

1. Create Schema Library

```
mysql> create database library;
```

```
mysql> show databases
-> ;
+-----+
| Database |
+-----+
| as1      |
| assignment1_sql |
| information_schema |
| library  |
| mysql    |
| performance_schema |
| sys      |
+-----+
7 rows in set (0.01 sec)

mysql> use library
Database changed
mysql> show tables;
Empty set (0.00 sec)
```

2. Create tables

Books: BookID - Pk,BookName,AuthorName,Genre,pages

```
mysql> create table Books(BookID int primary key,BookName varchar(30),AuthorName varchar(30),Genre varchar(30),pages int);
Query OK, 0 rows affected (0.07 sec)

mysql> Select * from Books;
Empty set (0.00 sec)

mysql> describe Books;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| BookID | int | NO | PRI | NULL | |
| BookName | varchar(30) | YES | | NULL | |
| AuthorName | varchar(30) | YES | | NULL | |
| Genre | varchar(30) | YES | | NULL | |
| pages | int | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

Customers : CustomerId - PK, CustomerName, address

```
mysql> create table customers(CustomerID int primary key, CustomerName Varchar(30), adress varchar(30));
Query OK, 0 rows affected (0.08 sec)

mysql> describe customers;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| CustomerID     | int           | NO   | PRI | NULL    |       |
| CustomerName   | varchar(30)   | YES  |     | NULL    |       |
| adress         | varchar(30)   | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

BooksBorrowed: SIno, BookID - FK, CustomerID - FK, DaysBookRetained

```
mysql> create table BooksBorrowed(SIno int unique key, BooksID int, CustomerID int, DaysBookRatained int, foreign key (BooksID) references Books (BooksID), foreign key (CustomerID) references customers (CustomerID));
Query OK, 0 rows affected (0.13 sec)

mysql> describe BooksBorrowed;
+-----+-----+-----+-----+-----+-----+
| Field          | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| SIno           | int  | YES  | UNI | NULL    |       |
| BooksID        | int  | YES  | MUL | NULL    |       |
| CustomerID     | int  | YES  | MUL | NULL    |       |
| DaysBookRatained | int  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.01 sec)
```

Cost: MaxPages, Cost/day

```
mysql> create table cost(MaxPages int primary key, CostPerDay int);
Query OK, 0 rows affected (0.07 sec)

mysql> describe cost;
+-----+-----+-----+-----+-----+-----+
| Field          | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| MaxPages       | int  | NO   | PRI | NULL    |       |
| CostPerDay     | int  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql>
```

3. Google Search for books along with authors, genre and pages. Insert atleast 5 authors and 5 different genres into Books Table. Make sure you have atleast 30 records.

```

dharma@Ubuntu: -
25 | Good Omens | NeilGaiman,TerryPratchett | Humor | 432 |
26 | TheHitchhikersGuideGalaxy | Douglas Adams | Humor | 193 |
-----+-----+-----+-----+-----+
26 rows in set (0.00 sec)

mysql> insert into Books (BooksID,BookName,AuthorName,Genre,pages) values (27,"Bridget Jones Diary","Helen Fielding","Humor",271),(28,"Steve Jobs","Walter Isaacson","Biography",630),(29,"The Diary Of Young Girl","Anne Frank","Biography",283),(30,"The Wright Brothers","David McCullough","Biography",336);
Query OK, 4 rows affected (0.02 sec)
Records: 4 Duplicates: 0 Warnings: 0

mysql> select * from Books;
-----+-----+-----+-----+-----+
BooksID | BookName | AuthorName | Genre | pages |
-----+-----+-----+-----+-----+
1 | Dune | Frank Herbert | Science fiction | 694 |
2 | Neuronancer | William Gibson | Science fiction | 271 |
3 | The Girl Dragon Tattoo | Stieg Larsson | Science fiction | 672 |
4 | The Hobbit | J.R.R. Tolkien | Fantasy | 310 |
5 | A Game Of Thrones | George R.R.Martin | Fantasy | 694 |
6 | Harry Potter, the Sorcerer's Stone | J.K. Rowling | Fantasy | 309 |
7 | The Book Thief | Markus Zusak | Historical Fiction | 552 |
8 | All the Light We Cannot See | Anthony Doerr | Historical Fiction | 531 |
9 | The Pillars of the Earth | Ken Follet | Historical Fiction | 973 |
10 | Sapiens History | Yuval Noah Harari | Non-Fiction | 443 |
11 | The Immortal Life of Henrietta Lacks | Rebecca Skloot | Non-Fiction | 381 |
12 | Educated | Tara Westover | Non Fiction | 334 |
13 | Gone Girl | Gillian Flynn | Mystery or Thriller | 419 |
14 | The Girl on the Train | Rachel Watson | Mystery or Thriller | 672 |
15 | The Da Vinci Code | Dan Brown | Mystery or Thriller | 689 |
16 | Pride and Prejudice | Jane Austen | Romance | 279 |
17 | Outlander | Diana Gabaldon | Romance | 850 |
18 | Me Before You | Jojo Moyes | Romance | 369 |

