Name: Pramit Sil

Roll no: 24

Enrollment No: ADT23SOCB1544

Department of Information Technology

Database Management System Lab

Assignment Number: 2 (A)

Title:

Implement a database using MySQL(DDL,DML)

Problem statement:

Using the ER diagram drawn in Assignment 1, Create a database called LibraryDb.

Objective:

- 1. To Understand Design of Databases.
- 2. To understand and execute a few DDL and DML statements, clauses using SQL.

Queries:

1. Show the structure of the Book master table

```
mysql> Create database Lib_Manag;
Query OK, 1 row affected (0.01 sec)
mysql> use Lib_Manag;
Database changed
mysql> Create Table Book_Master(
-> MB_ID INT PRIMARY KEY,
     -> Title VARCHAR(50)
     -> Author VARCHAR(100),
     -> AUCHOI VARCHAR(100),
-> ISBN VARCHAR(50),
-> Category VARCHAR(50),
-> B_Count INT,
-> Available_Book INT
-> );
Query OK, 0 rows affected (0.02 sec)
mysql> Describe Book_Master;
  Field
                                         | Null | Key |
                        Type
                                                            Default
                                                                         Extra
                                           NO
                                                    PRI
                                                            NULL
  MB ID
                        int
  Title
                        varchar(50)
                                           YES
                                                            NULL
                        varchar(100)
  Author
                                           YES
                                                            NULL
                        varchar(50)
  ISBN
                                           YES
                                                            NULL
                        varchar(50)
                                           YES
                                                            NULL
  Category
  B_Count
                        int
                                           YES
                                                            NULL
                                           YES
  Available_Book
                        int
                                                            NULL
  rows in set (0.00 sec)
```

2. Show the students information

```
mysql> use lib_manag
Database changed
mysql> Create Table Student(
-> S_ID VARCHAR(20) PRIMARY KEY,
-> Name VARCHAR(50),
-> Email VARCHAR(50),
-> Mobile_No BIGINT,
-> DOB DATE
-> ):
Query OK, 0 rows affected (0.03 sec)
 mysgl> Describe Student;
 | Field
                             Type
                                                              | Null | Key
                                                                                            | Default | Extra |
    S_ID | varchar(20)
Name | varchar(50)
Email | varchar(50)
Mobile_No | bigint
DOB | date
                                                                                                 NULL
NULL
                                                                   YES
                                                                 YES
YES
YES
                                                                                                 NULL
NULL
NULL
 5 rows in set (0.00 sec)
mysql> Select * From Studnet;
ERROR 1146 (42502): Table 'lib_manag.studnet' doesn't exist
mysql> Select * FROM Student;
                                                                                                                               Mobile_No
                                                            aarav.sharma@example.com
vivaan.patel@example.com
aditya.verma@example.com
arjun.rao@example.com
arjun.rao@example.com
sai.kumar@example.com
reyansh.singh@example.com
krishna.iyer@example.com
rohan.mehta@example.com
anaya.joshi@example.com
                       Aarav Sharma
Vivaan Patel
Aditya Verma
Vihaan Gupta
                                                                                                                                                              2000-01-15
1999-02-20
2001-03-10
2002-04-25
1998-05-30
     B1500
B1501
                                                                                                                                9876543210
9123456789
                                                                                                                              9123456789
9988776655
9871234567
9988776655
9876543210
9123456789
9988776655
9871234567
     B1502
B1503
B1504
                       Arjun Rao
Arjun Rao
Sai Kumar
Reyansh Singh
Krishna Iyer
Rohan Mehta
Anaya Joshi
     B1505
B1506
                                                                                                                                                               2000-06-15
2003-07-20
                                                                                                                                                              1997-08-05
2001-09-12
2002-10-30
     B1507
     B1508
B1509
 10 rows in set (0.00 sec)
```

3. List the Title, authors of the book along with Domain/category

4. Add a column Publisher in book master table. (Show the structure of the table.) (or any other column in any table)

Field	Type	Null	Key	Default	Extra						
MB_ID Title Author ISBN Category B_Count Available_Book	int varchar(50) varchar(100) varchar(50) varchar(50) int int	NO YES YES YES YES YES YES	+ PRI 	NULL NULL NULL NULL NULL NULL		- -					
rows in set (0. ysql> Alter Tabl -> Add Column uery OK, 0 rows ecords: 0 Dupli ysql> describe b	e Book_Master Publisher VARCI affected (0.01 : cates: 0 Warnii	sec)									
Field	† Туре	Null	 Key	Default	Extra	Ī.					
MB_ID Title Author ISBN Category B_Count Available_Book Publisher rows in set (0.	int varchar(50) varchar(100) varchar(50) varchar(50) int int varchar(50) varchar(50)	NO YES YES YES YES YES YES	PRI	NULL NULL NULL NULL NULL NULL NULL NULL							
/sql> Select * F	rom Book_Master										
MB_ID Title					i	Author	ISBN	Category	B_Count	Available_Book	Publishe
2 Compute 3 Introdu 4 Enginee 5 Thermod 6 Control 7 Structu 8 Fluid M	e Management Syr r Networking: A ction to Algori ring Mechanics: ynamics: An Eng: Systems Engine ral Analysis echanics cal Engineering	Top-Do thms Dynami ineering ering	cs g Appr	oach	 	Raghu Ramakrishnan James F. Kurose Thomas H. Cormen J.L. Meriam Yunus Çengel Norman S. Nise Russell C. Hibbeler Frank M. White Allan R. Hambley William D. Callister	9780071232516 9780134734804 9780262033848 9781119472020 9780073383174 9781119471207 9780134610672 9780077472360 9780133961600	Database Networking Algorithms Engineering Engineering Engineering Engineering Engineering	50 20 30 10 23 32 78 123	23 13 20 5 15 30 45 100	NULL NULL NULL NULL NULL NULL NULL NULL

