**LIBRARY DATABASE**

**Project Report**

**Under Prof. Dimitri Theodoratos**

**By**

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**Implementation:**

We have generated large amount of data and designed a relational database schema that consists of a number of tables. Certain tables reference certain other tables.

We have created software that allows users to manipulate the data. It has a user-friendly interface. We have created this UI using HTML and CSS. Users do not need to know the details of the database or the SQL language to manipulate the data. The software supports user actions to query, update, add, and remove data from the database according to the requirements of the project.

Each function has been independently developed and implemented. We have used PHP to connect to the database and retrieve the required output. MySQLi is used to create, maintain and query the library database.

So whenever a user is performing certain request on the client, PHP will connect to the MySQLi and query accordingly to fetch the appropriate results.

**Issues Faced:**

* We faced the ‘chicken and egg problem’ while we created the tables and added primary key and foreign key constraints.
* Couple of logical error where relational schema came handy for what type of data and where the data needs to be inserted.
* Creating and parsing forms. Passing values from one form to another.
* Since PHP was new to us, learning how to connect to database using PHP was bit of a challenge.
* Few PHP syntax issues faced while trying to retrieve data from the connected database.
* While creating the database, keeping in mind all the constraints and referential integrity constraints and enforcing them was a challenge.
* Faced Issues while enforcing the constraint and making sure that right data is inserted right table.
* Enforcing the maximum books that one reader can borrow or reserve should not be greater than 10 as a constraint was difficult. However, we implemented it by adding it as a trigger.
* Adding the constraint wherein we need to check and cancel the reserved books if a reader is trying to checkout after 6 P.M.

**Use of the program:**

A library database system is important because it manages all the data related to the library, documents and borrowers efficiently and allows users to perform multiple tasks with ease. Library databases contain information from published works.Library databases provide citation information like Author, Title of document, Publisher, Date of Publication. Library authority gets wide operations wherein they can add documents, readers, etc. The readers also get various actions such as reserving books online, checkout of the books, etc.