Session 4-1 Introduction to SQL

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Relational DBMS

Database
- Collection of data

Database management systems (DBMS)
- Controlling application between database and end-users

**Relational DBMS**
- DBMS for relational database model

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Popular RDBMSs

Popularity Score

RDBMS	Score
TERADATA	75.6
SQLITE	115.31
MICROSOFT ACCESS	133.39
DB2	187.9
POSTGRESQL	353.68
MICROSOFT SQL SERVER	1203.45
MYSQL	1380.3
ORACLE	1403.83

Reference: **DB-Engines Ranking of Relational DBMS**. Retrieved 2017-02-19.

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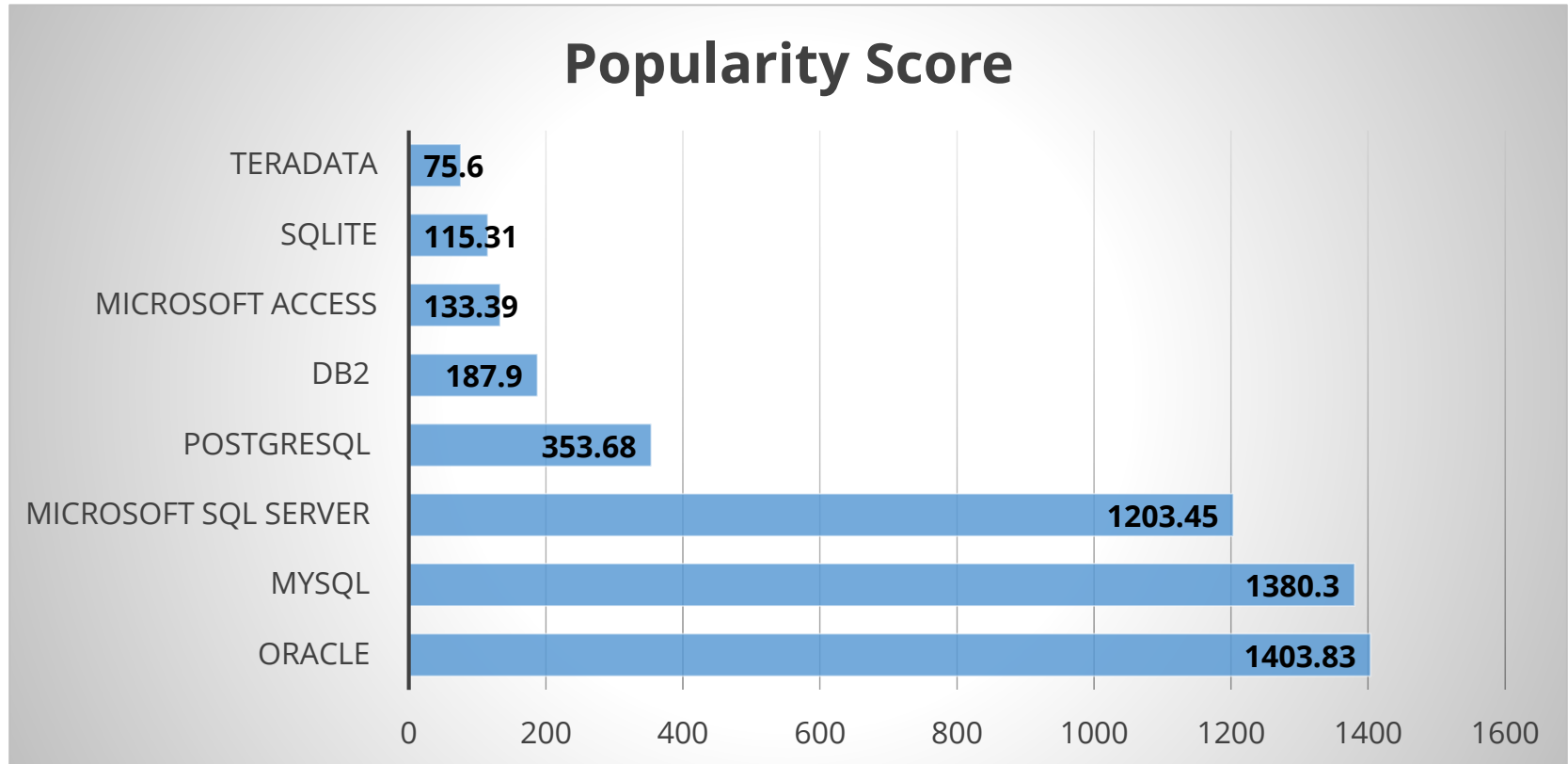
Structured Query Language (SQL)

