Databases	Day 3
	2 hours
PRACTICAL 6 **CREATE, INSERT, UPDATE and DELETE**	

OBJECTIVES

At the end of this practical, you should know how to:

- construct SQL statement to insert, update and delete data

REFERENCES

Please refer to the following appendices in Database textbook.

- Appendix B: Tables in NP40 Book Rental System's Database
- Appendix E: Data Dictionary for NP40 Book Rental System

Syntax:

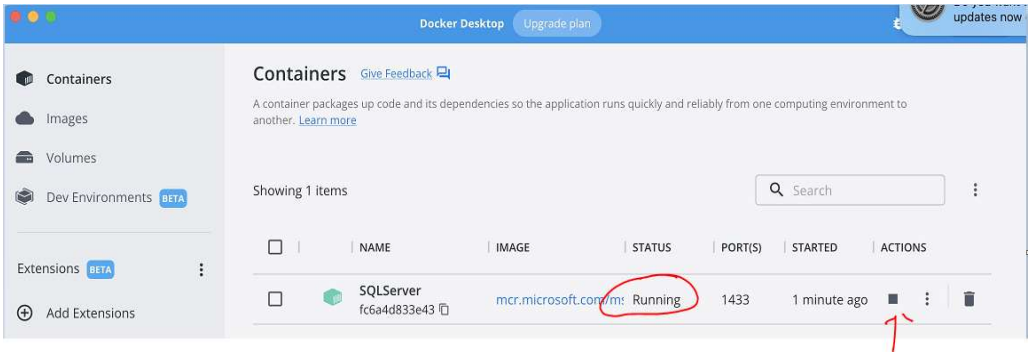
```
CREATE TABLE table (
    column DATATYPE [ DEFAULT expression ] [ NULL | NOT NULL ] [ constraint ]
    {, column DATATYPE [ DEFAULT expression ] [ NULL | NOT NULL ] [ constraint ] }
    {, constraint }
)

INSERT INTO table [ ( column {, column} ) ]
    [ VALUES ( expression {, expression} ) ] | [ sub_select ]

UPDATE table1
        SET column = expression
                FROM table1 [ ,…n ]
                [INNER JOIN table2 ON table1.field1 = table2.field2]
                [INNER JOIN table3 ON table2.field2 = table3.field3]
                [INNER JOIN tableX ON table_name3.field3 = tableX.fieldX]
        [WHERE search_condition ]

DELETE FROM table
    [ WHERE search_condition ]
```

QUESTIONS

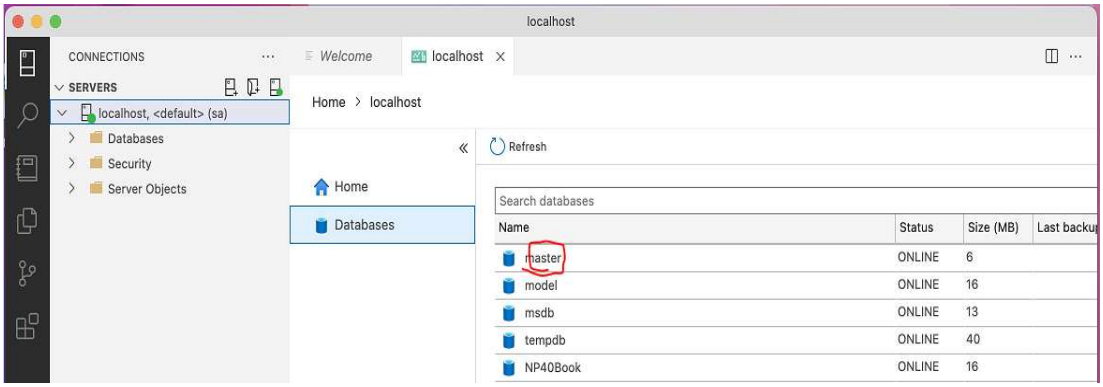
Construct SQL statements for the following questions.

