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Roll No: 24

Enrollment No: ADT23SOCB1544

Department of Information Technology

DPBL Assignment No: 4

Title:
Implement Nested queries DDL,DML

Problem statement :
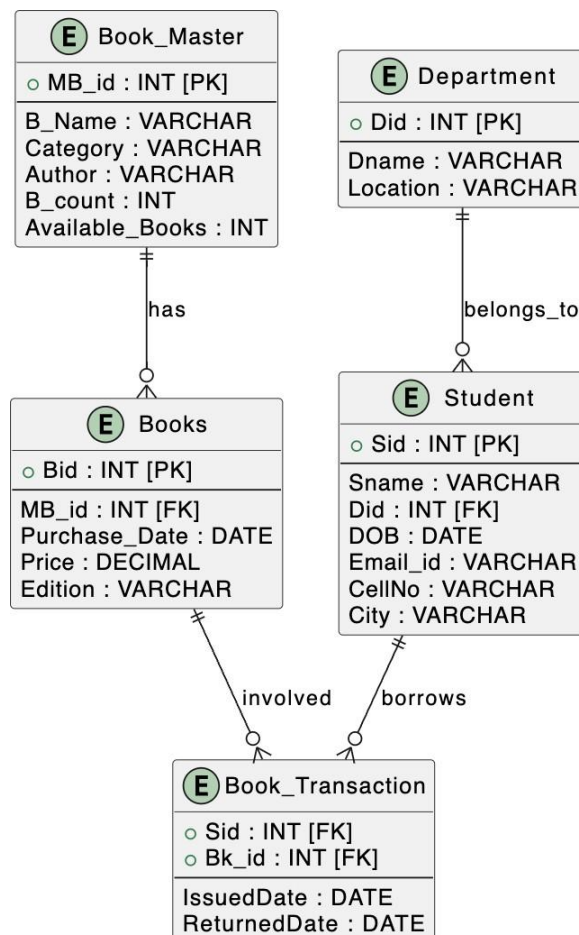Following tables are created in the previous assignment.
Book_Master (MB_id, B_Name, Category, Author, B_count, Available_Books)
Books (Bid, MB_id, Purchase_Date, Price, Edition)
Book_Transaction(Sid, Bk_id, IssuedDate, ReturnedDate)
Student(Sid, Sname, Did, DOB, Email_id, CellNo, City)
Department(Did, Dname, Location)

Queries:

1. **Add a book in transaction which is not present in Books . What's your observation?**

```
mysql> Select * from book_transaction;
+----------------+--------+-------+------------+--------------+
| Transaction_ID | Sid    | Bk_ID | IssuedDate | ReturnedDate |
+----------------+--------+-------+------------+--------------+
| T1001          | B1500  | BO01  | 2025-01-10 | 2025-01-20   |
| T1002          | B1501  | BO02  | 2025-01-15 | 2025-01-25   |
| T1003          | B1503  | BO03  | 2025-01-12 | 2025-01-22   |
| T1004          | B1504  | BO04  | 2025-01-18 | 2025-01-28   |
| T1005          | B1505  | BO05  | 2025-01-20 | NULL         |
| T1006          | B1506  | BO07  | 2025-01-14 | 2025-01-24   |
| T1007          | B1507  | BO07  | 2025-01-11 | 2025-01-21   |
| T1009          | B1509  | BO10  | 2025-01-13 | 2025-01-23   |
| T1010          | B1503  | BO03  | 2025-01-22 | NULL         |
| T1011          | B1503  | BO06  | 2025-02-01 | 2025-02-05   |
| T1012          | B1503  | BO10  | 2025-02-03 | NULL         |
| T1013          | B1500  | BO02  | 2025-02-04 | 2025-02-07   |
| T1014          | B1509  | BO05  | 2025-02-04 | 2025-02-11   |
+----------------+--------+-------+------------+--------------+
13 rows in set (0.00 sec)

mysql> Select * from book;
+---------+--------+-------+---------------+-------------+-------+
| Book_ID | Copies | Price | Purchase_Date | Edition     | MB_ID |
+---------+--------+-------+---------------+-------------+-------+
| BO01    | 50     | 1550  | 2023-01-10    | 1st Edition | 1     |
| BO02    | 20     | 1250  | 2023-01-15    | 2nd Edition | 2     |
| BO03    | 30     | 2200  | 2023-01-20    | 3rd Edition | 3     |
| BO04    | 10     | 1900  | 2023-01-25    | 1st Edition | 4     |
| BO05    | 23     | 1650  | 2023-02-01    | 2nd Edition | 5     |
| BO06    | 32     | 1750  | 2023-02-05    | 1st Edition | 6     |
| BO07    | 78     | 2100  | 2023-02-10    | 4th Edition | 7     |
| BO09    | 13     | 1800  | 2023-02-20    | 2nd Edition | 9     |
| BO10    | 19     | 1600  | 2023-02-25    | 3rd Edition | 10    |
+---------+--------+-------+---------------+-------------+-------+
9 rows in set (0.00 sec)

mysql> Insert Into book_Transaction
    -> Value
    -> ('T1015','B1509','BO08','2025-02-11',NULL);
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails ('lib_manag'.'book_transaction', CONSTRAINT 'book_transaction_book' FOREIGN KEY ('Bk_ID') REFERENCES 'book' ('Book_ID'))
mysql>
```

Since 'BO08' is not present in the book table, the insert statement's attempt to add a record for transaction 'T1015' involving student 'B1509' and book 'BO08' may violate any applicable foreign key constraints.

2. **Make sure MB_id field in Books will have only those values which are present in MB_id in Book_Master;**

```
mysql> Describe book;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| Book_ID       | varchar(10) | NO   | PRI | NULL    |       |
| Copies        | int         | YES  |     | NULL    |       |
| Price         | bigint      | YES  |     | NULL    |       |
| Purchase_Date | date        | YES  |     | NULL    |       |
| Edition       | varchar(20) | YES  |     | NULL    |       |
| MB_ID         | int         | YES  | MUL | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)

mysql> Describe book_master;
+----------------+--------------+------+-----+---------+-------+
| Field          | Type         | Null | Key | Default | Extra |
+----------------+--------------+------+-----+---------+-------+
| MB_ID          | int          | NO   | PRI | NULL    |       |
| Title          | varchar(50)  | YES  |     | NULL    |       |
| Author         | varchar(100) | YES  |     | NULL    |       |
| ISBN           | varchar(50)  | YES  |     | NULL    |       |
| Category       | varchar(50)  | YES  |     | NULL    |       |
| B_Count        | int          | YES  |     | NULL    |       |
| Available_Book | int          | YES  |     | NULL    |       |
| Publisher      | varchar(50)  | YES  |     | NULL    |       |
+----------------+--------------+------+-----+---------+-------+
8 rows in set (0.00 sec)
```

```
+-------+------------------------------------------+---------------------+---------------+----------------------+---------+---------------+---------------+
| MB_ID | Title                                    | Author              | ISBN          | Category             | B_Count | Available_Book | Publisher     |
+-------+------------------------------------------+---------------------+---------------+----------------------+---------+---------------+---------------+
| 1     | Artificial Intelligence: A Modern Approach | Stuart Russell      | 9780134610994 | Computer Science     | 30      | 20            | Pearson       |
| 2     | Introduction to Machine Learning         | Stuart Russell      | 9780262041232 | Computer Science     | 25      | 15            | MIT Press     |
| 3     | Database System Concepts                 | Abraham Silberschatz | 9780078022159 | Computer Science     | 40      | 30            | McGraw-Hill   |
| 4     | Operating System Concepts                | Abraham Silberschatz | 9781119800368 | Computer Science     | 35      | 25            | Wiley         |
| 5     | Computer Networks                        | Andrew S. Tanenbaum | 9780132126953 | Computer Science     | 28      | 18            | Prentice Hall |
| 6     | Modern Operating Systems                 | Andrew S. Tanenbaum | 9780133591623 | Computer Science     | 30      | 22            | Pearson       |
| 7     | Power Electronics                        | M.H. Rashid         | 9789353066211 | Electrical Engineering | 22    | 18            | Pearson       |
| 8     | Engineering Thermodynamics               | P.K. Nag            | 9781259029565 | Mechanical Engineering | 30    | 20            | McGraw-Hill   |
| 9     | Structural Analysis                      | R.C. Hibbeler       | 9780134610980 | Civil Engineering    | 25      | 18            | Pearson       |
| 10    | Electronic Devices and Circuit Theory    | Robert L. Boylestad | 9780135026491 | Electronics Engineering | 28   | 22            | Pearson       |
| 11    | Python Programming                       | John Doe            | 9781234567890 | Computer Science     | 40      | 30            | Pearson       |
| 12    | Python Programming                       | Jane Smith          | 9780987654321 | Computer Science     | 35      | 25            | McGraw-Hill   |
| 13    | Python Programming                       | Mike Johnson        | 9781122334455 | Computer Science     | 50      | 40            | Wiley         |
+-------+------------------------------------------+---------------------+---------------+----------------------+---------+---------------+---------------+
13 rows in set (0.00 sec)

mysql> Select * from book;
+---------+--------+-------+---------------+-------------+-------+
| Book_ID | Copies | Price | Purchase_Date | Edition     | MB_ID |
+---------+--------+-------+---------------+-------------+-------+
| BO01    | 50     | 1550  | 2023-01-10    | 1st Edition | 1     |
| BO02    | 20     | 1250  | 2023-01-15    | 2nd Edition | 2     |
| BO03    | 30     | 2200  | 2023-01-20    | 3rd Edition | 3     |
| BO04    | 10     | 1900  | 2023-01-25    | 1st Edition | 4     |
| BO05    | 23     | 1650  | 2023-02-01    | 2nd Edition | 5     |
| BO06    | 35     | 1850  | 2023-02-10    | 1st Edition | 1     |
| BO07    | 25     | 1600  | 2023-02-15    | 2nd Edition | 1     |
| BO08    | 40     | 2000  | 2023-02-20    | 3rd Edition | 2     |
| BO09    | 22     | 1700  | 2023-02-25    | 1st Edition | 2     |
| BO10    | 15     | 2100  | 2023-02-28    | 2nd Edition | 3     |
+---------+--------+-------+---------------+-------------+-------+
10 rows in set (0.00 sec)
```

