

Databases	Day 1
	2 hours
PRACTICAL 1 SELECT (Part 1)	

OBJECTIVES

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

- construct a simple database query using the SELECT statement

IMPORTANT: For Practical 1 to 6

You should only **create** the NP40Book database **once**.

After you have connected successfully to the database server via SQL Server Management Studio Express, you should either execute the following commands before you issue any other SQL statements:

use NP40Book

Or you may select **NP40Book** using the DATABASE dropdown list as shown in *Figure 1*.

QUESTIONS

With reference to Appendix E: Data Dictionary for *NP40Book Rental System*, write the appropriate **SQL statements** for the following queries. In this practical, you will construct your retrieval query (**SELECT statement**) on a **single table** only.

Syntax:

```

SELECT [ ALL | DISTINCT ] { *
                        | { table_name | table_alias }. *
                        | { column_name | express } [ [ AS ] column_alias ]
                        | column_alias = expression
                        }
FROM table_name [ [ AS ] table_alias ] [ , ... n ]
[ WHERE search_condition ]
[ ORDER BY { order_expression [ ASC | DESC ] } [ , ... n ] ]

```

Brief note on convention

An **SQL statement** consists of reserved words and user-defined words. **Reserved words** are a fixed part of the SQL language, and have a fixed meaning. They must be spelt **exactly** as required and cannot be split across lines. **User-defined words** are made up by the user and represent names of various database objects such as table name, column name, etc.

We will use the following convention to define SQL statements:

- ❑ Words in **UPPERCASE** letters are used to represent reserved words and must be spelt exactly as shown;
- ❑ Words in **lowercase** or **TitleCase** letters are used to represent user-defined words;
- ❑ A vertical bar (|) separating syntax items within brackets or braces means that you can choose only one of the items. For example, AVG | COUNT | MAX | MIN | SUM;
- ❑ Curly braces { } indicate a required syntax item. Do not type the braces;
- ❑ Square brackets [] indicate an optional syntax item. Do not type the brackets;
- ❑ [, ... n] indicates that the preceding item can be repeated **n** number of times. The occurrences are separated by commas;
- ❑ [... n] indicates that the preceding item can be repeated **n** number of times. The occurrences are separated by blanks.

Comments are placed in your SQL statements in two ways:

- ❑ **Block comment** makes use of /* (forward slash and asterisk) at the beginning of a comment and */ (asterisk and forward slash) to close the comment;
- ❑ **Inline comment** makes use of -- (dash dash) to begin and end the comment.

Literals are constants used in SQL statements. There are different forms of literals for every data types supported by SQL. However, for simplicity, we can distinguish between literals that are enclosed in single quotes and those that are not.

- ❑ All **non-numeric** data values **must** be enclosed in single quotes (e.g. 'Gabriel Tan');
- ❑ All **numeric** data must **not** be enclosed in single quotes (e.g. 25).

List all rows, all columns and selected columns

1. List every detail of all staff.

Which table in the NP40Book database contains details of all staff?

2. Now list every detail of all books.

Again, which table contains details all books?

3. List StaffID, Name and Gender of all staff.

Please note that you are not expected to retrieve every detail of all staff.

4. Now list ISBN, Title, PublisherID and BookCat of all books.

Again, you are not expected to retrieve every details of all books.

Remove Duplicate Rows in Results

5. List the SupervisorID of all the staff.

Notice that certain SupervisorID is repeated in the results? This is because there are staff that are supervised by the same supervisor.

6. Now remove the duplicate SupervisorID from the results generated for the previous instruction.

Hint: use the DISTINCT keyword

7. List the BranchNo of all the members.
8. Now remove the duplicate BranchNo from the results generated for the previous instruction.

Calculated Column & Define New Column Heading

9. NP40Book is considering reducing the current rental rate for all books by 2%. Display the current RentalRate and new RentalRate for each copy of books as follows :

<u>ISBN</u>	<u>CopyNo</u>	<u>RentalRate</u>	<u>New RentalRate</u>
.....

Hint: find out from Reference A on how to create calculated column and define new column heading

You will notice that there is no change to the values of RentalRate in the BookCopy table after the query is executed. You may verify this by executing a SELECT query statement or Open Table from the Object Explorer.

10. NP40Book is considering increasing the current Salary of all staff by 10%. Display the current Salary and the proposed New Salary for each staff as follows :

a. <u>StaffID</u>	<u>Name</u>	<u>Salary</u>	<u>New Salary</u>
b.

Sorting Results

11. List every detail of all staff in ascending order of Name.

Hint: use the ORDER BY keyword

You will notice that by default the results are sorted in ascending order of Name when using the ORDER BY keyword in your query.

12. List every detail of all staff in descending order of Name.

Find out the keywords to generate results in ascending or descending order explicitly.

13. List StaffID and ContactNo of all staff in ascending order of StaffID.

Hint: you have to find the database table that has both StaffID and ContactNo

14. List Name and Salary of all staff with the highest Salary first.

15. List every detail of all books, showing the most recently acquired copies first.

16. List BranchNo, Name, and Salary of all staff in ascending order of BranchNo.

Staff that work in the same branch are to be placed together and displayed in ascending order of Name.