5. Change Publisher values of all the Books (As they are Null now) (or whatever column you have added, change its values)

```
mysql> UPDATE Book_master SET Publisher = 'Pearson' WHERE Title = 'Computer Networking: A Top-Down Approach';
Query OK, 1 row affected (0.00 sec)
Mysql> UPDATE Book_master SET Publisher = 'MIT Press' WHERE Title = 'Introduction to Algorithms';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE Book_master SET Publisher = 'Wiley' WHERE Title = 'Engineering Mechanics: Dynamics';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE Book_master SET Publisher = 'McGraw-Hill' WHERE Title = 'Thermodynamics: An Engineering Approach';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE Book_master SET Publisher = 'Wiley' WHERE Title = 'Control Systems Engineering';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE Book_master SET Publisher = 'Pearson' WHERE Title = 'Structural Analysis';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE Book_master SET Publisher = 'McGraw-Hill' WHERE Title = 'Fluid Mechanics';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE Book_master SET Publisher = 'McGraw-Hill' WHERE Title = 'Electrical Engineering: Principles & Applications';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE Book_master SET Publisher = 'McGraw-Hill' WHERE Title = 'Electrical Engineering: Principles & Applications';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE Book_master SET Publisher = 'McGraw-Hill' WHERE Title = 'Electrical Engineering: An Introduction';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

B_ID	Title	Author	ISBN	Category	B_Count	Available_Book	Publisher
1	Database Management Systems	Raghu Ramakrishnan	9780071232516	Database	50	23	Wiley
	Computer Networking: A Top-Down Approach	James F. Kurose	9780134734804	Networking	20	13	Pearson
	Introduction to Algorithms	Thomas H. Cormen	9780262033848	Algorithms	30	20	MIT Press
4	Engineering Mechanics: Dynamics	J.L. Meriam	9781119472020	Engineering	10	5	Wiley
5	Thermodynamics: An Engineering Approach	Yunus Çengel	9780073383174	Engineering	23	15	McGraw-Hill
6	Control Systems Engineering	Norman S. Nise	9781119471207	Engineering	32	30	Wiley
	Structural Analysis	Russell C. Hibbeler	9780134610672	Engineering	78	45	Pearson
8	Fluid Mechanics	Frank M. White	9780077472360	Engineering	123	100	McGraw-Hill
	Electrical Engineering: Principles & Applications	Allan R. Hambley	9780133961600	Engineering	13	5	McGraw-Hill
10	Materials Science and Engineering: An Introduction	William D. Callister	9781119471153	Engineering	19	10	Wilev

6. List the Title, Domain of the books which are published by "McGraw Hill".

LID_ID	Title		Author	ISBN	Category	B_Count	Available_Book	Publisher
1	Database Management Systems	i	Raghu Ramakrishnan	9780071232516	Database	50	23	Wiley
2	Computer Networking: A Top-Down Approach	- 1	James F. Kurose	9780134734804		20 30 10	20 5	Pearson
	Introduction to Algorithms	- 1	J.L. Meriam	9781119472020				MIT Press Wiley
4	Engineering Mechanics: Dynamics	- 1						
5	6 Control Systems Engineering 7 Structural Analysis 8 Fluid Mechanics 9 Electrical Engineering: Principles & Applications		Norman S. Nise 9 Russell C. Hibbeler 9	9780134610672 9780077472360	Engineering Engineering	23 32 78 123	15 30 45 100	McGraw-Hill Wiley Pearson McGraw-Hill
6								
7								
8			Frank M. White					
9			Allan R. Hambley	9780133961600		13	5	McGraw-Hil
10	Materials Science and Engineering: An Intro	duction	William D. Callister	9781119471153	Engineering	19	10	Wiley
ql> S	in set (0.00 sec) elect Title,Category From Book_Master here Publisher='McGraw-Hill';	Category	+					
Title			+					

7. Remove the student whose id is S121 (make sure he is not taken any book)

```
-> Mobile_No BIGINT,
    -> DOB DATE
-> );
Query OK, 0 rows affected (0.03 sec)
mysql> Describe Student;
 Field
                            Null | Key |
                                          Default | Extra |
            | Type
              varchar(20)
varchar(50)
varchar(50)
  S_ID
  Name
Email
                             YES
                                          NULL
                             YES
                                          NULL
  Mobile_No
                                          NULL
 DOB
                                          NULL
              date
                             YES
5 rows in set (0.00 sec)
```

