# Exercise 8 – Data Definition Language

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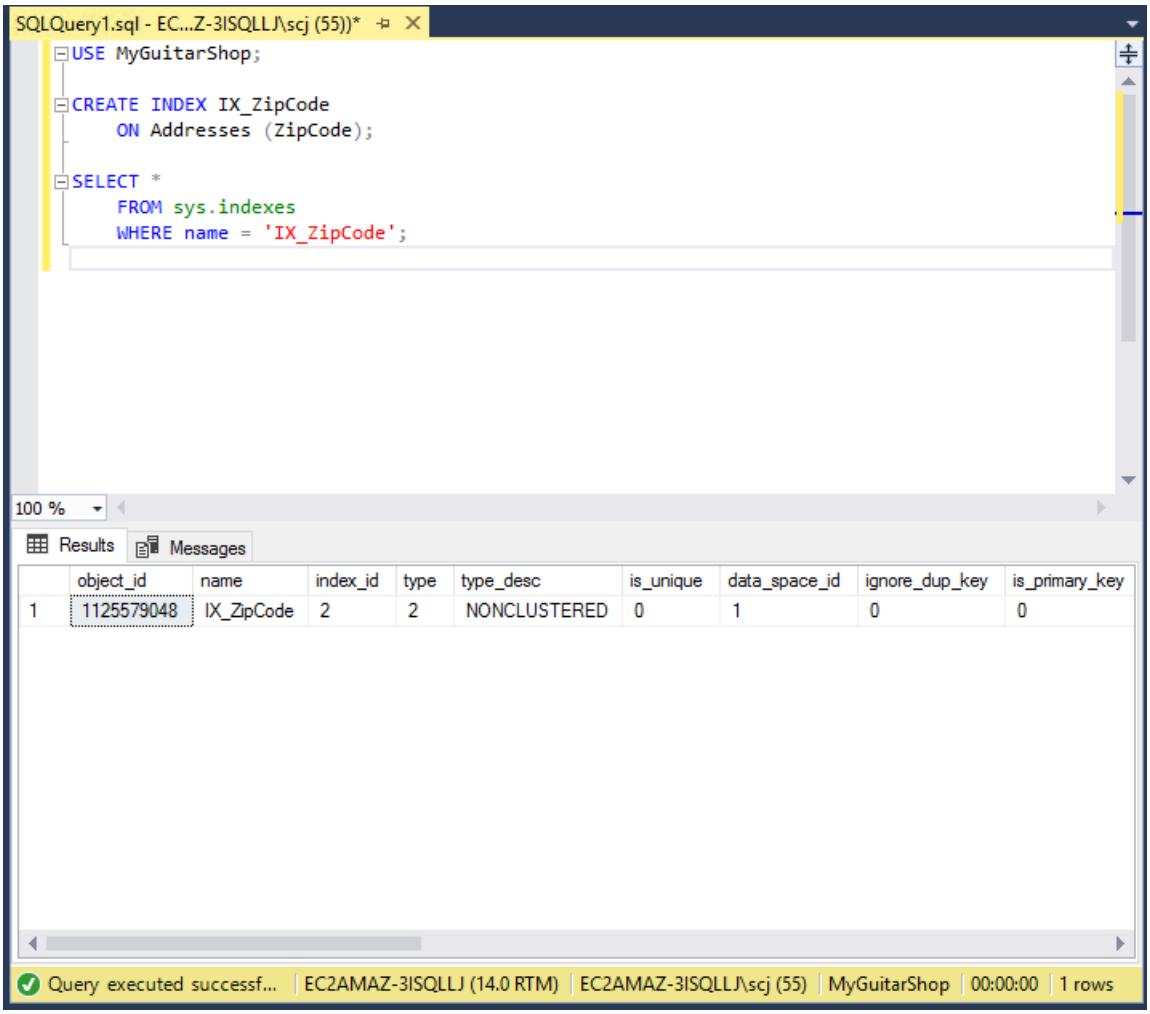
## 1 Add an index to the MyGuitarShop for zip code

See figure 1

```
USE MyGuitarShop;

CREATE INDEX IX_ZipCode
        ON Addresses (ZipCode);

SELECT *
        FROM sys.indexes
        WHERE name = 'IX_ZipCode';
```