Connect to Local MS SQL Server

1. Ensure your Docker Desktop is running the container on which the MS Server is installed.



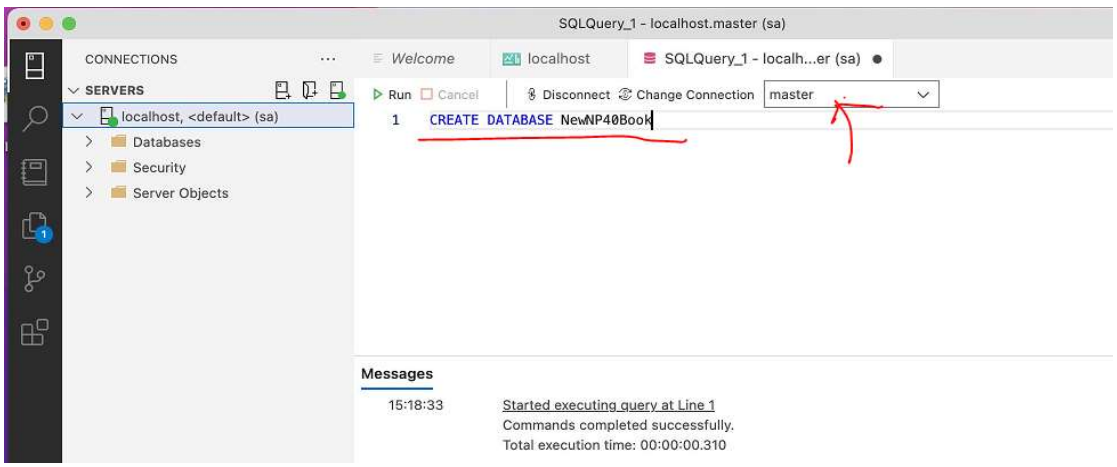
2. Connect to your localhost MS SQL server using the Azure Data Studio :



Create Databases

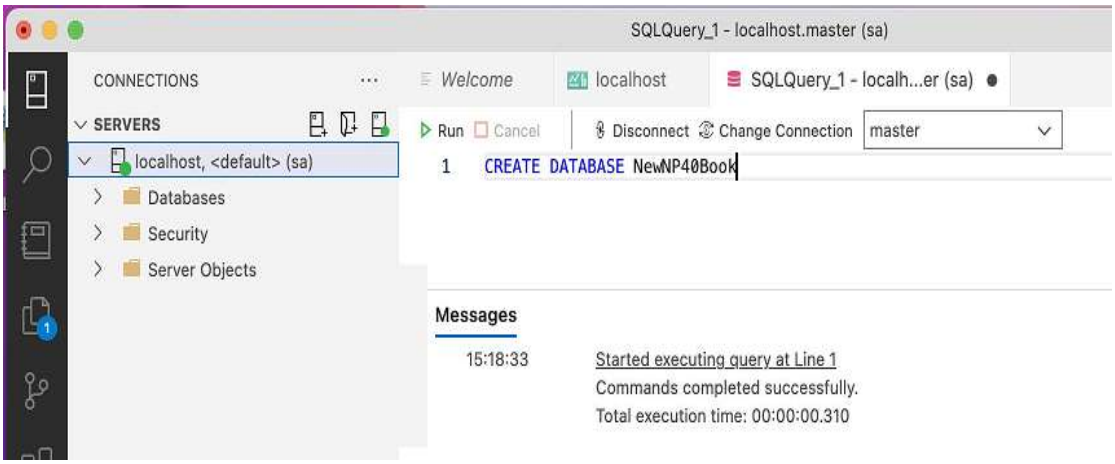
2. **This is to be done only if you have not done this Day 1 or if the database has been corrupted**. Create the NP40Book database on your local MS SQL server by executing the database script file – **NP40Book_Setup.sql** .

3. Once connected, select database master (as shown).

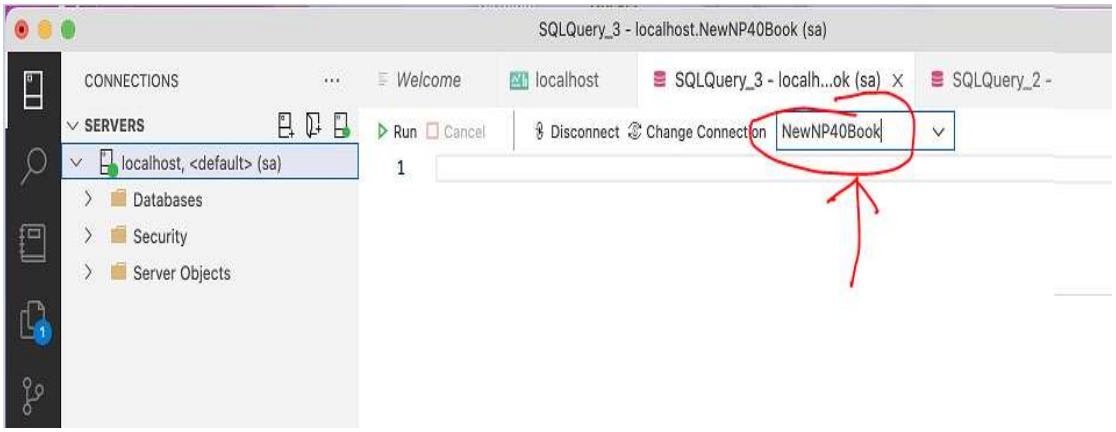


4. Create a new database on your local MS SQL server named as NewNP40Book by executing the following statement:

CREATE DATABASE NewNP40Book



5. Select the newly created database NewNP40Book as your working database from the drop down list of the available databases on your local machine, as shown:



Create Tables

4. Create the table *BookCategory* as defined in the data dictionary on Appendix E (E-3). The table *BookCategory* is derived from the relation below:

   BookCategory (BookCat, Description)

   Note: Specify the primary key constraint for the table – *BookCategory*.
   To remove a database table from a database owing to wrong specifications during its creation, you may issue the **DROP** SQL statement. For example:

   DROP TABLE BookCategory

5. Create the table *Publisher* as defined in the data dictionary on Appendix E (E-3). The table *Publisher* is derived from the relation below:

   Publisher (PublisherID, Name)

   Note: Specify the primary key constraint for the table – *Publisher*.

6. Create the table *Book* as defined in the data dictionary on Appendix E (E-3). The table *Book* is derived from the relation below:

   Book (ISBN, Title, YearPublish, <PublisherID>, <BookCat>)

   Note: Specify the primary key and foreign key constraints for the table - *Book*.

7. Load your tables with data from the following tables in the following sequence:
   i. NP40Book.dbo.BookCategory
   ii. NP40Book.dbo.Publisher
   iii. NP40Book.dbo.Book

8. Insert the following records into the *Book* table:

ISBN	0385605196	0385605196
Title	Not the end of the world	The Devil wears Prada
YearPublish	2002	2003
PublisherID	4	4
BookCat	F	F

   (Hint: Use the INSERT keyword)

   What happen when inserting the second book record? Explain why this happens?

9. Insert the following record into the *Publisher* and *Book* tables:

ISBN	981244579X
Title	Database

YearPublish	2003
PublisherID	9
Name	Pearson Prentice Hall
BookCat	NF

Which table should you insert the data into first? Why?

10. Amend the publisher **name** of Publisher ID (4) from 'Doubleday' to 'Happy Day'.

    (Hint: Use the UPDATE keyword)

11. Amend the book category **description** of the Book category ('C') from 'Children' to 'Comedy'.

12. More data is available for the title 'Database Systems':

Publisher	Addison Wesley
BookCat	NF

    Amend the record to reflect these new data. You may assume that there is only one book in the database with this title. Verify that the amendment is done correctly.

    (Hint: You have to use subquery (SELECT) in order to retrieve the PublisherID given only the name of the publisher.)

13. Amend the publisher for the book 'The Best of Catherine Lim' to 'Heinz'.

    (Hint: Use the INNER JOIN keyword)

14. Remove *ISBN* – **'0072126949'** from the *Book* table.

    (Hint: Use the DELETE keyword)

15. The rows that were inserted in Question 9 were not supposed to be there in the first place. Amend the database to reflect this. Row from which table should be removed first? Why?

16. Create the table *Member* as defined in the data dictionary on Appendix E (E-3). The table *Book* is derived from the relation below:

    Member (MemberID, Name, Address, ContactNo, EmailAddr, Gender, DateJoin, <BranchNo>)

    Note: Specify the primary key constraint but do not specify the foreign key constraint for the table - *Member*.

17. Load your table with data from NP40Book.dbo.Member table.

18. Figure 1 is the Data Dictionary for the Reservation relation. Write the SQL code to create this table in the NEWNP40Book database, include any necessary constraints.

Attribute Name	***Description***	***Data Type and Length***	***Constraint***	***Null value***
MemberID	Unique identifier for each member	Int	Primary Key Foreign Key -> Member(MemberID)	No
ISBN	Unique identifier for each book	Char(10)	Primary Key Foreign Key -> Book(ISBN)	No
ResDate	The date the reservation is made	Datetime	Primary Key, Default to today's date	No
EndDate	The date after which the reservation is not required	Datetime	Not earlier than ResDate	No

Figure 1: Data Dictionary for Reservation relation

19. Load the table created above with the following data:

MemberID	**ISBN**	**ResDate**	**EndDate**
3	0330255800	2 May 2015	12 May 2015
5	9971643359	14 May 2015	14 June 2015
5	0201708574	18 May 2015	28 May 2015
6	9971643359	20 May 2015	3 June 2015
3	0201708574	today	2 weeks from today

20. List the details of all books and reservations that have been reserved from 15th May 2015 to 30th May 2015. You are required to display the ResDate and EndDate as MM/YYYY format.