

Oracle Database Express Edition

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CPCS241

lab3



Oracle Database XE

- Introducing Oracle Database XE
- Managing Users and Security
- Viewing Database Version and Settings
- Backing Up and Recovering: recycle Bin

- Read about (Managing database Memory ,Storage and Connection)

1 -Introducing Oracle Database XE

Oracle Database Express Edition (Oracle Database XE) is a **free, smaller-** edition of Oracle Database. **easy** to install and **easy** to manage. **you use browser-based interface to:**

- Administer the database
- Create tables, views, and other database objects
- Import, export, and view table data
- Run queries and SQL scripts
- Generate reports
- graphical development environment for creating database-centric Web applications. In addition,
- you can use all the popular Oracle and third-party languages and tools to develop your Oracle Database XE applications.

also includes the following command-line utilities:

- SQL Command Line (SQL*Plus), for entering SQL and PL/SQL commands and running scripts
- SQL*Loader, for loading data into the database
- Data Pump and the Import and Export utilities for data import and export

Accessing the Database Home Page

- It has a browser-based user interface for administering the database, running scripts and queries, building Web-based applications, and more. The starting point for this interface is the Database Home Page.

The screenshot displays the Database Home Page interface. At the top left, it shows "User: SYSTEM". Below this is a "Home" header with a "Customize" link on the right. The main content area features four large icons with labels: "Administration" (database cylinder and people), "Object Browser" (database cylinder with geometric shapes), "SQL" (laptop with "SQL" text and a gear), and "Utilities" (database cylinder with arrows). To the right, there is a "Links" section with a list of links: License Agreement, Getting Started, Learn more, Documentation, Forum Registration, Discussion Forum, and Product Page. Below the links is a "Usage Monitor" section showing "Storage: 670MB" and "Memory: 305MB" with progress bars, and "Sessions: 2 Total, 1 Active".



Database Home Page

The large icons have the following functions:

- **Administration**—Manage database user accounts, manage memory, storage, and network connections, monitor database activity.
- **Object Browser**—View, create, modify, browse, and drop database objects.
- **SQL**—:
 - **SQL Commands**—Run SQL commands
 - **SQL Scripts**—Create, edit, view, run, and delete script files.
 - **Query Builder**— build SQL queries using a graphical user interface. View formatted query results and save queries.
- **Utilities**—Load and unload data, view object reports, and restore dropped database objects.

Accessing the Database Home Page from the Desktop

On Windows: Click Start, (or All Programs), point to Oracle Database 10g Express Edition, and then select Go to Database Home Page.

- When the login page appears, log in to the database using a valid database user name and password(your own user).
- To log in as an administrator, log in with user name **SYSTEM**, and supply the password that you specified during installation
- For working in labs “**csdb**”

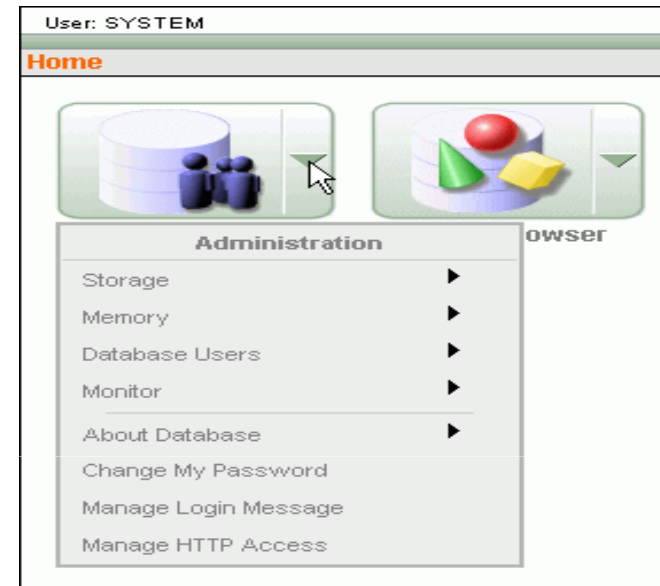
- **Navigating the Graphical User Interface**

