DIGITAL INNOVATOR PROGRAMME(DIP)

COMPUTER SCIENCE | PSCS2014

COMPUTER SCIENCE

SEMESTER 2 PART 2

TASK 3 (10% CARRYMARKS)
SQL EXERCISE : LIBRARY DATABASE

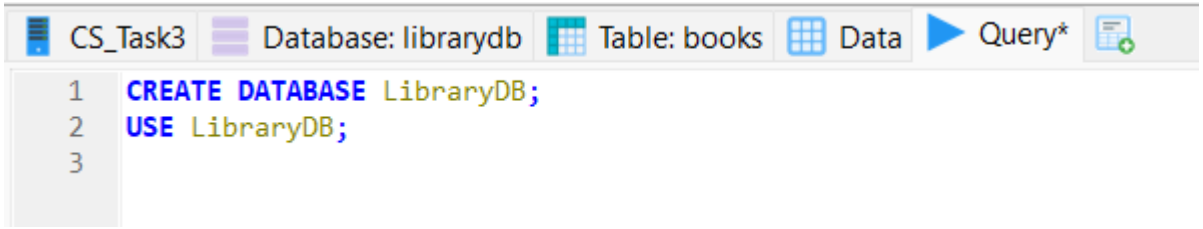
INSTRUCTIONS:

In this individual task, you will develop a basic library database using HeidiSQL and MySQL. The exercise focuses on creating and managing a single table that tracks library books and their borrowing dates.

Step 1: Create the Database

SQL Command

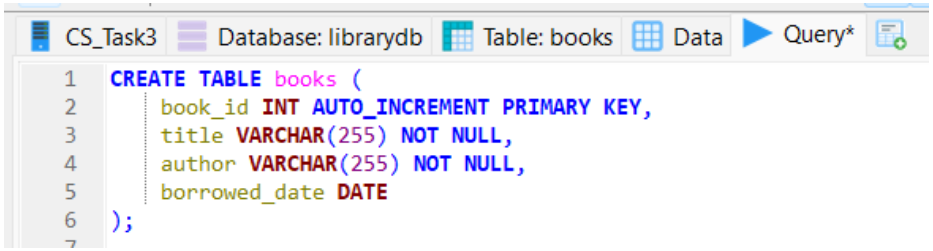
```
CREATE DATABASE LibraryDB;
USE LibraryDB;
```



Step 2: Create the Books Table

SQL Command

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



Step 3: Insert Sample Data

CS_Task3 | Database: librarydb | Table: books | Data | Query*

```
1  INSERT INTO books (title, author, borrowed_date) VALUES
2  ('To Kill a Mockingbird', 'Harper Lee', '2024-01-15'),
3  ('1984', 'George Orwell', '2024-02-20'),
4  ('The Great Gatsby', 'F. Scott Fitzgerald', '2024-03-10'),
5  ('Pride and Prejudice', 'Jane Austen', '2024-04-25'),
6  ('Moby Dick', 'Herman Melville', '2024-05-30');
7
```

Step 4: Query Operations

a) List All Books

CS_Task3 | Database: librarydb | Table: books | Data | Query*

```
1  SELECT * FROM books;
2
```

books (5r × 4c)

#	book_id	title	author	borrowed_date
1	1	To Kill a Mockingbird	Harper Lee	2024-01-15
2	2	1984	George Orwell	2024-02-20
3	3	The Great Gatsby	F. Scott Fitzgerald	2024-03-10
4	4	Pride and Prejudice	Jane Austen	2024-04-25
5	5	Moby Dick	Herman Melville	2024-05-30

b) Find Books by a Specific Author

CS_Task3 | Database: librarydb | Table: books | Data | Query*

```
1  SELECT * FROM books WHERE author = 'George Orwell';
2
```

books (1r × 4c)

#	book_id	title	author	borrowed_date
1	2	1984	George Orwell	2024-02-20

c) Find Books Borrowed on a Specific Date

CS_Task3 | Database: librarydb | Table: books | Data | Query*

```
1  SELECT * FROM books WHERE borrowed_date = '2024-03-10';
2
```

books (1r × 4c)

#	book_id	title	author	borrowed_date
1	3	The Great Gatsby	F. Scott Fitzgerald	2024-03-10

d) Find Books Borrowed After a Certain Date

CS_Task3 | Database: librarydb | Table: books | Data | Query*

```
1  SELECT * FROM books WHERE borrowed_date > '2024-03-01';
2
```

books (3r × 4c)

#	book_id	title	author	borrowed_date
1	3	The Great Gatsby	F. Scott Fitzgerald	2024-03-10
2	4	Pride and Prejudice	Jane Austen	2024-04-25
3	5	Moby Dick	Herman Melville	2024-05-30

Step 5: Data Manipulation

a) Update Borrowed Date for a Book

CS_Task3 | Database: librarydb | Table: books | Data | Query*

```
1  UPDATE books SET borrowed_date = '2011-10-14' WHERE  book_id = '1';
```

#	book_id	title	author	borrowed_date
1	3	The Great Gatsby	F. Scott Fitzgerald	2024-06-01
2	2	1984	George Orwell	2024-02-20
3	1	To Kill a Mockingbird	Harper Lee	2011-10-14
4	6	Moby Dick	Herman Melville	2024-05-30
5	4	Pride and Prejudice	Jane Austen	2024-07-01

b) Delete a Book

CS_Task3 | Database: librarydb | Table: books | Data | Query*

```
1  DELETE FROM books WHERE book_id = 5;
```

#	book_id	title	author	borrowed_date
1	3	The Great Gatsby	F. Scott Fitzgerald	2024-06-01
2	2	1984	George Orwell	2024-02-20
3	1	To Kill a Mockingbird	Harper Lee	2024-01-15
4	4	Pride and Prejudice	Jane Austen	2024-07-01

c) Re-add a Deleted Book

CS_Task3 | Database: librarydb | Table: books | Data | Query*

```
1  INSERT INTO books (title, author, borrowed_date) VALUES
2  ('Moby Dick', 'Herman Melville', '2024-05-30');
```

librarydb.books: 5 rows total (exact)

#	book_id	title	author	borrowed_date
1	3	The Great Gatsby	F. Scott Fitzgerald	2024-06-01
2	2	1984	George Orwell	2024-02-20
3	1	To Kill a Mockingbird	Harper Lee	2024-01-15
4	6	Moby Dick	Herman Melville	2024-05-30
5	4	Pride and Prejudice	Jane Austen	2024-07-01

Conclusion

This document provides a comprehensive overview of the SQL commands and operations performed for the library database task. The accompanying screenshots demonstrate the successful execution of each step.