Figure 1: Per 1

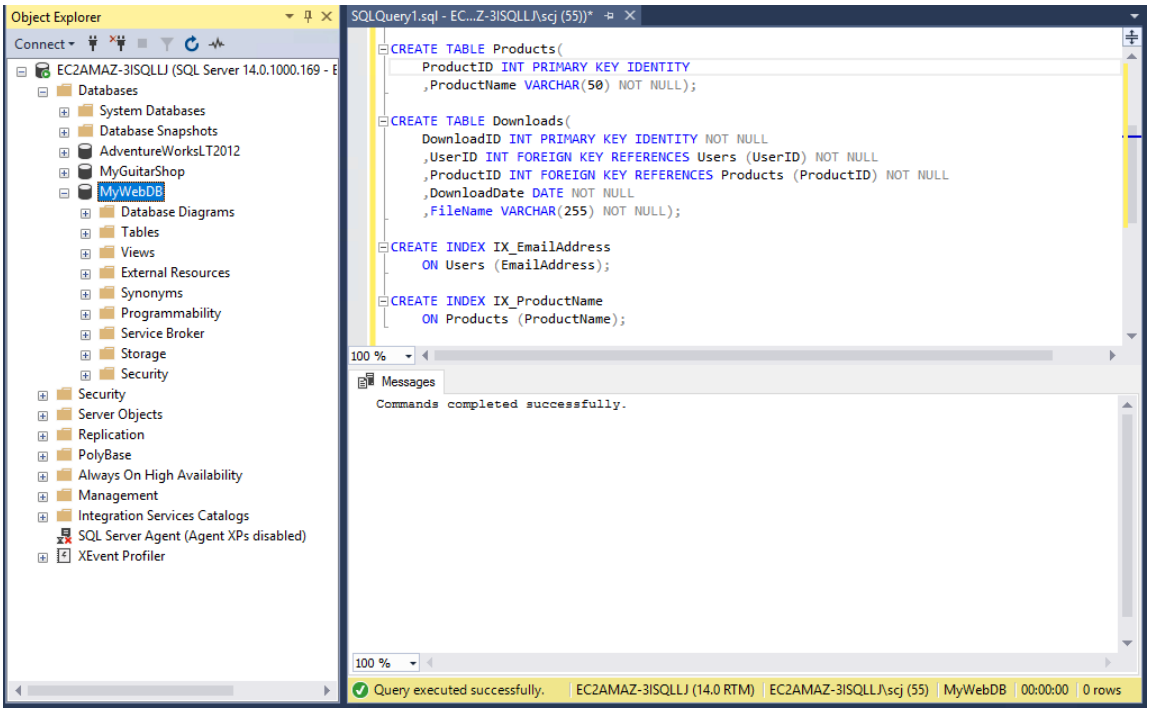


## 2 Implement a design on a database

See figure 2

```
IF  DB_ID('MyWebDB') IS NOT NULL
    DROP DATABASE MyWebDB;
CREATE DATABASE MyWebDB;
USE MyWebDB;

CREATE TABLE Users(
        UserID INT PRIMARY KEY IDENTITY
        ,EmailAddress VARCHAR(50) NOT NULL
        ,FirstName VARCHAR(50) NOT NULL
        ,LastName VARCHAR(50) NOT NULL);

CREATE TABLE Products(
        ProductID INT PRIMARY KEY IDENTITY
        ,ProductName VARCHAR(50) NOT NULL);

CREATE TABLE Downloads(
        DownloadID INT PRIMARY KEY IDENTITY NOT NULL
        ,UserID INT FOREIGN KEY REFERENCES Users (UserID) NOT NULL
        ,ProductID INT FOREIGN KEY REFERENCES Products (ProductID) NOT NULL
        ,DownloadDate DATETIME2(7) NOT NULL
        ,FileName VARCHAR(255) NOT NULL);

CREATE INDEX IX_EmailAddress
        ON Users (EmailAddress);

CREATE INDEX IX_ProductName
        ON Products (ProductName);
```

