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# Oracle Database 12c: Advanced PL/SQL

- **Formato do curso:** Presencial
- **Preço:** 1350€
- **Nível:** Avançado
- **Duração:** 18 horas

Este curso ajuda a explorar as características de PL/SQL, bem como melhorar a performance dos objectos criados.

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## Destinatários

Para quem já trabalha com PL/SQL e quer aprofundar e adquirir conhecimentos de boas práticas de programação e tirar o máximo partido de PL/SQL.

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## Pré-requisitos

- Conhecimento de SQL
  - Experiência de programação em PL/SQL
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## Objectivos

No final da ação de formação os participantes deverão estar aptos a:

- Boas práticas de PL/SQL
  - Criar coleções
  - Implementar VPD (virtual private database)
  - Interagir com C e JAVA
  - Trabalhar com LOBs
  - Maximizar performance de PL/SQL
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## Programa

### Introduction

- Course Objectives
- Course Agenda
- Describe the development environments

- Identify the tables, data, and tools used in this course

### **PL/SQL Programming Concepts: Review**

- Identify PL/SQL block structure
- Packages, procedures and functions
- Cursors
- Handle exceptions
- Dependencies

### **Designing PL/SQL Code**

- Describe the predefined data types
- Create subtypes based on existing types for an application
- List the different guidelines for cursor design
- Describe cursor variables
- White List

### **Overview of Collections**

- Overview of collections
- Use Associative arrays
- Navigate using associative methods
- Use Nested tables
- Use Varrays
- Compare nested tables and varrays

### **Using Collections**

- Write PL/SQL programs that use collections
- Use Collections effectively
- Enhancements to PL/SQL Type Binds

### **Manipulating Large Objects**

- Working with LOBs
- Overview of SecureFile LOBs

### **Using Advanced Interface Methods**

- Calling External Procedures from PL/SQL
- Benefits of External Procedures
- Understand how an external routine is called from PL/SQL
- C advanced interface methods
- Java advanced interface methods

### **Performance and Tuning**

- Understand and influence the compiler

- Tune PL/SQL code
- Enable intra unit inlining
- Identify and tune memory issues
- Recognize network issues

### **Improving Performance with Caching**

- Describe result caching
- Use SQL query result cache
- Use PL/SQL function cache
- Review PL/SQL function cache considerations

### **Analyzing PL/SQL Code**

- Finding Coding Information
- PL/Scope Concepts
- DBMS\_METADATA Package
- PL/SQL Enhancements

### **Profiling and Tracing PL/SQL Code**

- Tracing PL/SQL Execution
- Tracing PL/SQL: Steps

### **Implementing VPD with Fine-Grained Access Control**

- Understand how fine-grained access control works overall
- Describe the features of fine-grained access control
- Describe an application context
- Create an application context
- Set an application context
- List the DBMS\_RLS procedures
- Implement a policy
- Query the dictionary views holding information on fine-grained access

### **Safeguarding Your Code Against SQL Injection Attacks**

- SQL Injection Overview
- Reducing the Attack Surface
- Filtering Input with DBMS\_ASSERT