```
mysql> Select * From Student;
                          Email
                                                     Mobile_No
 S_ID
          Name
                                                                   DOB
 B1500
          Aarav Sharma
                          aarav.sharma@gmail.com
                                                      9876543210
                                                                   2000-01-15
                                                      9123456789
 B1501
                           vivaan.patel@gmail.com
                                                                   1999-02-20
          Vivaan Patel
  B1502
          Aditya Verma
                           aditya.verma@gmail.com
                                                      9988776655
                                                                   2001-03-10
  B1503
                          vihaan.gupta@gmail.com
                                                      9871234567
                                                                   2002-04-25
          Vihaan Gupta
                                                                   1998-05-30
  B1504
          Arjun Rao
                          arjun.rao@gmail.com
                                                      9988776655
          Sai Kumar
                                                                   2000-06-15
  B1505
                           sai.kumar@gmail.com
                                                      9876543210
                          revansh.singh@gmail.com
  B1506
          Reyansh Singh
                                                      9123456789
                                                                   2003-07-20
  B1507
          Krishna Iyer
                          krishna.iyer@gmail.com
                                                      9988776655
                                                                   1997-08-05
                                                                   2001-09-12
  B1508
                                                      9871234567
          Rohan Mehta
                          rohan.mehta@gmail.com
  B1509
          Anaya Joshi
                          anaya.joshi@gmail.com
                                                      9123456789
                                                                   2002-10-30
10 rows in set (0.00 sec)
mysql> DELETE FROM Student WHERE S_ID = 'B1502';
Query OK, 1 row affected (0.00 sec)
```

8. Change the Title of the book "FML" to "Fundamentals of Machine Learning"

LID Title	Author	ISBN	Category	B_Count	Available_Book	Publisher
1 Database Management Systems	Raghu Ramakrishnan	9780071232516	Database	50	23	Wiley
2 Computer Networking: A Top-Down Approach	James F. Kurose	9780134734804	Networking	20	13	Pearson
3 Introduction to Algorithms	Thomas H. Cormen	9780262033848	Algorithms	30	20	MIT Press
4 Engineering Mechanics: Dynamics	J.L. Meriam	9781119472020	Engineering	10	5	Wiley
5 Thermodynamics: An Engineering Approach	Yunus Çengel	9780073383174	Engineering	23	15	McGraw-Hil
6 Control Systems Engineering	Norman S. Nise	9781119471207	Engineering	32	30	Wiley
7 Structural Analysis	Russell C. Hibbeler	9780134610672	Engineering	78	45	Pearson
8 Fluid Mechanics	Frank M. White	9780077472360	Engineering	123	100	McGraw-Hil
9 Electrical Engineering: Principles & Applications	Allan R. Hambley	9780133961600	Engineering	13	5	McGraw-Hil
10 Materials Science and Engineering: An Introduction	William D. Callister	9781119471153	Engineering	19	10	Wiley
ows in set (0.00 sec)						
nl> Update Book_master -> Set Title ='DBMS' -> WHERE Title = 'Database Management Systems'; y OK, 1 row affected (0.00 sec)	Author	ISBN	Category	B_Count	 Available_Book	 Publisher
l> Update Book_master -> Set Title ='DBMS' -> WHERE Title = 'Database Management Systems'; y Ok, 1 row affected (0.00 sec) : matched: 1 Changed: 1 Warnings: 0 > Select * From Book_master;		ISBN 9789071232516			i	i
	 Author Raghu Ramakrishnan James F. Kurose	9780071232516	Database	B_Count 50 20	i	 Publisher
	Raghu Ramakrishnan		Database Networking	50	23	 Wiley
	Raghu Ramakrishnan James F. Kurose	9780071232516 9780134734804	Database	50 20	23 13	 Wiley Pearson
l> Update Book_master -> Set Title = 'DBMS' -> WHERE Title = 'Database Management Systems'; y OK, 1 row affected (0.00 sec) matched: 1 Changed: 1 Warnings: 0 Select * From Book_master;ID Title 1 DBMS 2 Computer Networking: A Top-Down Approach 3 Introduction to Algorithms	Raghu Ramakrishnan James F. Kurose Thomas H. Cormen	9780071232516 9780134734804 9780262033848	Database Networking Algorithms	50 20 30	23 23 13	Wiley Pearson MIT Press Wiley
> Update Book_master -> Set Title = 'DBMS' -> WHERE Title = 'Database Management Systems'; y OK, 1 row affected (0.00 sec) matched: 1 Changed: 1 Warnings: 0 Select * From Book_master;	Raghu Ramakrishnan James F. Kurose Thomas H. Cormen J.L. Meriam	9780071232516 9780134734804 9780262033848 9781119472020	Database Networking Algorithms Engineering Engineering	50 20 30 10	23 13 20 5	Wiley Pearson MIT Press Wiley
	Raghu Ramakrishnan James F. Kurose Thomas H. Cormen J.L. Meriam Yunus Çengel	9780071232516 9780134734804 9780262033848 9781119472020 9780073383174	Database Networking Algorithms Engineering	50 20 30 10 23	23 13 20 5	Wiley Pearson MIT Press Wiley McGraw-Hil
	Raghu Ramakrishnan James F. Kurose Thomas H. Cormen J.L. Meriam Yunus Çengel Norman S. Nise	9780071232516 9780134734804 9780262033848 9781119472020 9780073383174 9781119471207	Database Networking Algorithms Engineering Engineering Engineering	50 20 30 10 23 32	23 13 20 5 15	Wiley Pearson MIT Press Wiley McGraw-Hil
	Raghu Ramakrishnan James F. Kurose Thomas H. Cormen J.L. Meriam Yunus Çengel Norman S. Nise Russell C. Hibbeler	9780071232516 9780134734804 9780262033848 9781119472020 9780073383174 9781119471207 9780134610672	Database Networking Algorithms Engineering Engineering Engineering Engineering	50 20 30 10 23 32	23 13 20 5 15 30 45	Wiley Pearson MIT Press Wiley McGraw-Hil Wiley Pearson

9. List the Names(Titles) of the books and author name related to Cloud domain.

my	ysql> Se	elect * From Book_master;								
Ï	MB_ID	Title		Author		ISBN	Category	B_Count	Available_Book	Publisher
	4 5 6 7 8 9 10 9 rows 2 ysql> Se	DBMS Computer Networking: A Top-Down Approach Introduction to Algorithms Engineering Mechanics: Dynamics Thermodynamics: An Engineering Approach Control Systems Engineering Structural Analysis Fluid Mechanics Electrical Engineering: Principles & Applic: Materials Science and Engineering: An Introd on set (0.00 sec) elect Title, Author From Book_Master here Category='Engineering';		Raghu Ramakris James F. Kuros Thomas H. Corn J.L. Meriam Yunus Çengel Norman S. Nise Russell C. Hib Frank M. White Allan R. Hambl William D. Cal	e en beler ey	9780071232516 9780134/734804 97801262033848 9781119472020 9780073383174 9781119471207 9780134610672 97800977472360 9780133961600 9781119471153	Networking Algorithms Engineering Engineering Engineering Engineering Engineering Engineering	23 32 78 123 13	13 20 5 15 30 45	MIT Press Wiley McGraw-Hill Wiley Pearson McGraw-Hill McGraw-Hill
į	Title		Author							
+	Thermod Control Structu Fluid M Electr	ering Mechanics: Dynamics Hynamics: An Engineering Approach Systems Engineering Iral Analysis Hechanics Ical Engineering: Principles & Applications als Science and Engineering: An Introduction	Russell Frank ! Allan !	Çengel S. Nise L C. Hibbeler 1. White R. Hambley						
7	rows in	set (0.00 sec)	†							

10. List the names of books whose number of copies are less than 5.

B_ID	Title	Author	ISBN	Category	B_Count	Available_Book	Publisher
1	DBMS	Raghu Ramakrishnan	9780071232516	Database	50	23	Wiley
2	Computer Networking: A Top-Down Approach	James F. Kurose	9780134734804	Networking	20	13	Pearson
3	Introduction to Algorithms	Thomas H. Cormen	9780262033848	Algorithms	30	20	MIT Press
4	Engineering Mechanics: Dynamics	J.L. Meriam	9781119472020	Engineering	10	5	Wiley
5	Thermodynamics: An Engineering Approach	Yunus Çengel	9780073383174	Engineering	23	15	McGraw-Hi
6	Control Systems Engineering	Norman S. Nise	9781119471207	Engineering	32	30	Wiley
	Structural Analysis	Russell C. Hibbeler	9780134610672			45	Pearson
8	Fluid Mechanics	Frank M. White	9780077472360			100	McGraw-Hi
0 1	Electrical Engineering: Principles & Applications	Allan R. Hambley	9780133961600	Fngineering	13	5	McGraw-Hi
9	Electrical Engineering: Principles & Applications						
10 t- rows in	Materials Science and Engineering: An Introduction n set (0.00 sec)						Wiley
10 + rows ir ql> Sel	Materials Science and Engineering: An Introduction						Wiley

11. List the student Names whose names either start or end with "N".

S_ID	Name	Email	Mobile_No	DOB
B1500	Aarav Sharma	aarav.sharma@gmail.com	9876543210	 2000-01-15
B1501	Vivaan Patel	vivaan.patel@gmail.com	9123456789	1999-02-20
B1503	Vihaan Gupta	vihaan.gupta@gmail.com	9871234567	2002-04-25
B1504	Arjun Rao	arjun.rao@gmail.com	9988776655	1998-05-30
B1505	Sai Kumar	sai.kumar@gmail.com	9876543210	2000-06-15
B1506	Reyansh Singh	reyansh.singh@gmail.com	9123456789	2003-07-20
B1507	Krishna Iyer	krishna.iyer@gmail.com	9988776655	1997-08-05
B1508	Rohan Mehta	rohan.mehta@gmail.com	9871234567	2001-09-12
B1509	Anaya Joshi	anaya.joshi@gmail.com	9123456789	2002-10-30

12. List the Book Names whose names contains 'database' in their title.

IID_ID	Title	Author	ISBN	Category	B_Count	Available_Book	Publisher
1	DBMS	Raghu Ramakrishnan	9780071232516	Database	50	23	Wiley
	Computer Networking: A Top-Down Approach	James F. Kurose	9780134734804		20		Pearson
	Introduction to Algorithms	Thomas H. Cormen	9780262033848	Algorithms	30	20	MIT Press
	Engineering Mechanics: Dynamics	J.L. Meriam	9781119472020				Wiley
5	Thermodynamics: An Engineering Approach	Yunus Çengel	9780073383174		23		McGraw-Hil
	Control Systems Engineering	Norman S. Nise	9781119471207				Wiley
	Structural Analysis	Russell C. Hibbeler	9780134610672		78		Pearson
8	Fluid Mechanics	Frank M. White	9780077472360				McGraw-Hil
9		Allan R. Hambley	9780133961600				McGraw-Hil
10	Materials Science and Engineering: An Introduction	William D. Callister	9781119471153	Engineering	19	10	Wiley
	elect Title From Book_Master here Title Like '%Engineering%';						
Title							

13. What is the count of the books which are issued but not returned yet?