```

4. Insert 15 customers into customer table by providing appropriate details

```

7 rows in set (0.00 sec)

mysql> use library;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> show tables;
+-----+
| Tables_in_library |
+-----+
| Books |
| BooksBorrowed |
| cost |
| customers |
+-----+
4 rows in set (0.00 sec)

mysql> describe customers;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| CustomerID | int | NO | PRI | NULL | |
| CustomerName | varchar(30) | YES | | NULL | |
| adress | varchar(30) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> insert into customers(CustomerID,CustomerName,adress) values(1,"Teja","Adoni"),(2,"Shreeja","Adoni2"),(3,"Sat","Venkatagiri"),(4,"Fahad","Kodur"),(5,"Nithin","Nellore"),(6,"Kiyath","Nellore2"),(7,"Balaji","MPL"),(8,"Bhargavi","Kadappa"),(9,"Gayathri","RYCHT"),(10,"Pooji","ATP"),(11,"Priya","Vijay"),(12,"Syan","Araku"),(13,"Harini","Hyderabad"),(14,"Gopal","Nepal"),(15,"Deva","GNBV");
Query OK, 15 rows affected (0.01 sec)

```

```
mysql> insert into customers(CustomerID,CustomerName,adress) values(1,"Teja","Adoni"),(2,"Shreeja","Adoni2"),(3,"Sat","Venkatagiri"),(4,"Fahad","Kodur"),(5,"Nithin","Nellore"),(6,"Kyathi","Nellore2"),(7,"Balaji","MPL"),(8,"Bhargavi","Kadappa"),(9,"Gayathri","RYCHT"),(10,"Pooji","ATP"),(11,"Priya","Vijag"),(12,"Syan","Araku"),(13,"Harini","Hyderabad"),(14,"Gopal","Nepal"),(15,"Deva","CNBV");
Query OK, 15 rows affected (0.01 sec)
Records: 15 Duplicates: 0 Warnings: 0

mysql> select * form customers;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'form customers' at line 1
mysql> select * from customers;
+-----+-----+-----+
| CustomerID | CustomerName | adress |
+-----+-----+-----+
| 1 | Teja | Adoni |
| 2 | Shreeja | Adoni2 |
| 3 | Sat | Venkatagiri |
| 4 | Fahad | Kodur |
| 5 | Nithin | Nellore |
| 6 | Kyathi | Nellore2 |
| 7 | Balaji | MPL |
| 8 | Bhargavi | Kadappa |
| 9 | Gayathri | RYCHT |
| 10 | Pooji | ATP |
| 11 | Priya | Vijag |
| 12 | Syan | Araku |
| 13 | Harini | Hyderabad |
| 14 | Gopal | Nepal |
| 15 | Deva | CNBV |
+-----+-----+-----+
15 rows in set (0.00 sec)

mysql>
```

