

# 1

## Introduction

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## Objectives

After completing this lesson, you should be able to:

- Explain the course objectives
- Describe the course schedule
- Describe the evolution of Oracle Database
- Describe Enterprise Cloud Computing
- Describe the HR schema

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## Course Objectives

After completing this course, you should be able to:

- Describe Oracle Database architecture
- Configure the database to support your applications
- Manage database security and implement auditing
- Implement basic backup and recovery procedures
- Move data between databases and files
- Employ basic monitoring procedures and manage performance
- Manage resources and automate tasks
- Work with Oracle Support

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In this course, you learn how to administer Oracle Database 12c Release 1.

You also configure the database to support an application and perform tasks such as creating users, defining storage structures, and setting up security. This course uses a fictional application. However, you perform all the core tasks that are necessary for a real application.

Database administration does not end after you configure your database. You also learn the basics of protecting it by designing a backup and recovery strategy. In addition, you learn how to monitor the database to ensure that it operates smoothly.

## Suggested Schedule

Day	Lessons
1	<ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Exploring the Oracle Database Architecture</li> <li>3. Oracle Software Installation Basics</li> <li>4. Installing Oracle Database Software</li> <li>5. Creating an Oracle Database by Using DBCA</li> <li>6. Oracle Database Management Tools</li> <li>7. Managing the Database Instance</li> </ol>
2	<ol style="list-style-type: none"> <li>8. Configuring the Oracle Network Environment</li> <li>9. Administering User Security</li> <li>10. Managing Database Storage Structures</li> <li>11. Managing Space</li> </ol>



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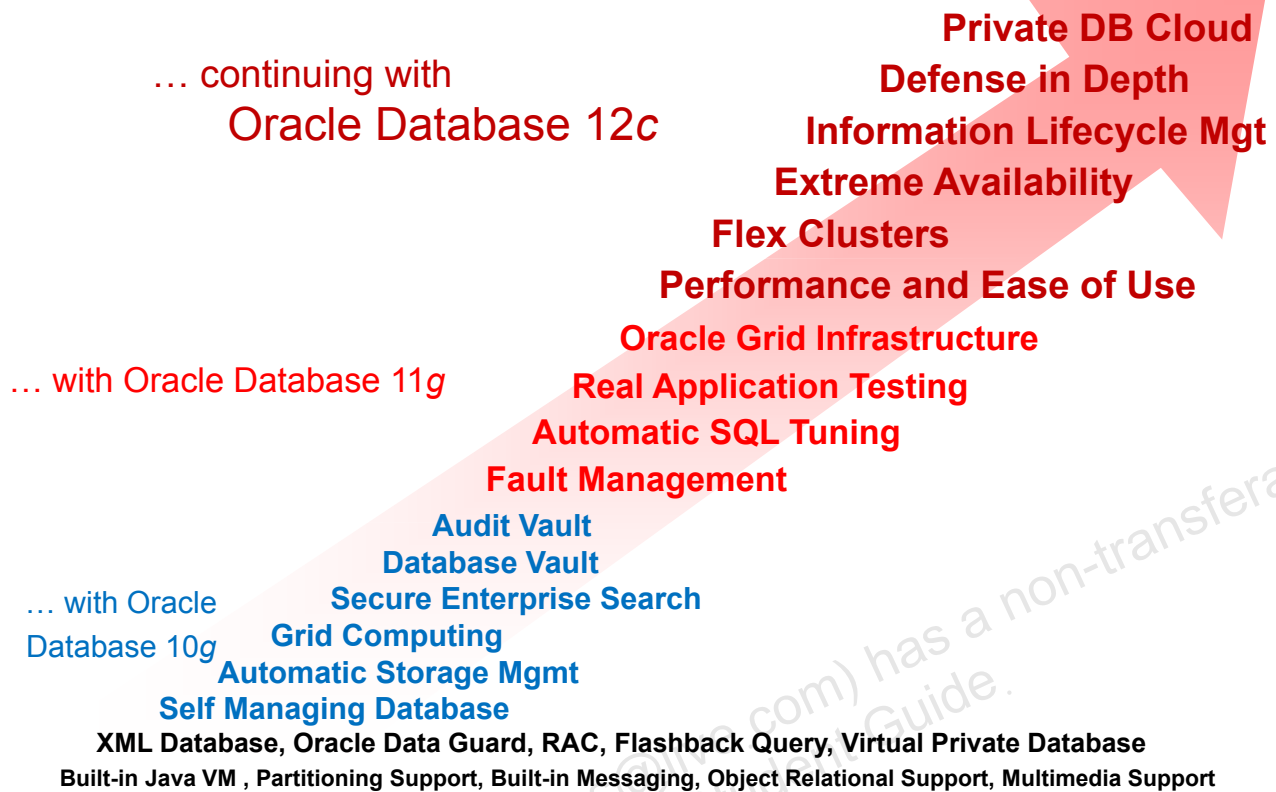
## Suggested Schedule