```
mysql> CREATE TABLE Book_Transaction (
    -> Transaction_ID VARCHAR(10) PRIMARY KEY,
    -> Sid VARCHAR(10),
                       Bk_ID INT,
                        IssuedDate DATE,
                        ReturnedDate DATE,
                        FOREIGN KEY (Bk_ID) REFERENCES Book_Master(MB_ID),
                        FOREIGN KEY (Sid) REFERENCES Student(S_ID)
        -> );
Query OK, 0 rows affected (0.03 sec)
mysql> INSERT INTO Book_Transaction
         -> VALUES
        -> VALUES

-> ('T1001', 'B1500', '1', '2025-01-10', '2025-01-20'),
-> ('T1002', 'B1501', '2', '2025-01-15', '2025-01-25'),
-> ('T1003', 'B1503', '3', '2025-01-12', '2025-01-22'),
-> ('T1004', 'B1504', '4', '2025-01-18', '2025-01-28'),
-> ('T1005', 'B1505', '5', '2025-01-20', NULL),
-> ('T1006', 'B1506', '6', '2025-01-14', '2025-01-24'),
-> ('T1007', 'B1507', '7', '2025-01-11', '2025-01-21'),
-> ('T1008', 'B1508', '8', '2025-01-17', NULL),
                                                                                                  '2025-01-25'),
'2025-01-22'),
-> ('T1008', 'B1508', '8', '2025-01-17',
-> ('T1009', 'B1509', '9', '2025-01-13',
Query OK, 9 rows affected (0.01 sec)
                                                                                                  NULL),
                                                                                                   '2025-01-23');
Records: 9 Duplicates: 0 Warnings: 0
```