3. Display all mechanical student names

```
mysql> Select * from student;
+-------+---------------+---------------------------+------------+------------+--------+
| S_ID  | Name          | Email                     | Mobile_No  | DOB        | Dep_ID |
+-------+---------------+---------------------------+------------+------------+--------+
| B1500 | Aarav Sharma  | aarav.sharma@gmail.com    | 9876543210 | 2000-01-15 | D001   |
| B1501 | Vivaan Patel  | Vivaan@gmail.com          | 9123456789 | 1999-02-20 | D003   |
| B1503 | Vihaan Gupta  | vihaan.gupta@gmail.com    | 9871234567 | 2002-04-25 | D002   |
| B1504 | Arjun Rao     | arjun.rao@gmail.com       | 9988776655 | 1998-05-30 | D001   |
| B1505 | Sai Kumar     | sai.kumar@gmail.com       | 9876543210 | 2000-06-15 | D005   |
| B1506 | Reyansh Singh | reyansh.singh@gmail.com   | 9123456789 | 2003-07-20 | D004   |
| B1507 | Krishna Iyer  | krishna.iyer@gmail.com    | 9988776655 | 1997-08-05 | D003   |
| B1508 | Rohan Mehta   | rohan.mehta@gmail.com     | 9871234567 | 2001-09-12 | D002   |
| B1509 | Anaya Joshi   | anaya.joshi@gmail.com     | 9123456789 | 2002-10-30 | D001   |
+-------+---------------+---------------------------+------------+------------+--------+
9 rows in set (0.00 sec)

mysql> Select * from department;
+--------+------------------------+-----------+-----------+
| Dep_ID | Department_Name        | Location  | Budget_Cr |
+--------+------------------------+-----------+-----------+
| D001   | Computer Science       | 6th Floor |     20.00 |
| D002   | Electrical Engineering | 2nd Floor |     10.00 |
| D003   | Mechanical Engineering | 2nd Floor |      5.00 |
| D004   | Civil Engineering      | 3rd Floor |      3.00 |
| D005   | Electronics Engineering| 7th Floor |      2.00 |
+--------+------------------------+-----------+-----------+
5 rows in set (0.00 sec)

mysql> Select Name from Student Where Dep_ID=
    -> (Select Dep_ID From Department
    -> Where Department_Name="Mechanical ENgineering");
+--------------+
| Name         |
+--------------+
| Vivaan Patel |
| Krishna Iyer |
+--------------+
2 rows in set (0.00 sec)
```

4. Which is the costliest Book in the library.

```
mysql> Select * from book;
+---------+--------+-------+---------------+-------------+-------+
| Book_ID | Copies | Price | Purchase_Date | Edition     | MB_ID |
+---------+--------+-------+---------------+-------------+-------+
| BO01    |     50 | 1550  | 2023-01-10    | 1st Edition |     1 |
| BO02    |     20 | 1250  | 2023-01-15    | 2nd Edition |     2 |
| BO03    |     30 | 2200  | 2023-01-20    | 3rd Edition |     3 |
| BO04    |     10 | 1900  | 2023-01-25    | 1st Edition |     4 |
| BO05    |     23 | 1650  | 2023-02-01    | 2nd Edition |     5 |
| BO06    |     35 | 1850  | 2023-02-10    | 1st Edition |     1 |
| BO07    |     25 | 1600  | 2023-02-15    | 2nd Edition |     3 |
| BO08    |     40 | 2000  | 2023-02-20    | 3rd Edition |     2 |
| BO09    |     22 | 1700  | 2023-02-25    | 1st Edition |     2 |
| BO10    |     15 | 2100  | 2023-02-28    | 2nd Edition |     5 |
+---------+--------+-------+---------------+-------------+-------+
10 rows in set (0.00 sec)

mysql> Select * from book_Master;
+-------+------------------------------------+--------------------+---------------+------------------------+---------+---------------+--------------+
| MB_ID | Title                              | Author             | ISBN          | Category               | B_Count | Available_Book | Publisher     |
+-------+------------------------------------+--------------------+---------------+------------------------+---------+---------------+--------------+
|     1 | Artificial Intelligence: A Modern Approach | Stuart Russell | 9780134610994 | Computer Science       |      30 |            20 | Pearson      |
|     2 | Introduction to Machine Learning   | Stuart Russell     | 9780262041232 | Computer Science       |      25 |            15 | MIT Press    |
|     3 | Database System Concepts           | Abraham Silberschatz | 9780078022159 | Computer Science     |      40 |            30 | McGraw-Hill  |
|     4 | Operating System Concepts          | Abraham Silberschatz | 9781119800368 | Computer Science     |      35 |            25 | Wiley        |
|     5 | Computer Networks                  | Andrew S. Tanenbaum | 9780132126953 | Computer Science      |      28 |            18 | Prentice Hall |
|     6 | Modern Operating Systems           | Andrew S. Tanenbaum | 9780133591623 | Computer Science      |      30 |            22 | Pearson      |
|     7 | Power Electronics                  | M.H. Rashid        | 9789353066211 | Electrical Engineering |      22 |            18 | Pearson      |
|     8 | Engineering Thermodynamics         | P.K. Nag           | 9781259029565 | Mechanical Engineering |      30 |            20 | McGraw-Hill  |
|     9 | Structural Analysis                | R.C. Hibbeler      | 9780134610980 | Civil Engineering      |      25 |            18 | Pearson      |
|    10 | Electronic Devices and Circuit Theory | Robert L. Boylestad | 9780135026491 | Electronics Engineering |    28 |            22 | Pearson      |
|    11 | Python Programming                 | John Doe           | 9781234567890 | Computer Science       |      40 |            30 | Pearson      |
|    12 | Python Programming                 | Jane Smith         | 9780987654321 | Computer Science       |      35 |            25 | McGraw-Hill  |
|    13 | Python Programming                 | Mike Johnson       | 9781122334455 | Computer Science       |      50 |            40 | Wiley        |
+-------+------------------------------------+--------------------+---------------+------------------------+---------+---------------+--------------+
13 rows in set (0.00 sec)

mysql> Select Title from Book_master Where MB_ID=
    -> (Select MB_ID from book where Price=
    -> (Select Max(Price) from book));
+-------------------------+
| Title                   |
+-------------------------+
| Database System Concepts |
+-------------------------+
1 row in set (0.00 sec)
```

5. Display the books information costlier than the price of the ' Operating System Concepts' book.

```
mysql> select * from book_master;
+-------+----------------------------------------+---------------------+---------------+------------------------+---------+----------------+--------------+
| MB_ID | Title                                  | Author              | ISBN          | Category               | B_Count | Available_Book | Publisher    |
+-------+----------------------------------------+---------------------+---------------+------------------------+---------+----------------+--------------+
|     1 | Artificial Intelligence: A Modern Approach | Stuart Russell   | 9780134610994 | Computer Science       |      30 |             20 | Pearson      |
|     2 | Introduction to Machine Learning       | Stuart Russell      | 9780262041232 | Computer Science       |      25 |             15 | MIT Press    |
|     3 | Database System Concepts               | Abraham Silberschatz| 9780078022159 | Computer Science       |      40 |             30 | McGraw-Hill  |
|     4 | Operating System Concepts              | Abraham Silberschatz| 9781119800368 | Computer Science       |      35 |             25 | Wiley        |
|     5 | Computer Networks                      | Andrew S. Tanenbaum | 9780132126953 | Computer Science       |      28 |             18 | Prentice Hall|
|     6 | Modern Operating Systems               | Andrew S. Tanenbaum | 9780133591623 | Computer Science       |      30 |             22 | Pearson      |
|     7 | Power Electronics                      | M.H. Rashid         | 9789353066211 | Electrical Engineering |      22 |             18 | Pearson      |
|     8 | Engineering Thermodynamics             | P.K. Nag            | 9781259029565 | Mechanical Engineering |      30 |             20 | McGraw-Hill  |
|     9 | Structural Analysis                    | R.C. Hibbeler       | 9780134610980 | Civil Engineering      |      25 |             18 | Pearson      |
|    10 | Electronic Devices and Circuit Theory  | Robert L. Boylestad | 9780135026491 | Electronics Engineering|      28 |             22 | Pearson      |
|    11 | Python Programming                     | John Doe            | 9781234567890 | Computer Science       |      40 |             30 | Pearson      |
|    12 | Python Programming                     | Jane Smith          | 9780987654321 | Computer Science       |      35 |             25 | McGraw-Hill  |
|    13 | Python Programming                     | Mike Johnson        | 9781122334455 | Computer Science       |      50 |             40 | Wiley        |
+-------+----------------------------------------+---------------------+---------------+------------------------+---------+----------------+--------------+
13 rows in set (0.00 sec)

mysql> select * from book;
+---------+--------+-------+---------------+-------------+-------+
| Book_ID | Copies | Price | Purchase_Date | Edition     | MB_ID |
+---------+--------+-------+---------------+-------------+-------+
| B001    |     50 |  1550 | 2023-01-10    | 1st Edition |     1 |
| B002    |     20 |  1250 | 2023-01-15    | 2nd Edition |     2 |
| B003    |     30 |  2200 | 2023-01-20    | 3rd Edition |     3 |
| B004    |     10 |  1900 | 2023-01-25    | 1st Edition |     4 |
| B005    |     23 |  1650 | 2023-02-01    | 2nd Edition |     5 |
| B006    |     35 |  1850 | 2023-02-10    | 1st Edition |     1 |
| B007    |     25 |  1600 | 2023-02-15    | 2nd Edition |     3 |
| B008    |     40 |  2000 | 2023-02-20    | 3rd Edition |     2 |
| B009    |     22 |  1700 | 2023-02-25    | 1st Edition |     2 |
| B010    |     15 |  2100 | 2023-02-28    | 2nd Edition |     5 |
+---------+--------+-------+---------------+-------------+-------+
10 rows in set (0.00 sec)

mysql> Select Title from book_master where MB_ID IN
    -> (Select MB_ID from book where Price>
    -> (select Price From book Where MB_ID=
    -> (Select MB_ID From book_Master Where Title="Operating System Concepts")));
+------------------------------+
| Title                        |
+------------------------------+
| Database System Concepts     |
| Introduction to Machine Learning |
| Computer Networks            |
+------------------------------+
3 rows in set (0.00 sec)
```