- 1- **Clicking the icon or Selecting from the icon's menu**

- 2- **follow locator links**



Home > SQL > **Query Builder**



- **Getting Help**

1. with the current page, click the Help icon at the upper right-hand corner of the page.
1. On Windows: Click Start, (or All Programs), point to Oracle Database 10g Express Edition, point to Get Help, and then select Read Online Help.
1. For help with an individual data field on the page, position the cursor over the field label. If the field label turns red and the cursor changes to an arrow with a question mark, help is available for that field. Click the field label to view the help in a separate window



Managing Users and Security

- When you create a user, you are also implicitly creating a schema for that user. A schema is a logical container for the database objects (such as tables, views, triggers, and so on) that the user creates.
- The schema name is the same as the user name,. **For example, HR.EMPLOYEES** refers to the table named EMPLOYEES in the HR schema. (The **EMPLOYEES** table is owned by **HR**.)
- **SYSTEM** : This is the user account that you log in with to perform all administrative functions .



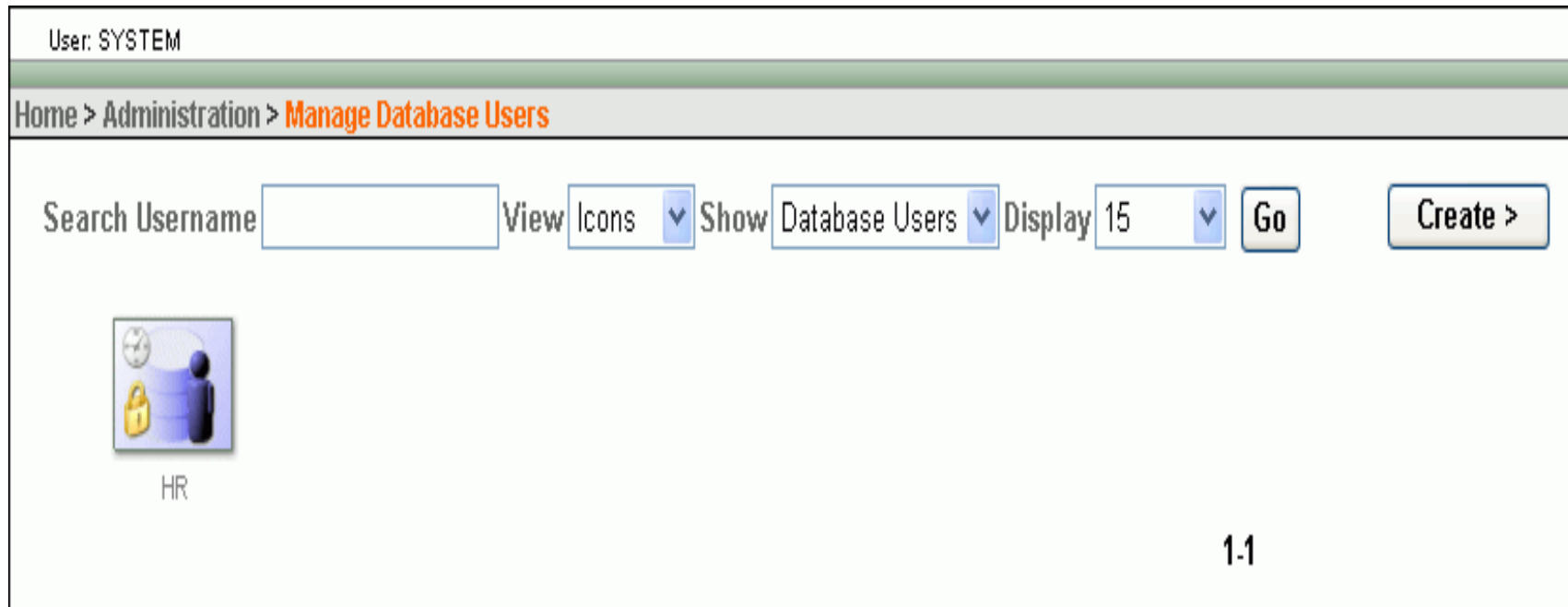
Managing Database Users

You can use the Oracle Database XE graphical user interface or SQL Command Line (SQL*Plus) to manage database users.