```
mysql> Select *From Book_Transaction;
| Transaction_ID | Sid
                           | Bk_ID | IssuedDate
                                                    ReturnedDate
                                                    2025-01-20
2025-01-25
 T1001
                    B1500
                                 1
                                      2025-01-10
                                 2
 T1002
                    B1501
                                      2025-01-15
 T1003
                    B1503
                                 3
                                      2025-01-12
                                                    2025-01-22
                                      2025-01-18
2025-01-20
                                                    2025-01-28
 T1004
                    B1504
 T1005
                    B1505
                                                    NULL
 T1006
                    B1506
                                 6
                                      2025-01-14
                                                    2025-01-24
                                      2025-01-11
2025-01-17
 T1007
                    B1507
                                                    2025-01-21
 T1008
                    B1508
                                 8
                                                    NULL
                                      2025-01-13
 T1009
                    B1509
                                                    2025-01-23
9 rows in set (0.00 sec)
mysql> SELECT COUNT(*)
    -> FROM Book_Transaction
    -> WHERE ReturnedDate IS NULL;
 COUNT(*) |
         2 |
 row in set (0.00 sec)
```

14. Show the Book Names and the author in sorted order of Book Name.

MB_ID	Title	Author	ISBN	Category	B_Count	Available_Book	Publisher
1	DBMS	Raghu Ramakrishnan	9780071232516	Database	50	23	Wiley
2	Computer Networking: A Top-Down Approach	James F. Kurose	9780134734804	Networking	20	13	Pearson
3	Introduction to Algorithms	Thomas H. Cormen	9780262033848	Algorithms	30	20	MIT Press
4	Engineering Mechanics: Dynamics	J.L. Meriam	9781119472020	Engineering	10	5	Wiley
5	Thermodynamics: An Engineering Approach	Yunus Çengel	9780073383174	Engineering	23	15	McGraw-Hil
6	Control Systems Engineering	Norman S. Nise	9781119471207	Engineering	32	30	Wiley
7	Structural Analysis	Russell C. Hibbeler	9780134610672	Engineering	78	45	Pearson
8	Fluid Mechanics	Frank M. White	9780077472360	Engineering	123	100	McGraw-Hil
9	Electrical Engineering: Principles & Applications	Allan R. Hambley	9780133961600	Engineering	13	5	McGraw-Hi
10	Materials Science and Engineering: An Introduction	William D. Callister	9781119471153	Engineering	19	10	Wiley

mysql> SELECT Title, Author -> FROM Book_Master -> ORDER BY Title;		
Title	Author	<u>.</u>
Computer Networking: A Top-Down Approach	James F. Kurose	İ
Control Systems Engineering DBMS	Norman S. Nise Raghu Ramakrishnan	!
Blectrical Engineering: Principles & Applications	Allan R. Hambley	l
Engineering Mechanics: Dynamics	J.L. Meriam	i
Fluid Mechanics	Frank M. White	İ
Introduction to Algorithms	Thomas H. Cormen	1
Materials Science and Engineering: An Introduction	William D. Callister	
Structural Analysis	Russell C. Hibbeler	
Thermodynamics: An Engineering Approach	Yunus Çengel	Γ

15. List the names of the books whose available copies are atleast 10.

MB_ID	Title	Author	ISBN	Category	B_Count	Available_Book	Publisher
1	DBMS	Raghu Ramakrishnan	9780071232516	Database	50	23	Wiley
	Computer Networking: A Top-Down Approach	James F. Kurose	9780134734804	Networking	20	13	Pearson
3	Introduction to Algorithms	Thomas H. Cormen	9780262033848	Algorithms	30	20	MIT Press
4	Engineering Mechanics: Dynamics	J.L. Meriam	9781119472020	Engineering	10	5	Wiley
5	Thermodynamics: An Engineering Approach	Yunus Çengel	9780073383174	Engineering	23	15	McGraw-Hil
6	Control Systems Engineering	Norman S. Nise	9781119471207	Engineering	32	30	Wiley
	Structural Analysis	Russell C. Hibbeler	9780134610672	Engineering	78	45	Pearson
8	Fluid Mechanics	Frank M. White	9780077472360	Engineering	123	100	McGraw-Hi
9	Electrical Engineering: Principles & Applications	Allan R. Hambley	9780133961600	Engineering	13	5	McGraw-Hi
10	Materials Science and Engineering: An Introduction	William D. Callister	9781119471153	Engineering	19	10	Wiley

16. List the titles which are either written by "Sam Newman" or listed under "Cloud" domain.

B_ID	Title	Author	ISBN	Category	B_Count	Available_Book	Publisher
1	DBMS	Raghu Ramakrishnan	9780071232516	Database	50	23	Wiley
2	Computer Networking: A Top-Down Approach	James F. Kurose	9780134734804	Networking	20	13	Pearson
3	Introduction to Algorithms	Thomas H. Cormen	9780262033848	Algorithms	30	20	MIT Press
4	Engineering Mechanics: Dynamics	J.L. Meriam	9781119472020	Engineering	10	5	Wiley
5	Thermodynamics: An Engineering Approach	Yunus Çengel	9780073383174	Engineering	23	15	McGraw-Hil
6	Control Systems Engineering	Norman S. Nise	9781119471207	Engineering	32	30	Wiley
7	Structural Analysis	Russell C. Hibbeler	9780134610672	Engineering	78	45	Pearson
8	Fluid Mechanics	Frank M. White	9780077472360	Engineering	123	100	McGraw-Hi
9	Electrical Engineering: Principles & Applications	Allan R. Hambley	9780133961600	Engineering	13	5	McGraw-Hi
10	Materials Science and Engineering: An Introduction	William D. Callister	9781119471153	Engineering	19	10	Wiley