6. List the names of the students who have accessed library book. (without duplicates)

```
mysql> Select * from student;
+------+---------------+--------------------------+------------+------------+--------+
| S_ID | Name          | Email                    | Mobile_No  | DOB        | Dep_ID |
+------+---------------+--------------------------+------------+------------+--------+
| B1500| Aarav Sharma  | aarav.sharma@gmail.com   | 9876543210 | 2000-01-15 | D001   |
| B1501| Vivaan Patel  | Vivaan@gmail.com         | 9123456789 | 1999-02-20 | D003   |
| B1503| Vihaan Gupta  | vihaan.gupta@gmail.com   | 9871234567 | 2002-04-25 | D002   |
| B1504| Arjun Rao     | arjun.rao@gmail.com      | 9988776655 | 1998-05-30 | D001   |
| B1505| Sai Kumar     | sai.kumar@gmail.com      | 9876543210 | 2000-06-15 | D005   |
| B1506| Reyansh Singh | reyansh.singh@gmail.com  | 9123456789 | 2003-07-20 | D004   |
| B1507| Krishna Iyer  | krishna.iyer@gmail.com   | 9988776655 | 1997-08-05 | D003   |
| B1508| Rohan Mehta   | rohan.mehta@gmail.com    | 9871234567 | 2001-09-12 | D002   |
| B1509| Anaya Joshi   | anaya.joshi@gmail.com    | 9123456789 | 2002-10-30 | D001   |
| B1510| Janmesh Raut  | janmesh.raut@gmail.com   | 7414970972 | 2004-06-07 | D001   |
+------+---------------+--------------------------+------------+------------+--------+
10 rows in set (0.00 sec)

mysql> Select * from book_transaction;
+----------------+-------+-------+------------+--------------+
| Transaction_ID | Sid   | Bk_ID | IssuedDate | ReturnedDate |
+----------------+-------+-------+------------+--------------+
| T1001          | B1500 | B001  | 2025-01-10 | 2025-01-20   |
| T1002          | B1501 | B002  | 2025-01-15 | 2025-01-25   |
| T1003          | B1503 | B003  | 2025-01-12 | 2025-01-22   |
| T1004          | B1504 | B004  | 2025-01-18 | 2025-01-28   |
| T1005          | B1505 | B005  | 2025-01-20 | NULL         |
| T1006          | B1506 | B007  | 2025-01-14 | 2025-01-24   |
| T1007          | B1507 | B007  | 2025-01-11 | 2025-01-21   |
| T1009          | B1509 | B010  | 2025-01-13 | 2025-01-23   |
| T1010          | B1503 | B003  | 2025-01-22 | NULL         |
| T1011          | B1503 | B006  | 2025-02-01 | 2025-02-05   |
| T1012          | B1503 | B010  | 2025-02-03 | NULL         |
| T1013          | B1500 | B002  | 2025-02-04 | 2025-02-07   |
| T1014          | B1509 | B005  | 2025-02-04 | 2025-02-11   |
+----------------+-------+-------+------------+--------------+
13 rows in set (0.00 sec)

mysql> Select Name from student Where S_ID IN
    -> (Select SID From book_transaction);
+---------------+
| Name          |
+---------------+
| Aarav Sharma  |
| Vivaan Patel  |
| Vihaan Gupta  |
| Arjun Rao     |
| Sai Kumar     |
| Reyansh Singh |
| Krishna Iyer  |
| Anaya Joshi   |
+---------------+
8 rows in set (0.00 sec)
```

7. List the student Names who have not accessed a single book from Library.

```
mysql> Select * from student;
+-------+---------------+----------------------------+------------+------------+--------+
| S_ID  | Name          | Email                      | Mobile_No  | DOB        | Dep_ID |
+-------+---------------+----------------------------+------------+------------+--------+
| B1500 | Aarav Sharma  | aarav.sharma@gmail.com     | 9876543210 | 2000-01-15 | D001   |
| B1501 | Vivaan Patel  | Vivaan@gmail.com           | 9123456789 | 1999-02-20 | D003   |
| B1503 | Vihaan Gupta  | vihaan.gupta@gmail.com     | 9871234567 | 2002-04-25 | D002   |
| B1504 | Arjun Rao     | arjun.rao@gmail.com        | 9988776655 | 1998-05-30 | D001   |
| B1505 | Sai Kumar     | sai.kumar@gmail.com        | 9876543210 | 2000-06-15 | D005   |
| B1506 | Reyansh Singh | reyansh.singh@gmail.com    | 9123456789 | 2003-07-20 | D004   |
| B1507 | Krishna Iyer  | krishna.iyer@gmail.com     | 9988776655 | 1997-08-05 | D003   |
| B1508 | Rohan Mehta   | rohan.mehta@gmail.com      | 9871234567 | 2001-09-12 | D002   |
| B1509 | Anaya Joshi   | anaya.joshi@gmail.com      | 9123456789 | 2002-10-30 | D001   |
| B1510 | Janmesh Raut  | janmesh.raut@gmail.com     | 7414970972 | 2004-06-07 | D001   |
+-------+---------------+----------------------------+------------+------------+--------+
10 rows in set (0.00 sec)

mysql> Select * from book_transaction;
+----------------+-------+-------+------------+------------+
| Transaction_ID | Sid   | Bk_ID | IssuedDate | ReturnedDate |
+----------------+-------+-------+------------+------------+
| T1001          | B1500 | BO01  | 2025-01-10 | 2025-01-20 |
| T1002          | B1501 | BO02  | 2025-01-15 | 2025-01-25 |
| T1003          | B1503 | BO03  | 2025-01-12 | 2025-01-22 |
| T1004          | B1504 | BO04  | 2025-01-18 | 2025-01-28 |
| T1005          | B1505 | BO05  | 2025-01-20 | NULL       |
| T1006          | B1506 | BO07  | 2025-01-14 | 2025-01-24 |
| T1007          | B1507 | BO07  | 2025-01-11 | 2025-01-21 |
| T1009          | B1509 | BO10  | 2025-01-13 | 2025-01-23 |
| T1010          | B1503 | BO03  | 2025-01-22 | NULL       |
| T1011          | B1503 | BO06  | 2025-02-01 | 2025-02-05 |
| T1012          | B1503 | BO10  | 2025-02-03 | NULL       |
| T1013          | B1500 | BO02  | 2025-02-04 | 2025-02-07 |
| T1014          | B1509 | BO05  | 2025-02-04 | 2025-02-11 |
+----------------+-------+-------+------------+------------+
13 rows in set (0.00 sec)

mysql> Select Name from student Where S_ID NOT IN
    -> (Select SID From book_transaction);
+--------------+
| Name         |
+--------------+
| Rohan Mehta  |
| Janmesh Raut |
+--------------+
```

8. Display the book names which are returned today(13-2-2025).(remove duplication)

```
mysql> Select * from book_master;
+-------+----------------------------------------------+---------------------+-----------------+-------------------------+---------+----------------+--------------+
| MB_ID | Title                                        | Author              | ISBN            | Category                | B_Count | Available_Book | Publisher    |
+-------+----------------------------------------------+---------------------+-----------------+-------------------------+---------+----------------+--------------+
|     1 | Artificial Intelligence: A Modern Approach   | Stuart Russell      | 9780134610994   | Computer Science        |      30 |             20 | Pearson      |
|     2 | Introduction to Machine Learning             | Stuart Russell      | 9780262041232   | Computer Science        |      25 |             15 | MIT Press    |
|     3 | Database System Concepts                     | Abraham Silberschatz| 9780078022159   | Computer Science        |      40 |             30 | McGraw-Hill  |
|     4 | Operating System Concepts                    | Abraham Silberschatz| 9781119800368   | Computer Science        |      35 |             25 | Wiley        |
|     5 | Computer Networks                            | Andrew S. Tanenbaum | 9780132126953   | Computer Science        |      28 |             18 | Prentice Hall|
|     6 | Modern Operating Systems                     | Andrew S. Tanenbaum | 9780133591623   | Computer Science        |      30 |             22 | Pearson      |
|     7 | Power Electronics                            | M.H. Rashid         | 9789353066211   | Electrical Engineering  |      22 |             18 | Pearson      |
|     8 | Engineering Thermodynamics                   | P.K. Nag            | 9781259029565   | Mechanical Engineering  |      30 |             20 | McGraw-Hill  |
|     9 | Structural Analysis                          | R.C. Hibbeler       | 9780134610980   | Civil Engineering       |      25 |             18 | Pearson      |
|    10 | Electronic Devices and Circuit Theory        | Robert L. Boylestad | 9780135026491   | Electronics Engineering |      28 |             22 | Pearson      |
|    11 | Python Programming                           | John Doe            | 9781234567890   | Computer Science        |      40 |             30 | Pearson      |
|    12 | Python Programming                           | Jane Smith          | 9780987654321   | Computer Science        |      35 |             25 | McGraw-Hill  |
|    13 | Python Programming                           | Mike Johnson        | 9781122334455   | Computer Science        |      50 |             40 | Wiley        |
+-------+----------------------------------------------+---------------------+-----------------+-------------------------+---------+----------------+--------------+
13 rows in set (0.00 sec)

mysql> Select * from book;
+---------+--------+-------+---------------+-------------+-------+
| Book_ID | Copies | Price | Purchase_Date | Edition     | MB_ID |
+---------+--------+-------+---------------+-------------+-------+
| BO01    |     50 |  1550 | 2023-01-10    | 1st Edition |     1 |
| BO02    |     20 |  1250 | 2023-01-15    | 2nd Edition |     2 |
| BO03    |     30 |  2200 | 2023-01-20    | 3rd Edition |     3 |
| BO04    |     10 |  1900 | 2023-01-25    | 1st Edition |     4 |
| BO05    |     23 |  1650 | 2023-02-01    | 2nd Edition |     5 |
| BO06    |     35 |  1850 | 2023-02-10    | 1st Edition |     1 |
| BO07    |     25 |  1600 | 2023-02-15    | 2nd Edition |     3 |
| BO08    |     40 |  2000 | 2023-02-20    | 3rd Edition |     2 |
| BO09    |     22 |  1700 | 2023-02-25    | 1st Edition |     2 |
| BO10    |     15 |  2100 | 2023-02-28    | 2nd Edition |     5 |
+---------+--------+-------+---------------+-------------+-------+
10 rows in set (0.00 sec)

mysql> Select * from book_transaction;
+----------------+-------+-------+------------+--------------+
| Transaction_ID | Sid   | Bk_ID | IssuedDate | ReturnedDate |
+----------------+-------+-------+------------+--------------+
| T1001          | B1500 | BO01  | 2025-01-10 | 2025-01-20   |
| T1002          | B1501 | BO02  | 2025-01-15 | 2025-01-25   |
| T1003          | B1503 | BO03  | 2025-01-12 | 2025-01-22   |
| T1004          | B1504 | BO04  | 2025-01-18 | 2025-01-28   |
| T1005          | B1505 | BO05  | 2025-01-20 | NULL         |
| T1006          | B1506 | BO07  | 2025-01-14 | 2025-01-24   |
| T1007          | B1507 | BO07  | 2025-01-11 | 2025-01-21   |
| T1009          | B1509 | BO10  | 2025-01-13 | 2025-01-23   |
| T1010          | B1503 | BO03  | 2025-01-22 | NULL         |
| T1011          | B1503 | BO06  | 2025-02-01 | 2025-02-05   |
| T1012          | B1503 | BO10  | 2025-02-03 | NULL         |
| T1013          | B1500 | BO02  | 2025-02-04 | 2025-02-07   |
| T1014          | B1509 | BO05  | 2025-02-04 | 2025-02-11   |
| T1015          | B1501 | BO04  | 2025-02-03 | 2025-02-13   |
+----------------+-------+-------+------------+--------------+
14 rows in set (0.00 sec)

mysql> Select Title From book_master Where MB_ID IN
    -> (Select MB_ID from book Where BooK_ID IN
    -> (Select BK_ID from book_transaction where ReturnedDate=Current_Date));
+---------------------------+
| Title                     |
+---------------------------+
| Operating System Concepts |
+---------------------------+
1 row in set (0.00 sec)
```

