We will use Oracle (orafarm.cse.csusb.edu) and Oracle Express Edition (XE) as the primary database management system for this course. OracleXE is a limited, but functional version of Oracles flagship database management system. See the documentation linked from information in Blackboard.

0. Install Oracle Database Express Edition

- installation Guide for Microsoft Windows
  (http://docs.oracle.com/cd/E17781_01/install.112/e18803/toc.htm)
- Installation Guide for Linux x86_64
  (http://docs.oracle.com/cd/E17781_01/install.112/e18802/toc.htm)

1 Exploring the Oracle Database XE User Interface

1.1 System Menu Commands

To access the major features of Oracle Database XE, use the system menu as follows to get to the available specific commands:
- On Windows, from the Start menu, select Programs (or All Programs), then Oracle Database 11g Express Edition.
- On Linux, click the Application menu (on Gnome) or the K menu (on KDE), then point to Oracle Database 11g Express Edition.

Then select from the submenu items:
- Get Help: Displays the following selections:
  - Go To Online Forum: Displays the online forum for discussions about Oracle Database XE.
  - Read Documentation: Displays the Oracle Database XE documentation library on the Internet.
  - Register For Online Forum: Allows you to register for the Oracle Database XE online forum.
- Backup Database: In NOARCHIVELOG mode (the default), shuts down the database, backs it up, and then restarts it. In ARCHIVELOG mode, performs an online backup of the database. For more information on backups, see Oracle Database Express Edition 2 Day DBA.
- Restore Database: Shuts down and then restores the database to the most recent backup. For more information on restoring a database, see Oracle Database Express Edition 2 Day DBA.

- Run SQL Command Line: Starts the SQL Command Line utility for Oracle Database XE. To connect to the database, issue the connect command in the following format at the SQL prompt:

    connect username/password

    where username is the user name, such as system or another user account name, and password is the password that was assigned when Oracle Database XE was installed or when that user was created. To get help, you can enter the command help at the SQL prompt after you have connected to the database.
- Start Database: Starts Oracle Database XE if it is currently stopped. By default, the database is started for you after installation and every time your computer is restarted. However, to reduce the overall performance load on the system, you can manually stop the database, and then manually restart it later.

    (If the database is not currently stopped, an informational message is displayed that the database is already started.)

    Note:

    To start or stop the database: On Windows, you must be logged in as the user who installed Oracle Database XE or as a Windows administrator; on Linux, you must be logged in as the user who installed Oracle Database XE or as a user who is a member of the dba user group (typically the user oracle).
- Stop Database: Stops Oracle Database XE if it is currently started.
- Get Started: Displays the Oracle Database XE Home Page in your default browser. See Section 1.2, "Database Home Page".
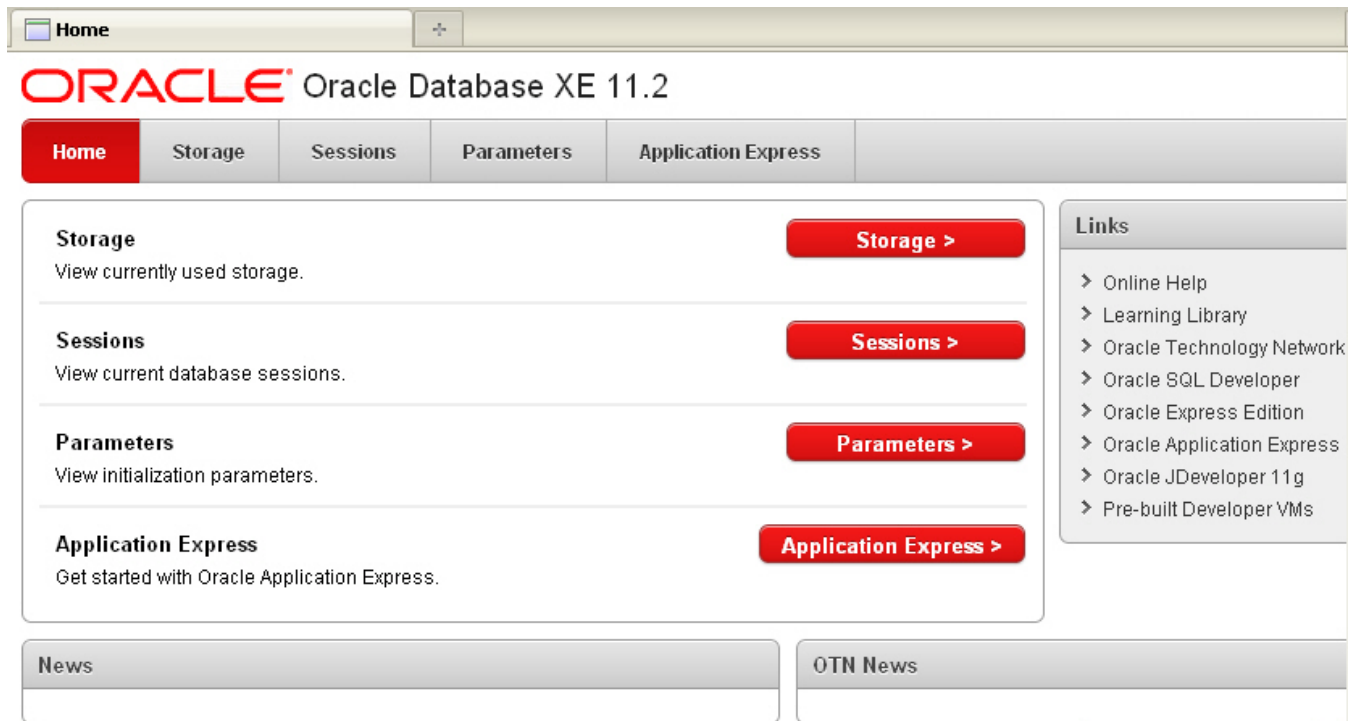
1.2 Database Home Page

