



SAGE Computing Services

Course Catalogue

Please note that while this catalogue represents our standard courses, customised courses can be developed to suit our clients' requirements

Telephone: 041 990 4458
Facsimile: 08 9243 4335
www.sagecomputing.com.au
enquiries@sagecomputing.com.au

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Oracle JDeveloper 11/12 – 5 Days

ADF Business Components

ADF Faces Rich Client

This course is designed to provide students with the skills and knowledge required to develop a web application using ADF Business Components and ADF Faces Rich Client (JavaServer Faces) web pages within Oracle JDeveloper 11g.

The course is aimed at Oracle Forms programmers and those *not* knowledgeable in Java in learning the JEE technology stack as implemented in JDeveloper. It also caters for programmers interested in learning the JSF web components and how they are supported by JDeveloper.

We offer version 11 and 12 variants of this course.

A knowledge of SQL and PL/SQL is desirable.

A knowledge of object-oriented concepts and Java is desirable.

JDeveloper Introduction

- Product Overview
- Productivity Features & Supported Technologies
- History
- Useful Resources
- Installation and JDeveloper Platform Requirements
- The IDE
- SQL Worksheet

Applications, Projects And Files

- Applications
- Projects
- Creating Files
- Working Sets
- Running Applications
- Debugging Applications

Java Language

- Objectives
- History
- Object-Oriented Concepts
- Implementing Java - File Types
- Java Language Basics
- Creating Java classes in JDeveloper
- Java Language Terminology

Application Development Framework

- Model-View-Controller Architecture
- JEE MVC in Practice
- JDeveloper's MVC Architecture
- Oracle's Application Development Framework
- ADF Development Method

ADF Business Components

- General Introduction
- ADF Business Components XML Files and Java Classes
- Creating Database Connections
- Creating Business Components from Tables
- ADF Model Tester

ADF Entity Objects

- Object-Relational Mapping
- Characteristics and Usage
- Implementation
- Entity Objects Wizard & Editor
- Structure Window

ADF Associations

- Associations Wizard & Editor

Implementing Validation

- Declarative Validation
- Entity or Attribute Validation
- Groovy Expressions
- Business Logic Groups

ADF Application Modules

- Shared Application Modules
- Application Module Nesting
- Application Modules Wizard & Editor
- Shared Application Modules

ADF View Objects

- View Object Wizard & Editor
- Updatable access through entity objects
- Read-only access through SQL query
- Rows Populated Programmatically, not Based on a Query
- Rows populated at design time (static list)

ADF View Links

- View Link Wizard & Editor

ADF BC Configuration

- Application & Project Properties
- Libraries and Packages
- Business Components Base Classes
- Custom Base Class Framework
- Business Components Naming Conventions Preferences
- Business Component Object Name and Package Guidelines

ADF BC Java Classes

- Entity Objects Classes
- View Objects Classes
- Application Modules Classes
- Working With The Adf Business Component Classes
- Finding View Object Instances With An Application Module
- Accessing View Object Rows
- Creating And Deleting Rows

JavaServer Faces

- Creating a JSF Project
- Creating & Editing a JSF Page
- UI Components
- A Basic JSF Page Example
- JSF Configuration and faces-config.xml
- Managed Beans

JSF Navigation, Event Handling and JSF Lifecycle

- Static & Dynamic Navigation
- JSF Events and Listeners
- JSF Lifecycle

Expression Language

ADF Faces Rich Client

- Working with ADF Faces RC Pages
- Working with an ADF Faces RC Component Tree
- Working with EL, Bindings and Page Definitions
- Working with the ADF Bindings

ADF Binding Layer

- ADF Model Layer Terminology & Classes
- Accessing the ADF Model Layer in a Managed Bean

ADF Read-Only Table

ADF Input, Output, Command and Select Components

Data Bound Pages

- Forms
- Tables

- Master-Detail
- Trees
- Query Pages

Partial Page Refresh and Lists of Values

- Declaratively Configuring PPR
- Automatic PPR in ADF Components
- Programmatically Configuring PPR
- Using PPR Navigation
- Cascading List of Values

Page Navigation and Unbounded Task Flows

- Creating & Editing
- Activity Types

Page Layout, Templates and Skins

Menus and Toolbars

Popups, Dialogs and Windows

- Inline Popup Windows
- External Browser Window Popups

Bounded Task Flows, Regions and Page Fragments

- Bounded Task Flow Advantages
- Creating & Editing Bounded Task Flows
- Trains
- Regions
- Page Fragments

Data Visualisation Components

- Graph
- Gauge
- Pivot Table
- Gantt Chart
- Geographic Map

Deploying an ADF Application

- Weblogic – The New Preferred Deployment Platform
- Weblogic Installation & Preparation
- Domains / Servers / Machines / (Clusters)
- Weblogic Package Installation
- Weblogic ADF Preparation – ADF (& JDev) Runtimes
- Creating an ADF ready Domain and Managed Server
- Connections & Data Sources
- JDev Weblogic Connection
- Weblogic JDBC Data Sources
- Deployment

JARs, WARs, EARs and JDeveloper
Deployment Profiles
JDeveloper Auto Deployment
Testing your Application

Security

ADF Security
ADF Business Component Security
Runtime Security Context

Oracle JDeveloper 11g Overview – 1 Day

ADF Business Components

ADF Faces Rich Client

This course is designed to provide students with an insight into the features of the Oracle JDeveloper ADF Business Component & ADF Faces RC development environment. It will allow attendees to assess whether this environment is suitable for their development requirements before embarking on a detailed study of the tool.

