Kolej PERMATA@Pintar Negara, Universiti Kebangsaan Malaysia Digital Innovator Programme (D.I.P.)
Semester 2 Part 2 2024/2025

Computer Science Foundation 1
Task 3: SQL Exercise - Library Database (10%)

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HEIDISQL Query Commands:

1. Creating databases and table

Command:

```
CREATE DATABASE library_db;
USE  library_db;

CREATE TABLE books (
book_id INT PRIMARY KEY AUTO_INCREMENT,
title VARCHAR (100),
author VARCHAR (100),
borrowed_date DATE
);
```

Results:

#	Name	Datatype	Length/Set	Unsig...	Allow N...	Zero...	Default
1	book_id	INT	11	☐	☐	☐	AUTO_INCREMENT
2	title	VARCHAR	100	☐	☑	☐	NULL
3	author	VARCHAR	100	☐	☑	☐	NULL
4	borrowed_d...	DATE		☐	☑	☐	NULL

2. Adding data to table

Command:

```sql
INSERT INTO books (title, author, borrowed_date)
VALUES
('Harry Potter', 'JK Rowling', '2024-06-26'),
('Lord Of The Rings', 'JRR Tolkien', '2024-07-29'),
('Atomic Habits', 'James Clear', '2024-10-16'),
('Goosebumps', 'RL Stine', '2024-07-1'),
('The 5AM Club', 'Robin Sharma', '2024-12-04');
```

Results:

library_db.books: 5 rows total (exact)

#	book_id 🔑	title	author	borrowed_date
1	1	Harry Potter	JK Rowling	2024-06-26
2	2	Lord Of The Rings	JRR Tolkien	2024-07-29
3	3	Atomic Habits	James Clear	2024-10-16
4	4	Goosebumps	RL Stine	2024-07-01
5	5	The 5AM Club	Robin Sharma	2024-12-04

3. Selecting certain data

a) Listing all books

Command:

```sql
SELECT * FROM books;
```

Results:

```sql
SELECT * FROM books;
/* */
/* Affected rows: 0  Found rows: 4  Warnings: 0  Duration for 1 query: 0.000 sec. */
```

b) Finding books by certain author

Command:

```sql
SELECT * FROM books
WHERE author = 'James Clear'
```

Results:

```sql
SELECT * FROM books  WHERE author = 'James Clear'        ;
/* */
/* Affected rows: 0  Found rows: 1  Warnings: 0  Duration for 1 query: 0.000 sec. */
```

c) *Finding books published on a certain date*

Command:

```sql
SELECT * FROM books
WHERE borrowed_date = '2024-06-26'
```

Results:

```
SELECT * FROM books  WHERE borrowed_date = '2024-06-26'           ;
/*  */
/* Affected rows: 0  Found rows: 1  Warnings: 0  Duration for 1 query: 0.000 sec. */
```

d) Finding books published after a certain date

Command:

```
SELECT * FROM books
WHERE borrowed_date > '2024-07-02'
```

Results

```
SELECT * FROM books  WHERE borrowed_date > '2024-07-02';
/*  */
/* Affected rows: 0  Found rows: 3  Warnings: 0  Duration for 1 query: 0.000 sec. */
```

4. Updating data in tables

a) Updating borrowed_date

Before command:

book_id 🔑	title	author	borrowed_date
1	Harry Potter	JK Rowling	2024-06-26

Command:

```
USE library_db;
UPDATE books
SET borrowed_date = '2024-09-11'
WHERE book_id = 1;
```

Results:

book_id 🔑	title	author	borrowed_date
1	Harry Potter	JK Rowling	2024-09-11

b) Deleting a book

Before command:

library_db.books: 5 rows total (exact)

#	book_id 🔑	title	author	borrowed_date
1	1	Harry Potter	JK Rowling	2024-06-26
2	2	Lord Of The Rings	JRR Tolkien	2024-07-29
3	3	Atomic Habits	James Clear	2024-10-16
4	4	Goosebumps	RL Stine	2024-07-01
5	5	The 5AM Club	Robin Sharma	2024-12-04

Command:

```
USE library_db;
DELETE FROM books
WHERE book_id = 1;
```

Results:

book_id 🔑	title	author	borrowed_date
2	Lord Of The Rings	JRR Tolkien	2024-07-29
3	Atomic Habits	James Clear	2024-10-16
4	Goosebumps	RL Stine	2024-07-01
5	The 5AM Club	Robin Sharma	2024-12-04

c) Re-adding a deleted book

Before command:

book_id 🔑	title	author	borrowed_date
2	Lord Of The Rings	JRR Tolkien	2024-07-29
3	Atomic Habits	James Clear	2024-10-16
4	Goosebumps	RL Stine	2024-07-01
5	The 5AM Club	Robin Sharma	2024-12-04

Command:

```
INSERT INTO books (title, author, borrowed_date)
VALUES ('Harry Potter', 'JK Rowling', '2024-06-26')
```

Results:

library_db.books: 5 rows total (exact)

#	book_id 🔑	title	author	borrowed_date
1	1	Harry Potter	JK Rowling	2024-06-26
2	2	Lord Of The Rings	JRR Tolkien	2024-07-29
3	3	Atomic Habits	James Clear	2024-10-16
4	4	Goosebumps	RL Stine	2024-07-01
5	5	The 5AM Club	Robin Sharma	2024-12-04