The Database home page is a web browser-based interface for performing various database administration operations, including the following:
- Monitoring database storage
- Monitoring database sessions
- Viewing database initialization parameters
- Getting started with Oracle Application Express

To access the database home page, follow these steps:
1. Navigate the system menu as follows:
   a. On Windows, from the Start menu, select Programs (or All Programs), then Oracle Database 11g Express Edition, and then Get Started.
   b. On Linux, click the Application menu (on Gnome) or the K menu (on KDE), then point to Oracle Database 11g Express Edition, and then Get Started.
   c. The Oracle Database XE home page appears:

[Description of the illustration gs_admin_consl.jpg](#)

For detailed information about these database-level operations, see [Oracle Database Express Edition 2 Day DBA](#).

2. Click the button or tab for any category you are interested in (for example, Storage).
   If you are prompted for login information, specify:
   - Username: Enter system for the user name.
   - Password: Enter the password that was specified when Oracle Database XE was installed.

2 Unlocking the Sample User Account

To view any objects owned by the supplied sample database user named HR, or to create the form-based application as described in Section 6, "Creating an Application Using Application Express", you must first unlock the HR sample account.

Oracle Database XE comes with a sample database user named HR. This user owns several database tables in a sample schema for a fictional Human Resources department. However, for security reasons, this user's account is locked. You need to unlock this account before you can view the HR objects or build any applications that use these objects. You can use either of the following approaches to unlock the account:

1. Display the SQL command prompt window. For example, on Windows, click Start, then Programs (or All Programs), then Oracle Database 11g Express Edition, and then Run SQL Command Line.
2. Connect as the SYSTEM user:

a. Type: connect
b. Enter user-name: system
c. Enter password: <password-for-system>
3   Enter the following statement to unlock the HR account:
    SQL> ALTER USER hr ACCOUNT UNLOCK;
4   Enter a statement in the following form to specify the password that you want for the HR user:
    SQL> ALTER USER hr IDENTIFIED BY <hr-password>;
5   Optionally, exit SQL*Plus (which also closes the command window):
    SQL> exit

3 Working with Oracle Table

In this section, you work with Oracle tables using basic SQL. The exercise focuses on hr, the sample human resources database you activated above. Before starting the exercise, explore the HR database schema, using these helpful hints as needed.

- Study the HR database schema linked here: Database Sample Schemas (look under "Schema Diagrams").
- List all of HR user's tables by logging in as the hr user and running SELECT table_name FROM user_tables; .
- Display a detailed table schema using DESCRIBE tablename;

Create a command file, assignment01_1.sql , and add SQL queries and explanations to:
1   List all the rows of the departments table.
2   Find the number of employees in the database (hint: use the COUNT() aggregate function for this);
    a. List the employees who:
    b. have a salary greater than 15000,
    c. were hired between January 1, 2002 and January 1, 2005,
3   have a phone number that doesn't start with 515
4   List the names of the employees who are in the finance department. Try to format the names as "firstname lastname" using concatenation (i.e., ||) and order them alphabetically.
5   List the city, state and country name for all locations in the Asian region.
6   List the locations that have no state or province specified in the database.
7   Oracle provides a default table named dual, which you can usr to verify that OracleXE is up and running. Try to figure out the schema and the data values stored in dual. Give examples of why one might want to user such a table.