS103 | 2021-03-06 | BOOK107 | MEM101    |
| ISS104 | 2021-03-10 | BOOK103 | MEM103    |
| ISS105 | 2021-03-10 | BOOK105 | MEM109    |
| ISS106 | 2021-03-10 | BOOK106 | MEM109    |
| ISS107 | 2021-04-12 | BOOK109 | MEM104    |
| ISS108 | 2021-04-20 | BOOK101 | MEM110    |
| ISS109 | 2021-04-20 | BOOK102 | MEM110    |
| ISS110 | 2021-04-28 | BOOK112 | MEM102    |
| ISS111 | 2021-05-02 | BOOK108 | MEM101    |
| ISS112 | 2021-05-08 | BOOK110 | MEM104    |
+--------+------------+---------+-----------+
12 rows in set (0.02 sec)
```

INSERTING RECORDS IN RETURN_STATUS TABLE

```
mysql> insert into return_status(Ret_ID,Ret_Date,Book_ID,Member_ID)values
    -> ('RET101','2021-04-01','BOOK101','MEM105'),
    -> ('RET102','2021-04-06','BOOK103','MEM103'),
    -> ('RET103','2021-04-06','BOOK105','MEM109'),
    -> ('RET104','2021-05-08','BOOK109','MEM104'),
    -> ('RET105','2021-05-02','BOOK107','MEM101'),
    -> ('RET106','2021-05-10','BOOK106','MEM109');
Query OK, 6 rows affected (0.24 sec)
Records: 6  Duplicates: 0  Warnings: 0
```

RETURN_STATUS TABLE

```
mysql> select * from return_status;
+--------+------------+---------+-----------+
| Ret_ID | Ret_Date   | Book_ID | Member_ID |
+--------+------------+---------+-----------+
| RET101 | 2021-04-01 | BOOK101 | MEM105    |
| RET102 | 2021-04-06 | BOOK103 | MEM103    |
| RET103 | 2021-04-06 | BOOK105 | MEM109    |
| RET104 | 2021-05-08 | BOOK109 | MEM104    |
| RET105 | 2021-05-02 | BOOK107 | MEM101    |
| RET106 | 2021-05-10 | BOOK106 | MEM109    |
+--------+------------+---------+-----------+
6 rows in set (0.00 sec)
```

TEST QUERIES

1) How many books are issued in the month April?

ANS:

```
mysql> select count(Iss_ID) Total_number_of_books_issued_in_the_month_of_April
    -> from issue_status
    -> where month(Iss_Date) = 4;

+-------------------------------------------------+
| Total_number_of_books_issued_in_the_month_of_April |
+-------------------------------------------------+
|                                               4 |
+-------------------------------------------------+
1 row in set (0.05 sec)
```

2) Show the publisher detail of the book "Higher Algebra Abstract & Linear".

ANS:

```
mysql> select B.Name,P.*
    -> from publisher P,book B
    -> where P.P_ID = B.Publication_ID and B.Name = 'Higher Algebra Abstract &
Linear';
+-------------------------------+--------+--------------+-------+--------+------------+--------+
| Name                          | P_ID   | Name         | City  | District | State      | Pin_NO |
+-------------------------------+--------+--------------+-------+--------+------------+--------+
| Higher Algebra Abstract & Linear | PUB103 | Levant Bookes | Kolkata | Kolkata | West Bengal | 700014 |
+-------------------------------+--------+--------------+---------+---------+--------+--------+
1 row in set (0.00 sec)
```

3) Change the Pin_NO of the publisher "McGraw-Hill Education" from 10121 to 100121.

ANS

```
mysql> update publisher
    -> set Pin_NO = '100121'
    -> where Name = 'McGraw-Hill Education';
Query OK, 1 row affected (0.21 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select *
    -> from publisher
    -> where Name = 'McGraw-Hill Education';
+--------+---------------------+------------+----------+----------+--------+
| P_ID   | Name                | City       | District | State    | Pin_NO |
+--------+---------------------+------------+----------+----------+--------+
| PUB105 | McGraw-Hill Education | 2 Penn Plaza | NULL   | New York | 100121 |
+--------+---------------------+------------+----------+----------+--------+
1 row in set (0.00 sec)
```

4) Show the book id, book name, price and publisher name of the book which is issued by MEM101 on 2021-05-02

ANS

```
mysql> select B.B_ID,B.Name,B.price,P.Name
    -> from publisher P,book B
    -> where P.P_ID = B.Publication_ID and B.B_ID = (select Book_ID from
issue_status where Iss_Date = '2021-05-02' and Member_ID = 'MEM101');
+---------+--------------------------------+-------+--------------------+
| B_ID    | Name                           | price | Name               |
+---------+--------------------------------+-------+--------------------+
| BOOK108 | Fundamentals Of Applied Statistics | 630.00 | Sultan Chand & Sons |
+---------+--------------------------------+-------+--------------------+
1 row in set (0.19 sec)
```

5) show the member details and phone numbers whose return id is 'RET104'.

ANS

```
mysql> select M.*,ph.Phone_Number
    -> from member M, member_phone_number ph
    -> where M.M_ID = ph.Member_ID and M.M_ID = (select Member_ID from
return_status where Ret_ID = 'RET104');
+-------+----------+--------+-----------------+------------+--------+--------------+
| M_ID  | Name     | City   | District        | State      | Pin_NO | Phone_Number |
+-------+----------+--------+-----------------+------------+--------+--------------+
| MEM104 | Asmita Das | Barasat | North 24 Parganas | West Bengal | 743248 | 7003338413 |
| MEM104 | Asmita Das | Barasat | North 24 Parganas | West Bengal | 743248 | 7003435412 |
+--------+----------+--------+-----------------+-----------+--------+---------------+
2 rows in set (0.10 sec)
```

6) Show the name, address and issued book name who have issued books of the Statistics category.

ANS

```
mysql> select M.name,M.City,M.District,M.State,B.Name
    -> from book B,Category C,issue_status I,member M
    -> where B.Cat_ID = C.Cat_ID and B.B_ID = I.Book_ID and I.Member_ID = M.M_ID and C.Cat_Name
= "Statistics";
+-----------------+----------+----------+------------+-----------------------------------------+
| name            | City     | District | State      | Name                                    |
+-----------------+----------+----------+------------+-----------------------------------------+
| Dipta Chatterjee | Serampore | Hooghly | West Bengal | Fundamentals of Statistics Volume One |
| Souryadip Das | Asansol | Bardhaman | West Bengal | Fundamentals of Statistics Volume One |
| Souryadip Das | Asansol | Bardhaman | West Bengal | Fundamentals of Statistics Volume Two |
| Rituparna Kundu | Serampore | Hooghly | West Bengal | An Outline of Statistical Theory Volume One |
| Rituparna Kundu | Serampore | Hooghly | West Bengal | An Outline of Statistical Theory Volume Two |
| Aditya Dawn | Kasba | Kolkata | West Bengal | Fundamentals Of Mathematical Statistics |
| Aditya Dawn | Kasba | Kolkata | West Bengal | Fundamentals Of Applied Statistics |
+-----------------+----------+----------+------------+-----------------------------------------+
7 rows in set (0.09 sec)
```

CONCLUSION

The library management system needs to be computerized to reduce human errors and to increase the efficiency. The proposed library management system in this proposal will be a computerized management system developed to maintain all the daily work of library. Library management systems are designed to store all the information about books and members.

The main focus of this project is to lessen human effort and encourage efficient record keeping.

Though we are making an offline version. If we able to make online version and also a student (member) viewing section through creating account on this system.