

Information and Computer Science Department
Spring Semester 072
ICS 324 - Database Systems
Database Tools

Objectives

The objective of this lab is to expose students to the typical database tools used for developing web database applications.

Outcomes

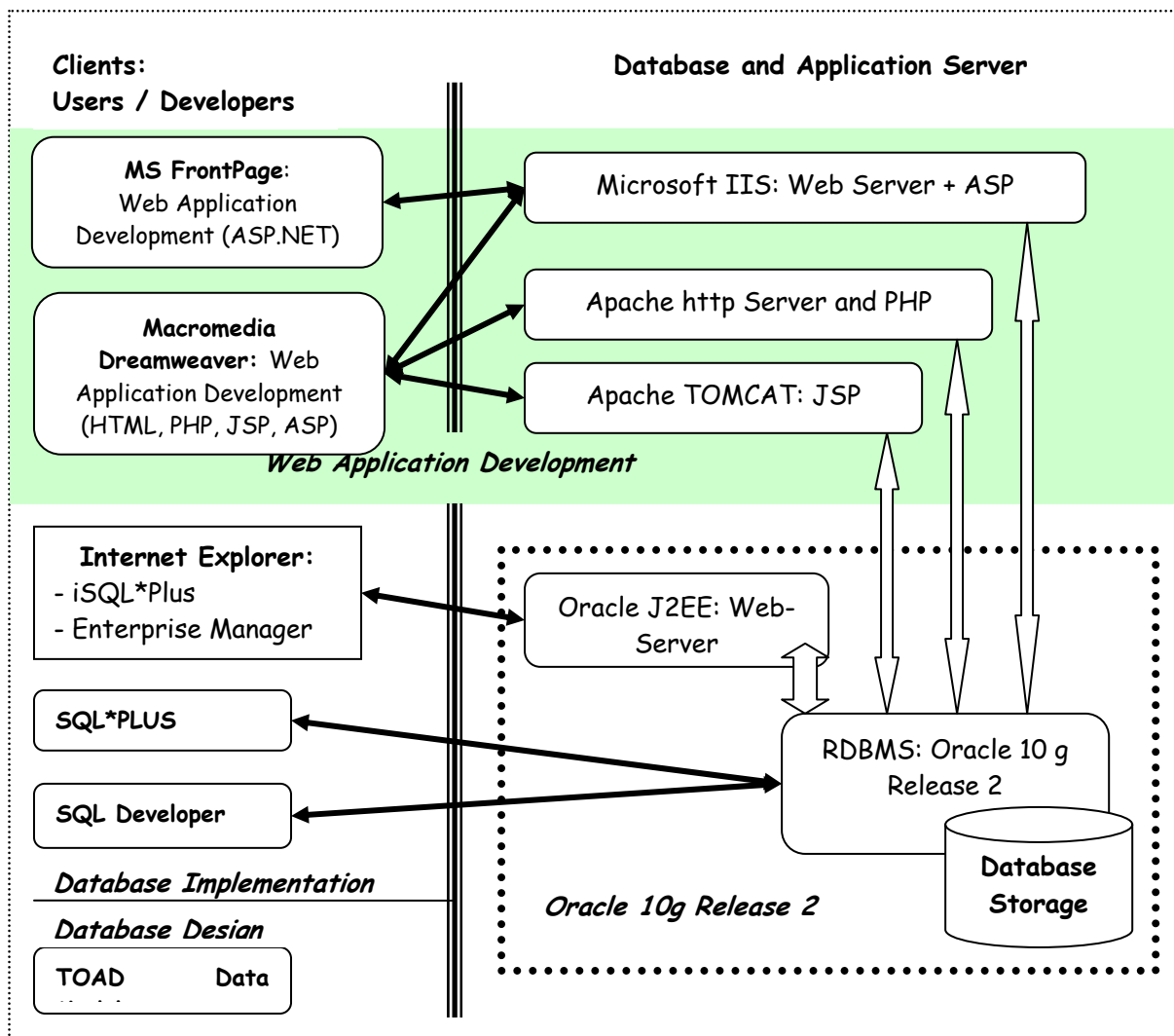
After completing this Lab, students are expected to:

- Get familiar with common typical database infrastructure
- Understand the features of the software

Discussion

1. Database System Infrastructure:

The following figure illustrates the current database infrastructure that supports ICS-324 Lab. Database and Application server software are installed and configured on a single machine (Server).



2. Database Server Configuration

Oracle 10g Release 2: Oracle 10g Release 2 is a Relational Database Management Software (RDBMS). It is a complete and comprehensive system for doing activities with database. It includes; storage management, user management, transaction management, application gateways, security management, and other necessary functionalities of RDBMS.