No previous experience is required.

JDeveloper Introduction

- Productivity
- Technologies
- History
- New JDeveloper 11g Features
- Useful Resources
- Installation
- IDE
- Application Workspaces and Projects
- Database Connections

Application Development Framework

- ADF Business Components
- ADF Faces Rich Client
- Model-View-Controller
- JEE MVC in Practice
- JDeveloper's MVC Architecture

ADF Business Components

- Creating Business Components from Tables
- Business Components Browser

ADF Entity Objects

- Creating and Editing Entity Objects
- Attribute Default Values
- Attribute Formatting
- Attribute and Entity Validation

ADF View Objects

- Types
- Creating and Editing View Objects
- Creating Transient Calculated Attributes

- Creating Bind Variables
- Creating Declarative List of Values (LOVs)

ADF Application Modules

- Creating and Editing Application Modules
- Exposing View Objects and Links

ADF Faces Rich Client

- ADF Faces RC vs JSF
- UI Component Tree

Creating Simple ADF Faces RC Web-Pages

- ADF Input Form
- Create JSF Page Dialog
- Editing a JSF Web-Page
- Running a Web-Page
- Creating an ADF Input Form
- ADF Read-Only Table
- ADF Master-Detail Page
- Create an ADF Master-Detail Page

JSF Page Navigation

- Creating Web-Pages in the Task Flow Diagrammer
- Creating Static Navigation Rules in the Task Flow Diagrammer
- Using the Control Flow Case in your Web-Page
- Setting the Default Run Target for an Unbounded Task Flow

Enhancing Your Web-Page

- Creating a Checkbox component
- Creating a Static Poplist
- Creating a Dynamic Poplist

Oracle Application Express Workshop - 4 Days

The course is designed to provide the student with the skills and knowledge required to develop a complete application using Oracle's Application Express (APEX) product. The student will develop web interfaces including forms, reports and charts, add validation and customise the formatting to create a small application.

No experience is required.

Basic PL/SQL , HTML and JavaScript skills are an advantage but are not essential.

Product Overview

- Target audience
- Product Features
- Development Approach
- Product architecture
- Concepts – Workspaces and Applications
- The Application Express User Interface
- Navigating in the Product
- Item Finder Search Tool
- Running an Application

SQL Workshop

- The Object Browser
- Creating and Browsing Database Objects
- Query Builder
- Executing SQL commands
- Creating and Running Scripts
- Creating Database Objects
- Defining User Interface Defaults

Utilities

- Importing Data
- Exporting Data
- Database Monitor
- Generating DDL
- Object Reports
- Recycle Bin

Application Builder

- Creating an Application Based on a Spreadsheet
- Creating an Application From Scratch
- The Developer Toolbar
- Creating a Page
- Creating a SQL Report
- Page Rendering and Processing Overview

Create a Form and Associated Report
Team Development

Creating Pages

- The Page Designer
- Creating a Page Group
- Assigning Pages to Groups
- The Component View
- Page Attributes
- Editing the Page
- The Global Page (Page Zero)

Regions and Items

- Create a Region
- Editing a Region
- Adding Items
- Modifying an Item
- Item Display Types
- Adding Buttons
- Conditionally Displaying Regions
- Customise Queries
- Report Attributes
- Downloading the Report to a CSV File

Page Processing

- On Load Processing
- Adding Validation
- Computations
- Branching
- Calling a Page – URL syntax
- Using Variables
- Session State
- Getting Session State
- Setting Session State
- Viewing a Page in Debug Mode

Shared Components

- User Interface
- Application Properties
- Logic Components
- Lists
- Navigation Menu options
- Breadcrumbs
- Lists of Values
- Tabs
- NavBars
- Processes
- Items
- Shortcuts

Managing Files
Webservices

Themes, Templates and Interfaces

User Interfaces
Themes
Theme repository
The Universal Theme
Managing templates
Page Templates
Region templates
Other Templates
Subscribing to a Template
Cascading Style Sheets

Other Page and Region Types

Interactive reports
Power Users
Trees
Data Loading Region
Creating Charts
Creating Calendars
Creating Trees
Creating a Wizard
Regions from other sources
Using the Global Page (Page 0)

Utilities and Reporting

Translations
Managing CSS and Image Files
Uploading Images
Exporting and Importing

Advanced Development Techniques

Collections
Tabular Forms
Authentication
Authorisation
Access Control Wizard
Cross Site Scripting
Session State Protection
Dynamic Actions
Plug-ins
Using jQuery / AJAX
The Application Express API
Utilising the Community
Best Practice recommendations

Mobile

- APEX Mobile (4.2+)
- User Interfaces
- Mobile Deliver Methods
- CSS Media Queries

Worksheet Applications

- Overview
- Use cases

Administration and Deploying An Application

- Builds
- Application Packaging
- Managing Application Express
- Provisioning Workspaces
- User Administration
- Purging Logs
- Purging Session State
- Manage Application Models
- Workspace Preferences

Oracle SQL Workshop 4 Days – Oracle 12C

The course is designed to provide the student with a basis for developing systems using the Oracle database. The SQL language is covered from simple to complex constructs. Guidelines are provided on writing SQL for optimum performance and ease of maintenance.

No previous experience is required.