5. Using BookId in Books Table and CustomerID in Customer Table insert data into BooksBorrowed table to have atleast 15 records.

```
ERROR 1054 (42S22): Unknown column 'DaysBookRetained' in 'field list'
mysql> insert into BooksBorrowed(SlNo,BooksID,CustomerID,DaysBookRetained) values(1,3,5,10),(2,5,6,12),(3,1,3,13),(4,4,6,12),(5,2,7,5),(6,20,12,14),(7,29,14,23),(8,30,14,12),(9,24,13,16),(10,23,8,12),(11,22,1,17),(12,13,14,11),(13,11,11,34),(14,12,13,17),(15,27,7,1);
Query OK, 15 rows affected (0.01 sec)
Records: 15 Duplicates: 0 Warnings: 0

mysql> sselect * from BooksBorrowed;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'sselect * from BooksBorrowed' at line 1
mysql> select * from BooksBorrowed;
+-----+-----+-----+-----+
| SlNo | BooksID | CustomerID | DaysBookRetained |
+-----+-----+-----+-----+
| 1 | 3 | 5 | 10 |
| 2 | 5 | 6 | 12 |
| 3 | 1 | 3 | 13 |
| 4 | 4 | 6 | 12 |
| 5 | 2 | 7 | 5 |
| 6 | 20 | 12 | 14 |
| 7 | 29 | 14 | 23 |
| 8 | 30 | 14 | 12 |
| 9 | 24 | 13 | 16 |
| 10 | 23 | 8 | 12 |
| 11 | 22 | 1 | 17 |
| 12 | 13 | 14 | 11 |
| 13 | 11 | 11 | 34 |
| 14 | 12 | 13 | 17 |
| 15 | 27 | 7 | 1 |
+-----+-----+-----+-----+
```

6. Retrieve the total number of books in each genre.

```
mysql> select Genre, count(*) as No_of_Books from Books group by Genre;
+-----+-----+
| Genre | No_of_Books |
+-----+-----+
| Science fiction | 3 |
| Fantasy | 3 |
| Historical Fiction | 3 |
| Non-Fiction | 2 |
| Non Fiction | 1 |
| Mystery_or_Thriller | 3 |
| Romance | 3 |
| Dystopain | 3 |
| Classic | 3 |
| Humor | 3 |
| Biography | 3 |
+-----+-----+
11 rows in set (0.00 sec)

mysql>
```


7. Retrieve total number of books borrowed.

```
mysql> select count(*) as TotalBooksBorrowed from BooksBorrowed;
+-----+
| TotalBooksBorrowed |
+-----+
| 15 |
+-----+
1 row in set (0.01 sec)

mysql>
```

8. retrieve names of books borrowed without repetition

```
Dec 12 15:51
dharm@Ubutu: ~
mysql> select Books.BooksID, Books.BookName, count(BooksBorrowed.BooksID) as no_OF_Borrow from Books join BooksBorrowed on Books.BooksID=BooksBorrowed.BooksID group by Books.BooksID, Books.BookName having count(BooksBorrowed.BooksID)=1;
+-----+-----+-----+
| BooksID | BookName | no_OF_Borrow |
+-----+-----+-----+
| 1 | Dune | 1 |
| 2 | Neuromancer | 1 |
| 3 | TheGirlDragonTattoo | 1 |
| 4 | The Hobbit | 1 |
| 5 | A Game OF Thrones | 1 |
| 11 | The immortal life of lacks | 1 |
| 12 | Educated | 1 |
| 13 | Gonni Girl | 1 |
| 22 | To Kill a Mockingbird | 1 |
| 23 | The Great Gatsby | 1 |
| 24 | 1 HundredYearsOfSolitude | 1 |
| 27 | Bridget Jones Diary | 1 |
| 28 | Steve Jobs | 1 |
| 29 | The Diary Of Young Girl | 1 |
| 30 | The Wright Brothers | 1 |
+-----+-----+-----+
15 rows in set (0.00 sec)

mysql>
```

