Component 4/Unit 6c
Topic III Structured Query Language

- Background information
- What can SQL do?
- How is SQL executed?
- SQL statement characteristics
- What does SQL produce?

Structured Query Language (SQL)

- Created by IBM (San Jose, CA, late 1970s)
- Pronounced as "Sequel" or simply referred to by the letters S, Q, and L
- It is considered a fourth generation language
- It is called a **data sublanguage** because it is used to access and maintain a database
- Can be used with all relational DBMSs

SQL Continued

- American National Standards Institute (ANSI) created a standard for SQL
- International Standards Organization (ISO) is another SQL standards organization
- All vendors must support the standard, but many have added to the standard

What Can SQL Do?

- Modify a database's structure
- Change system security settings
- Add user permissions on databases or a table
- Query a database for information
- Update the contents of a database
- Backup/recovery of a database
- Create the database, database tables, fields and indexes

What Can SQL Do (Continued)?

- Execute intrinsic functions
- Programming logic constructs of sequence, alternation and iteration are allowed in some vendor versions of SQL
- Security locking
- Implement stored procedures, views and triggers

How is SQL Executed?

- SQL can be embedded and constructed within application code
- SQL procedures can be invoked by application code and by other SQL statements
- Can be executed outside of an application program in its own environment

SQL Statement Characteristics

- SQL statements are not case sensitive however many institutions impose a case standard for SQL
- Data in the database can be case sensitive or not. Some DBMSs are capable of nullifying data case sensitivity
- Punctuation is important in SQL. The DBMS depends on punctuation in its interpretation of the SQL statement.

More SQL Characteristics

- An SQL statement can be nested within another SQL statement (called a **subquery**)
  - Output of the subquery is input to the other SQL statement
- SQL statements can join tables of the database together

What does SQL produce?

- The output from an SQL statement can be anything from nothing to many rows of data (called **record sets**)
- You can limit the output of an SQL statement by providing criteria that the data must meet.