The Relational Model

- Characteristics of the Relational Model
- Components of the Relational Model
- Overview of Oracle Data Types

The Oracle Development Environment

- Oracle Versions and Architecture
- Multi Tenant Architecture
- Introduction to SQL Developer
- The SQL Developer Interface
- Using Help
- Creating a Database Connection
- Browsing Database Objects
- Using the SQL Worksheet

The SQL Language

- The SELECT Statement
- Using DESCRIBE
- Using a Column Alias
- Ordering the Data

More about SELECT

- Concatenation
- Null Values
- Wildcards
- Bounded Ranges
- Distinct Values
- The IN Clause
- The CASE expression
- Query Row Limits and Row Offsets

More About the Oracle Development Environment

- Command line SQL*Plus
- Session Options in SQL*Plus
- Formatting in SQL*Plus

Managing scripts in SQL Developer
Defining a Substitution Variable
Assigning Parameter Values Interactively

Functions

- Date Functions
- Character Functions
- Regular Expressions
- Number Functions
- All Data Types
- Nested Functions

Joins

- Foreign Keys
- Writing a Select Statement with a Join Condition
- Using a Table Alias
- Joining Additional Tables
- Outer Joins

Group and Analytical Functions

- Common Group Functions
- The Group By Statement
- The Having Clause
- Common Analytical Functions
- Support for Row Pattern Matching (MATCH_RECOGNIZE)
- Using the WITH Clause

Set Operators

- UNION
- INTERSECT
- MINUS

Subqueries

- Syntax
- Number of Rows Returned
- Correlated Subqueries
- Subqueries in the FROM clause

Data Manipulation Language

- The Insert Statement
- Multi-table Insert
- The Update Statement
- The Delete Statement
- The Merge Statement
- Commit and Rollback

Database Objects

- Data Types
- Tables and Columns

- Defining a Default Value
- Creating a Table
- Altering a Table
- Virtual Columns
- Identity Columns
- The Truncate Command
- The Recycle Bin
- External Tables
- The Storage Clause
- Making a Table Read Only

Constraints

- Constraint Types
- Primary Key
- Unique Key
- Check Constraint
- Default
- Referential Integrity Constraint
- Enabling and Disabling Constraints
- Deferred Constraints

Views and Sequences

- Simple Views
- Complex Views
- Creating and Altering Sequences
- Generating Numbers from a Sequence

Indexes

- B*Tree Indexes
- Bitmap Indexes
- The Optimizer
- An overview of tuning issues
- Index Organised Tables
- The Data Dictionary

Clusters

- Hash Clusters
- Index Clusters

Security

- Database Schemas
- System Privileges
- Object Privileges
- Roles
- Synonyms

Locking and Read Consistency

- Data Dictionary Locks

Row Locks
Read Consistent Snapshots
Flashback
Flashback Data Archive

More Advanced SQL

Tree Walking
Using SQL to Write SQL
Uses of Functions in SQL
SQL PIVOT and UNPIVOT
The Model Clause
Temporal Validity

Oracle SQL Workshop 4 Days – Oracle 11G

The course is designed to provide the student with a basis for developing systems using the Oracle database. The SQL language is covered from simple to complex constructs. Guidelines are provided on writing SQL for optimum performance and ease of maintenance.

No previous experience is required.

The Relational Model

- Characteristics of the Relational Model
- Components of the Relational Model
- Overview of Oracle Data Types

The Oracle Development Environment

- Introduction to SQL Developer
- The SQL Developer Interface
- Using Help
- Creating a Database Connection
- Browsing Database Objects
- Using the SQL Worksheet

The SQL Language

- The SELECT Statement
- Using a Column Alias
- Using DESCRIBE
- Ordering the Data

More about SELECT

- Concatenation
- Null Values
- Wildcards
- Bounded Ranges
- Distinct Values
- The IN Clause
- The CASE expression

More About the Oracle Development Environment

- Command line SQL*Plus
- Session Options in SQL*Plus
- Formatting in SQL*Plus
- Managing scripts in SQL Developer
- Defining a Substitution Variable
- Assigning Parameter Values Interactively

Functions

- Date Functions
- Character Functions
- Regular Expressions
- Number Functions
- All Data Types
- Nested Functions

Joins

- Foreign Keys
- Writing a Select Statement with a Join Condition
- Using a Table Alias
- Joining Additional Tables
- Outer Joins

Group and Analytical Functions

- Common Group Functions
- The Group By Statement
- The Having Clause
- Common Analytical Functions
- Using the WITH Clause

Set Operators

- UNION
- INTERSECT
- MINUS

Subqueries

- Syntax
- Number of Rows Returned
- Correlated Subqueries
- Subqueries in the FROM clause

Data Manipulation Language

- The Insert Statement
- Multi-table Insert
- The Update Statement
- The Delete Statement
- The Merge Statement
- Commit and Rollback

Database Objects

- Data Types
- Tables and Columns
- Creating a Table
- Altering a Table

- Virtual Columns
- The Truncate Command
- The Recycle Bin
- External Tables
- The Storage Clause
- Making a Table Read Only

Constraints

- Constraint Types
- Primary Key
- Unique Key
- Check Constraint
- Default
- Referential Integrity Constraint
- Enabling and Disabling Constraints
- Deferred Constraints

Views and Sequences

- Simple Views
- Complex Views
- Creating and Altering Sequences
- Generating Numbers from a Sequence

Indexes

- B*Tree Indexes
- Bitmap Indexes
- The Optimizer
- An overview of tuning issues
- Index Organised Tables
- The Data Dictionary

Clusters

- Hash Clusters
- Index Clusters

Security

- Database Schemas
- System Privileges
- Object Privileges
- Roles
- Synonyms

Locking and Read Consistency

- Data Dictionary Locks
- Row Locks
- Read Consistent Snapshots
- Flashback
- Flashback Data Archive

More Advanced SQL

Tree Walking

Using SQL to Write SQL

Uses of Functions

SQL PIVOT and UNPIVOT

The Model Clause

PL/SQL Workshop (12C) - 3 Days

This course is for developers who will be designing or building applications using the Oracle server. It is relevant for developers who are using the Oracle Developer toolset, and for those using alternative front-end products accessing the Oracle database. The course covers basic PL/SQL syntax and the use of server level procedures, functions and triggers.