This software is available at: <http://soft.kfupm.edu.sa/download/soft/oracle/> . The following are basic step on installing Oracle 10g Release 2 on Windows.

1. Download the software (zip file) by clicking on windows
2. Extract the zip file.
3. Run *setup.exe* found on subfolder "*\10201_database_win32\database*"
4. Follow the instructor on the Oracle Universal Installer. It is recommended to choose default selection, and select data base creation during installation as well.
5. Document the following important information passed during installation:
 - a. Password for "*SYS*"
 - b. Name of database created during installation.
 - c. URL for accessing *iSQL*Plus* and *web-Enterprise Manager*. This information is given at the end of installation. These are in the following typical URL format: *http://localhost:XXXX/isqlplus* and *http://localhost:YYYY/em*, Where *XXXX* and *YYYY* are the port number.
6. If your computer is intended to allow other computers to access your Oracle 10g server, then add port numbers *XXXX* and *YYYY* in the list of exceptions in your windows firewall. Windows firewall is available in control panel.

3. Client Side Tools and Configuration

Database Implementation Tools

SQL*Plus: SQL*Plus, the primary interface to the Oracle Database server, provides a powerful yet easy-to-use environment for querying, defining, and controlling data. SQL*Plus delivers a full implementation of Oracle SQL and PL/SQL, along with a rich set of extensions. The exceptional scalability of the Oracle Database, coupled with the object-relational technology of SQL*Plus, allows you to develop your complex data types and objects using Oracle's integrated systems solution.

iSQL*Plus: iSQL*Plus is a browser-based implementation of SQL*Plus. You can use it to connect to an Oracle database system over the Internet to perform the same tasks as those that are performed through the SQL*Plus command line. The iSQL*Plus implementation uses a Web browser, an Oracle HTTP Server with the iSQL*Plus Server, and an Oracle database.

The iSQL*Plus user interface runs in a Web browser. There is no installation or configuration required for the iSQL*Plus user interface other than a Web browser. In our case, open the following URL from your web-browser: <http://ics-db1.pc.ccse.kfupm.edu.sa:5560/isqlplus/>

The following important information required to use iSQL*Plus or SQL*Plus:

1. User Id: *stXXXXXX*, where *XXXXXX* is your student Id
2. Password,
3. Connect Identifier: *ics324*

Oracle SQL Developer: Oracle SQL Developer is a free graphical tool for database development. With SQL Developer, you can browse database objects, run SQL statements and SQL scripts, and edit and debug PL/SQL statements. You can also run any number of provided reports, as well as create and save your own. SQL Developer enhances productivity and simplifies your database development tasks.

Oracle SQL Developer has the following Capabilities: Create Connections, Browse Objects, Create Objects, Modify Objects, Query and Update Data, Export Data and DDL and Import Data, Process Commands, Edit PL/SQL, Run and Debug PL/SQL, Run and Create Reports, Migrate from Third Party Databases, and Review the Robust IDE.

This software available at: <http://soft.kfupm.edu.sa/download/soft/oracle/>. The latest release available at: <http://ics-db1.pc.ccse.kfupm.edu.sa/software/sqldeveloper.zip>. However you need to download Java SDK separately.

Quick installation tips:

1. Click on the second URL above
2. Select 'save'
3. Extract the zip file
4. Execute '.exe' file
5. When prompted, enter the location of your Java SDK (java.exe).
6. For connecting to Oracle database use the following information:
 - ⇒ Username: (use *ST* followed by your student id)
 - ⇒ Password
 - ⇒ Host: (use *ics-db1.pc.ccse.kfupm.edu.sa*)
 - ⇒ Port: (use default: *1521*)
 - ⇒ SID: (use *ics324*)

Oracle Enterprise Manager: Oracle Enterprise Manager is browser-based management software that provides complete management solution for your business applications with a unique top-down approach. It goes far beyond monitoring and reporting by providing strong monitoring and management, which encompasses end-user experience, internal application processes and flows, as well as the underlying software and system infrastructure.

Database Design Tool

TOAD™ Data Modeler: Freeware Toad™ Data Modeler is a FREEWARE version of **Toad™ Data Modeler - tool**, you can create complex entity-relationship diagrams (ERD) for more than twenty databases. You can visually draw new diagrams and generate SQL scripts based on the ER diagrams automatically.

Key features: Visual creation of Entity Relationship Diagrams (Database design), Definition of Referential Integrity rules, Generation of complex SQL scripts, Generation of detailed HTML and RTF reports, Model explorer, and To-Do list.

It is available at the following URLs: http://www.casestudio.com/enu/database_design_freeware.aspx or locally available at: http://ics-db1.pc.ccse.kfupm.edu.sa/software/TDM_freeware.zip.