- [Viewing Users](#)
- [Creating Users](#)
- [Altering Users](#)
- [Locking and Unlocking User Accounts](#)
- [Expiring a User Password](#)
- [Dropping Users](#)

Creating a User


- Suppose you want to create a user account for a database :Access the Database Home Page using **SYSTEM user name** .
- Click the Administration icon, and then click the Database Users icon.
- Click Manage Database Users page, click Create.



User: SYSTEM

Home > Administration > **Manage Database Users**

Search Username View Icons Show Database Users Display 15


HR

1-1

Create database user

- The Create Database User page appears.

User: SYSTEM

Home > Administration > Manage Database Users > **Create Database User**

Create Database User

* Username

* Password

* Confirm Password

Expire Password

Account Status ▼

Default Tablespace: **USERS**

Temporary Tablespace: **TEMP**

User Privileges

Roles:

CONNECT RESOURCE DBA

Direct Grant System Privileges:

<input type="checkbox"/> CREATE DATABASE LINK	<input type="checkbox"/> CREATE MATERIALIZED VIEW	<input type="checkbox"/> CREATE PROCEDURE
<input type="checkbox"/> CREATE PUBLIC SYNONYM	<input type="checkbox"/> CREATE ROLE	<input type="checkbox"/> CREATE SEQUENCE
<input type="checkbox"/> CREATE SYNONYM	<input type="checkbox"/> CREATE TABLE	<input type="checkbox"/> CREATE TRIGGER
<input type="checkbox"/> CREATE TYPE	<input type="checkbox"/> CREATE VIEW	

[Check All](#) [Uncheck All](#)



Administration Roles

Viewing Users, Altering Users, Locking and Unlocking User Accounts
Expiring a User Password, Dropping Users

- Click the Administration icon, and then click the Database Users icon → manage users
- Note : for these administrative roles ,you've login in as system (and the installation password)



Recovery data base :Recycle Bin

Viewing Contents

- To view recycle bin contents:
- Access the Database Home Page, and log in as the owner of the schema of interest.
- Click the Utilities icon, and then click the Recycle Bin icon.
- Click the Dropped Objects icon.



1 Overview of Development

- Oracle Database Express Edition is a relational database that stores and retrieves collections of related information, collections of related information are organized into structures called tables. Each table contains rows (records) that are composed of columns (fields). The tables are stored in the database in structures called schemas,

- **Database Objects**

You need to create database objects before you start developing your application.. These databases objects include tables, indexes, views, sequences and synonyms.



Managing Database Objects

- [Overview of Managing Objects](#)
 - [Using Datatypes](#)
 - [Managing Tables](#)
 - [Managing Indexes](#)
 - [Managing Views](#)
 - [Managing Sequences](#)
 - [Managing Synonyms](#)
-
- A database object name must abide by certain rules. For example, object names cannot be longer than 30 bytes and must begin with a letter.

What Are the Character Datatypes?

- **The VARCHAR2**, you must specify a string length between 1 and 4000 bytes. For example, a column to hold the last name of employees can be restricted to 25 bytes by defining it as VARCHAR2(25).
- **The CHAR** datatype stores fixed-length character literals. you must specify a string length between 1 and 2000 bytes for column. For each length..
- **NCHAR and NVARCHAR2** datatypes store only Unicode character data.
- The NVARCHAR2 datatype stores variable-length Unicode character literals. The NCHAR datatype stores fixed-length Unicode character literals. For globalization support

NUMBER Data type

- Using the **NUMBER** Datatype

Actual Data	Specified As	Stored As
123.8915	NUMBER	123.8915
123.8915	NUMBER(3)	124
123.8915	NUMBER(4,1)	123.9
123.8915	NUMBER(5,2)	123.89

- Compared to the Oracle NUMBER datatype, arithmetic operations on floating-point data are usually faster for BINARY_FLOAT and BINARY_DOUBLE. High-precision values require less space with them



Managing Tables

- [Ensuring Data Integrity in Tables With Constraints](#)
- [Creating a Table](#)
- [Adding a Column To a Table](#)
- [Modifying a Column In a Table](#)
- [Dropping a Column From a Table](#)
- [Adding a Check Constraint](#)
- [Adding a Unique Constraint](#)
- [Adding a Primary Key Constraint](#)
- [Adding a Foreign Key Constraint](#)
- [Viewing Existing Constraints](#)

Constraints

- Constraints can be defined at the column level or at the table level:
 1. **Column-level** constraints are syntactically defined where the column to which the constraint applies is defined. These constraints determine what values are valid in the column. When creating a table with Object Browser, the only constraint defined at the column level is the NOT NULL constraint, which requires that a value is included in this column for every row in the table.
 2. **Table-level** constraints are syntactically defined at the end of the table definition and apply to the entire table. With Object Browser, you can create primary key, foreign key, unique, and check.