A knowledge of SQL is required.

PL/SQL Overview

- PL/SQL Features
- PL/SQL Engines
- PL/SQL Versions

The Oracle Development Environment

- Introduction to SQL Developer
- The SQL Developer Interface
- Using Help
- Creating a Database Connection
- Browsing Database Objects
- Using the SQL Worksheet
- Managing Scripts

Basic PL/SQL Syntax

- Structure of a Block
- Defining Variables and Constants
- Data Types
- Naming Standards
- Executing PL/SQL from SQL*Plus

SQL Statements in PL/SQL

- Valid SQL Statements
- Select Statements
- Implicit Cursors

Procedural Statements - Assignment and Conditional Processing

- Assigning Values to Variables
- Functions in PL/SQL
- Sequences in PL/SQL Expressions

Conditional Processing
Case Expressions and Statements

Procedural Statements - LOOPS

BASIC LOOP
WHILE LOOP
FOR LOOP
Using CONTINUE
GOTO

Exceptions

What is an Exception?
Internal Exceptions
User Defined Exceptions
The RAISE command

Nested Blocks and Cursors

Nested Blocks Scope
Explicit Cursors
Cursors For Loops
WHERE CURRENT OF Clause
Cursor Variables

Tables, Arrays and Records

User Defined Records
Collections
Associative Arrays
Nested Tables
Varrays
Bulk Bind and Collect
Collections

Architecture Overview

Files
Memory Structures
Processes
Execution of SQL Statements
Parsing
Writing Efficient SQL Statements to Share Memory Areas
Recommendations on SQL

Procedures / Functions

Purpose
Managing stored program units in SQL Developer
Creating Procedures
Creating Functions
PL/SQL in the SQL WITH Clause
The UDF Clause

Execution and Error Handling

- Invoking Procedures and Functions
- Passing Parameters
- Types of Errors
- Error Handling
- PL/SQL Compilation Warnings
- Conditional Compilation

Security and Dependency

- Security Issues
- Definer and Invoker Rights
- Debugging Procedures
- Dependency Issues
- Remote Dependency Mode
- Dependency Management

Packages

- The Purpose of Packages
- Creating Packages
- Initialisation code
- Security and Packages
- Dependency Issues
- Data Dictionary Information

More About Packages

- Cursors in Packages
- Persistent Variables
- Overloading
- Packages without a Body
- Guidelines on Using Packages
- PL/SQL Wrapper

Supplied Packages

- Dynamic SQL
- Utility Packages
- Packages that Provide Additional Functionality
- Advanced Queueing
- Scheduler
- UTL_MAIL
- DBMS_FLASHBACK
- DBMS_METADATA
- DBMS_UTILITY.EXPAND_SQL_TEXT
- PL/Scope

Triggers

- Characteristics / Types
- Creating Triggers

Enabling / Disabling Triggers
Restrictions on Triggers
Data Dictionary Information

More About Triggers

Controlling trigger order
Compound triggers
Enabling and Disabling
More Restrictions
Instead of Triggers
Schema and Database Triggers

Large Objects

Differences Between LOBS and LONGS
Creating BLOBS and CLOBS
Creating BFILES
Manipulating LOBs
Using the DBMS_LOB Functions
Temporary LOBS

PL/SQL Workshop (11g) - 3 Days

This course is for developers who will be designing or building applications using the Oracle server. It is relevant for developers who are using the Oracle Developer toolset, and for those using alternative front-end products accessing the Oracle database. The course covers basic PL/SQL syntax and the use of server level procedures, functions and triggers.

A knowledge of SQL is required.

PL/SQL Overview

- PL/SQL Features
- PL/SQL Engines
- PL/SQL Versions

The Oracle Development Environment

- Introduction to SQL Developer
- The SQL Developer Interface
- Using Help
- Creating a Database Connection
- Browsing Database Objects
- Using the SQL Worksheet
- Managing Scripts

Basic PL/SQL Syntax

- Structure of a Block
- Defining Variables and Constants
- Data Types
- Naming Standards
- Executing PL/SQL from SQL*Plus

SQL Statements in PL/SQL

- Valid SQL Statements
- Select Statements
- Implicit Cursors

Procedural Statements - Assignment and Conditional Processing

- Assigning Values to Variables
- Functions in PL/SQL
- Sequences in PL/SQL Expressions
- Conditional Processing
- Case Expressions and Statements

Procedural Statements - LOOPS

- BASIC LOOP
- WHILE LOOP
- FOR LOOP
- Using CONTINUE
- GOTO

Exceptions

- What is an Exception?
- Internal Exceptions
- User Defined Exceptions
- The RAISE command

Nested Blocks and Cursors

- Nested Blocks Scope
- Explicit Cursors
- Cursors For Loops
- WHERE CURRENT OF Clause
- Cursor Variables

Tables, Arrays and Records

- User Defined Records
- Collections
- Associative Arrays
- Nested Tables
- Varrays
- Bulk Bind and Collect
- Collections

