Elements of SQL
Data Definition Language

• Define Tables (Conceptual Level)
• Define Views (User Level)
• Extensions may define storage
• Define Indexes
• Grant Permissions
• Add Column to table
• Drop tables, views, indexes
Data Definition Language (cont.)

• SQL-2 Additions
  – Primary keys
  – Foreign keys
  – Constraints
  – Domains
  – Database Schemas
Data Manipulation Language

- Insert data
- Delete data
- Update data
- Query data
Use of Language

• Casual use on line at terminal
• Embedded in standard programming language
  – Fortran,
  – Cobol,
  – C
• Embedded in specialized database programming language
  – PL/SQL,
  – Transact-SQL
Use of Language, cont.

• **Invoked via function calls to programming APIs:**
  – ODBC, JDBC
  – PHP functions
  – PERL DBI

• **Invoked behind the scenes by applications created by GUI app builders**
  – Oracle Developer
  – Visual Basic