9. Display BookNames which are issued today(13-2-2025) .(remove duplication)

```
mysql> Select * from book_master;
+-------+--------------------------------------------+--------------------+---------------+------------------------+---------+----------------+---------------+
| MB_ID | Title                                      | Author             | ISBN          | Category               | B_Count | Available_Book | Publisher     |
+-------+--------------------------------------------+--------------------+---------------+------------------------+---------+----------------+---------------+
|     1 | Artificial Intelligence: A Modern Approach | Stuart Russell     | 9780134610994 | Computer Science       |      30 |             20 | Pearson       |
|     2 | Introduction to Machine Learning           | Stuart Russell     | 9780262041232 | Computer Science       |      25 |             15 | MIT Press     |
|     3 | Database System Concepts                   | Abraham Silberschatz | 9780078022159 | Computer Science     |      40 |             30 | McGraw-Hill   |
|     4 | Operating System Concepts                  | Abraham Silberschatz | 9781119800368 | Computer Science     |      35 |             25 | Wiley         |
|     5 | Computer Networks                          | Andrew S. Tanenbaum | 9780132126953 | Computer Science      |      28 |             18 | Prentice Hall |
|     6 | Modern Operating Systems                   | Andrew S. Tanenbaum | 9780133591623 | Computer Science      |      30 |             22 | Pearson       |
|     7 | Power Electronics                          | M.H. Rashid        | 9789353066211 | Electrical Engineering |      22 |             18 | Pearson       |
|     8 | Engineering Thermodynamics                 | P.K. Nag           | 9781259029565 | Mechanical Engineering |      30 |             20 | McGraw-Hill   |
|     9 | Structural Analysis                        | R.C. Hibbeler      | 9780134610980 | Civil Engineering      |      25 |             18 | Pearson       |
|    10 | Electronic Devices and Circuit Theory      | Robert L. Boylestad | 9780135026491 | Electronics Engineering |     28 |             22 | Pearson       |
|    11 | Python Programming                         | John Doe           | 9781234567890 | Computer Science       |      40 |             30 | Pearson       |
|    12 | Python Programming                         | Jane Smith         | 9780987654321 | Computer Science       |      35 |             25 | McGraw-Hill   |
|    13 | Python Programming                         | Mike Johnson       | 9781122334455 | Computer Science       |      50 |             40 | Wiley         |
+-------+--------------------------------------------+--------------------+---------------+------------------------+---------+----------------+---------------+
13 rows in set (0.00 sec)

mysql> Select * from book;
+---------+--------+-------+---------------+-------------+-------+
| Book_ID | Copies | Price | Purchase_Date | Edition     | MB_ID |
+---------+--------+-------+---------------+-------------+-------+
| BO01    |     50 |  1550 | 2023-01-10    | 1st Edition |     1 |
| BO02    |     20 |  1250 | 2023-01-15    | 2nd Edition |     2 |
| BO03    |     30 |  2200 | 2023-01-20    | 3rd Edition |     3 |
| BO04    |     10 |  1900 | 2023-01-25    | 1st Edition |     4 |
| BO05    |     23 |  1650 | 2023-02-01    | 2nd Edition |     5 |
| BO06    |     35 |  1850 | 2023-02-10    | 1st Edition |     1 |
| BO07    |     25 |  1600 | 2023-02-15    | 2nd Edition |     3 |
| BO08    |     40 |  2000 | 2023-02-20    | 3rd Edition |     2 |
| BO09    |     22 |  1700 | 2023-02-25    | 1st Edition |     2 |
| BO10    |     15 |  2100 | 2023-02-28    | 2nd Edition |     5 |
+---------+--------+-------+---------------+-------------+-------+
10 rows in set (0.00 sec)

mysql> Select * from book_transaction;
+----------------+-------+-------+------------+--------------+
| Transaction_ID | Sid   | Bk_ID | IssuedDate | ReturnedDate |
+----------------+-------+-------+------------+--------------+
| T1001          | B1500 | BO01  | 2025-01-10 | 2025-01-20   |
| T1002          | B1501 | BO02  | 2025-01-15 | 2025-01-25   |
| T1003          | B1503 | BO03  | 2025-01-12 | 2025-01-22   |
| T1004          | B1504 | BO04  | 2025-01-18 | 2025-01-28   |
| T1005          | B1505 | BO05  | 2025-01-20 | NULL         |
| T1006          | B1506 | BO07  | 2025-01-14 | 2025-01-24   |
| T1007          | B1507 | BO07  | 2025-01-11 | 2025-01-21   |
| T1009          | B1509 | BO10  | 2025-01-13 | 2025-01-23   |
| T1010          | B1503 | BO03  | 2025-01-22 | NULL         |
| T1011          | B1503 | BO06  | 2025-02-01 | 2025-02-05   |
| T1012          | B1503 | BO10  | 2025-02-03 | NULL         |
| T1013          | B1500 | BO02  | 2025-02-04 | 2025-02-07   |
| T1014          | B1509 | BO05  | 2025-02-04 | 2025-02-11   |
| T1015          | B1501 | BO04  | 2025-02-03 | 2025-02-13   |
| T1016          | B1505 | BO05  | 2025-02-13 | NULL         |
+----------------+-------+-------+------------+--------------+
15 rows in set (0.00 sec)

mysql> Select Title From book_master Where MB_ID IN
    -> (Select MB_ID from book Where Book_ID IN
    -> (Select BK_ID from book_transaction where IssuedDate=Current_Date));
+-------------------+
| Title             |
+-------------------+
| Computer Networks |
+-------------------+
1 row in set (0.00 sec)
```

10. **Display the Book names which are read by student B1503.**

```
mysql> Select * from book_master;
+-------+--------------------------------------------+-------------------------+----------------+-------------------------+---------+----------------+--------------+
| MB_ID | Title                                      | Author                  | ISBN           | Category                | B_Count | Available_Book | Publisher    |
+-------+--------------------------------------------+-------------------------+----------------+-------------------------+---------+----------------+--------------+
|     1 | Artificial Intelligence: A Modern Approach | Stuart Russell          | 9780134610994  | Computer Science        |      30 |             20 | Pearson      |
|     2 | Introduction to Machine Learning           | Stuart Russell          | 9780262041232  | Computer Science        |      25 |             15 | MIT Press    |
|     3 | Database System Concepts                   | Abraham Silberschatz    | 9780078022159  | Computer Science        |      40 |             30 | McGraw-Hill  |
|     4 | Operating System Concepts                  | Abraham Silberschatz    | 9781119800368  | Computer Science        |      35 |             25 | Wiley        |
|     5 | Computer Networks                          | Andrew S. Tanenbaum     | 9780132126953  | Computer Science        |      28 |             18 | Prentice Hall|
|     6 | Modern Operating Systems                   | Andrew S. Tanenbaum     | 9780133591623  | Computer Science        |      30 |             22 | Pearson      |
|     7 | Power Electronics                          | M.H. Rashid             | 9789353066211  | Electrical Engineering  |      22 |             18 | Pearson      |
|     8 | Engineering Thermodynamics                 | P.K. Nag                | 9781259029565  | Mechanical Engineering  |      30 |             20 | McGraw-Hill  |
|     9 | Structural Analysis                        | R.C. Hibbeler           | 9780134610980  | Civil Engineering       |      25 |             18 | Pearson      |
|    10 | Electronic Devices and Circuit Theory      | Robert L. Boylestad     | 9780135026491  | Electronics Engineering |      28 |             22 | Pearson      |
|    11 | Python Programming                         | John Doe                | 9781234567890  | Computer Science        |      40 |             30 | Pearson      |
|    12 | Python Programming                         | Jane Smith              | 9780987654321  | Computer Science        |      35 |             25 | McGraw-Hill  |
|    13 | Python Programming                         | Mike Johnson            | 9781122334455  | Computer Science        |      50 |             40 | Wiley        |
+-------+--------------------------------------------+-------------------------+----------------+-------------------------+---------+----------------+--------------+
13 rows in set (0.00 sec)

mysql> Select * from book;
+---------+--------+-------+---------------+-------------+-------+
| Book_ID | Copies | Price | Purchase_Date | Edition     | MB_ID |
+---------+--------+-------+---------------+-------------+-------+
| BO01    |     50 |  1550 | 2023-01-10    | 1st Edition |     1 |
| BO02    |     20 |  1250 | 2023-01-15    | 2nd Edition |     2 |
| BO03    |     30 |  2200 | 2023-01-20    | 3rd Edition |     3 |
| BO04    |     10 |  1900 | 2023-01-25    | 1st Edition |     4 |
| BO05    |     23 |  1650 | 2023-02-01    | 2nd Edition |     5 |
| BO06    |     35 |  1850 | 2023-02-10    | 1st Edition |     1 |
| BO07    |     25 |  1600 | 2023-02-15    | 2nd Edition |     3 |
| BO08    |     40 |  2000 | 2023-02-20    | 3rd Edition |     2 |
| BO09    |     22 |  1700 | 2023-02-25    | 1st Edition |     2 |
| BO10    |     15 |  2100 | 2023-02-28    | 2nd Edition |     5 |
+---------+--------+-------+---------------+-------------+-------+
10 rows in set (0.00 sec)

mysql> Select * from book_transaction;
+----------------+-------+-------+------------+--------------+
| Transaction_ID | Sid   | Bk_ID | IssuedDate | ReturnedDate |
+----------------+-------+-------+------------+--------------+
| T1001          | B1500 | BO01  | 2025-01-10 | 2025-01-20   |
| T1002          | B1501 | BO02  | 2025-01-15 | 2025-01-25   |
| T1003          | B1503 | BO03  | 2025-01-12 | 2025-01-22   |
| T1004          | B1504 | BO04  | 2025-01-18 | 2025-01-28   |
| T1005          | B1505 | BO05  | 2025-01-20 | NULL         |
| T1006          | B1506 | BO07  | 2025-01-14 | 2025-01-24   |
| T1007          | B1507 | BO07  | 2025-01-11 | 2025-01-21   |
| T1009          | B1509 | BO10  | 2025-01-13 | 2025-01-23   |
| T1010          | B1503 | BO03  | 2025-01-22 | NULL         |
| T1011          | B1503 | BO06  | 2025-02-01 | 2025-02-05   |
| T1012          | B1503 | BO10  | 2025-02-03 | NULL         |
| T1013          | B1500 | BO02  | 2025-02-04 | 2025-02-07   |
| T1014          | B1509 | BO05  | 2025-02-04 | 2025-02-11   |
| T1015          | B1501 | BO04  | 2025-02-03 | 2025-02-13   |
| T1016          | B1505 | BO05  | 2025-02-13 | NULL         |
+----------------+-------+-------+------------+--------------+
15 rows in set (0.00 sec)
```

```
mysql> Select * from student;
+-------+---------------+---------------------------+------------+------------+--------+
| S_ID  | Name          | Email                     | Mobile_No  | DOB        | Dep_ID |
+-------+---------------+---------------------------+------------+------------+--------+
| B1500 | Aarav Sharma  | aarav.sharma@gmail.com    | 9876543210 | 2000-01-15 | D001   |
| B1501 | Vivaan Patel  | Vivaan@gmail.com          | 9123456789 | 1999-02-20 | D003   |
| B1503 | Vihaan Gupta  | vihaan.gupta@gmail.com    | 9871234567 | 2002-04-25 | D002   |
| B1504 | Arjun Rao     | arjun.rao@gmail.com       | 9988776655 | 1998-05-30 | D001   |
| B1505 | Sai Kumar     | sai.kumar@gmail.com       | 9876543210 | 2000-06-15 | D005   |
| B1506 | Reyansh Singh | reyansh.singh@gmail.com   | 9123456789 | 2003-07-20 | D004   |
| B1507 | Krishna Iyer  | krishna.iyer@gmail.com    | 9988776655 | 1997-08-05 | D003   |
| B1508 | Rohan Mehta   | rohan.mehta@gmail.com     | 9871234567 | 2001-09-12 | D002   |
| B1509 | Anaya Joshi   | anaya.joshi@gmail.com     | 9123456789 | 2002-10-30 | D001   |
| B1510 | Janmesh Raut  | janmesh.raut@gmail.com    | 7414970972 | 2004-06-07 | D001   |
+-------+---------------+---------------------------+------------+------------+--------+
10 rows in set (0.00 sec)

mysql> Select Title from book_Master Where MB_ID IN
    -> (Select MB_ID from book Where Book_ID IN
    -> (Select Bk_ID from book_Transaction Where SID="B1503"));
+--------------------------------------------+
| Title                                      |
+--------------------------------------------+
| Database System Concepts                   |
| Artificial Intelligence: A Modern Approach |
| Computer Networks                          |
+--------------------------------------------+
3 rows in set (0.00 sec)
```

