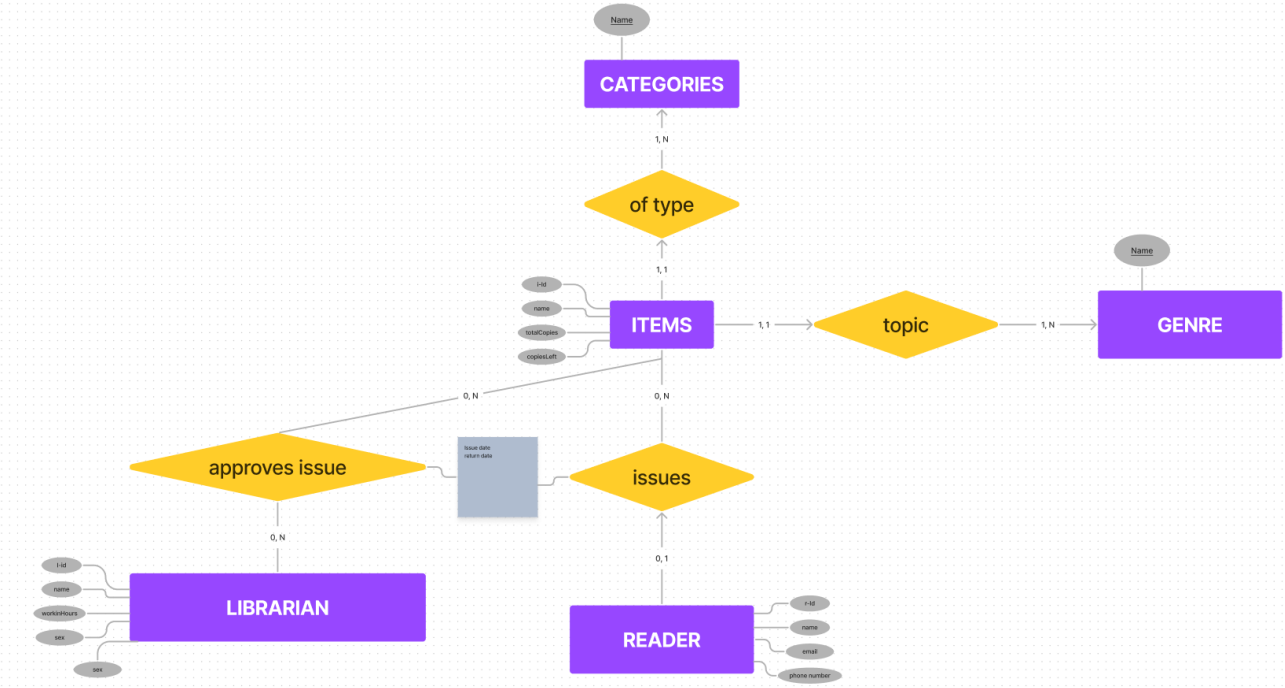
Lab Assignment 1

Team Number: **50**

Team Members: Soumik Roy (B20AI042)
Kulkarni Tanmay Shreevallabh (B20CS029)
Yash Bhargava (B20AI050)

ER Diagram (link):



Purple Boxes:	Represent Entity tables
Yellow Rhombus:	Represent relationships
Gray Ellipses:	Table Fields
Gray Square:	Relation FIelds

Demo (running the files)

File for question 1 : q1_connect_db.cpp

```
Command to Compile: g++ q1_connect_db.cpp -o q1_connect_db.exe -lmysql
```

File for question 2 : q2_createTables.cpp

```
Command to Compile: g++ q2_createTables.cpp -o q2_createTables.exe -lmysql
```

Now you can open the phpMyAdmin and check the tables so created.

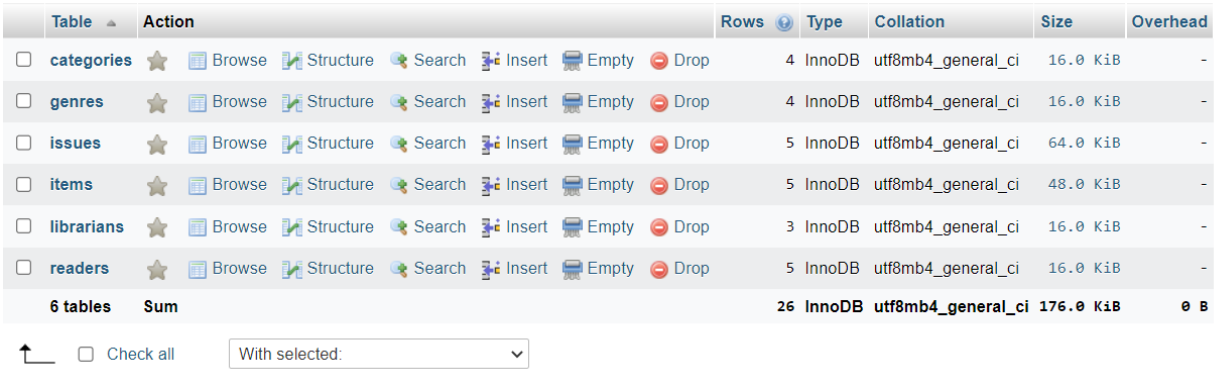


	Table	Action	Rows	Type	Collation	Size	Overhead
☐	categories	Browse Structure Search Insert Empty Drop	4	InnoDB	utf8mb4_general_ci	16.0 KiB	-
☐	genres	Browse Structure Search Insert Empty Drop	4	InnoDB	utf8mb4_general_ci	16.0 KiB	-
☐	issues	Browse Structure Search Insert Empty Drop	5	InnoDB	utf8mb4_general_ci	64.0 KiB	-
☐	items	Browse Structure Search Insert Empty Drop	5	InnoDB	utf8mb4_general_ci	48.0 KiB	-
☐	librarians	Browse Structure Search Insert Empty Drop	3	InnoDB	utf8mb4_general_ci	16.0 KiB	-
☐	readers	Browse Structure Search Insert Empty Drop	5	InnoDB	utf8mb4_general_ci	16.0 KiB	-
	6 tables	Sum	26	InnoDB	utf8mb4_general_ci	176.0 KiB	0 B

Check all With selected:

Question 3

a.

Table Name	Candidate Keys
Categories	Name
Genres	Name
Items	iId (item id)
Readers	rId (reader-id)
Librarians	lId (librarian-id)
Issues	issueId

b. Yes, our tables are in 2nd normal form as a partial dependency exists in no table. Every attribute depends on the entire set of candidate keys, hence there is no partial dependency.

However in the 'Issues' table, initially we decided to keep the tuple of (item id, reader-id, librarian-id) as the set of candidate keys. But it is possible that the same reader may

have issued the same item under the same librarian 2 times. And in such a case, the tuple of the 3 candidate keys would become the same for both the entries, and these 2 entries would only differ in their values of issue-date and return-date.

Hence we finally decided on adding another field ‘issue-id’ and also add this in the tuple of candidate keys. Hence now candidate keys is the tuple (issue-id, item-id, reader-id, librarian-id) making it unique for every row. We can also now call issue-id as the primary key as it is unique and non null, and hence it can be used to identify any row unambiguously.

Contributions

Soumik Roy:

Unified the code implementations, connected the SQL database and made the ER diagram.

Kulkarni Tanmay Shreevallabh:

Worked on the implementation of creating tables and made the outline of database schema

Yash Bhargava:

Worked on the implementation of insertion of rows in the table and made the report