

JOHN CARLO S. GUMAOD

Laboratory Activity 5:

The screenshot displays the SQL Enterprise Manager interface. The left pane shows the 'Schemas' tree with 'librarymanagement' expanded, containing tables 'books', 'members', and 'transactions'. The central query window, titled 'Laboratory SQL*', contains the following SQL code:

```
1 CREATE TABLE UnNormalizedBooks (  
2     BookID INT,  
3     Title VARCHAR(100),  
4     Authors VARCHAR(100),  
5     Genre VARCHAR(50)  
6 );  
7  
8 INSERT INTO UnNormalizedBooks (BookID, Title, Authors, Genre)  
9 VALUES  
10 (1, 'Book A', 'Author1, Author2', 'Fiction'),  
11 (2, 'Book B', 'Author3', 'Non-Fiction');  
12  
13 CREATE TABLE Books_1NF (  
14     BookID INT,  
15     Title VARCHAR(100),  
16     Author VARCHAR(100),  
17     Genre VARCHAR(50)  
18 );  
19  
20 INSERT INTO Books_1NF (BookID, Title, Author, Genre)  
21 VALUES
```

The right pane shows 'SQLAdditions' with the text 'Automatic content help for the c'. The bottom pane shows the 'Output' window with the following data:

#	Time	Action	Message
149	22:42:11	DROP TABLE NormalizedBooks	Error Code: 1051. Unknown table 'libraryman:
150	22:42:13	DROP TABLE NormalizedBooks	Error Code: 1051. Unknown table 'libraryman:
151	22:42:23	DROP TABLE UnNormalizedBooks	0 row(s) affected
152	22:42:27	DROP TABLE UnNormalizedBooks	Error Code: 1051. Unknown table 'libraryman:
153	22:42:33	DROP TABLE Books_1NF	0 row(s) affected
154	22:42:51	CREATE TABLE UnNormalizedBooks (BookID INT, Title VARCHAR(100), Authors VARCHAR(100), G...	0 row(s) affected

The status bar at the bottom indicates 'Query Completed'.

LibraryManagement x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

librarymanagement

Tables

books

members

transactions

Views

Stored Procedures

Functions

sakila

sys

world

Administration Schemas

Information

Schema: librarymanagement

Object Info Session

books members transactions Laboratory SQL*

Limit to 1000 rows

SQLAdditions

Automatic context help is disabled. Use the tool help for the current caret position

```

1 CREATE TABLE UnNormalizedBooks (
2     BookID INT,
3     Title VARCHAR(100),
4     Authors VARCHAR(100),
5     Genre VARCHAR(50)
6 );
7
8 INSERT INTO UnNormalizedBooks (BookID, Title, Authors, Genre)
9 VALUES
10 (1, 'Book A', 'Author1, Author2', 'Fiction'),
11 (2, 'Book B', 'Author3', 'Non-Fiction');
12
13 CREATE TABLE Books_INF (
14     BookID INT,
15     Title VARCHAR(100),
16     Author VARCHAR(100),
17     Genre VARCHAR(50)
18 );
19
20 INSERT INTO Books_INF (BookID, Title, Author, Genre)

```

Output

Action Output

#	Time	Action	Message
150	22:42:13	DROP TABLE NormalizedBooks	Error Code: 1051. Unknown table 'librarymanagement.normalizedbooks'
151	22:42:23	DROP TABLE UnNormalizedBooks	0 row(s) affected
152	22:42:27	DROP TABLE UnNormalizedBooks	Error Code: 1051. Unknown table 'librarymanagement.unnormalizedbooks'
153	22:42:33	DROP TABLE Books_INF	0 row(s) affected
154	22:42:51	CREATE TABLE UnNormalizedBooks (BookID INT, Title VARCHAR(100), Authors VARCHAR(100), Genre VARCHAR(50))	0 row(s) affected
155	22:43:46	INSERT INTO UnNormalizedBooks (BookID, Title, Authors, Genre) VALUES (1, 'Book A', 'Author1, Author2', 'Fiction'), (2, 'Book B', 'Author3', 'Non-Fiction')	2 row(s) affected Records: 2 Duplicates: 0 Warnings: 0