11. Display the Book names which are read by "Sai Kumar".

```
mysql> Select * from book_master;
```

MB_ID	Title	Author	ISBN	Category	B_Count	Available_Book	Publisher
1	Artificial Intelligence: A Modern Approach	Stuart Russell	9780134610994	Computer Science	30	20	Pearson
2	Introduction to Machine Learning	Stuart Russell	9780262041232	Computer Science	25	15	MIT Press
3	Database System Concepts	Abraham Silberschatz	9780078022159	Computer Science	40	30	McGraw-Hill
4	Operating System Concepts	Abraham Silberschatz	9781119800368	Computer Science	35	25	Wiley
5	Computer Networks	Andrew S. Tanenbaum	9780132126953	Computer Science	28	18	Prentice Hall
6	Modern Operating Systems	Andrew S. Tanenbaum	9780133591623	Computer Science	30	22	Pearson
7	Power Electronics	M.H. Rashid	9789353066211	Electrical Engineering	22	18	Pearson
8	Engineering Thermodynamics	P.K. Nag	9781259029565	Mechanical Engineering	30	20	McGraw-Hill
9	Structural Analysis	R.C. Hibbeler	9780134610980	Civil Engineering	25	18	Pearson
10	Electronic Devices and Circuit Theory	Robert L. Boylestad	9780135026491	Electronics Engineering	28	22	Pearson
11	Python Programming	John Doe	9781234567890	Computer Science	40	30	Pearson
12	Python Programming	Jane Smith	9780987654321	Computer Science	35	25	McGraw-Hill
13	Python Programming	Mike Johnson	9781122334455	Computer Science	50	40	Wiley

```
13 rows in set (0.00 sec)

mysql> Select * from book;
```

Book_ID	Copies	Price	Purchase_Date	Edition	MB_ID
BO01	50	1550	2023-01-10	1st Edition	1
BO02	20	1250	2023-01-15	2nd Edition	2
BO03	30	2200	2023-01-20	3rd Edition	3
BO04	10	1900	2023-01-25	1st Edition	4
BO05	23	1650	2023-02-01	2nd Edition	5
BO06	35	1850	2023-02-10	1st Edition	1
BO07	25	1600	2023-02-15	2nd Edition	3
BO08	40	2000	2023-02-20	3rd Edition	2
BO09	22	1700	2023-02-25	1st Edition	2
BO10	15	2100	2023-02-28	2nd Edition	5

```
10 rows in set (0.00 sec)
```

```
mysql> Select * from book_transaction;
```

Transaction_ID	Sid	Bk_ID	IssuedDate	ReturnedDate
T1001	B1500	BO01	2025-01-10	2025-01-20
T1002	B1501	BO02	2025-01-15	2025-01-25
T1003	B1503	BO03	2025-01-12	2025-01-22
T1004	B1504	BO04	2025-01-18	2025-01-28
T1005	B1505	BO05	2025-01-20	NULL
T1006	B1506	BO07	2025-01-14	2025-01-24
T1007	B1507	BO07	2025-01-11	2025-01-21
T1009	B1509	BO10	2025-01-13	2025-01-23
T1010	B1503	BO03	2025-01-22	NULL
T1011	B1503	BO06	2025-02-01	2025-02-05
T1012	B1503	BO10	2025-02-03	NULL
T1013	B1500	BO02	2025-02-04	2025-02-07
T1014	B1509	BO05	2025-02-04	2025-02-11
T1015	B1501	BO04	2025-02-03	2025-02-13
T1016	B1505	BO06	2025-02-13	NULL

```
15 rows in set (0.00 sec)
```

```
mysql> Select * from student;
```

S_ID	Name	Email	Mobile_No	DOB	Dep_ID
B1500	Aarav Sharma	aarav.sharma@gmail.com	9876543210	2000-01-15	D001
B1501	Vivaan Patel	Vivaan@gmail.com	9123456789	1999-02-20	D003
B1503	Vihaan Gupta	vihaan.gupta@gmail.com	9871234567	2002-04-25	D002
B1504	Arjun Rao	arjun.rao@gmail.com	9988776655	1998-05-30	D001
B1505	Sai Kumar	sai.kumar@gmail.com	9876543210	2000-06-15	D005
B1506	Reyansh Singh	reyansh.singh@gmail.com	9123456789	2003-07-20	D004
B1507	Krishna Iyer	krishna.iyer@gmail.com	9988776655	1997-08-05	D003
B1508	Rohan Mehta	rohan.mehta@gmail.com	9871234567	2001-09-12	D002
B1509	Anaya Joshi	anaya.joshi@gmail.com	9123456789	2002-10-30	D001
B1510	Janmesh Raut	janmesh.raut@gmail.com	7414970972	2004-06-07	D001

```
10 rows in set (0.00 sec)

mysql> Select Title from book_Master Where MB_ID IN
    -> (Select MB_ID from book Where Book_ID IN
    -> (Select Bk_ID from book_Transaction Where SID=
    -> (Select S_ID from Student Where Name="Sai Kumar")));
```

Title
Computer Networks
Artificial Intelligence: A Modern Approach

```
2 rows in set (0.00 sec)
```

12. Find out the department of Janmesh Raut.

```
mysql> Select * from student;
+-------+---------------+-------------------------+------------+------------+--------+
| S_ID  | Name          | Email                   | Mobile_No  | DOB        | Dep_ID |
+-------+---------------+-------------------------+------------+------------+--------+
| B1500 | Aarav Sharma  | aarav.sharma@gmail.com  | 9876543210 | 2000-01-15 | D001   |
| B1501 | Vivaan Patel  | Vivaan@gmail.com        | 9123456789 | 1999-02-20 | D003   |
| B1503 | Vihaan Gupta  | vihaan.gupta@gmail.com  | 9871234567 | 2002-04-25 | D002   |
| B1504 | Arjun Rao     | arjun.rao@gmail.com     | 9988776655 | 1998-05-30 | D001   |
| B1505 | Sai Kumar     | sai.kumar@gmail.com     | 9876543210 | 2000-06-15 | D005   |
| B1506 | Reyansh Singh | reyansh.singh@gmail.com | 9123456789 | 2003-07-20 | D004   |
| B1507 | Krishna Iyer  | krishna.iyer@gmail.com  | 9988776655 | 1997-08-05 | D003   |
| B1508 | Rohan Mehta   | rohan.mehta@gmail.com   | 9871234567 | 2001-09-12 | D002   |
| B1509 | Anaya Joshi   | anaya.joshi@gmail.com   | 9123456789 | 2002-10-30 | D001   |
| B1510 | Janmesh Raut  | janmesh.raut@gmail.com  | 7414970972 | 2004-06-07 | D001   |
+-------+---------------+-------------------------+------------+------------+--------+
10 rows in set (0.00 sec)

mysql> Select * from department;
+--------+----------------------+-----------+-----------+
| Dep_ID | Department_Name      | Location  | Budget_Cr |
+--------+----------------------+-----------+-----------+
| D001   | Computer Science     | 6th Floor |     20.00 |
| D002   | Electrical Engineering | 2nd Floor |   10.00 |
| D003   | Mechanical Engineering | 2nd Floor |    5.00 |
| D004   | Civil Engineering    | 3rd Floor |      3.00 |
| D005   | Electronics Engineering | 7th Floor |   2.00 |
+--------+----------------------+-----------+-----------+
5 rows in set (0.00 sec)

mysql> Select Department_Name from Department Where Dep_ID=
    -> (Select Dep_ID from Student Where Name="Janmesh Raut");
+------------------+
| Department_Name  |
+------------------+
| Computer Science |
+------------------+
1 row in set (0.00 sec)
```