- Language designed for managing data in RDBMS

- Different syntax and functionality across RDBMS, but mostly similar

- Intuitive language
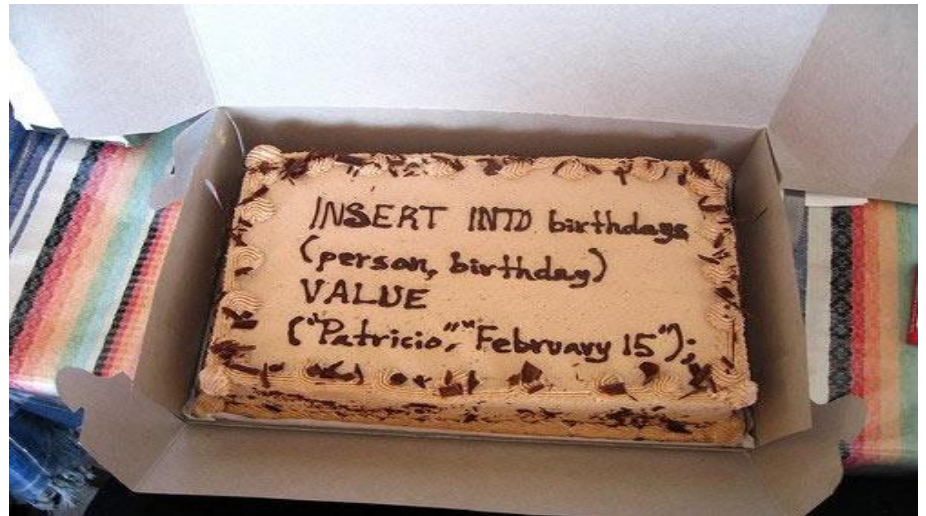
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SQL Subgroups

- Data Manipulation Language (DML)
  - insert/update records in a database
  - delete records from a database
  - retrieve data from a database
- Data Definition Language (DDL)
  - create new databases
  - create new tables in a database
- Data Control Language (DCL)
  - Manage users
  - grant or revoke permissions on elements of a database
  - Backup and restore a database

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Simplified Schematic of Typical SQL Environment
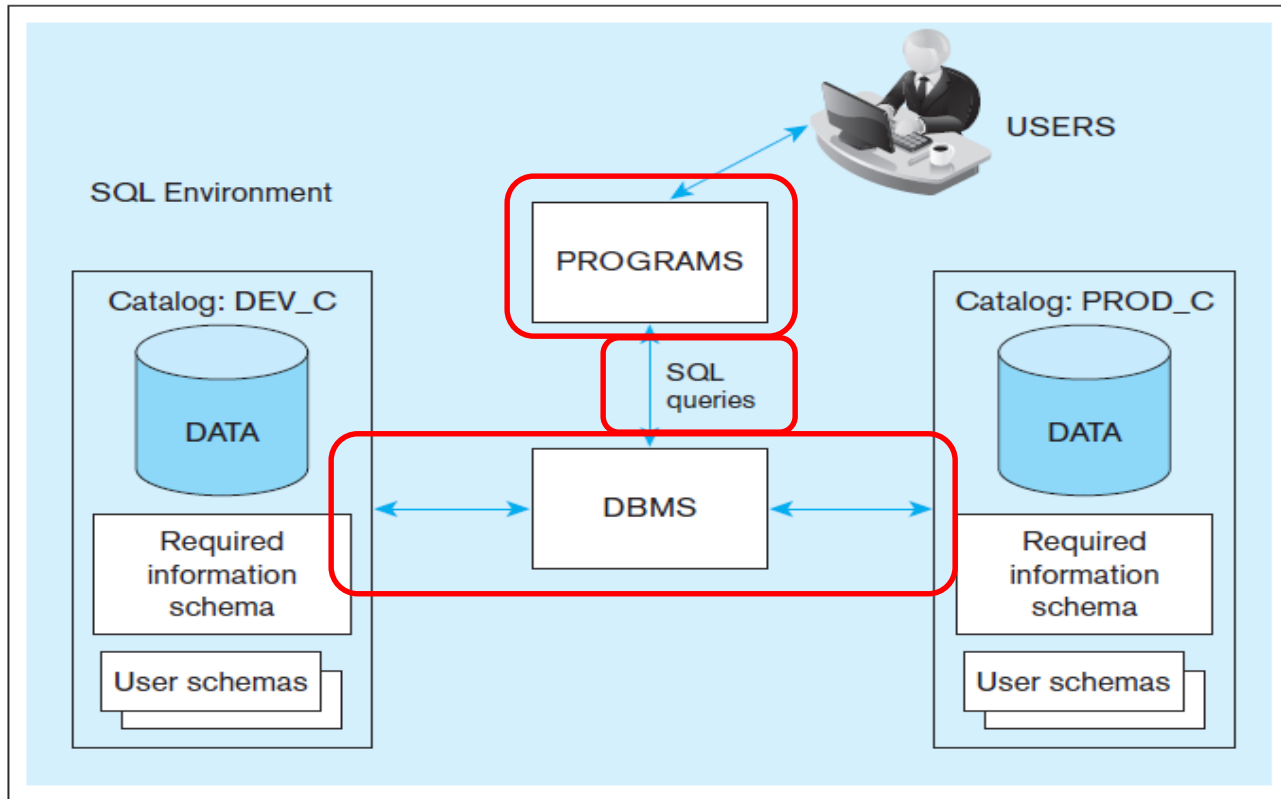
Oracle Client Program

