LIBRARY MANAGEMENT SYSTEM USING PYTHON AND MYSQL

a step-by-step guide to create a Library Management System using MySQL and Python:

Step 1: Install MySQL and Python

1. Install MySQL:

* Download and install MySQL from the official website.

* Follow the installation instructions and set up a root password.

2. Install Python:

* Download and install Python from the official website.

* Ensure you add Python to your system PATH during installation.

3. Install pymysql:

* Open your command prompt or terminal and run:

* pip install pymysql

Step 2: Set Up the MySQL Database

1. Open MySQL Workbench or use the MySQL command line.

2. Create a new database:

SQL

```
CREATE DATABASE library_db;
```

3. Use the new database:

SQL

```
USE library_db;
```

4. Create the books table:

SQL

```
CREATE TABLE books (
   book_id INT PRIMARY KEY,
   title VARCHAR(255) NOT NULL,
   author VARCHAR(255) NOT NULL
);
```

Step 3: Connect Python to MySQL

1. Establish the connection Python:

```
import pymysql
connection = pymysql.connect(
   host='localhost',
   user='root',
   password='your_password',
   database='library_db'
)
cursor = connection.cursor()
```

Step 4: Implement CRUD Operations in Python

1. Add book information:

Python

```
def add_book():
   book_id = input("Enter Book ID: ")
```

```
    title = input("Enter Book Title: ")
    author = input("Enter Book Author: ")
    query = "INSERT INTO books (book_id, title, author)
VALUES (%s, %s, %s)"
    cursor.execute(query, (book_id, title, author))
    connection.commit()
    print("Book added successfully!")
```

2.Display book information:

Python

```
def display_books():
    query = "SELECT * FROM books"
    cursor.execute(query)
    for row in cursor.fetchall():
        print(f"Book ID: {row[0]}, Title: {row[1]}, Author: {row[2]}")
```

3. List all books by a given author:

Python

```
def list_books_by_author():
    author = input("Enter Author Name: ")
    query = "SELECT * FROM books WHERE author = %s"
    cursor.execute(query, (author,))
    for row in cursor.fetchall():
        print(f"Book ID: {row[0]}, Title: {row[1]}, Author: {row[2]}")
```

4. Count the number of books:

Python code

```
def count_books():
    query = "SELECT COUNT(*) FROM books"
    cursor.execute(query)
    count = cursor.fetchone()[0]
    print(f"Total number of books: {count}")
```

Step 5: Create the Main Menu

1. Main menu function:

Python

```
def main():
    while True:
        print("\nLibrary Management System")
        print("1. Add book information")
        print("2. Display book information")
        print("3. List all books of a given author")
        print("4. Count the number of books in the library")
        print("5. Exit")
        choice = input("Enter your choice: ")
        if choice == '1':
            add_book()
        elif choice == '2':
            display_books()
        elif choice == '3':
            list_books_by_author()
        elif choice == '4':
            count_books()
        elif choice == '5':
            break
```

```
        else:
            print("Invalid choice!")

if __name__ == "__main__":
    main()
```

Step 6: Run Your Program

* Run your Python script:

* Save your script as library_management.py.

* Open your command prompt or terminal and navigate to the directory where your script is saved.

* Run the script:

```
python library_management.py
```