13. Find out which Books have been returned most recently.

```
mysql> Select * from book_master;
+-------+------------------------------------------+---------------------+----------------+------------------------+---------+---------------+--------------+
| MB_ID | Title                                    | Author              | ISBN           | Category               | B_Count | Available_Book | Publisher    |
+-------+------------------------------------------+---------------------+----------------+------------------------+---------+---------------+--------------+
|     1 | Artificial Intelligence: A Modern Approach | Stuart Russell    | 9780134610994  | Computer Science       | 30      | 20            | Pearson      |
|     2 | Introduction to Machine Learning         | Stuart Russell      | 9780262041232  | Computer Science       | 25      | 15            | MIT Press    |
|     3 | Database System Concepts                 | Abraham Silberschatz | 9780078022159 | Computer Science       | 40      | 30            | McGraw-Hill  |
|     4 | Operating System Concepts                | Abraham Silberschatz | 9781119800368 | Computer Science       | 35      | 25            | Wiley        |
|     5 | Computer Networks                        | Andrew S. Tanenbaum | 9780132126953  | Computer Science       | 28      | 18            | Prentice Hall |
|     6 | Modern Operating Systems                 | Andrew S. Tanenbaum | 9780133591623  | Computer Science       | 30      | 22            | Pearson      |
|     7 | Power Electronics                        | M.H. Rashid         | 9789353066211  | Electrical Engineering | 22      | 18            | Pearson      |
|     8 | Engineering Thermodynamics               | P.K. Nag            | 9781259029565  | Mechanical Engineering | 30      | 20            | McGraw-Hill  |
|     9 | Structural Analysis                      | R.C. Hibbeler       | 9780134610980  | Civil Engineering      | 25      | 18            | Pearson      |
|    10 | Electronic Devices and Circuit Theory    | Robert L. Boylestad | 9780135026491  | Electronics Engineering | 28     | 22            | Pearson      |
|    11 | Python Programming                       | John Doe            | 9781234567890  | Computer Science       | 40      | 30            | Pearson      |
|    12 | Python Programming                       | Jane Smith          | 9780987654321  | Computer Science       | 35      | 25            | McGraw-Hill  |
|    13 | Python Programming                       | Mike Johnson        | 9781122334455  | Computer Science       | 50      | 40            | Wiley        |
+-------+------------------------------------------+---------------------+----------------+------------------------+---------+---------------+--------------+
13 rows in set (0.00 sec)

mysql> Select * from book;
+---------+--------+-------+---------------+-------------+-------+
| Book_ID | Copies | Price | Purchase_Date | Edition     | MB_ID |
+---------+--------+-------+---------------+-------------+-------+
| BO01    | 50     | 1550  | 2023-01-10    | 1st Edition | 1     |
| BO02    | 20     | 1250  | 2023-01-15    | 2nd Edition | 2     |
| BO03    | 30     | 2200  | 2023-01-20    | 3rd Edition | 3     |
| BO04    | 10     | 1900  | 2023-01-25    | 1st Edition | 4     |
| BO05    | 23     | 1650  | 2023-02-01    | 2nd Edition | 5     |
| BO06    | 35     | 1850  | 2023-02-10    | 1st Edition | 1     |
| BO07    | 25     | 1600  | 2023-02-15    | 2nd Edition | 3     |
| BO08    | 40     | 2000  | 2023-02-20    | 3rd Edition | 2     |
| BO09    | 22     | 1700  | 2023-02-25    | 1st Edition | 2     |
| BO10    | 15     | 2100  | 2023-02-28    | 2nd Edition | 5     |
+---------+--------+-------+---------------+-------------+-------+
10 rows in set (0.00 sec)
```

```
mysql> Select * from book_transaction;
+----------------+-------+-------+-------------+--------------+
| Transaction_ID | Sid   | Bk_ID | IssuedDate  | ReturnedDate |
+----------------+-------+-------+-------------+--------------+
| T1001          | B1500 | BO01  | 2025-01-10  | 2025-01-20   |
| T1002          | B1501 | BO02  | 2025-01-15  | 2025-01-25   |
| T1003          | B1503 | BO03  | 2025-01-12  | 2025-01-22   |
| T1004          | B1504 | BO04  | 2025-01-18  | 2025-01-28   |
| T1005          | B1505 | BO05  | 2025-01-20  | NULL         |
| T1006          | B1506 | BO07  | 2025-01-14  | 2025-01-24   |
| T1007          | B1507 | BO07  | 2025-01-11  | 2025-01-21   |
| T1009          | B1509 | BO10  | 2025-01-13  | 2025-01-23   |
| T1010          | B1503 | BO03  | 2025-01-22  | NULL         |
| T1011          | B1503 | BO06  | 2025-02-01  | 2025-02-05   |
| T1012          | B1503 | BO10  | 2025-02-03  | NULL         |
| T1013          | B1500 | BO02  | 2025-02-04  | 2025-02-07   |
| T1014          | B1509 | BO05  | 2025-02-04  | 2025-02-11   |
| T1015          | B1501 | BO04  | 2025-02-03  | 2025-02-13   |
| T1016          | B1505 | BO06  | 2025-02-13  | NULL         |
+----------------+-------+-------+-------------+--------------+
15 rows in set (0.00 sec)

mysql> Select * from book_master where MB_ID IN
    -> (Select MB_ID from book where Book_ID IN
    -> (Select BK_ID from book_Transaction where ReturnedDate=
    -> (Select MAX(ReturnedDate) from book_transaction)));
+-------+----------------------------+---------------------+---------------+------------------+---------+---------------+-----------+
| MB_ID | Title                      | Author              | ISBN          | Category         | B_Count | Available_Book | Publisher |
+-------+----------------------------+---------------------+---------------+------------------+---------+---------------+-----------+
|     4 | Operating System Concepts  | Abraham Silberschatz | 9781119800368 | Computer Science |      35 |            25 | Wiley     |
+-------+----------------------------+---------------------+---------------+------------------+---------+---------------+-----------+
1 row in set (0.00 sec)
```

15. **What is the name of recently purchased book.**

```
mysql> Select * from book_master;
+-------+------------------------------------------+----------------------+---------------+------------------------+---------+---------------+--------------+
| MB_ID | Title                                    | Author               | ISBN          | Category               | B_Count | Available_Book | Publisher    |
+-------+------------------------------------------+----------------------+---------------+------------------------+---------+---------------+--------------+
|     1 | Artificial Intelligence: A Modern Approach | Stuart Russell     | 9780134610994 | Computer Science       |      30 |            20 | Pearson      |
|     2 | Introduction to Machine Learning         | Stuart Russell       | 9780262041232 | Computer Science       |      25 |            15 | MIT Press    |
|     3 | Database System Concepts                 | Abraham Silberschatz | 9780078022159 | Computer Science       |      40 |            30 | McGraw-Hill  |
|     4 | Operating System Concepts                | Abraham Silberschatz | 9781119800368 | Computer Science       |      35 |            25 | Wiley        |
|     5 | Computer Networks                        | Andrew S. Tanenbaum  | 9780132126953 | Computer Science       |      28 |            18 | Prentice Hall |
|     6 | Modern Operating Systems                 | Andrew S. Tanenbaum  | 9780133591623 | Computer Science       |      30 |            22 | Pearson      |
|     7 | Power Electronics                        | M.H. Rashid          | 9789353066211 | Electrical Engineering |      22 |            18 | Pearson      |
|     8 | Engineering Thermodynamics               | P.K. Nag             | 9781259029565 | Mechanical Engineering |      30 |            20 | McGraw-Hill  |
|     9 | Structural Analysis                      | R.C. Hibbeler        | 9780134610980 | Civil Engineering      |      25 |            18 | Pearson      |
|    10 | Electronic Devices and Circuit Theory    | Robert L. Boylestad  | 9780135026491 | Electronics Engineering |      28 |           22 | Pearson      |
|    11 | Python Programming                       | John Doe             | 9781234567890 | Computer Science       |      40 |            30 | Pearson      |
|    12 | Python Programming                       | Jane Smith           | 9780987654321 | Computer Science       |      35 |            25 | McGraw-Hill  |
|    13 | Python Programming                       | Mike Johnson         | 9781122334455 | Computer Science       |      50 |            40 | Wiley        |
+-------+------------------------------------------+----------------------+---------------+------------------------+---------+---------------+--------------+
13 rows in set (0.00 sec)

mysql> Select * from book;
+---------+--------+-------+---------------+-------------+-------+
| Book_ID | Copies | Price | Purchase_Date | Edition     | MB_ID |
+---------+--------+-------+---------------+-------------+-------+
| BO01    |     50 | 1550  | 2023-01-10    | 1st Edition |     1 |
| BO02    |     20 | 1250  | 2023-01-15    | 2nd Edition |     2 |
| BO03    |     30 | 2200  | 2023-01-20    | 3rd Edition |     3 |
| BO04    |     10 | 1900  | 2023-01-25    | 1st Edition |     4 |
| BO05    |     23 | 1650  | 2023-02-01    | 2nd Edition |     5 |
| BO06    |     35 | 1850  | 2023-02-10    | 1st Edition |     1 |
| BO07    |     25 | 1600  | 2023-02-15    | 2nd Edition |     3 |
| BO08    |     40 | 2000  | 2023-02-20    | 3rd Edition |     2 |
| BO09    |     22 | 1700  | 2023-02-25    | 1st Edition |     8 |
| BO10    |     15 | 2100  | 2023-02-28    | 2nd Edition |     5 |
| BO11    |     40 | 2000  | 2023-03-05    | 1st Edition |     6 |
| BO12    |     30 | 1800  | 2023-03-10    | 2nd Edition |     7 |
| BO13    |     25 | 1900  | 2023-03-15    | 3rd Edition |     8 |
| BO14    |     22 | 1700  | 2023-03-20    | 1st Edition |     9 |
| BO15    |     15 | 2100  | 2023-03-25    | 2nd Edition |    10 |
| BO16    |     20 | 2100  | 2023-04-01    | 1st Edition |     6 |
| BO17    |     30 | 2200  | 2023-04-05    | 2nd Edition |     7 |
| BO18    |     35 | 2000  | 2023-04-10    | 1st Edition |     8 |
| BO19    |     40 | 2300  | 2023-04-15    | 3rd Edition |     9 |
| BO20    |     25 | 1800  | 2023-04-20    | 2nd Edition |    10 |
| BO21    |     30 | 2400  | 2023-04-25    | 1st Edition |    11 |
| BO22    |     25 | 2200  | 2023-04-30    | 2nd Edition |    12 |
| BO23    |     40 | 2500  | 2023-05-05    | 3rd Edition |    13 |
| BO24    |     35 | 2100  | 2023-05-10    | 1st Edition |    11 |
| BO25    |     50 | 2300  | 2023-05-15    | 2nd Edition |    12 |
| BO26    |     20 | 2400  | 2023-05-20    | 3rd Edition |    13 |
| BO27    |     30 | 2500  | 2023-05-25    | 1st Edition |    11 |
| BO28    |     40 | 2600  | 2023-06-05    | 2nd Edition |     5 |
| BO29    |     25 | 2700  | 2023-06-05    | 3rd Edition |     1 |
+---------+--------+-------+---------------+-------------+-------+
29 rows in set (0.00 sec)
```

```
mysql> Select Title from book_master Where MB_ID IN
    -> (Select MB_ID from Book Where Purchase_Date=
    -> (Select MAX(Purchase_Date) from book));
+------------------------------------------+
| Title                                    |
+------------------------------------------+
| Computer Networks                        |
| Artificial Intelligence: A Modern Approach |
+------------------------------------------+
2 rows in set (0.00 sec)
```