Architecture Overview

- Files
- Memory Structures
- Processes
- Execution of SQL Statements
- Parsing
- Writing Efficient SQL Statements to Share Memory Areas
- Recommendations on SQL

Procedures / Functions

- Purpose
- Managing stored program units in SQL Developer
- Creating Procedures
- Creating Functions

Execution and Error Handling

- Invoking Procedures and Functions
- Passing Parameters

- Types of Errors
- Error Handling
- PL/SQL Compilation Warnings
- Conditional Compilation

Security and Dependency

- Security Issues
- Definer and Invoker Rights
- Debugging Procedures
- Dependency Issues
- Remote Dependency Mode
- Dependency Management

Packages

- The Purpose of Packages
- Creating Packages
- Initialisation code
- Security and Packages
- Dependency Issues
- Data Dictionary Information

More About Packages

- Cursors in Packages
- Persistent Variables
- Overloading
- Packages without a Body
- Guidelines on Using Packages
- PL/SQL Wrapper

Supplied Packages

- Dynamic SQL
- Utility Packages
- Packages that Provide Additional Functionality
- Advanced Queueing
- Scheduler
- UTL_MAIL
- DBMS_FLASHBACK
- DBMS_METADATA
- PL/Scope

Triggers

- Characteristics / Types
- Creating Triggers
- Enabling / Disabling Triggers
- Restrictions on Triggers
- Data Dictionary Information

More About Triggers

- Controlling trigger order
- Compound triggers
- Enabling and Disabling
- More Restrictions
- Instead of Triggers
- Schema and Database Triggers

Large Objects

- Differences Between LOBS and LONGS
- Creating BLOBS and CLOBS
- Creating BFILES
- Manipulating LOBs
- Using the DBMS_LOB Functions
- Temporary LOBS

Application Tuning Workshop 12c - 3 Days

This course is designed for Designers, Developers, and Database Administrators, and examines all aspects of tuning SQL statements and applications.

A sound knowledge of SQL and PL/SQL is required.

An Approach to Tuning

- Introduction
- Tuning Aims
- Where to Start
- When to Tune
- What Information Will I Need

Diagnostic Tools

- Explain Plan
- Finding the Real Execution Plan
- The Autotrace Facility
- Using the V\$tables

Processing an SQL Statement

- Oracle Architecture
- Memory Areas
- Phases of SQL Processing
- The Shared SQL Area
- Evaluation of Expressions
- Transformation of Statements
- Recursive SQL
- Access Paths

Indexes

- Index Types
- Index Structure
- Creating Indexes
- Bitmap Indexes
- Concatenated Indexes
- Reverse Key Indexes
- Index Compression
- Function Based Indexes
- Invisible indexes
- Recommendations on Indexing
- Some Common Coding Errors

Tracing

- The Trace Utility
- Tracing SQL Statements
- The TKPROF Utility
- SQLTexplain
- Trace Analyzer (TRCA)
- End to End Tracing
- Trace 10053

Gathering Statistics

- DBMS_STATS
- Syntax
- Multi Column and Expression Statistics
- Collecting Statistics
- Manipulating statistics
- Publishing statistics
- Automatic Statistics Gathering
- Histograms

Cost Based Optimisation

- Introduction
- Determining the Optimisation Mode
- Evaluating an Access Path
- Histograms and Bind Variables
- Adaptive cursors
- Using Hints

More about Cost Based Optimisation

- Joins
- Adaptive Optimisation and Joins
- Subqueries
- Statistics Feedback
- SQL Plan Directives
- SQL and PL/SQL Result Cache

Stored Outlines

- Purpose
- Creating stored outlines
- Using stored outlines

Storage Parameters

- Allocation of Space to Objects
- Space Usage Within a Block
- Detecting Chaining
- Distributing I/O

Optimising PL/SQL

- The Execution of PL/SQL

- Implicit Cursors
- Explicit Cursors
- Using Cursor Loops
- Row Processing
- PL/SQL Inlining Optimisation
- Bulk Binds
- Calling Functions From SQL
- Table Functions
- Other Optimisation Techniques

Data Design for Performance

- Denormalisation of Data
- Maintaining Derived Data
- Implications of Data Types
- Majority Values
- Index organised tables

Partitions

- Partitions
- Types of Partitions
- Combined Partitioning
- Partition Indexes
- Partitions and Explain Plan

Data Warehouse and Large Database Design

- Data Warehouse Design
- Star Queries and Star Transformations
- Bitmap Join Indexes
- Materialized Views
- Creating a Materialized View
- Security Requirements
- Parallelisation
- Determining the Degree
- Parallelisation and Partitions
- Parallelisation and Explain plan

Tuning Tips

- Sort Operation
- Tuning Index Creation
- The Array Interface
- The Use of Views
- Using Sequences
- Statistics Gathering on Load
- Global Temporary Tables
- Monitoring Using V\$SQL_MONITOR

Tuning Tools

- Licensing
- Automatic Database Diagnostic Monitor (ADDM)

Automatic Workload Repository (AWR)
Active Session History (ASH)
SQL Tuning Advisor
Automatic tuning
SQL Profiles
SQL Tuning Sets
SQL Access Advisor
SQL Plan Management

Application Tuning Workshop 11g - 3 Days

This course is designed for Designers, Developers, and Database Administrators, and examines all aspects of tuning SQL statements and applications.

A sound knowledge of SQL and PL/SQL is required.

