**Project Final Report**

**Objective:**

* The aim of this project is to build a Book Management System
* This system can be built based on a few factors like books, authors, sales, publisher, awards, and editions.
* This system can create and update new data of books into the system. Users can also view the current books available.

**Scope:**

* The main scope of the project is to help users to view and search for the books and their respective edition, author, and price in the database.
* This can help to search the requirements of the specific user easily.
* This Book Management system can also store book sales data for the records sold books records.
* We can also analyze the data of the books and their properties.

**User Requirements:**

* Users can find a book and its details using this database.
* We can see what book had Series of book.
* Users can see editions of each book.
* Prices of the books.
* And sales based on which quarter, and we have Q1, Q2, Q3 and Q4.
* We can view the details of the author.

**Business Rules:**

* One book can have multiple authors, but each author can only write one book.
* One book can have multiple editions, but each edition belongs to only one book.
* One book can be checked out multiple times, but each checkout is for only one book.
* One book can have multiple ratings, but each rating is for only one book.
* One author can have only one info record, and each info record belongs to only one author.
* One info record can have only one series, and each series belongs to only one info record.
* One info record can have only one book, and each book belongs to only one info record.
* One book can win multiple awards, and each award can be won by multiple books.
* Multiple books can have the same publisher, but each book can have only one publisher.
* One publisher can publish multiple editions, but each edition is published by only one publisher.
* One publisher can make multiple sales, but each sale is made by only one publisher.
* Multiple sales can be made for the same edition, but each sale is for only one edition.
* Multiple sales can include the same item, but each item is sold in only one sale.
* Multiple sales can belong to the same order, but each sale is for only one order.
* One book can belong to multiple genre series, and each genre series can have multiple books.

**Entity-Relation Diagram:**

**A picture containing diagram, text, plan, technical drawing

Description automatically generated**

**Data Dictionary:**

**Graphical user interface

Description automatically generatedGraphical user interface

Description automatically generated with medium confidenceCalendar

Description automatically generated with medium confidenceA picture containing table

Description automatically generated**

**Data Base:**

To create a database management system for the Books Management System, we can use SQL Workbench, a software tool that provides a user-friendly interface and is compatible with various operating systems. SQL Workbench allows us to optimize our queries and execute them efficiently with its advanced tools. It also provides us with the flexibility to configure high cluster servers and master-slave configurations to enhance the system's performance. One of the major benefits of using SQL Workbench is its graphical visualization tools, which enables us to design and optimize schema and queries. We can create complex ER models with ease and utilize features that facilitate efficient modeling and designing of the database.

Overall, SQL Workbench is an excellent choice for developing the database management system for the Books Management System, as it offers us the necessary tools and features to optimize and manage our data effectively. We can use MySQL's powerful tools to manage and optimize the created database, including designing and optimizing schema and queries, creating tables, and inserting, updating, or deleting data. MySQL's database management system is widely used and offers high performance, scalability, and reliability.

Below is the image of the Database schema with related tables included in the schema and 6 tables are filled with records.

A screenshot of a computer

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**A screenshot of a computer

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I have tried many ways of inserting the tables in the database like manually and in query related entry in the SQL.

Here in the below image, we are using create table for creating the table SalesQ2 and given its attributes their data types and required status i.e. (NULL, NOT NULL).

A screenshot of a computer

Description automatically generated

We are creating a table Author with attributes AuthID, FirstName, LastName, Birthday, CountryOfResidense, HrsWritingPerDay.

A screenshot of a computer

Description automatically generated

Here, we have added the table edition and their attributes in the manual manner.

A screenshot of a computer

Description automatically generated

Here we are displaying the records of the Table edition.

A screenshot of a computer

Description automatically generated

Here we are displaying the records of the Table author.

A screenshot of a computer

Description automatically generated

Here we are displaying the records of the Table award.

A screenshot of a computer

Description automatically generated

Here we are displaying the AwardName and respective count of its entries in the table Award.

A screenshot of a computer

Description automatically generated

Selecting the Books which has format of “Hardcover” in the table edition.

A screenshot of a computer

Description automatically generated

Displaying the Count of “Hardcover” format and results the value of count. Where it matches the filter.

A screenshot of a computer

Description automatically generated

We have sorted the CheckoutsMonth in ascending and displays the maximum checkouts in each month.

A screenshot of a computer

Description automatically generated

Selected the fields AuthID, FirstName, LastName, HrsWritingPerDay where the filter is HrsWritingPerDay is greater than 8 hours.

A screenshot of a computer

Description automatically generated

Here we are displaying the names of the authors who are from United States.

A screenshot of a computer

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