```
mysql> SELECT Title, Author, Category
   -> FROM Book_Master
   -> WHERE Author = 'Russell C. Hibbeler'
         OR Category = 'Engineering';
   ->
 Title
                                                                              Category
                                                       Author
 Engineering Mechanics: Dynamics
                                                       J.L. Meriam
                                                                               Engineering
 Thermodynamics: An Engineering Approach
                                                                               Engineering
                                                       Yunus Çengel
 Control Systems Engineering
                                                       Norman S. Nise
                                                                               Engineering
 Structural Analysis
                                                       Russell C. Hibbeler
                                                                               Engineering
 Fluid Mechanics
                                                       Frank M. White
                                                                               Engineering
 Electrical Engineering: Principles & Applications
                                                                               Engineering
                                                       Allan R. Hambley
 Materials Science and Engineering: An Introduction
                                                       William D. Callister
                                                                               Engineering
 rows in set (0.00 sec)
```

17. List the books names which are written by "Peter Galvin" and listed under the domain "Operating System".

MB_ID	Title	Author	ISBN	Category	B_Count	Available_Book	Publisher
1	DBMS	Raghu Ramakrishnan	9780071232516	Database	50	23	Wiley
2	Computer Networking: A Top-Down Approach	James F. Kurose	9780134734804	Networking	20	13	Pearson
3	Introduction to Algorithms	Thomas H. Cormen	9780262033848	Algorithms	30	20	MIT Press
4	Engineering Mechanics: Dynamics	J.L. Meriam	9781119472020	Engineering	10	5	Wiley
5	Thermodynamics: An Engineering Approach	Yunus Çengel	9780073383174	Engineering	23	15	McGraw-Hil
6	Control Systems Engineering	Norman'S. Nise	9781119471207	Engineering	32	30	Wiley
7	Structural Analysis	Russell C. Hibbeler	9780134610672	Engineering	78	45	Pearson
8	Fluid Mechanics	Frank M. White	9780077472360	Engineering	123	100	McGraw-Hil
9	Electrical Engineering: Principles & Applications	Allan R. Hambley	9780133961600	Engineering	13	5	McGraw-Hil
10	Materials Science and Engineering: An Introduction	William D. Callister	9781119471153	Engineering	19	10	Wiley

18. How many books of 'Introduction to Python Programming' written by 'Rossum' are available in the library as of now? Also find out total number of books of the same tittle purchased by the library. (Single Query)

B_ID	Title	Author	ISBN	Category	B_Count	Available_Book	Publisher
1	DBMS	Raghu Ramakrishnan	9780071232516	Database	50	23	Wiley
2	Computer Networking: A Top-Down Approach	James F. Kurose	9780134734804	Networking	20	13	Pearson
3	Introduction to Algorithms	Thomas H. Cormen	9780262033848	Algorithms	30	20	MIT Press
4	Engineering Mechanics: Dynamics	J.L. Meriam	9781119472020	Engineering	10	5	Wiley
5	Thermodynamics: An Engineering Approach	Yunus Çengel	9780073383174	Engineering	23	15	McGraw-Hi
6	Control Systems Engineering	Norman S. Nise	9781119471207	Engineering	32	30	Wiley
	Structural Analysis	Russell C. Hibbeler	9780134610672	Engineering	78	45	Pearson
8	Fluid Mechanics	Frank M. White	9780077472360	Engineering	123	100	McGraw-Hi
9	Electrical Engineering: Principles & Applications	Allan R. Hambley	9780133961600	Engineering	13	5	McGraw-Hi
10	Materials Science and Engineering: An Introduction	William D. Callister	9781119471153	Engineering	19	10	Wiley

19. Change the email_id of the student S222 to Pravin.Mehta@gmail.com.

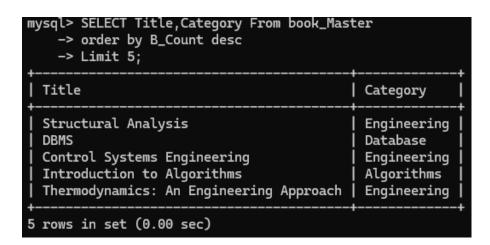
```
Database changed
mysql> select * from student;
                         | Email
 S_ID
        | Name
                                                       Mobile_No
                                                                   | DOB
                                                       9876543210
  B1500
          Aarav Sharma
                           aarav.sharma@gmail.com
                                                                     2000-01-15
                                                       9123456789
  B1501
          Vivaan Patel
                           vivaan.patel@gmail.com
                                                                     1999-02-20
 B1503
                                                                     2002-04-25
          Vihaan Gupta
                           vihaan.gupta@gmail.com
                                                       9871234567
                                                       9988776655
  B1504
          Arjun Rao
                           arjun.rao@gmail.com
                                                                     1998-05-30
  B1505
          Sai Kumar
                                                       9876543210
                                                                     2000-06-15
                           sai.kumar@gmail.com
  B1506
          Reyansh Singh
                                                       9123456789
                                                                     2003-07-20
                           reyansh.singh@gmail.com
  B1507
          Krishna Iyer
                           krishna.iyer@gmail.com
                                                       9988776655
                                                                     1997-08-05
                                                       9871234567
  B1508
                           rohan.mehta@gmail.com
                                                                     2001-09-12
          Rohan Mehta
                           anaya.joshi@gmail.com
  B1509
          Anaya Joshi
                                                       9123456789
                                                                     2002-10-30
 rows in set (0.00 sec)
mysql> Update Student
    -> Set Email="Vivaan@gmail.com"
    -> Where S_ID="B1501"
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0
mysql> select * from student;
                                                                   I DOB
 S ID | Name
                          | Email
                                                      | Mobile_No
 B1500
          Aarav Sharma
                           aarav.sharma@gmail.com
                                                       9876543210
                                                                     2000-01-15
                                                                     1999-02-20
 B1501
          Vivaan Patel
                           Vivaan@gmail.com
                                                       9123456789
  B1503
                           vihaan.gupta@gmail.com
                                                       9871234567
                                                                     2002-04-25
          Vihaan Gupta
  B1504
          Arjun Rao
                                                                     1998-05-30
                           arjun.rao@gmail.com
                                                       9988776655
                           sai.kumar@gmail.com
reyansh.singh@gmail.com
  B1505
          Sai Kumar
                                                       9876543210
                                                                     2000-06-15
  B1506
          Reyansh Singh