Defining a Tuning Methodology

- Introduction
- Tuning Aims
- Where to Start
- When to Tune

Diagnostic Tools

- Explain Plan
- Tracing SQL Statements
- The TKPROF Utility
- Autotrace
- Using the V\$tables

Processing an SQL Statement

- Phases of SQL Processing
- The Shared SQL Area
- Evaluation of Expressions
- Transformation of Statements
- Recursive SQL
- Access Paths

Indexes

- Index Structure
- Creating Indexes
- Concatenated Indexes
- Reverse Key Indexes
- Index Compression
- Function Based Indexes
- Invisible indexes
- Recommendations on Indexing

Cost Based Optimisation

- Evaluating an Access Path
- Using Histograms
- Adaptive cursors
- Using Hints
- Joins
- Subqueries
- Techniques for Tuning SQL with Cost Based Optimisation

Gathering Statistics

- DBMS_STATS
- Collecting Statistics
- Manipulating statistics
- Publishing statistics
- Extended statistics

Stored Outlines

- Purpose
- Creating stored outlines
- Using stored outlines

Storage Parameters

- Allocation of Space to Objects
- Space Usage Within a Block
- Detecting Chaining
- Distributing I/O

Hash Clusters and Index Clusters

- Creating Index Clusters
- Estimating Storage for Index Clusters
- Accessing Data in Index Clusters
- Creating Hash Clusters
- Estimating Storage for Hash Clusters
- Recommendations on the Use of Hash Clusters

Optimising PL/SQL

- The Execution of PL/SQL
- Implicit Cursors
- Explicit Cursors
- Using Cursor Loops
- Bulk Binds
- PL/SQL Inlining Optimisation
- Native Compilation

Optimising Applications through Stored Procedures and Packages

- Reducing Network Traffic using Server Program Units
- Creating Procedures and Functions

- Using Packages
- Using Stored Functions in SQL
- Memory Use and Stored Procedures
- Packages and the Shared SQL Area
- Methods for Implementing Business Rules

Using the Results Cache

- SQL Results cache
- PL/SQL Results cache
- Managing dependency

Data Design for Performance

- Denormalisation of Data
- Maintaining Derived Data
- Implications of Data Types
- Subtypes
- Arcs
- Index organised tables

Tuning Tips

- Sort Operation
- Tuning Index Creation
- Tuning Memory Use
- The Array Interface
- The Use of Views
- Using Sequences
- Initialisation Parameters that Affect Tuning

Partitions

- Partitions, Range Partitions & Hash Partitions
- Combined Partitioning
- Partition Indexes
- Global Temporary Tables

Optimise using Parallelisation

- Operations that can be Parallelised
- Determining the Degree
- Sort Operations
- Creating Indexes in Parallel
- Parameters for Tuning Parallelisation
- Monitoring Parallelisation

Tuning Tools

- ADDM
- SQL Tuning Advisor
- Automatic tuning
- SQL Profile
- SQL Tuning Sets
- SQL Access Advisor

Oracle Discoverer Workshop - 2 Days

This course is designed for End Users and examines all aspects of using the latest versions of Oracle Discoverer. Both the web and client server interfaces are covered.

Oracle Discoverer Overview

- Discoverer Environments
- Oracle Discoverer Plus
- Database Tier
- Structure of the End User Layer
- Users of Discoverer
- Concepts
- Features

Working with Discoverer

- Invoking Oracle Discoverer
- Display Formats
- Opening an Existing Workbook
- Closing a Workbook
- Viewing Result in a Workbook
- Selecting Parts of a Worksheet
- Changing the Values of Paging Items
- OracleBI Discoverer Plus Interface
- OracleBI Discoverer Viewer Interface
- Positioning Data Items
- Customising the Worksheet
- Saving Workbooks
- Deleting Workbooks
- Ending an Oracle Discoverer Session
- Customising the Discoverer Plus Interface

Discoverer Workbooks

- Structure of a Workbook
- The Workbook Wizard
- Running the Query
- Viewing The SQL
- Managing Workbooks

Worksheets and Conditions

- Managing Worksheets
- Adding Selection Criteria

- Subqueries
- Advanced Conditions
- Parameters
- Discoverer Plus Features

Performing Analysis - Calculations and Drilling

- Adding Calculations
- Defining Calculations Using Functions
- Analytical Functions
- Drilling Techniques
- Drilling in a Worksheet
- Drilling to a Link

Totals, Exceptions, Printing and Exporting

- Creating Totals
- Conditional Formats
- StopLight Formatting
- Viewing Data in External Applications
- Printing Query Results
- Previewing Your Document
- Exporting Query Results

Customising Workbooks and Worksheets

- Managing Workbooks
- Adding Text
- Customising the Worksheet Appearance
- Changing Fonts, Formats, and Alignment of Data Items
- Visual Elements of the Worksheet
- Customising Query Behaviour

Displaying Data Graphically

- Displaying Data as a Graph
- Selecting a Graph Style
- Location of the Graph
- Customising the Appearance of the Graph
- Using the Graph Toolbar

Scheduling and Administration

- Scheduling
- The End User Layer
- Business Areas
- Granting Access
- Item Properties
- Item Classes
- Joins
- Calculated Items
- Conditions
- Hierarchies

Managing Folders
Importing Database Functions
Refreshing the EUL
Managing Scheduled Workbooks

Oracle End User Workshop - 2 Days

This course is designed for End Users who require a knowledge of SQL to query the Oracle database. It commences with a description of relational concepts and continues with coverage of the SQL statements required to access information from one or more Oracle Tables. Some basic formatting is also covered.