16. Which Books(name) are not issued at all.

```
mysql> Select * from book_Master;
+-------+------------------------------------------+---------------------+----------------+------------------------+---------+----------------+---------------+
| MB_ID | Title                                    | Author              | ISBN           | Category               | B_Count | Available_Book | Publisher     |
+-------+------------------------------------------+---------------------+----------------+------------------------+---------+----------------+---------------+
|     1 | Artificial Intelligence: A Modern Approach | Stuart Russell    | 9780134610994  | Computer Science       |      30 |             20 | Pearson       |
|     2 | Introduction to Machine Learning         | Stuart Russell      | 9780262041232  | Computer Science       |      25 |             15 | MIT Press     |
|     3 | Database System Concepts                 | Abraham Silberschatz | 9780078022159 | Computer Science       |      40 |             30 | McGraw-Hill   |
|     4 | Operating System Concepts                | Abraham Silberschatz | 9781119800368 | Computer Science       |      35 |             25 | Wiley         |
|     5 | Computer Networks                        | Andrew S. Tanenbaum | 9780132126953  | Computer Science       |      28 |             18 | Prentice Hall |
|     6 | Modern Operating Systems                 | Andrew S. Tanenbaum | 9780133591623  | Computer Science       |      30 |             22 | Pearson       |
|     7 | Power Electronics                        | M.H. Rashid         | 9789353066211  | Electrical Engineering |      22 |             18 | Pearson       |
|     8 | Engineering Thermodynamics               | P.K. Nag            | 9781259029565  | Mechanical Engineering |      30 |             20 | McGraw-Hill   |
|     9 | Structural Analysis                      | R.C. Hibbeler       | 9780134610980  | Civil Engineering      |      25 |             18 | Pearson       |
|    10 | Electronic Devices and Circuit Theory    | Robert L. Boylestad | 9780135026491  | Electronics Engineering |     28 |             22 | Pearson       |
|    11 | Python Programming                       | John Doe            | 9781234567890  | Computer Science       |      40 |             30 | Pearson       |
|    12 | Python Programming                       | Jane Smith          | 9780987654321  | Computer Science       |      35 |             25 | McGraw-Hill   |
|    13 | Python Programming                       | Mike Johnson        | 9781122334455  | Computer Science       |      50 |             40 | Wiley         |
+-------+------------------------------------------+---------------------+----------------+------------------------+---------+----------------+---------------+
13 rows in set (0.00 sec)
```

```
mysql> Select * from book_transaction;
+----------------+-------+-------+------------+--------------+
| Transaction_ID | Sid   | Bk_ID | IssuedDate | ReturnedDate |
+----------------+-------+-------+------------+--------------+
| T1001          | B1500 | BO01  | 2025-01-10 | 2025-01-20   |
| T1002          | B1501 | BO02  | 2025-01-15 | 2025-01-25   |
| T1003          | B1503 | BO03  | 2025-01-12 | 2025-01-22   |
| T1004          | B1504 | BO04  | 2025-01-18 | 2025-01-28   |
| T1005          | B1505 | BO05  | 2025-01-20 | NULL         |
| T1006          | B1506 | BO07  | 2025-01-14 | 2025-01-24   |
| T1007          | B1507 | BO07  | 2025-01-11 | 2025-01-21   |
| T1009          | B1509 | BO10  | 2025-01-13 | 2025-01-23   |
| T1010          | B1503 | BO03  | 2025-01-22 | NULL         |
| T1011          | B1503 | BO06  | 2025-02-01 | 2025-02-05   |
| T1012          | B1503 | BO10  | 2025-02-03 | NULL         |
| T1013          | B1500 | BO02  | 2025-02-04 | 2025-02-07   |
| T1014          | B1509 | BO05  | 2025-02-04 | 2025-02-11   |
| T1015          | B1501 | BO04  | 2025-02-03 | 2025-02-13   |
| T1016          | B1505 | BO06  | 2025-02-13 | 2025-02-15   |
| T1017          | B1507 | BO01  | 2025-02-14 | 2025-02-15   |
| T1018          | B1503 | BO02  | 2025-02-14 | 2025-02-16   |
| T1019          | B1505 | BO03  | 2025-02-14 | 2025-02-17   |
| T1020          | B1504 | BO04  | 2025-02-14 | 2025-02-16   |
| T1021          | B1506 | BO06  | 2025-02-14 | NULL         |
+----------------+-------+-------+------------+--------------+
20 rows in set (0.00 sec)
```

```
mysql> Select * from book;
+---------+--------+-------+---------------+-------------+-------+
| Book_ID | Copies | Price | Purchase_Date | Edition     | MB_ID |
+---------+--------+-------+---------------+-------------+-------+
| BO01    |     50 |  1550 | 2023-01-10    | 1st Edition |     1 |
| BO02    |     20 |  1250 | 2023-01-15    | 2nd Edition |     2 |
| BO03    |     30 |  2200 | 2023-01-20    | 3rd Edition |     3 |
| BO04    |     10 |  1900 | 2023-01-25    | 1st Edition |     4 |
| BO05    |     23 |  1650 | 2023-02-01    | 2nd Edition |     5 |
| BO06    |     35 |  1850 | 2023-02-10    | 1st Edition |     1 |
| BO07    |     25 |  1600 | 2023-02-15    | 2nd Edition |     3 |
| BO08    |     40 |  2000 | 2023-02-20    | 3rd Edition |     2 |
| BO09    |     22 |  1700 | 2023-02-25    | 1st Edition |     8 |
| BO10    |     15 |  2100 | 2023-02-28    | 2nd Edition |     5 |
| BO11    |     40 |  2000 | 2023-03-05    | 1st Edition |     6 |
| BO12    |     30 |  1800 | 2023-03-10    | 2nd Edition |     7 |
| BO13    |     25 |  1900 | 2023-03-15    | 3rd Edition |     8 |
| BO14    |     22 |  1700 | 2023-03-20    | 1st Edition |     9 |
| BO15    |     15 |  2100 | 2023-03-25    | 2nd Edition |    10 |
| BO16    |     20 |  2100 | 2023-04-01    | 1st Edition |     6 |
| BO17    |     30 |  2200 | 2023-04-05    | 2nd Edition |     7 |
| BO18    |     35 |  2000 | 2023-04-10    | 1st Edition |     8 |
| BO19    |     40 |  2300 | 2023-04-15    | 3rd Edition |     9 |
| BO20    |     25 |  1800 | 2023-04-20    | 2nd Edition |    10 |
| BO21    |     30 |  2400 | 2023-04-25    | 1st Edition |    11 |
| BO22    |     25 |  2200 | 2023-04-30    | 2nd Edition |    12 |
| BO23    |     40 |  2500 | 2023-05-05    | 3rd Edition |    13 |
| BO24    |     35 |  2100 | 2023-05-10    | 1st Edition |    11 |
| BO25    |     50 |  2300 | 2023-05-15    | 2nd Edition |    12 |
| BO26    |     20 |  2400 | 2023-05-20    | 3rd Edition |    13 |
| BO27    |     30 |  2500 | 2023-05-25    | 1st Edition |    11 |
| BO28    |     40 |  2600 | 2023-06-05    | 2nd Edition |     5 |
| BO29    |     25 |  2700 | 2023-06-05    | 3rd Edition |     1 |
+---------+--------+-------+---------------+-------------+-------+
29 rows in set (0.00 sec)
```

```
mysql> SELECT Title
    -> FROM book_master
    -> WHERE MB_ID NOT IN (SELECT DISTINCT MB_ID FROM book WHERE Book_ID IN (SELECT DISTINCT Bk_ID FROM book_transaction));
+-----------------------------------+
| Title                             |
+-----------------------------------+
| Modern Operating Systems          |
| Power Electronics                 |
| Engineering Thermodynamics        |
| Structural Analysis               |
| Electronic Devices and Circuit Theory |
| Python Programming                |
| Python Programming                |
|  Python Programming               |
+-----------------------------------+
8 rows in set (0.00 sec)
```