Day	Lessons
3	12. Managing Undo Data 13. Managing Data Concurrency 14. Implementing Oracle Database Auditing 15. Backup and Recovery: Concepts 16. Backup and Recovery: Configuration
4	17. Performing Database Backups 18. Performing Database Recovery 19. Moving Data 20. Performing Database Maintenance 21. Managing Performance
5	22. Managing Performance: SQL Tuning 23. Introduction to Upgrading to Oracle Database 12c 24. Preparing to Upgrade to Oracle Database 12c 25. Upgrading to Oracle Database 12c 26. Performing Post-Upgrade Tasks



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## Oracle Database Innovation



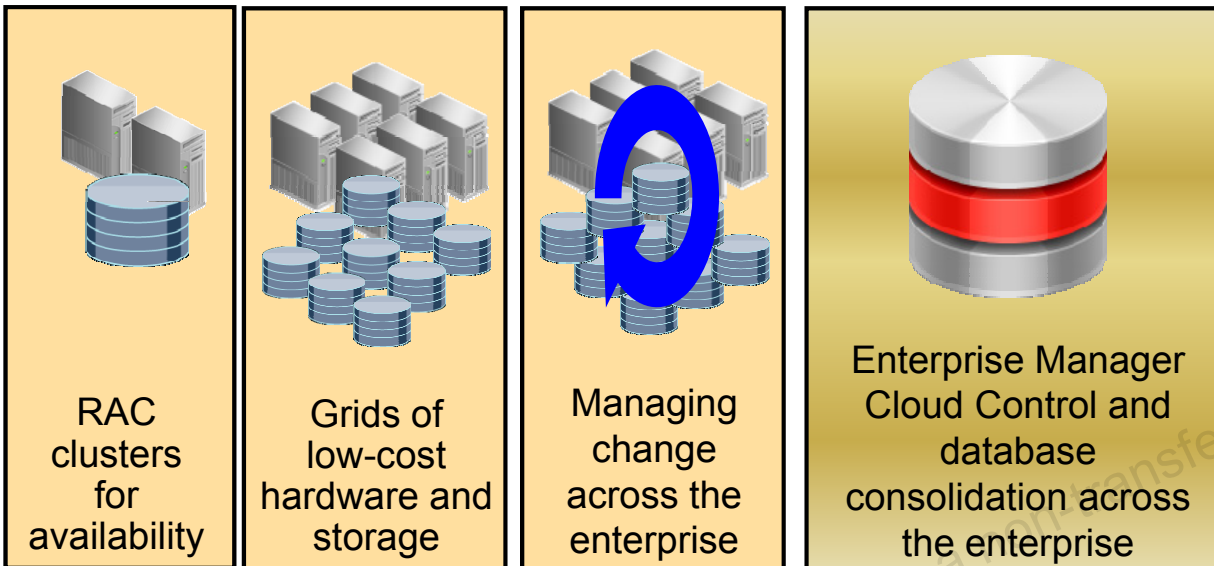
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As a result of its early focus on innovation, Oracle has maintained the lead in the industry with a large number of trend-setting products.

Some of the marquee areas in the Oracle Database 12c release are the following:

- Private Database Cloud
- Defense in Depth including Oracle Data Redaction, Real Application Security
- Information Lifecycle Management (ILM), which includes hot/cold data classification, declarative compression and tiering, In-database Archiving, and Valid-Time Temporal
- Flex Clusters
- Extreme Availability, which includes Data Guard Far-Sync and Application Continuity
- Lower Cost Migrations
- Performance and Ease of Use, which includes “just-in-time” optimizations, attribute clustering, and zone maps for Exadata only

## Enterprise Cloud Computing



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DATABASE 10<sup>g</sup>

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DATABASE 11<sup>g</sup>

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DATABASE 12<sup>c</sup>

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Oracle Database 10g was the first database management system designed for grid computing.

