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| **Databases**  Diploma in IT / FI / CSF  Year 1 (2019/20) Semester 2 | Week **2** |
| **2** hours |
| **PRACTICAL 2**  **SELECT (Part 2)** | |

**OBJECTIVES**

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

* specify row selection using the WHERE clause in SELECT statement

**REFERENCES**

Please refer to the following:

* Appendix B in Database textbook: Tables in *NP40 Book Rental System’s* Database
* Appendix E in Database textbook: Data Dictionary for *NP40 Book Rental System*
* Database Textbook: pages 2-11 to 2-22
* PolyMall: Database Systems - Topic 1 Basic Select

[1.4 How to limit the rows - Part 1](https://polymall.polytechnic.edu.sg/webapps/scor-scormengine-BB5784d4c32fccb/delivery?action=launchPackage&course_id=_813_1&content_id=_36369_1)

[1.5 How to limit the rows - Part 2](https://polymall.polytechnic.edu.sg/webapps/scor-scormengine-BB5784d4c32fccb/delivery?action=launchPackage&course_id=_813_1&content_id=_36370_1)

**QUESTIONS**

Syntax:

**SELECT [ ALL | DISTINCT ] { \***

**| { table\_name | table\_alias }.\***

**| { column\_name | express } [ [ AS ] column\_alias ]**

**| column\_alias = expression**

**} [ , … n ]**

**FROM table\_name [ [ AS ] table\_alias ] [ , … n ]**

**[ WHERE search\_condition ]**

**[ ORDER BY { order\_expression [ ASC | DESC ] } [ , … n ] ]**

Construct SQL statements to answer the following queries.

### **Comparison Operators Search**

1. List every detail of members who registered at BranchNo 1.

**Hint: use the WHERE clause to specify the condition**

SELECT \* FROM Member

WHERE BranchNo = 1

1. List every detail of books belonging to BookCat 'C'.

**Hint: use single quotes to enclose any string or character in SQL statement**

SELECT \* FROM Book

WHERE BookCat = 'C’

1. List every detail of members who registered at BranchNo 1 or 2

**Hint: use the OR operator**

SELECT \* FROM Member

WHERE BranchNo = 1 OR BranchNo = 2

1. List every detail of books belonging to BookCat 'C' or 'F'

SELECT \* FROM Book

WHERE BookCat = 'C' OR BookCat = 'F'

1. List every detail of members who registered at BranchNo 1 or 2 after 31 December 2013.

You will have to enclose the column DateJoin with single quotes in your query.

**Hint: use the >, OR and AND operators**

SELECT \* FROM Member

WHERE (BranchNo = 1 OR BranchNo = 2) AND DateJoin > '2013-12-31'

1. List every detail of books belonging to BookCat 'C' or 'F', and published after 2000.

SELECT \* FROM Book

WHERE (BookCat = 'C' OR BookCat = 'F') AND YearPublish > '2000'

1. List every detail of all damaged book coded 'D' copies of books that have RentalRate of more than $5.

**Hint: look for a database table that has a Status column**

SELECT \* FROM BookCopy

WHERE Status = 'D' AND RentalRate > 5

1. List every detail of all female staff that have Salary of more than $1500.

SELECT \* FROM Staff

WHERE Gender = 'F' AND Salary > 1500

### **Range Search**

1. List every detail of loans that are made between '1 December 2014' and '31 January 2015'.

**Hint: use the BETWEEN operator**

SELECT \* FROM Loan

WHERE DateOut BETWEEN '2014-12-01' AND '2015-01-31'

1. List every detail of members that joined between '1 January 2014' and '31 December 2014'.

SELECT \* FROM Member

WHERE DateJoin BETWEEN '2014-01-01' AND '2014-12-31'

### **Set Membership Search**

1. List every detail of books belonging to BookCat 'C ' or 'F '.

**Hint: use the IN operator**

SELECT \* FROM Book

WHERE BookCat in ('C', 'F')

### List every detail of members belonging to BranchNo 1 or 2 or 3

SELECT \* FROM Member

WHERE BranchNo in (1,2,3)

### **Pattern Search**

1. List every detail of members with Name that **starts** with 'Tan'.

**Hint: use the LIKE operator and %**

SELECT \* FROM Member

WHERE Name like 'Tan%'

1. List every detail of books with Title that **starts** with 'Database'

SELECT \* FROM Book

WHERE Title like 'Database%'

1. List every detail of book with Title that **ends** with 'Database'

SELECT \* FROM Book

WHERE Title like '%Database'

1. List every detail of members with Name that **contains** 'Kim'.

SELECT \* FROM Member

WHERE Name like '%Kim%'

### **NULL Search**

1. List every detail of books that **have** **not** been categorised yet.

**Hint: use the NULL keyword, comparison operator for NULL is not** **'=' but 'IS'**.

SELECT \* FROM Book

WHERE BookCat IS NULL

1. List every detail of staff that **do not** have a supervisor.

SELECT \* FROM Staff

WHERE SupervisorID IS NULL

1. List every detail of staff whose date of birth (DOB) **do not** fall between '1 January 1988' and '30 June 1990'. Display the result in ascending order of date of birth (DOB).

SELECT \* FROM Staff

WHERE DOB NOT BETWEEN '1988-01-01' AND '1990-06-30'

ORDER BY DOB ASC

1. List every detail of books that **do not** belong to BookCat 'C ' or 'F '. Display the result in ascending order of BookCat first and then according to descending order of YearPublish. Give another query statement that will produce the same result. **(Hint: use the <> operator)**

**Note: your answers need to include those books that are yet to be categorised.**

SELECT \* FROM Book

WHERE BookCat Not IN ('C','F') OR BookCat IS NULL

ORDER BY YearPublish DESC

SELECT \* FROM Book

WHERE BookCat != ‘C’ OR BookCat != ‘F’ OR BookCat IS NULL

ORDER BY YearPublish DESC

1. List every detail of staff that have a supervisor in ascending order of their SupervisorID.

SELECT \* FROM Staff

WHERE SupervisorID IS NOT NULL

ORDER BY SupervisorID ASC

1. List every detail of members with address that contains the word 'Street' in ascending order of their Name.

SELECT \* FROM Member

WHERE Address like '%Street%'

ORDER BY Name ASC

1. List every detail of staff belonging to either branch 1 or 3 who have not been assigned a supervisor. Give another query statement that will produce the same result.

SELECT \* FROM Staff

WHERE BranchNo in (1,3) AND SupervisorID is NULL

SELECT \* FROM Staff

WHERE (BranchNo = 1 or BranchNo = 3) AND SupervisorID is NULL

1. List the names, addresses and contact numbers of all members who have joined before the year 2014 who have not yet provided NP40Book with an email address.

SELECT Name, Address, ContactNo FROM Member

WHERE DateJoin < '2014'

1. List the category code for fiction books. In this case, explain why it is more preferable to use the **=** operator than to use the **LIKE** operator.

SELECT \* FROM BookCategory

WHERE Description = 'Fiction'

= operator is more preferable as we are finding a fix string, we no need use LIKE operator that match character by character. This will improve search speed.

1. List every detail of books that were not published in the 1990s. Which operator did you use? Rewrite the query using a different operator.

SELECT \* FROM Book

WHERE YearPublish NOT BETWEEN 1990 AND 1999

SELECT \* FROM Book

WHERE YearPublish < 1990 OR YearPublish > 1999