SQL Syntax

MAD 202

SQL

- The standard programming language for creating, updating and retrieving information that is stored in databases
- It is:
  - A ***programming language*** – a formal language in which to write programs to create, modify, and query databases.
    - Defined by rules of ***syntax*** (determine the words and symbols you can use and how they are combined)

SQL

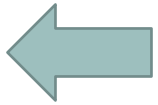
- It is ***declarative*** – you describe what you want and the database will determine how to do it
- It is ***interactive*** – you issue SQL commands directly to you Database Management System (Access, SQL Server, MySQL, etc) and it displays the results
- OR it is ***embedded*** – you can embed the SQL statements in a scripting language (PHP)

SQL

- It is ***standardized*** – no one owns it, but it is a standard that is defined by an international standards working group.
- It is commonly referred to as **S**tructured **Q**uery **L**anguage – but that is incorrect. It actually stands for just SQL

Syntax Conventions

- Each SQL statement begins on a new line
- The indentation level is two spaces
- Each clause begins on a new, indented line
- SQL is case insensitive, myname, MyName, and MYNAME are considered to be identical identifiers
- Generally use uppercase for SQL keywords and lowercase for user-defined values.



You WILL follow these conventions

```
SELECT au_fname, au_lname
  FROM authors
  ORDER BY au_lname
```

SQL Syntax

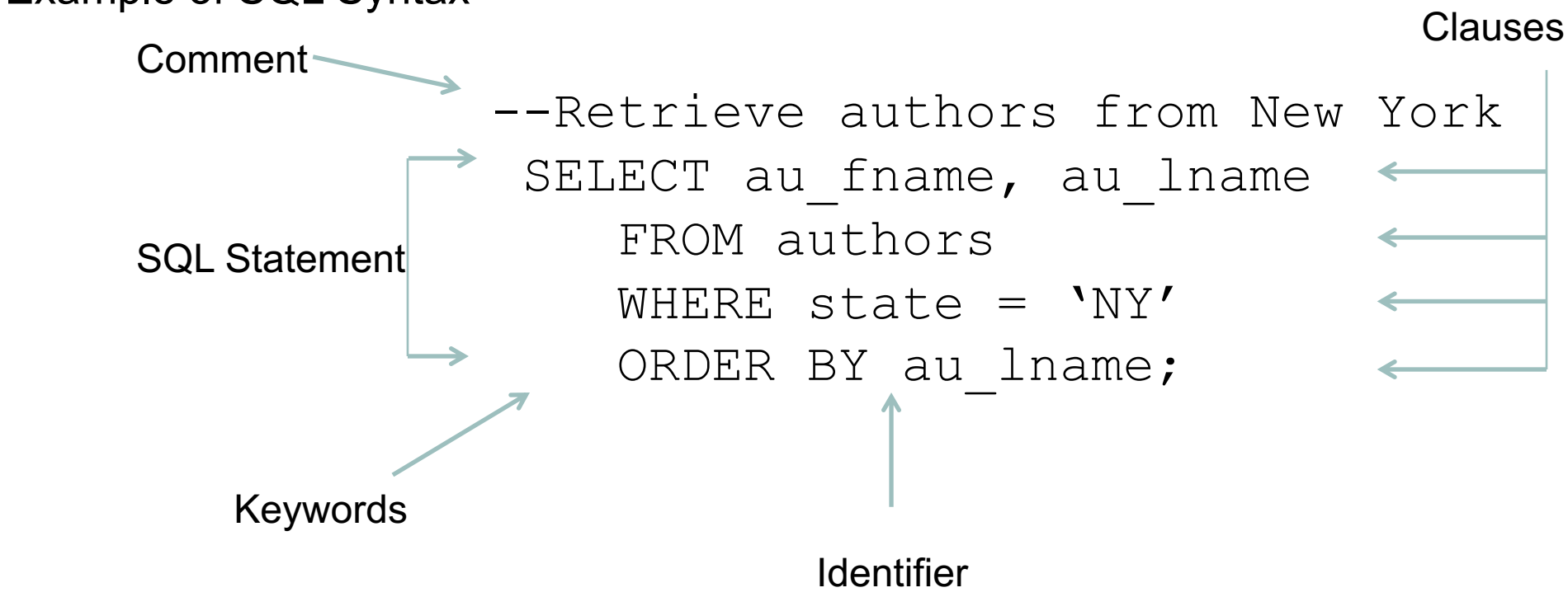
- Comment – text that explains your program
- SQL statement – a valid combination of **tokens** introduced by a **keyword.**
- Tokens – the indivisible particles of the SQL language. They include keywords, identifiers, operators, literals (constants) and punctuation symbols
- Clauses – a fragment of an SQL statement that's introduced by a keyword, is required or optional and must be given in a particular order. (SELECT, FROM , WHERE and ORDER BY introduce the four clauses in the example)

SQL Syntax

- Keywords – words that SQL reserves because they have special meaning in the language.
  - SELECT, CREATE, TABLE
- Identifiers – words that you use to name objects, columns, aliases, indexes and views
  - authors, titles, books,
- Terminating semicolon – ends with an SQL statement (ACCESS and SQL server do not require)

SQL Syntax

Example of SQL Syntax



SQL Syntax

- SQL is a free-form language whose statements can :
  - Be in uppercase or lowercase - SELECT, Select, select, SeLeCt are considered to be identical
  - Continue on the next line
  - Be on the same line as other statements
  - Start in any column

Equivalent Statements

Statements are equivalent

```
SELECT au_fname, au_lname
    FROM authors
    WHERE state = 'NY'
    ORDER BY au_lname;
```

```
Select au_fname
,              AU_LNAME
       FROM
Authors     WhERe   state
= 'NY' order
                              by
AU_lnamE
;
```