                                                       9123456789
                                                                     2003-07-20
  B1507
          Krishna Iyer
                           krishna.iyer@gmail.com
                                                       9988776655
                                                                     1997-08-05
  B1508
          Rohan Mehta
                           rohan.mehta@gmail.com
                                                       9871234567
                                                                     2001-09-12
                           anaya.joshi@gmail.com
                                                       9123456789
                                                                     2002-10-30
          Anaya Joshi
 rows in set (0.00 sec)
```

20. Remove the Books having title "Lotus Basics";

B_ID	Title	Author	ISBN	Category	B_Count	Available_Book	Publisher
1	DBMS	Raghu Ramakrishnan	9780071232516	Database	50	23	 Wiley
2	Computer Networking: A Top-Down Approach	James F. Kurose	9780134734804	Networking	20	13	Pearson
3	Introduction to Algorithms	Thomas H. Cormen	9780262033848	Algorithms	30	20	MIT Press
4	Engineering Mechanics: Dynamics	J.L. Meriam	9781119472020	Engineering	10	5	Wiley
5	Thermodynamics: An Engineering Approach	Yunus Cengel	9780073383174	Engineering	23	15	McGraw-Hill
6	Control Systems Engineering	Norman'S. Nise	9781119471207	Engineering	32	30	Wiley
7	Structural Analysis	Russell C. Hibbeler	9780134610672	Engineering	78	45	Pearson
8	Fluid Mechanics	Frank M. White	9780077472360	Engineering	123	100	McGraw-Hill
9	Electrical Engineering: Principles & Applications	Allan R. Hambley	9780133961600	Engineering	13	5	McGraw-Hill
10	Materials Science and Engineering: An Introduction	William D. Callister	9781119471153	Engineering	19	10	Wiley
sql> D -> W ery OK	in set (0.00 sec) ELETE FROM Book_Master HERE Title = 'Fluid Mechanics'; , 1 row affected (0.00 sec) elect * from book Master:						
sql> Di -> Wi ery OK sql> s	ELETE FROM Book_Master HERE Title = 'Fluid Mechanics'; , 1 row affected (0.00 sec) elect * from book_Master;	l Author	t TSRN	Category	l B Count	- Available Rook	l Duhlisher
sql> Di -> Wi ery OK sql> s	ELETE FROM Book_Master HERE Title = 'Fluid Mechanics'; , 1 row affected (0.00 sec)	Author	ISBN	 Category	B_Count	Available_Book	Publisher
sql> Di -> Wi ery OK sql> s	ELETE FROM Book_Master HERE Title = 'Fluid Mechanics'; , 1 row affected (0.00 sec) elect * from book_Master; Title DBMS	 Raghu Ramakrishnan	9780071232516	Database	- 50	23	 Wiley
sql> DI -> Wi ery OK sql> si MB_ID 1 2	ELETE FROM Book_Master HERE Title = 'Fluid Mechanics'; , 1 row affected (0.00 sec) elect * from book_Master; Title	 Raghu Ramakrishnan James F. Kurose	9780071232516 9780134734804	 Database Networking	50 20	23 13	 Wiley Pearson
sql> DI -> WI ery OK sql> si MB_ID 1	ELETE FROM Book_Master HERE Title = 'Fluid Mechanics'; , 1 row affected (0.00 sec) elect * from book_Master; Title	 Raghu Ramakrishnan	9780071232516 9780134734804 9780262033848	Database Networking Algorithms	- 50	23 13 20	 Wiley Pearson MIT Press
sql> DI -> Wi ery OK sql> si MB_ID 1 2	ELETE FROM Book_Master HERE Title = 'Fluid Mechanics'; , 1 row affected (0.00 sec) elect * from book_Master; Title DBMS Computer Networking: A Top-Down Approach Introduction to Algorithms Engineering Mechanics: Dynamics	Raghu Ramakrishnan James F. Kurose Thomas H. Cormen J.L. Meriam	9780071232516 9780134734804 9780262033848 9781119472020	Database Networking Algorithms Engineering	50 20 30 1 10	23 13 20 5	Wiley Wiley Pearson MIT Press Wiley
sql> Di -> Wi ery OK sql> sq 	ELETE FROM Book_Master HERE Title = 'Fluid Mechanics'; , 1 row affected (0.00 sec) elect * from book_Master; ! Title ! DBMS Computer Networking: A Top-Down Approach Introduction to Algorithms Engineering Mechanics: Dynamics Thermodynamics: A Engineering Approach Introdynamics: A Engineering Approach Internodynamics: A Engineering Approach Thermodynamics: A Engineering Approach Thermod	Raghu Ramakrishnan James F. Kurose Thomas H. Cormen J.L. Meriam Yunus Çengel	9780071232516 9780134734804 9780262033848 9781119472020 9780073383174	Database Networking Algorithms Engineering Engineering	50 20 30 10	23 13 20 5	Wiley Pearson MIT Press Wiley McGraw-Hill
sql> DI -> Wi ery OK sql> si MB_ID 1 2 3 4 5 6	ELETE FROM Book_Master HERE Title = 'Fluid Mechanics'; , 1 row affected (0.00 sec) elect * from book_Master; Title	Raghu Ramakrishnan James F. Kurose Thomas H. Cormen J.L. Meriam Yunus Çengel Norman S. Nise	9780071232516 9780134734804 9780262033848 9781119472020 9780073383174 9781119471207	Database Networking Algorithms Engineering Engineering Engineering	50 20 30 10 23	23 13 20 5 15	Wiley Pearson MIT Press Wiley McGraw-Hill Wiley
sql> DI -> Wi ery OK sql> si 	ELETE FROM Book_Master HERE Title = 'Fluid Mechanics'; , 1 row affected (0.00 sec) elect * from book_Master; Title	Raghu Ramakrishnan James F. Kurose Thomas H. Cormen J.L. Meriam Yunus Çengel Norman S. Nise Russell C. Hibbeler	9780071232516 9780134734804 9780262033848 9781119472020 9780073383174 9781119471207 9780134610672	Database Networking Algorithms Engineering Engineering Engineering	50 20 30 10 23 32	23 13 20 5	Wiley Pearson MIT Press Wiley McGraw-Hill Wiley Pearson
sql> DI -> WH ery OK sql> s MB_ID 1 2 3 4 5 6	ELETE FROM Book_Master HERE Title = 'Fluid Mechanics'; , 1 row affected (0.00 sec) elect * from book_Master; Title	Raghu Ramakrishnan James F. Kurose Thomas H. Cormen J.L. Meriam Yunus Çengel Norman S. Nise Russell C. Hibbeler Allan R. Hambley	9788071232516 9780134734804 9780134734804 9780262033848 9781119472020 9780073383174 9781119471207 9780134610672 9780134610672	Database Networking Algorithms Engineering Engineering Engineering Engineering Engineering	50 20 30 10 23	23 13 20 5 15 30 45	Wiley Pearson MIT Press Wiley McGraw-Hill Wiley Pearson

21. Display top 10 book name and their Domain in terms of Book count.

1B_ID	Title	Author	ISBN	Category	B_Count	Available_Book	Publisher
1	DBMS	Raghu Ramakrishnan	9780071232516	Database	50	23	 Wiley
2	Computer Networking: A Top-Down Approach	James F. Kurose	9780134734804	Networking	20	13	Pearson
3	Introduction to Algorithms	Thomas H. Cormen	9780262033848	Algorithms	30	20	MIT Press
4	Engineering Mechanics: Dynamics	J.L. Meriam	9781119472020	Engineering	10	5	Wiley
5	Thermodynamics: An Engineering Approach	Yunus Çengel	9780073383174	Engineering	23	15	McGraw-Hil
6	Control Systems Engineering	Norman S. Nise	9781119471207	Engineering	32	30	Wiley
7	Structural Analysis	Russell C. Hibbeler	9780134610672	Engineering	78	45	Pearson
9	Electrical Engineering: Principles & Applications	Allan R. Hambley	9780133961600	Engineering	13	5	McGraw-Hil
10	Materials Science and Engineering: An Introduction	William D. Callister	9781119471153	Engineering	19	10	Wiley



22. Create a table fine_paid with sid,amount as fields.

Add 2 records. Display them.

Delete sid column. Display records.

And finally delete the entire table along with records. Check whether it is deleted or Not.

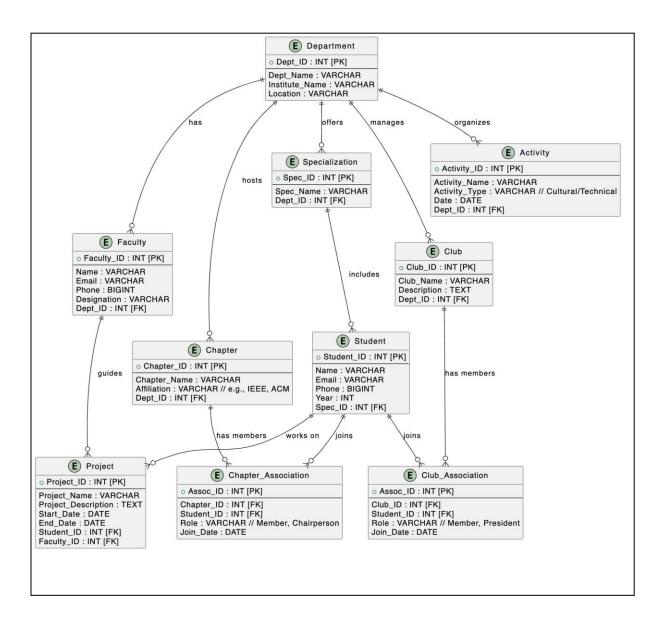
```
mysql> CREATE TABLE fine_paid (
    -> sid VARCHAR(10),
-> amount DECIMAL(1
             amount DECIMAL(10, 2)
     -> );
Query OK, 0 rows affected (0.02 sec)
mysql> Select * From fine_paid;
Empty set (0.00 sec)
mysql> INSERT INTO fine_paid (sid, amount) VALUES -> ('B1500', 50.00),
-> ('B1501', 100.00);
Query OK, 2 rows affected (0.00 sec)
Records: 2 Duplicates: 0 Warnings: 0
mysql> SELECT * FROM fine_paid;
          | amount |
 B1500
             50.00
B1501
            100.00
2 rows in set (0.00 sec)
mysql> ALTER TABLE fine_paid DROP COLUMN sid;
Query OK, 0 rows affected (0.01 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> SELECT * FROM fine_paid;
amount
   50.00
 100.00
2 rows in set (0.00 sec)
mysql> DROP TABLE fine_paid;
Query OK, 0 rows affected (0.01 sec)
```