Creating a Table

- Log in to the Database Home Page.
- On the Database Home Page, click the **Object Browser** icon.
- Click **Create**, then select **Table**.

Create Table Cancel Next >

* Table Name Preserve Case

Column Name	Type	Precision	Scale	Not Null	Move
<input type="text" value="employee_id"/>	NUMBER	<input type="text" value="6"/>	<input type="text" value="0"/>	<input checked="" type="checkbox"/>	▼ ▲
<input type="text" value="birth_date"/>	DATE			<input checked="" type="checkbox"/>	▼ ▲
<input type="text" value="social_security_id"/>	VARCHAR2		<input type="text" value="12"/>	<input checked="" type="checkbox"/>	▼ ▲
<input type="text" value="marital_status"/>	VARCHAR2		<input type="text" value="10"/>	<input type="checkbox"/>	▼ ▲
<input type="text" value="dependents_claimed"/>	NUMBER	<input type="text" value="2"/>	<input type="text" value="0"/>	<input type="checkbox"/>	▼ ▲
<input type="text" value="contact_name"/>	VARCHAR2		<input type="text" value="45"/>	<input checked="" type="checkbox"/>	▼ ▲
<input type="text" value="contact_phone"/>	VARCHAR2		<input type="text" value="20"/>	<input checked="" type="checkbox"/>	▼ ▲
<input type="text" value="contact_address"/>	VARCHAR2		<input type="text" value="80"/>	<input checked="" type="checkbox"/>	▼ ▲

Add Column

Adding a Check ,PK,FK,UK Constraints

- You can make these constraints while create table or after ,
- On the Database Home Page, click the **Object Browser** icon.
- select **Tables** then click the desired table name on the left
- Click the **Constraints** tab-> Click the **Create** button.
- On the Add Constraint page, fill the fields :

