

Paco, Armin R.
BSCpE – 3A

Laboratory Activity 6:

Laboratory Title: Normalization - Second Normal Form (2NF)
Chapter No. and Topic: Chapter 3 - Database Design and Modeling
Discussions:
This activity will cover the process of converting a table to the Second Normal Form (2NF).

Activity Description:
Given a 1NF table, remove partial dependencies to achieve 2NF.

Objectives:

- Remove partial dependencies and achieve 2NF.

Materials:

- SQL client

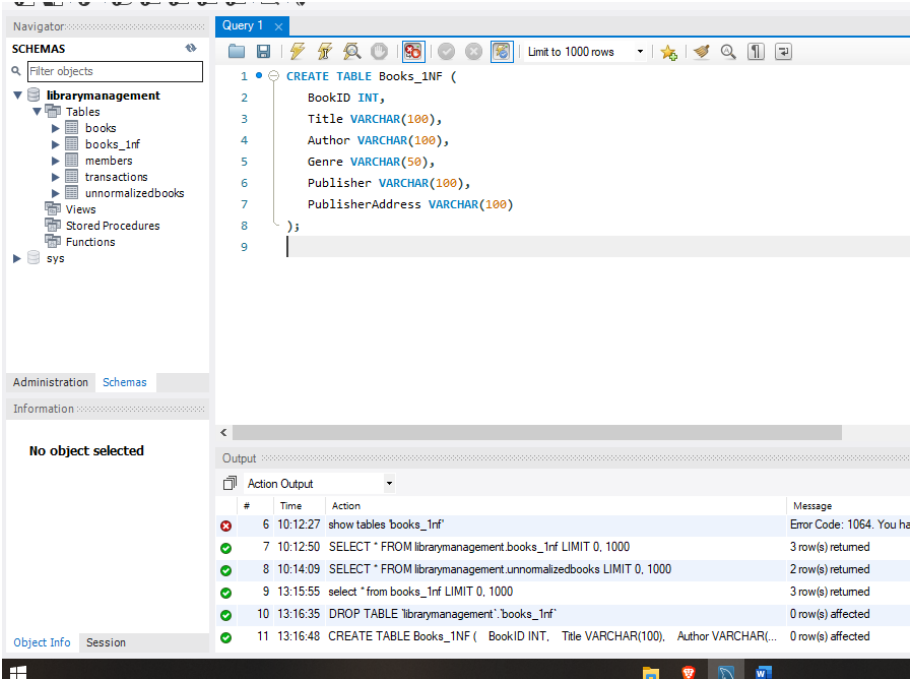
Procedure:

1. Create a 1NF table:

sql

Copy code

```
CREATE TABLE Books_1NF (  
  
    BookID INT,  
  
    Title VARCHAR(100),  
  
    Author VARCHAR(100),  
  
    Genre VARCHAR(50),  
  
    Publisher VARCHAR(100),  
  
    PublisherAddress VARCHAR(100)  
  
) ;
```



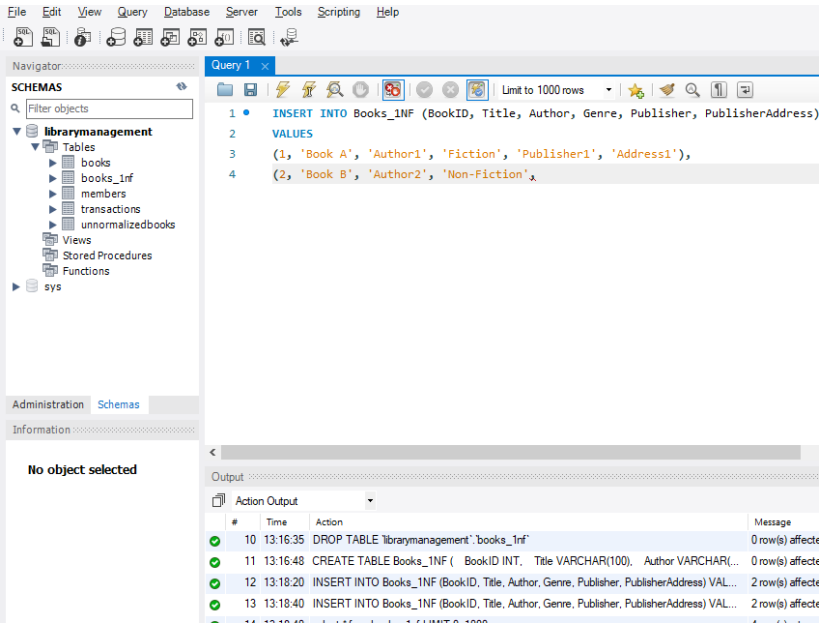
1. Insert sample data:

```
INSERT INTO Books_1NF (BookID, Title, Author, Genre, Publisher,
PublisherAddress)
```

```
VALUES
```

```
(1, 'Book A', 'Author1', 'Fiction', 'Publisher1', 'Address1'),
```

```
(2, 'Book B', 'Author2', 'Non-Fiction', 'Publisher1', 'Address1');
```



1. Create two separate tables to remove partial dependency:

```
CREATE TABLE Books_2NF (
```

```
BookID INT PRIMARY KEY,
```

```
Title VARCHAR(100),
```

```
Author VARCHAR(100),
```

```
Genre VARCHAR(50)
```

```
);
```