Query Completed

LibraryManagement x

File Edit View Query Database Server Tools Scripting Help

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Schema: librarymanagement

Object Info Session

books members transactions Laboratory SQL*

Limit to 1000 rows

SQLAdditions

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```

4     Authors VARCHAR(100),
5     Genre VARCHAR(50)
6 );
7
8 INSERT INTO UnNormalizedBooks (BookID, Title, Authors, Genre)
9 VALUES
10 (1, 'Book A', 'Author1, Author2', 'Fiction'),
11 (2, 'Book B', 'Author3', 'Non-Fiction');
12
13 CREATE TABLE Books_INF (
14     BookID INT,
15     Title VARCHAR(100),
16     Author VARCHAR(100),
17     Genre VARCHAR(50)
18 );
19
20 INSERT INTO Books_INF (BookID, Title, Author, Genre)
21 VALUES
22 (1, 'Book A', 'Author1', 'Fiction'),
23 (1, 'Book A', 'Author2', 'Fiction')

```

Output

Action Output

#	Time	Action	Message
151	22:42:23	DROP TABLE UnNormalizedBooks	0 row(s) affected
152	22:42:27	DROP TABLE UnNormalizedBooks	Error Code: 1051. Unknown table 'librarymanagement.unnormalizedbooks'
153	22:42:33	DROP TABLE Books_INF	0 row(s) affected
154	22:42:51	CREATE TABLE UnNormalizedBooks (BookID INT, Title VARCHAR(100), Authors VARCHAR(100), Genre VARCHAR(50))	0 row(s) affected
155	22:43:46	INSERT INTO UnNormalizedBooks (BookID, Title, Authors, Genre) VALUES (1, 'Book A', 'Author1, Author2', 'Fiction'), (2, 'Book B', 'Author3', 'Non-Fiction')	2 row(s) affected Records: 2 Duplicates: 0 Warnings: 0
156	22:44:12	CREATE TABLE Books_INF (BookID INT, Title VARCHAR(100), Author VARCHAR(100), Genre VARCHAR(50))	0 row(s) affected

Query Completed

LibraryManagement x

File Edit View Query Database Server Tools Scripting Help

Navigator: books members transactions Laboratory SQL x

SCHEMAS

Filter objects

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Information

Schema: librarymanagement

Query Completed

```

8 • INSERT INTO UnNormalizedBooks (BookID, Title, Authors, Genre)
9   VALUES
10  (1, 'Book A', 'Author1, Author2', 'Fiction'),
11  (2, 'Book B', 'Author3', 'Non-Fiction');
12
13 • CREATE TABLE Books_INF (
14   BookID INT,
15   Title VARCHAR(100),
16   Author VARCHAR(100),
17   Genre VARCHAR(50)
18 );
19
20 • INSERT INTO Books_INF (BookID, Title, Author, Genre)
21   VALUES
22  (1, 'Book A', 'Author1', 'Fiction'),
23  (1, 'Book A', 'Author2', 'Fiction'),
24  (2, 'Book B', 'Author3', 'Non-Fiction');
25 • SELECT * FROM UnNormalizedBooks;
26 • SELECT * FROM Books_INF;

```

Automatic context help is disabled. Use the context help for the current caret position or to

Context Help Snippets

Output

Action Output

#	Time	Action	Message
152	22:42:27	DROP TABLE UnNormalizedBooks	Error Code: 1051. Unknown table 'librarymanagement.unnormalizedbooks'
153	22:42:33	DROP TABLE Books_INF	0 row(s) affected
154	22:42:51	CREATE TABLE UnNormalizedBooks (BookID INT, Title VARCHAR(100), Authors VARCHAR(100), Genre VARCHAR(50))	0 row(s) affected
155	22:43:46	INSERT INTO UnNormalizedBooks (BookID, Title, Authors, Genre) VALUES (1, 'Book A', 'Author1, Author2', 'Fiction'), (2, 'Book B', 'Author3', 'Non-Fiction');	2 row(s) affected Records: 2 Duplicates: 0 Warnings: 0
156	22:44:12	CREATE TABLE Books_INF (BookID INT, Title VARCHAR(100), Author VARCHAR(100), Genre VARCHAR(50))	0 row(s) affected
157	22:44:31	INSERT INTO Books_INF (BookID, Title, Author, Genre) VALUES (1, 'Book A', 'Author1', 'Fiction'), (1, 'Book A', 'Author2', 'Fiction'), (2, 'Book B', 'Author3', 'Non-Fiction');	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0

LibraryManagement x

File Edit View Query Database Server Tools Scripting Help

Navigator: books members transactions Laboratory SQL x

SCHEMAS

Filter objects

librarymanagement

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sys

world

Administration Schemas

Information

Schema: librarymanagement

Query Completed