- the **Next** button.
- Click the **Finish**

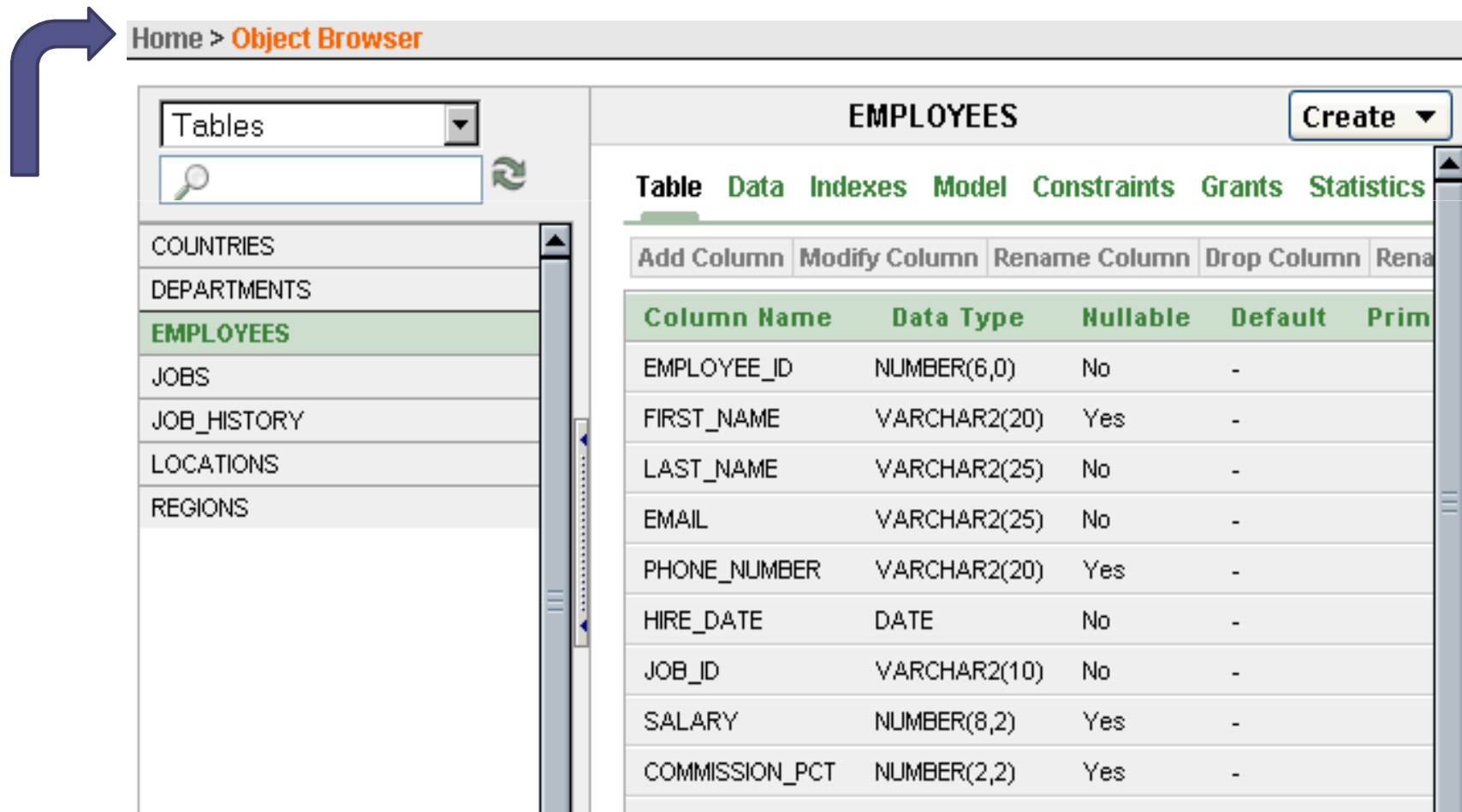
The screenshot shows the 'Add Constraint' dialog box with the following fields and values:

- Schema: HR
- Table: PERSONAL_INFO
- Constraint Name: PERSONAL_INFO_CHECK_CON
- Preserve Case
- Constraint Type: Check
- Constraint on Column: DEPENDENTS_CLAIMED (NUMBER)
- Constraint Expression: > 0

Buttons: Cancel, Next >

Managing Database Objects With Object Browser

Using **Object Browser page** to create, modify, or view all your database objects. For example, create a table and then modify it by adding and deleting columns or adding constraints. You can also view all the objects that are currently used in a schema, Drop tables ,modify data ,remove rows....



The screenshot shows the Oracle Object Browser interface. A blue arrow points to the 'Object Browser' breadcrumb. The left pane shows a tree view of database objects, with 'EMPLOYEES' selected. The right pane displays the 'EMPLOYEES' table structure with various tabs and a column list table.

Home > **Object Browser**

Tables

COUNTRIES
DEPARTMENTS
EMPLOYEES
JOBS
JOB_HISTORY
LOCATIONS
REGIONS

EMPLOYEES Create

Table Data Indexes Model Constraints Grants Statistics

Add Column Modify Column Rename Column Drop Column Rename

Column Name	Data Type	Nullable	Default	Primary
EMPLOYEE_ID	NUMBER(6,0)	No	-	
FIRST_NAME	VARCHAR2(20)	Yes	-	
LAST_NAME	VARCHAR2(25)	No	-	
EMAIL	VARCHAR2(25)	No	-	
PHONE_NUMBER	VARCHAR2(20)	Yes	-	
HIRE_DATE	DATE	No	-	
JOB_ID	VARCHAR2(10)	No	-	
SALARY	NUMBER(8,2)	Yes	-	
COMMISSION_PCT	NUMBER(2,2)	Yes	-	
MANAGER_ID	NUMBER(6,0)	Yes	-	

By this lab :

- ✓ You can smoothly work with oracle EX
- ✓ Mange **SYSTEM** user and create database user.
- ✓ Manage tables object and object browser.

Now :

1. Create your own user for students schema.
2. Build tables of **Assignment 1**(student project database)