```
mysql> SHOW TABLES;
+-----+
| Tables_in_lib_manag |
+-----+
| book |
| book_master |
| book_transaction |
| student |
+-----+
4 rows in set (0.00 sec)
```

23. Create fine_paid table with sid ,amount, status as fields.

Add 2 records. Display them. Remove all records permanently (No undoing).

```
mysql> CREATE TABLE fine_paid (
           sid VARCHAR(10),
           amount DECIMAL(10, 2),
           status VARCHAR(20)
    ->
    -> );
Query OK, 0 rows affected (0.01 sec)
mysql> INSERT INTO fine_paid (sid, amount, status) VALUES
   -> ('B1500', 50.00, 'Paid'),
-> ('B1501', 100.00, 'Unpaid');
Query OK, 2 rows affected (0.01 sec)
Records: 2 Duplicates: 0 Warnings: 0
mysql> SELECT * FROM fine_paid;
 sid
        amount
                  status
 B1500
           50.00
                    Paid
 B1501
          100.00
                    Unpaid
2 rows in set (0.00 sec)
mysql> TRUNCATE TABLE fine_paid;
Query OK, 0 rows affected (0.03 sec)
mysql> DESCRIBE fine_paid;
 Field
          Type
                          | Null | Key |
                                          Default
                                                     Extra
 sid
           varchar(10)
                            YES
                                          NULL
 amount
           decimal(10,2)
                            YES
                                          NULL
 status
           varchar(20)
                            YES
                                          NULL
3 rows in set (0.00 sec)
mysql>
```



Conclusion:

The implementation of LibraryDb using MySQL provides hands-on experience with DDL and DML commands, essential for database management.

This assignment covers crucial operations such as :-

- 1. Creating tables with primary and foreign keys
- 2. Inserting and modifying data
- 3. Retrieving records using queries
- 4. Updating values
- 5. Handling deletions

Through structured queries, students learn to efficiently manage book records, student details, transactions, and fines. Additionally, the assignment emphasizes **data integrity**, **relational constraints**, and **structured query language (SQL)** concepts.