```

17   Genre VARCHAR(50)
18 );
19
20 • INSERT INTO Books_INF (BookID, Title, Author, Genre)
21   VALUES
22  (1, 'Book A', 'Author1', 'Fiction'),
23  (1, 'Book A', 'Author2', 'Fiction'),
24  (2, 'Book B', 'Author3', 'Non-Fiction');
25 • SELECT * FROM UnNormalizedBooks;

```

Automatic context help is disabled. Use the context help for the current caret position or to

Context Help Snippets

Result Grid

BookID	Title	Authors	Genre
1	Book A	Author1, Author2	Fiction
2	Book B	Author3	Non-Fiction

UnNormalizedBooks 16 x

Read Only

Context Help Snippets

Output

Action Output

#	Time	Action	Message
153	22:42:33	DROP TABLE Books_INF	0 row(s) affected
154	22:42:51	CREATE TABLE UnNormalizedBooks (BookID INT, Title VARCHAR(100), Authors VARCHAR(100), Genre VARCHAR(50))	0 row(s) affected
155	22:43:46	INSERT INTO UnNormalizedBooks (BookID, Title, Authors, Genre) VALUES (1, 'Book A', 'Author1, Author2', 'Fiction'), (2, 'Book B', 'Author3', 'Non-Fiction');	2 row(s) affected Records: 2 Duplicates: 0 Warnings: 0
156	22:44:12	CREATE TABLE Books_INF (BookID INT, Title VARCHAR(100), Author VARCHAR(100), Genre VARCHAR(50))	0 row(s) affected
157	22:44:31	INSERT INTO Books_INF (BookID, Title, Author, Genre) VALUES (1, 'Book A', 'Author1', 'Fiction'), (1, 'Book A', 'Author2', 'Fiction'), (2, 'Book B', 'Author3', 'Non-Fiction');	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0
158	22:45:17	SELECT * FROM UnNormalizedBooks LIMIT 0, 1000	2 row(s) returned

LibraryManagement

File Edit View Query Database Server Tools Scripting Help

books members transactions Laboratory SQL

Limit to 1000 rows

SQLAdditions

Automatic context help is disabled. Use the context help for the current caret position or to toggle context help for the entire document.

SCHEMAS

Filter objects

librarymanagement

Tables

books

members

transactions

Views

Stored Procedures

Functions

sakila

sys

world

Administration Schemas

Information

Schema: librarymanagement

18

19

20

21

22

23

24

25

26

);

INSERT INTO Books_1NF (BookID, Title, Author, Genre)

VALUES

(1, 'Book A', 'Author1', 'Fiction'),

(1, 'Book A', 'Author2', 'Fiction'),

(2, 'Book B', 'Author3', 'Non-Fiction');

SELECT * FROM UnNormalizedBooks;

SELECT * FROM Books_1NF;

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

Result Grid

Form Editor

BookID	Title	Author	Genre
1	Book A	Author1	Fiction
1	Book A	Author2	Fiction
2	Book B	Author3	Non-Fiction

Books_1NF 17

Read Only

Context Help

Snippets

Output

Action Output

#	Time	Action	Message
154	22:42:51	CREATE TABLE UnNormalizedBooks (BookID INT, Title VARCHAR(100), Authors VARCHAR(100), G...	0 row(s) affected
155	22:43:46	INSERT INTO UnNormalizedBooks (BookID, Title, Authors, Genre) VALUES (1, 'Book A', 'Author1, Author2', F...	2 row(s) affected Records: 2 Duplicates: 0 Warnings: 0
156	22:44:12	CREATE TABLE Books_1NF (BookID INT, Title VARCHAR(100), Author VARCHAR(100), Genre VAR...	0 row(s) affected
157	22:44:31	INSERT INTO Books_1NF (BookID, Title, Author, Genre) VALUES (1, 'Book A', 'Author1', 'Fiction'), (1, Book A...	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0
158	22:45:17	SELECT * FROM UnNormalizedBooks LIMIT 0, 1000	2 row(s) returned
159	22:45:48	SELECT * FROM Books_1NF LIMIT 0, 1000	3 row(s) returned

Object Info

Session

Query Completed

Additional Questions/Discussions:

- How does 1NF improve data integrity?
 - By making sure each column only contains atomic (indivisible) values and that each column contains values of a single type, First Normal Form (1NF) enhances data integrity. By requiring a primary key, it reduces redundancy and inconsistency by getting rid of duplicate rows. Data insertion, updating, and deletion anomalies are avoided by 1NF's hierarchical data organization, which promotes more dependable and consistent database administration.

- What are atomic values, and why are they important?
 - The smallest, indivisible data points that are incapable of further deduction are known as atomic values. In order to preserve consistency and clarity in the data, it is crucial to make sure that every field in a database table has a single atomic value. A more effective and well-organized database structure results from this approach, which also removes ambiguity and makes it easier to query and update entries. It is also necessary to meet the requirements of First Normal Form (1NF).

Conclusions:

- A database table with First Normal Form (1NF) includes a unique identifier (primary key), atomicity (each column contains only indivisible values), and no duplicate columns, which guarantees an organized and consistent format. It makes searches more effective by preventing data redundancy and enhancing data integrity. Applying 1NF makes databases easier to administer and more structured, which paves the way for higher levels of normalization.