Figure 2: Per 2

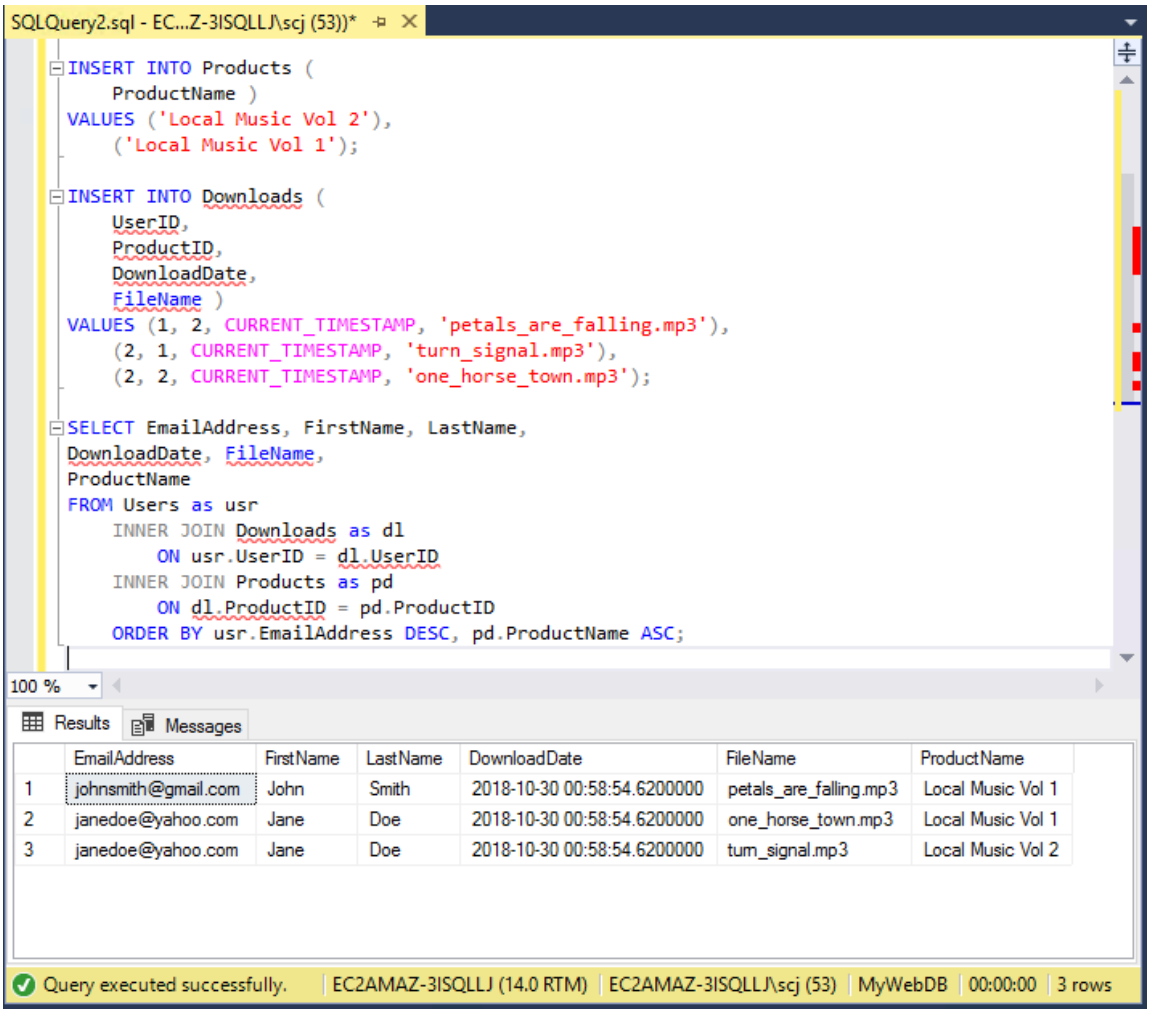



# 3 Add rows to database

See figure 3

```
USE MyWebDB;

INSERT INTO USERS (
        EmailAddress,
        FirstName,
        LastName )
VALUES ('johnsmith@gmail.com', 'John', 'Smith'),
        ('janedoe@yahoo.com', 'Jane', 'Doe');

INSERT INTO Products (
        ProductName )
VALUES ('Local Music Vol 2'),
        ('Local Music Vol 1');

INSERT INTO Downloads (
        UserID,
        ProductID,
        DownloadDate,
        FileName )
VALUES (1, 2, CURRENT_TIMESTAMP, 'petals_are_falling.mp3'),
        (2, 1, CURRENT_TIMESTAMP, 'turn_signal.mp3'),
        (2, 2, CURRENT_TIMESTAMP, 'one_horse_town.mp3');

SELECT EmailAddress, FirstName, LastName,
DownloadDate, FileName,
ProductName
FROM Users as usr
        INNER JOIN Downloads as dl
                ON usr.UserID = dl.UserID
        INNER JOIN Products as pd
                ON dl.ProductID = pd.ProductID
        ORDER BY usr.EmailAddress DESC, pd.ProductName ASC;
```