9. Retrieve the customerName, BookName for books borrowed.

```

mysql> select CustomerName,BookName
-> from BooksBorrowed
-> join Customers on BooksBorrowed.CustomerID=Customers.CustomerID
-> join Books on BooksBorrowed.BookID=Books.BookID;
ERROR 1146 (42S02): Table 'library.customers' doesn't exist
mysql> select CustomerName,BookName from BooksBorrowed join customers on BooksBorrowed.CustomerID=Customers.CustomerID join Books
on BooksBorrowed.BookID=Books.BookID;
ERROR 1054 (42S22): Unknown column 'BooksBorrowed.BookID' in 'on clause'
mysql> select CustomerName,BookName from BooksBorrowed join customers on BooksBorrowed.CustomerID=Customers.CustomerID join Books
on BooksBorrowed.BookID=Books.BookID;
ERROR 1054 (42S22): Unknown column 'BooksBorrowed.CustomerID' in 'on clause'
mysql> select CustomerName,BookName from BooksBorrowed join customers on BooksBorrowed.CustomerID=Customers.CustomerID join Books
on BooksBorrowed.BookID=Books.BookID;
ERROR 1054 (42S22): Unknown column 'Customers.CustomerID' in 'on clause'
mysql> select CustomerName,BookName from BooksBorrowed join customers on BooksBorrowed.CustomerID=Customers.CustomerID join Books
on BooksBorrowed.BookID=Books.BookID;
+-----+-----+
| CustomerName | BookName |
+-----+-----+
| Nithin       | TheGirlDragonTattoo |
| Kyathi       | A Game OF Thrones |
| Sai          | Dune |
| Kyathi       | The Hobbit |
| Balaji       | Neuromancer |
| Syam         | Steve Jobs |
| Gopal        | The Diary Of Young Girl |
| Gopal        | The Wright Brothers |
| Harini       | 1 HundredYearsOfSolitude |
| Bhargavi     | The Great Gatsby |
| Teja         | To Kill a Mockingbird |
| Gopal        | Gonnt Girl |
| Priya        | The immortal life of Jacks |
| Harini       | Educated |
| Balaji       | Bridget Jones Diary |
+-----+-----+
15 rows in set (0.08 sec)

```

10. Insert below data into Cost table 100pages -50 rs, 200pages -75rs,500Pages -120, 800 pages -150rs, 1000 pages -160Rs

```

mysql> insert into customers(MaxPages,CostPerDay) values(100,50),(200,75),(500,120),(800,150),(1000,160);
ERROR 1054 (42S22): Unknown column 'MaxPages' in 'field list'
mysql> insert into costs(MaxPages,CostPerDay) values(100,50),(200,75),(500,120),(800,150),(1000,160);
ERROR 1146 (42S02): Table 'library.costs' doesn't exist
mysql> insert into cost(MaxPages,CostPerDay) values(100,50),(200,75),(500,120),(800,150),(1000,160);
Query OK, 5 rows affected (0.02 sec)
Records: 5 Duplicates: 0 Warnings: 0

mysql> select * from cost;
+-----+-----+
| MaxPages | CostPerDay |
+-----+-----+
| 100      | 50         |
| 200      | 75         |
| 500      | 120        |
| 800      | 150        |
| 1000     | 160        |
+-----+-----+
5 rows in set (0.00 sec)

```

11. total Earnings by Library.

```

mysql> select sum(CostPerDay*DaysBookRetained) as TotalEarnings from BooksBorrowed join cost on BooksBorrowed.DaysBookRetained<=cost
.MaxPages;
+-----+
| TotalEarnings |
+-----+
| 117600       |
+-----+
1 row in set (0.08 sec)
mysql>

```

12. Amount paid by each customer. Rank the customers based in amount paid.

```
mysql> select customers.CustomerName, sum(CostPerDay*DaysBookRetained) as Total_Amount from BooksBorrowed join customers on BooksBorrowed.CustomerID=customers.CustomerID join Books on BooksBorrowed.BooksID=Books.BooksID join cost on Books.pages<=cost.MaxPages group by customers.CustomerName order by Total_Amount Desc;
```

CustomerName	Total_Amount
Gopal	15480
Priya	14620
Harini	14190
Kyathi	8880
Balaji	8170
Teja	7310
Bhargavi	6060
Syan	4340
Sat	4030
Nithin	3160

```
10 rows in set (0.00 sec)

mysql>
```