17. Find out which category of books which is most popular.(issued most)

```
mysql> Select * from book_Master;
+-------+-----------------------------------------+-------------------+---------------+-------------------------+---------+----------------+---------------+
| MB_ID | Title                                   | Author            | ISBN          | Category                | B_Count | Available_Book | Publisher     |
+-------+-----------------------------------------+-------------------+---------------+-------------------------+---------+----------------+---------------+
|     1 | Artificial Intelligence: A Modern Approach | Stuart Russell  | 9780134610994 | Computer Science        |      30 |             20 | Pearson       |
|     2 | Introduction to Machine Learning        | Stuart Russell    | 9780262041232 | Computer Science        |      25 |             15 | MIT Press     |
|     3 | Database System Concepts                | Abraham Silberschatz | 9780078022159 | Computer Science     |      40 |             30 | McGraw-Hill   |
|     4 | Operating System Concepts               | Abraham Silberschatz | 9781119800368 | Computer Science     |      35 |             25 | Wiley         |
|     5 | Computer Networks                       | Andrew S. Tanenbaum | 9780132126953 | Computer Science      |      28 |             18 | Prentice Hall |
|     6 | Modern Operating Systems                | Andrew S. Tanenbaum | 9780133591623 | Computer Science      |      30 |             22 | Pearson       |
|     7 | Power Electronics                       | M.H. Rashid       | 9789353066211 | Electrical Engineering  |      22 |             18 | Pearson       |
|     8 | Engineering Thermodynamics              | P.K. Nag          | 9781259029565 | Mechanical Engineering  |      30 |             20 | McGraw-Hill   |
|     9 | Structural Analysis                     | R.C. Hibbeler     | 9780134610980 | Civil Engineering       |      25 |             18 | Pearson       |
|    10 | Electronic Devices and Circuit Theory   | Robert L. Boylestad | 9780135026491 | Electronics Engineering |      28 |             22 | Pearson       |
|    11 | Python Programming                      | John Doe          | 9781234567890 | Computer Science        |      40 |             30 | Pearson       |
|    12 | Python Programming                      | Jane Smith        | 9780987654321 | Computer Science        |      35 |             25 | McGraw-Hill   |
|    13 |  Python Programming                     | Mike Johnson      | 9781122334455 | Computer Science        |      50 |             40 | Wiley         |
+-------+-----------------------------------------+-------------------+---------------+-------------------------+---------+----------------+---------------+
13 rows in set (0.00 sec)
```

```
mysql> Select * from book;
+---------+--------+-------+---------------+-------------+-------+
| Book_ID | Copies | Price | Purchase_Date | Edition     | MB_ID |
+---------+--------+-------+---------------+-------------+-------+
| BO01    |     50 | 1550  | 2023-01-10    | 1st Edition |     1 |
| BO02    |     20 | 1250  | 2023-01-15    | 2nd Edition |     2 |
| BO03    |     30 | 2200  | 2023-01-20    | 3rd Edition |     3 |
| BO04    |     10 | 1900  | 2023-01-25    | 1st Edition |     4 |
| BO05    |     23 | 1650  | 2023-02-01    | 2nd Edition |     5 |
| BO06    |     35 | 1850  | 2023-02-10    | 1st Edition |     1 |
| BO07    |     25 | 1600  | 2023-02-15    | 2nd Edition |     3 |
| BO08    |     40 | 2000  | 2023-02-20    | 3rd Edition |     2 |
| BO09    |     22 | 1700  | 2023-02-25    | 1st Edition |     8 |
| BO10    |     15 | 2100  | 2023-02-28    | 2nd Edition |     5 |
| BO11    |     40 | 2000  | 2023-03-05    | 1st Edition |     6 |
| BO12    |     30 | 1800  | 2023-03-10    | 2nd Edition |     7 |
| BO13    |     25 | 1900  | 2023-03-15    | 3rd Edition |     8 |
| BO14    |     22 | 1700  | 2023-03-20    | 1st Edition |     9 |
| BO15    |     15 | 2100  | 2023-03-25    | 2nd Edition |    10 |
| BO16    |     20 | 2100  | 2023-04-01    | 1st Edition |     6 |
| BO17    |     30 | 2200  | 2023-04-05    | 2nd Edition |     7 |
| BO18    |     35 | 2000  | 2023-04-10    | 1st Edition |     8 |
| BO19    |     40 | 2300  | 2023-04-15    | 3rd Edition |     9 |
| BO20    |     25 | 1800  | 2023-04-20    | 2nd Edition |    10 |
| BO21    |     30 | 2400  | 2023-04-25    | 1st Edition |    11 |
| BO22    |     25 | 2200  | 2023-04-30    | 2nd Edition |    12 |
| BO23    |     40 | 2500  | 2023-05-05    | 3rd Edition |    13 |
| BO24    |     35 | 2100  | 2023-05-10    | 1st Edition |    11 |
| BO25    |     50 | 2300  | 2023-05-15    | 2nd Edition |    12 |
| BO26    |     20 | 2400  | 2023-05-20    | 3rd Edition |    13 |
| BO27    |     30 | 2500  | 2023-05-25    | 1st Edition |    11 |
| BO28    |     40 | 2600  | 2023-05-30    | 2nd Edition |     5 |
| BO29    |     25 | 2700  | 2023-06-05    | 3rd Edition |     1 |
+---------+--------+-------+---------------+-------------+-------+
29 rows in set (0.00 sec)
```

```
mysql> Select * from book_Transaction;
+----------------+-------+-------+------------+--------------+
| Transaction_ID | Sid   | Bk_ID | IssuedDate | ReturnedDate |
+----------------+-------+-------+------------+--------------+
| T1001          | B1500 | BO01  | 2025-01-10 | 2025-01-20   |
| T1002          | B1501 | BO02  | 2025-01-15 | 2025-01-25   |
| T1003          | B1503 | BO03  | 2025-01-12 | 2025-01-22   |
| T1004          | B1504 | BO04  | 2025-01-18 | 2025-01-28   |
| T1005          | B1505 | BO05  | 2025-01-20 | NULL         |
| T1006          | B1506 | BO07  | 2025-01-14 | 2025-01-24   |
| T1007          | B1507 | BO07  | 2025-01-11 | 2025-01-21   |
| T1009          | B1509 | BO10  | 2025-01-13 | 2025-01-23   |
| T1010          | B1503 | BO03  | 2025-01-22 | NULL         |
| T1011          | B1503 | BO06  | 2025-02-01 | 2025-02-05   |
| T1012          | B1503 | BO10  | 2025-02-03 | NULL         |
| T1013          | B1500 | BO02  | 2025-02-04 | 2025-02-07   |
| T1014          | B1509 | BO05  | 2025-02-04 | 2025-02-11   |
| T1015          | B1501 | BO04  | 2025-02-03 | 2025-02-13   |
| T1016          | B1505 | BO06  | 2025-02-13 | NULL         |
+----------------+-------+-------+------------+--------------+
15 rows in set (0.00 sec)
```

```
mysql> Select Category From Book_Master
    -> Where MB_ID IN
    -> (Select MB_ID from book Where Book_ID=
    -> (Select Bk_ID from book_Transaction group by Bk_ID Order by Count(IssuedDate) DESC Limit 1));
+------------------+
| Category         |
+------------------+
| Computer Science |
+------------------+
1 row in set (0.00 sec)
```

19. **Which student visits library more frequently(assuming he issues a book every time he visits the library)**

```
mysql> Select * from student;
+-------+---------------+----------------------------+------------+------------+--------+
| S_ID  | Name          | Email                      | Mobile_No  | DOB        | Dep_ID |
+-------+---------------+----------------------------+------------+------------+--------+
| B1500 | Aarav Sharma  | aarav.sharma@gmail.com     | 9876543210 | 2000-01-15 | D001   |
| B1501 | Vivaan Patel  | Vivaan@gmail.com           | 9123456789 | 1999-02-20 | D003   |
| B1503 | Vihaan Gupta  | vihaan.gupta@gmail.com     | 9871234567 | 2002-04-25 | D002   |
| B1504 | Arjun Rao     | arjun.rao@gmail.com        | 9988776655 | 1998-05-30 | D001   |
| B1505 | Sai Kumar     | sai.kumar@gmail.com        | 9876543210 | 2000-06-15 | D005   |
| B1506 | Reyansh Singh | reyansh.singh@gmail..com   | 9123456789 | 2003-07-20 | D004   |
| B1507 | Krishna Iyer  | krishna.iyer@gmail.com     | 9988776655 | 1997-08-05 | D003   |
| B1508 | Rohan Mehta   | rohan.mehta@gmail.com      | 9871234567 | 2001-09-12 | D002   |
| B1509 | Anaya Joshi   | anaya.joshi@gmail.com      | 9123456789 | 2002-10-30 | D003   |
| B1510 | Janmesh Raut  | janmesh.raut@gmail.com     | 7414970972 | 2004-06-07 | D001   |
+-------+---------------+----------------------------+------------+------------+--------+
10 rows in set (0.00 sec)
```

```
mysql> Select * from book_Transaction;
+----------------+-------+-------+------------+--------------+
| Transaction_ID | Sid   | Bk_ID | IssuedDate | ReturnedDate |
+----------------+-------+-------+------------+--------------+
| T1001          | B1500 | BO01  | 2025-01-10 | 2025-01-20   |
| T1002          | B1501 | BO02  | 2025-01-15 | 2025-01-25   |
| T1003          | B1503 | BO03  | 2025-01-12 | 2025-01-22   |
| T1004          | B1504 | BO04  | 2025-01-18 | 2025-01-28   |
| T1005          | B1505 | BO05  | 2025-01-20 | NULL         |
| T1006          | B1506 | BO07  | 2025-01-14 | 2025-01-24   |
| T1007          | B1507 | BO07  | 2025-01-11 | 2025-01-21   |
| T1009          | B1509 | BO10  | 2025-01-13 | 2025-01-23   |
| T1010          | B1503 | BO03  | 2025-01-22 | NULL         |
| T1011          | B1503 | BO06  | 2025-02-01 | 2025-02-05   |
| T1012          | B1503 | BO10  | 2025-02-03 | NULL         |
| T1013          | B1500 | BO02  | 2025-02-04 | 2025-02-07   |
| T1014          | B1509 | BO05  | 2025-02-04 | 2025-02-11   |
| T1015          | B1501 | BO04  | 2025-02-03 | 2025-02-13   |
| T1016          | B1505 | BO06  | 2025-02-13 | 2025-02-15   |
| T1017          | B1507 | BO01  | 2025-02-14 | 2025-02-15   |
| T1018          | B1503 | BO02  | 2025-02-14 | 2025-02-16   |
| T1019          | B1505 | BO03  | 2025-02-14 | 2025-02-17   |
| T1020          | B1504 | BO04  | 2025-02-14 | 2025-02-16   |
| T1021          | B1506 | BO06  | 2025-02-14 | NULL         |
+----------------+-------+-------+------------+--------------+
20 rows in set (0.00 sec)
```

```
mysql> Select Name from Student Where S_ID=
    -> (Select Sid from book_Transaction Group by SId Order By Count(*) Desc Limit 1);
+--------------+
| Name         |
+--------------+
| Vihaan Gupta |
+--------------+
1 row in set (0.00 sec)
```

Conclusion:

This assignment deepens our understanding of nested queries using DDL and DML in MySQL. We explored constraints, foreign key dependencies, and complex queries to retrieve meaningful insights. Key learnings include identifying unissued books, tracking frequent library users, filtering data based on conditions, and handling duplicate records, reinforcing practical database management skills.