The course requires no prior knowledge of Oracle.

The Relational Model

- Characteristics of the Relational Model
- Components of the Relational Model
- Overview of Oracle Data Types

Structured Query Language

- Structure And Standards
- The SELECT Statement
- Column Alias
- Ordering the Data

SQL*Plus

- Where is SQL*Plus Used?
- Some SQL*Plus Commands
- Writing SQL*Plus
- Editing SQL*Plus through the Buffer

Oracle SQL Developer

- Introduction to SQL Developer
- The SQL developer Interface
- Browsing Database Objects
- Entering SQL

More About SELECT

- Concatenation
- Null Values
- Wildcards
- Bounded Ranges
- Distinct Values
- The IN Clause

Substitution Variables

- Defining a Substitution Variable
- Assigning Parameter Values Interactively
- Assigning Using DEFINE and ACCEPT

Using SQL*Plus for Formatting Output

- Spooling your Output to a File
- Creating a Report Title
- Session Options
- Formatting Columns
- More on Formatting - the Body of the Report
- Displaying more Information in the Title
- Displaying Summary Fields

Functions

- Date Functions
- Character Functions
- Number Functions
- All Data Types
- Nested Functions

Joins

- Foreign Keys
- Select Statements With Join Conditions
- Using a Table Alias
- Self Joins
- Outer Joins

Group Functions

- Common Group Functions
- The Group By Statement

Oracle Forms Developer Workshop - 5 Days

This course is designed for developers who will be designing or building applications using Oracle Form Builder. This is a practical course in which the student builds an application during a series of workshop sessions.

A knowledge of SQL and PL/SQL is required.

Running a Form

- Product Overview
- Form Builder From a User Perspective
- Form Builder Screens
- Form Builder Screen Components
- Navigation
- Operations
- Clearing Data and Exiting

Forms Modules and Storage

- Module Types
- Storage Formats
- Saving and Generating Form Builder Modules
- Saving a Form as XML
- Source Control Management

Working in the Builder

- Features Of The Builder Interface
- The Object Navigator
- The Layout Editor
- The Property Palette
- The PL/SQL Editor
- Synchronisation Of Form Builder Windows
- Menu Structure
- Running a Form from the Builder

Creating a Form

- Form Structure
- Forms and the Database
- Creating a Form
- Creating a New Data Block
- The Data Block Wizard
- The Layout Wizard
- Creating Master - Detail Data Blocks
- Saving and Generating the Form

Form and Data Block Properties

Form Properties

Data Block Properties

Form Layout

The Layout Editor

Frames

Customising the Layout Editor

Selecting Objects

Sizing Objects

Arranging Objects

Setting Attributes

The Tool Palette

Drawing Tools for Creating Boilerplate Objects and Text

Tools for Creating Forms Items

Colour and Pattern Tools

Import and Export

Items

Item Types

Creating An Item

Overview Of Item Types

Item Icons In The Layout Editor

Item Properties

Text Item Properties

Introduction to Triggers

Adding Functionality With Triggers

Trigger Events

WHEN Triggers

ON Triggers

PRE Triggers

Post Triggers

KEY Triggers

Trigger Text

Creating a Trigger

Smart Triggers

Using a Trigger for Validation

Program Units

Built-in Program Units

Restricted and Unrestricted Built-ins

Trigger Events

Types of Built-ins

Failure Of Built-ins

PL/SQL Program Units

Benefits of user-named routines

Types of Program Units

- Procedures
- Functions
- Packages
- Creating a Form Level Program Unit
- The PL/SQL Editor
- Compiling PL/SQL

Check Boxes Radio Groups And List Items

- Common Characteristics
- Setting The Item Contents
- Handling Null Values
- Other Values
- Non Base Table Items
- Common Properties
- Radio Groups
- List Item
- List Item Trigger Events
- Check Box
- Check Box Built-ins

Other Item Types

- Other Item Types
- Display Items
- Calculated Items
- Image Items
- Properties
- Trigger Events
- Built-ins
- Button Items
- Properties
- Trigger Events
- Chart Items
- Hierarchical Trees

Visual Attributes

- Visual Attributes
- Applying visual attributes
- Types of Visual Attribute
- Default Visual Attributes
- Named Visual Attributes
- Custom Visual Attributes

Mouse Events

- Mouse Trigger Events
- Mouse Event System Variables
- Creating a Right Mouse Menu
- Tooltips

Relations

- Relations
- Properties
- Delete Behaviour
- Query Behaviour

Alerts and Editors

- Alerts
 - Creating An Alert
 - Properties
 - Displaying the Alert
- Editors
 - Creating An Editor
 - Properties
 - Attaching an Editor to an Item
 - Invoking an Editor

Lists of Values

- Lists of values
- List of Values Structure
- Creating a List of Values Manually
- Using the LOV Wizard
- Properties
- Displaying the List of values

Record Groups

- Record Groups
- Creating Record Groups
- Creating Record Groups at Design Time
- Creating Record Groups Programmatically
- Reading the Values in a Record Group

Windows and Canvases

- Windows
- Creating Additional Windows
- Windows Properties
- Canvases
- Views
- Content Canvases
- Stacked Canvases
- Toolbar Canvases
- Canvas-View Properties
- Displaying A Canvas
- Windows Trigger Events
- Windows Built-Ins
- Canvas-View Built-Ins
- Tab Canvases
- Tab Pages
- Tab Triggers and Built-Ins

Transaction Processing and Triggers

- Transactions
- Locking
- Triggers At Commit Time
- Client Server Issues
- Array DML