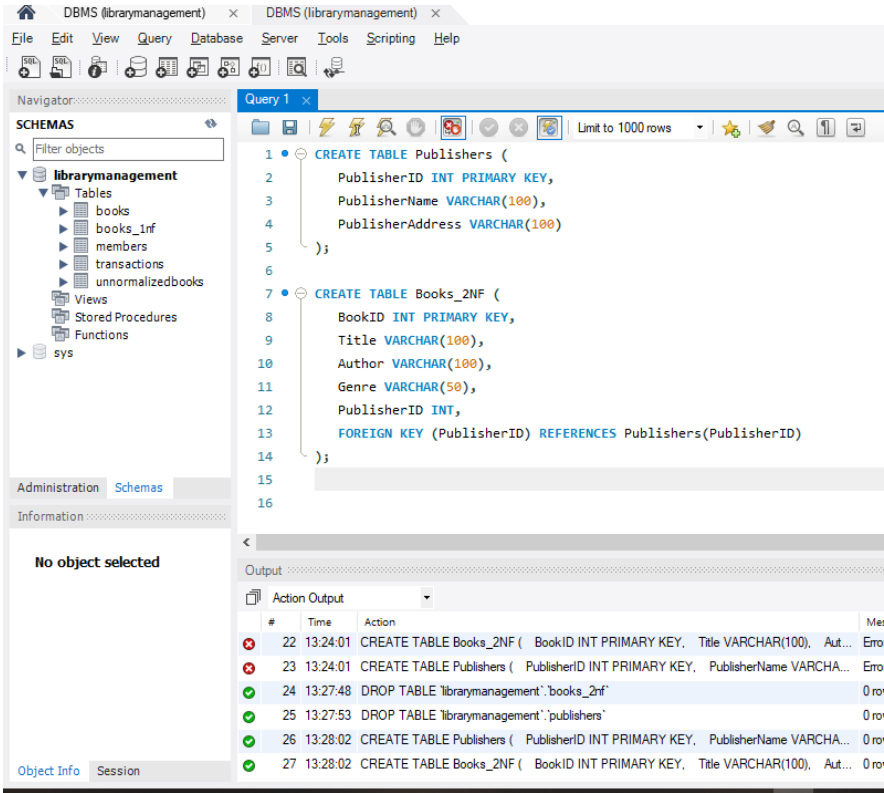
```
CREATE TABLE Publishers (
```

```
PublisherID INT PRIMARY KEY,
```

```
PublisherName VARCHAR(100),
```

```
PublisherAddress VARCHAR(100)
```

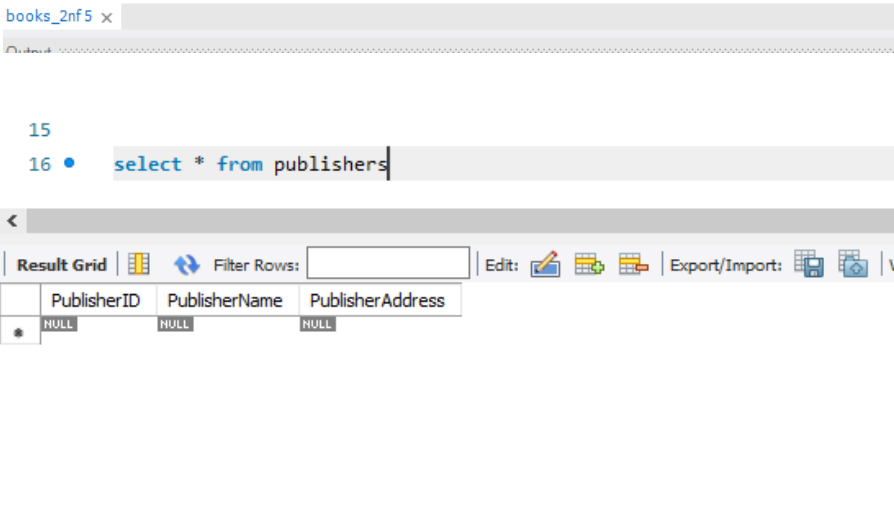
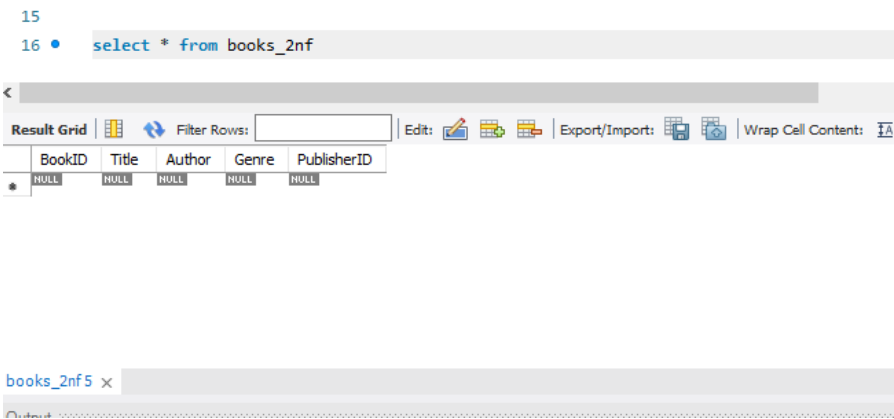
```
);
```



1. Move Publisher data into the Publishers table and adjust Books_2NF to include PublisherID as a foreign key.

Result:

The table is now in 2NF with no partial dependencies.



Additional Questions/Discussions:

- What is a partial dependency, and how does 2NF eliminate it?

A partial dependency occurs when a non- key attribute depends only on parts of a composite primary key. 2NF ensure that all non-key attributes and not just a part of it are fully dependent.

- How do foreign keys help maintain data integrity?

The FOREIGN KEY constraint is used to prevent actions that would destroy links between tables.

Conclusions:

1NF and 2NF are the types or form of normalization. 1NF is the foundation condition of all form of normalization. 1NF is used for removing the repeating value and avoid multivalued attributes, while 2NF builds upon 1NF with additional condition that is, " There should be no partial dependency in the relation".