- ISQL*PLUS
  - Web base; no installation
  - Sometime unstable
  - Limited functionality

- SQL developer app
  - Installation required
  - No crash
  - Support better functionality and the user-friendly interface

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iSQL*Plus

- http://oracle.business.wayne.edu:5560/isqlplus/
- Sign in with WSU ID and initial password given
  - Change the given password (Preferences → Change Password)
- Oracle server is stable, but the web interface (iSQL) is not, and does crash from time to time
  - If it does, contact me or Richard Lerman (ad3722@wayne.edu)

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iSQL*Plus Interface - Workspace

Workspace

Enter SQL, PL/SQL and SQL*Plus statements.

Logout Preferences Help

Workspace History

Connected as GL3566@

Enter queries here

Execute Load Script Save Script Cancel

Once entered, click Execute

Instead of typing in, You can load a whole script from a pre-stored file

Save Script to export your queries to an external file

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iSQL*Plus Interface - History

SQL Developer App

- Configuration instruction available on Canvas
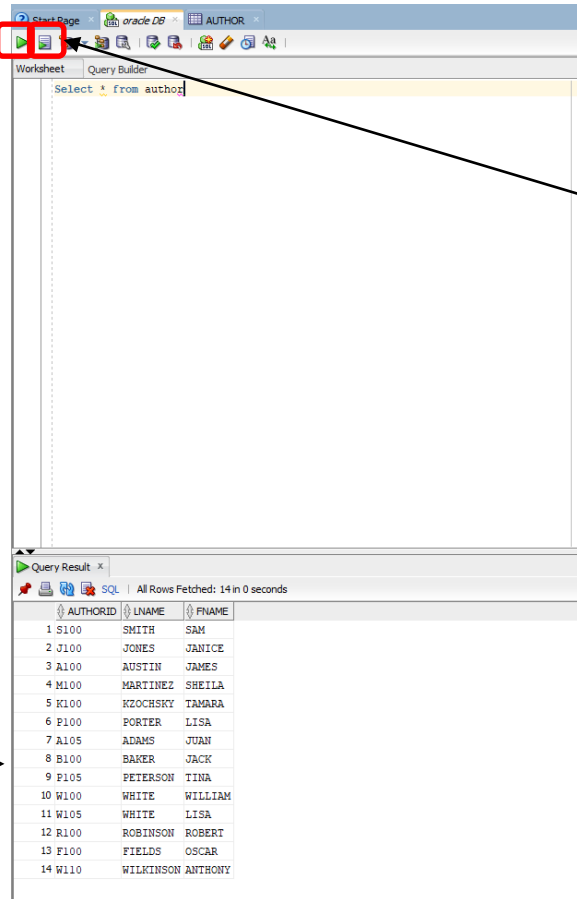   - "How to install and configure SQL Developer.pdf"

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SQL Developer App - Workspace

SQL Developer app - Execute

Run by statement (line)

Run all statements (script)

Query results

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Loading Data on Your Oracle DB

- Follow the instruction on Canvas to load the data ("JustLeeDB.txt") on your DB

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Useful Commands

- What tables are in your database?
  - `SELECT table_name from user_tables;`
- What columns are in a specific table?
  - E.g., "customers" table: `DESCRIBE customers;`

Wrap-Up

- What is SQL

- Oracle DB client program
  - iSQL*PLUS
  - SQL developer app

- Load data on Oracle DB

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