Figure 3: Per 3

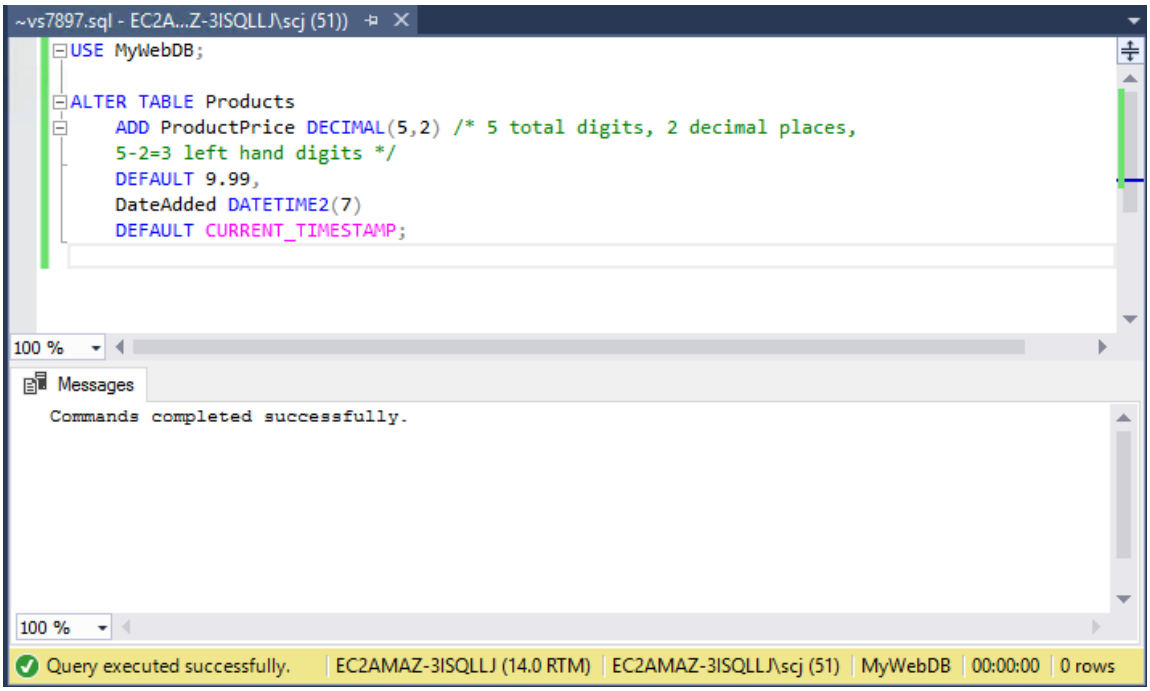



# 4 Alter Products table

See figure 4

```
USE MyWebDB;

ALTER TABLE Products
        ADD ProductPrice DECIMAL(5,2) /* 5 total digits, 2 decimal places,
        5-2=3 left hand digits */
        DEFAULT 9.99,
        DateAdded DATETIME2(7)
        DEFAULT CURRENT_TIMESTAMP;
```

Figure 4: Per 4

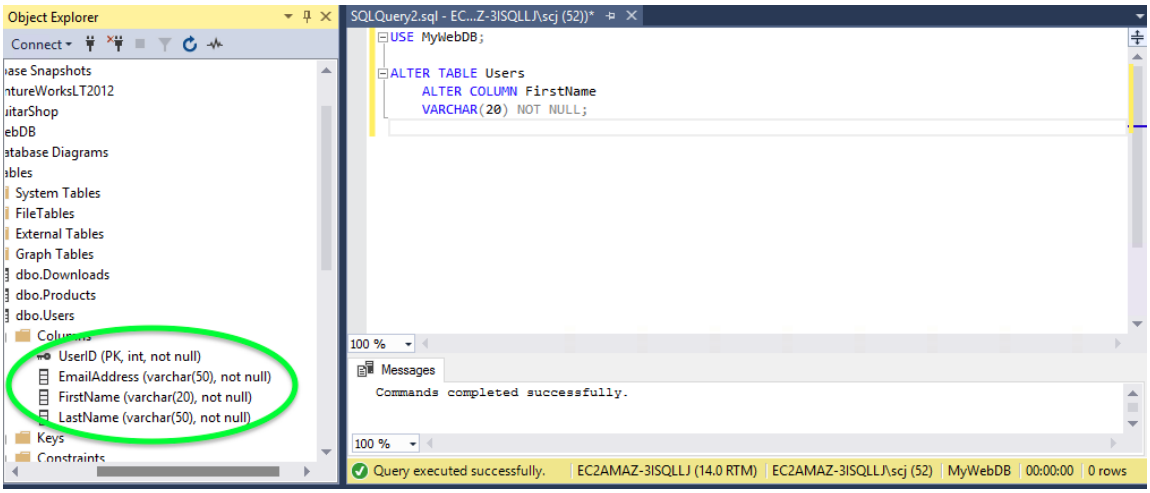



## 5 Alter FirstName column in Users

See figure 5

```
USE MyWebDB;

ALTER TABLE Users
        ALTER COLUMN FirstName
        VARCHAR(20) NOT NULL;
```

