



SQL – Data Manipulation Language SELECT statement

Databases

Topics

- ▶ *Structured Query Language (SQL)*
- ▶ Simple **SELECT** statement
 - **DISTINCT**
 - **ORDER BY**

SQL

- ▶ **Structured Query Language**

- A *data access language*, not a programming language

- ▶ **Consists of 2 main parts**

- ▼ *Data Definition Language* (**DDL**)

- To define data structure and control access to database
 - **CREATE TABLE**, **CREATE VIEW**, grant access rights

- ▼ *Data Manipulation Language* (**DML**)

- To retrieve and update data
 - **SELECT**, **INSERT**, **UPDATE**, **DELETE**

SELECT Statement

- ▶ To *retrieve* data from table
- ▶ Data in table does not change after the execution of the **SELECT** statement

Syntax:

SELECT select_list **FROM** table_name

Retrieve All Rows, All Columns

SELECT * FROM Branch

Results :

<u>BranchNo</u>	<u>Address</u>	<u>TelNo</u>	<u>DateStart</u>	<u>MgrID</u>
1	1, Tulip Plaza	61111111	2001-09-03	1

* specifies that all columns from the table_source in the FROM clause should be returned.

Retrieve All Rows, Selected Columns

```
SELECT BranchNo, Address  
FROM Branch
```

Results :

BranchNo

Address

1

1, Tulip Plaza

Note that only the specified columns from the table_source in the FROM clause should be returned.

Duplicate Rows in Results

List ISBN of books that have been borrowed

SELECT ISBN FROM Loan

Results :

ISBN

0064410935

0064410935

0064410935

0064408671

0064408671

Remove Duplicate Rows in Results

To remove duplicate rows

```
SELECT DISTINCT ISBN  
FROM Loan
```

Results :

ISBN

0064410935

~~0064410935~~

~~0064410935~~

0064408671

~~0064408671~~

Calculated Column

```
SELECT Name, Salary*12  
FROM Staff
```

Results:

<u>Name</u>	<u>(No column name)</u>
John	18000.0000

Note the missing column header for the calculated column.

Define New Column Heading

```
SELECT Name, Salary*12  
AS "Annual Salary"  
FROM Staff
```

Results:

<u>Name</u>	<u>Annual Salary</u>
John	18000.0000

Sort Results in Ascending Order (ORDER BY, ASC)

```
SELECT Name  
FROM Member  
ORDER BY Name ASC
```

Results :

Name

Jane

John

Mary

Sort Results in Descending Order (ORDER BY, DESC)

```
SELECT Name  
FROM Member  
ORDER BY Name DESC
```

Results :

Name

Mary

John

Jane

ORDER BY – Multiple Columns

```
SELECT BranchNo, Name  
FROM Member
```

```
ORDER BY BranchNo DESC, Name ASC
```

Results :

<u>BranchNo</u>	<u>Name</u>
3	May May
3	Sadiah
2	Samuel
1	Jane

Summary

- ▶ How to retrieve data from a single table using **SELECT** statement