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BSCpE 2A1

Database Management System

Chapter 2: Structured Query Language (SQL)

Laboratory Activity 3:

Laboratory Title: Structured Query Language (SQL) - Basic Queries

Chapter No. and Topic: Chapter 2 - Structured Query Language (SQL)

Discussions:

This activity covers the basics of querying data from a table using SQL.

Activity Description:

Learn how to retrieve data using SELECT, filter with WHERE clauses, and sort results using ORDER BY.

Objectives:

- Write basic SQL queries using SELECT.
- Apply filters using WHERE clauses.
- Sort results using ORDER BY.

Materials:

- MySQL Workbench or SQL client

Procedure:

1. Open MySQL Workbench and connect to the LibraryManagement database.
2. Retrieve all columns from the Books table:

sql

Copy code

```
SELECT * FROM Books;
```



1. Retrieve books with the genre 'Fiction':

sql

Copy code

```
SELECT * FROM Books WHERE Genre = 'Fiction';
```

```
26 • SELECT * FROM Books WHERE Genre = 'Fiction';
27 • INSERT INTO Books (Title, Author, ISBN, Genre) VALUES
28     ('The Great Gatsby', 'F. Scott Fitzgerald', '9780743273565', 'Classic'),
29
```

| BookID | Title | Author | ISBN | Genre |
|--------|------------------------|---------------|---------------|---------|
| 2 | To Kill a Mockingbird | Harper Lee | 9780061120084 | Fiction |
| 8 | The Catcher in the Rye | J.D. Salinger | 9780316769488 | Fiction |
| 79 | To Kill a Mockingbird | Harper Lee | 9780061120084 | Fiction |
| 85 | The Catcher in the Rye | J.D. Salinger | 9780316769488 | Fiction |
| 156 | To Kill a Mockingbird | Harper Lee | 9780061120084 | Fiction |
| 162 | The Catcher in the Rye | J.D. Salinger | 9780316769488 | Fiction |
| 233 | To Kill a Mockingbird | Harper Lee | 9780061120084 | Fiction |
| 239 | The Catcher in the Rye | J.D. Salinger | 9780316769488 | Fiction |
| 310 | To Kill a Mockingbird | Harper Lee | 9780061120084 | Fiction |
| 316 | The Catcher in the Rye | J.D. Salinger | 9780316769488 | Fiction |
| 387 | To Kill a Mockingbird | Harper Lee | 9780061120084 | Fiction |
| 393 | The Catcher in the Rye | J.D. Salinger | 9780316769488 | Fiction |
| NULL | NULL | NULL | NULL | NULL |

1. Sort the books by Title in ascending order:

sql

Copy code

```
SELECT * FROM Books ORDER BY Title ASC;
```

```
SELECT * FROM Books ORDER BY Title ASC;
INSERT INTO Members (FirstName, LastName, Email) VALUES
('John', 'Doe', 'john.doe@example.com'),

('Jane', 'Smith', 'jane.smith@example.com'),

('Michael', 'Johnson', 'michael.johnson@example.com'),

('Emily', 'Davis', 'emily.davis@example.com'),

('David', 'Brown', 'david.brown@example.com'),

('Sarah', 'Williams', 'sarah.williams@example.com'),

('James', 'Jones', 'james.jones@example.com'),
```

Result:

Basic queries to retrieve and filter data from the Books table.

| Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: |
|-------------|---------------------------|---------------------|----------------|-----------------------|
| BookID | Title | Author | ISBN | Genre |
| 1 | The Great Gatsby | F. Scott Fitzgerald | 9780743273565 | Classic |
| 2 | To Kill a Mockingbird | Harper Lee | 9780061120084 | Fiction |
| 3 | 1984 | George Orwell | 9780451524935 | Dystopian |
| 4 | Pride and Prejudice | Jane Austen | 9781503290563 | Romance |
| 5 | Moby Dick | Herman Melville | 9781503280786 | Adventure |
| 6 | War and Peace | Leo Tolstoy | 9781400079988 | Historical Fiction |
| 7 | The Odyssey | Homer | 9780140268867 | Classical Literature |
| 8 | The Catcher in the Rye | J.D. Salinger | 9780316769488 | Fiction |
| 9 | The Lord of the Rings | J.R.R. Tolkien | 9780261103573 | Fantasy |
| 10 | Brave New World | Aldous Huxley | 9780060850524 | Science Fiction |
| 11 | Frankenstein | Mary Shelley | 9780486282114 | Horror |
| 12 | Dracula | Bram Stoker | 9780141439846 | Horror |
| 13 | The Picture of Dorian ... | Oscar Wilde | 9780141439570 | Philosophical |
| 14 | Crime and Punishment | Fyodor Dostoevsky | 9780140449136 | Psychological Fiction |
| 15 | The Hobbit | J.R.R. Tolkien | 9780618968633 | Fantasy |
| 16 | The Great Alone | Kristin Hannah | 9780312574810 | Historical Fiction |
| 17 | The Shining | Stephen King | 9780307743657 | Horror |
| 18 | The Alchemist | Paulo Coelho | 9780062315007 | Adventure |
| 19 | The Hunger Games | Suzanne Collins | 9780439023528 | Dystopian |
| 20 | The Kite Runner | Khaled Hosseini | 9781594631931 | Drama |
| 21 | A Game of Thrones | George R.R. Martin | 9780553103540 | Fantasy |
| 22 | The Chronicles of Narnia | C.S. Lewis | 9780066238500 | Fantasy |
| 23 | Little Women | Louisa May Alcott | 9780142408760 | Classic |
| 24 | Anna Karenina | Leo Tolstoy | 9780143035008 | Literary Fiction |
| 25 | The Book Thief | Markus Zusak | 9780375842207 | Historical Fiction |
| 26 | Fahrenheit 451 | Ray Bradbury | 9781451673319 | Dystopian |
| 27 | The Road | Cormac McCarthy | 9780307387899 | Post-apocalyptic |

Additional Questions/Discussions:

- How do WHERE and ORDER BY improve the functionality of SQL queries?
 - The WHERE clause improves SQL queries by allowing users to filter and retrieve specific rows from a database table based on conditions. This helps in narrowing down large datasets and extracting only relevant information. The ORDER BY clause enhances functionality by sorting the retrieved data in ascending (ASC) or descending (DESC) order based on one or more columns, making it easier to analyze and present structured data.

Conclusions:

In this lab activity, we explored the fundamentals of SQL queries, including data retrieval using SELECT, filtering results using the WHERE clause, and sorting data using ORDER BY. These basic query operations form the foundation for interacting with relational databases, allowing users to efficiently extract and organize information based on specific requirements.