Advanced Data Block Properties

- Alternative Data Sources
- Procedures
- Views
- From Clause Queries
- Object support
- Using Object REFS
- Creating items from LOBs

More Trigger Events

- Navigation Triggers
- WHEN-NEW-INSTANCE Triggers
- Trigger Firing Order
- Query Triggers
- Handling Messages

Determining Form Properties

- System Variables
- Read Only System Variables
- Getting and Setting Properties

Timers

- Creating a Timer
- Altering a Timer
- Deleting a Timer

Integrating Multiple Forms Modules in an Application

- Designing a Forms Application
- Invoking Forms From Forms
- OPEN_FORM
- CALL_FORM
- NEW_FORM
- Passing Information Between Forms Modules
- Global Variables
- Parameter Lists

Forms Architecture and Java

- Architecture
- Running a Form
- Web Forms Styles
- MDI Window
- Frames
- Look and Feel
- Colour Scheme
- Splash Screen
- The Java Importer
- Pluggable Java Components
- Replacing the Forms Interface Item
- Creating a Bean Area
- Manipulating the Bean Area
- Tracing a form
- Using webutil

Integrating Forms with Reports

- Invoking Reports
- RUN_REPORT_OBJECT

PL/SQL Library Modules

- Creating a PL/SQL Module
- Saving and Generating
- Attaching a Library to a Form or Menu Module
- Maintaining a Library Module
- Executing a Program Unit From a Library
- PL/SQL Code in Libraries

Managing Application Development

- Features for Managing Application Development
- Server Program Units
- Object Libraries
- Smart Classes
- Object Groups
- Property Classes
- Creating a Property Class
- Guidelines for Development

Menu Modules

- Menu Modules
- Menu Commands
- Menu Item Types
- Creating Menus
- Displaying Menu Items as Buttons
- The Menu Editor
- Saving and Generating
- Attaching a Menu Module to a Form
- Built-ins for Menus

Oracle Reports Workshop - 4 Days

This course is designed for developers who will be designing or building applications using Oracle Reports. This is a practical course in which the student builds a series of reports ranging from simple to complex.

A knowledge of SQL is required.

A knowledge of PL/SQL is desirable.

Product Overview

- Oracle Developer
- Development and Runtime Environment
- Users of Oracle Reports
- Features
- Object Structure
- Using a Three Tier Architecture

The User Interface

- Invoking Oracle Reports as a User
- Destination of the Report
- Running a Report
- Viewing Reports in a Browser

The Designer Interface

- Invoking Oracle Reports as a Designer
- The Menu Structure
- The Editors
- The Property Palette
- Preferences

Storage

- Saving Reports
- Generating Reports
- Converting Reports

Building a Paper Report

- Design Issues
- The Report Wizard
- The Basic Steps
- Basic Objects
- Report Level Properties
- The Live Previewer

The Data Model Editor

- The Tool Palette
- The Data Wizard
- Pluggable Data Sources
- Creating a Query
- Importing a Query
- Default Groups
- Columns
- Groups

Other Query Types

- Creating an External Query
- An External Query in a Report
- Changing an External Query
- Removing a Reference to an External Query
- Creating a Ref Cursor Query

Columns

- Creating Columns
- Database Columns
- Formula Columns
- Placeholder Columns
- Summary Columns

Multiple Queries and Links

- Report Structures with Multiple Queries
- Defining Links

The Paper Layout - Basic Objects

- Purpose of the Layout Editor
- The Report Wizard
- Report Sections
- Creating Objects
- Modifying Object Properties
- Manipulating Objects
- Hints on Using the Layout Editor
- Boilerplate Objects
- Colour and Pattern
- Repeating Frames
- Frames
- Fields
- Anchors
- Dates and Page Numbers

Standard Layouts

- Report Wizard layouts
- Default Layout Structures
- Manipulating Reports in the Live Previewer

General Paper Layout Properties

- Page Breaking
- Horizontal and Vertical Elasticity
- Conditional Formatting
- Frame Properties
- Repeating Frame Properties
- Field Properties
- Boilerplate Objects
- Anchor Properties

Advanced Paper Layout Properties

- Format Triggers
- Printer Codes
- Print Conditions
- Report Templates
- The Template Editor
- Default Template Attributes
- Override Template Attributes

Web Reports

- Creating a Web Report
- Report tags
- Adding a Report Block
- Modifying a Web Report

Displaying Files, Images and Charts

- Methods of Displaying Files and Images
- Imported Boilerplate
- External Boilerplate
- File Columns
- Long Columns
- The Chart Wizard
- Large Objects

Matrices

- Creating the Data Model
- Data Model of a Simple Matrix
- Layout Model of a Simple Matrix
- Matrix Break Report
- Nested Matrix Report
- Summaries

Parameters

- Report Parameters
- System Parameters
- Parameters Created at Design Time
- Supplying Parameter Values
- Validation Triggers
- The Parameter Form
- The Parameter Form Builder
- Providing Lists of Values

PL/SQL in Reports

- Where PL/SQL can be Used in Reports
- Using a Ref Cursor
- External PL/SQL Libraries
- Triggers
- Packaged Program Units

Report Templates

- Creating Templates
- Report Body Objects
- Inherited Properties
- Standard Templates

Publishing Reports on the Web

- Other Output
- Rich Text Format
- Delimited Text File
- XML output
- Report Submission
- Event Driven Report Submission
- Report Distribution
- XML Report Definitions
- XML Runtime Customisation