Figure 5: Per 5

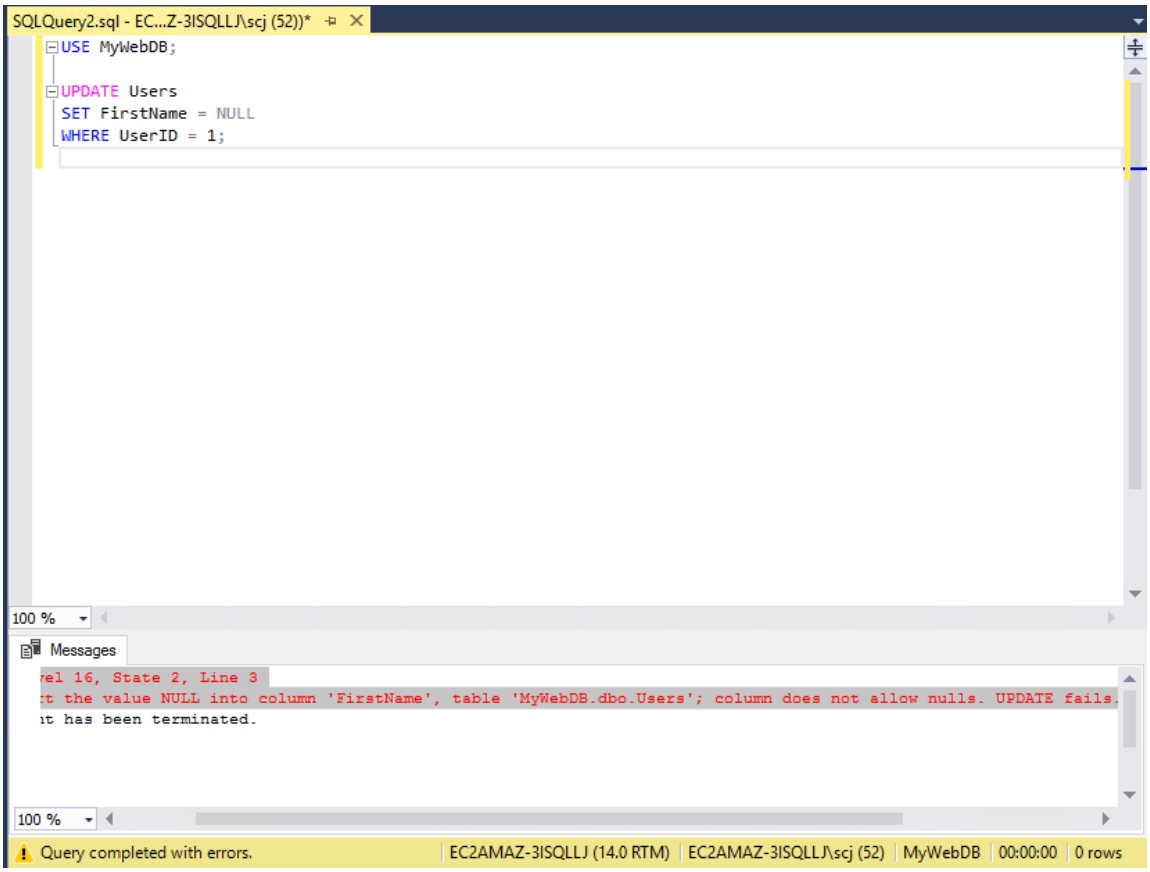



## 5.1 Failed update command for Users

In which we attempt to update with a NULL in a value which is not allowed to be null
See figure 6

```
USE MyWebDB;

UPDATE Users
SET FirstName = NULL
WHERE UserID = 1;
```

Figure 6: Per 5.1




## 5.2 Failed update command for Users 2: electric boogaloo

In which we attempt to udpate with a name which is too long for the data type
See figure 7

```
USE MyWebDB;

UPDATE Users
SET Firstname = 'abcdefghijklmnopqrstuvwzyz'
WHERE UserID = 1;
```

Figure 7: Per 5.2