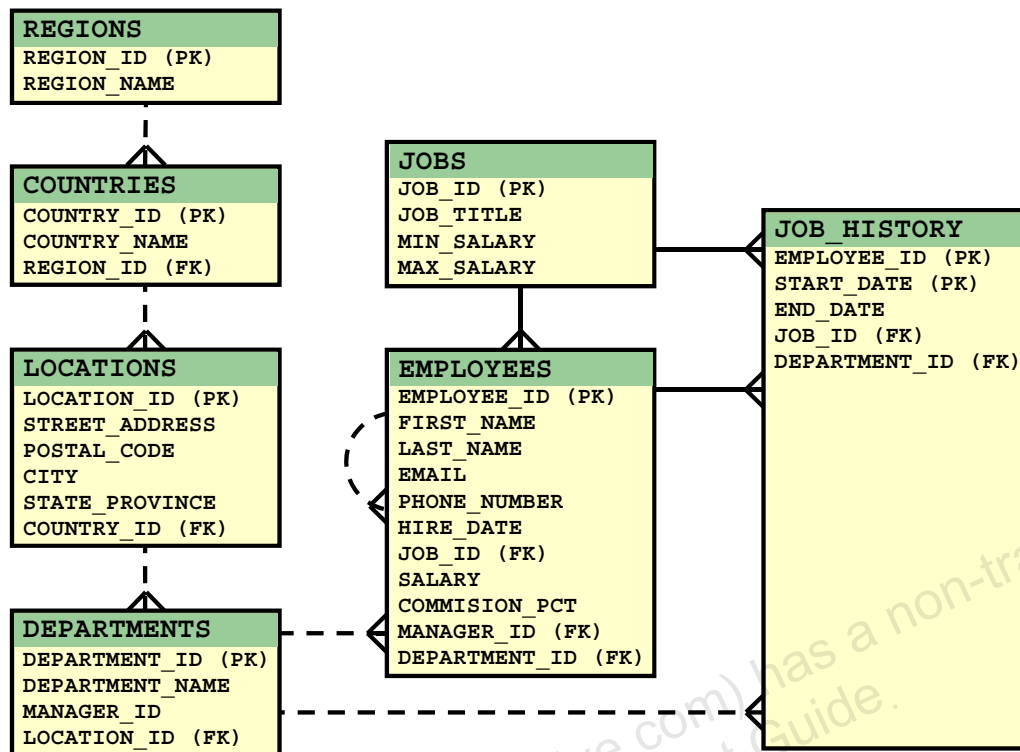
Oracle Database 11g consolidates and extends Oracle's unique ability to deliver the benefits of grid computing, transforming data centers from silos of isolated system resources to shared pools of servers and storage.

Oracle Database 12c and Enterprise Manager Cloud Control are designed for cloud computing. Cloud computing creates a complete, pre-integrated, off-the-shelf private cloud solution that allows you to quickly transform the enterprise data center into a private cloud.

The key benefits are the following:

- Reduce server sprawl and improve CPU utilization by consolidating on fewer servers.
- Reduce the amount of time a DBA spends installing and configuring databases, by automating deployment of standard database configurations.
- A single console manages the entire Cloud life cycle—plan, set up, deliver, and operate.
- Prevent resource hogging by setting quotas for individual users.
- Forecast future resource needs by analyzing trending reports.
- Compute chargeback based on performance and configuration metrics.

## Course Examples: HR Sample Schema



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The examples used in this course are from a human resources (HR) schema, which can be created as part of the starter database.

The following are some principal business rules implemented in the HR schema:

- Each department may be the employer of one or more employees. Each employee may be assigned to only one department.
- Each job must be a job for one or more employees. Each employee must be currently assigned to only one job.
- When an employee changes his or her department or job, a record in the `JOB_HISTORY` table records the start and end dates of the past assignments.
- `JOB_HISTORY` records are identified by a composite primary key (PK): the `EMPLOYEE_ID` and the `START_DATE` columns.

**Notation:** PK = Primary Key, FK = Foreign Key

Solid lines represent mandatory foreign key (FK) constraints and dashed lines represent optional FK constraints.

The `EMPLOYEES` table also has an FK constraint with itself. This is an implementation of the business rule: Each employee may be reporting directly to only one manager. The FK is optional because the top employee does not report to another employee.



## Summary

In this lesson, you should have learned how to:

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