2

Introduction to PLSQL

Course Road Map

Lesson 1: Course Overview

Unit 1: Introducing PL/SQL

Unit 2: Programming with PL/SQL

Unit 3: Working with PL/SQL Code

Lesson 2: PL/SQL Overview — **You are here!**

Lesson 3: Declaring PL/SQL Variables

Lesson 4: Writing Executable Statements

Lesson 5: Using SQL Statements in PLSQL Programs

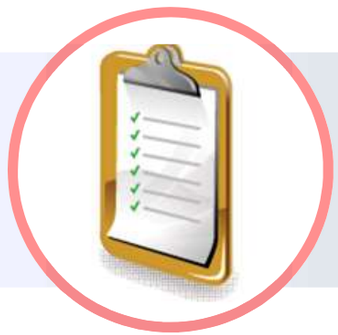
Objectives

After completing this lesson, you should be able to do the following:

- Explain the need for PL/SQL
- Explain the benefits of PL/SQL
- Identify the different types of PL/SQL blocks
- Output messages in PL/SQL

Agenda

- Understanding the benefits and structure of PL/SQL
- Understanding PL/SQL blocks
- Generating output messages in PL/SQL



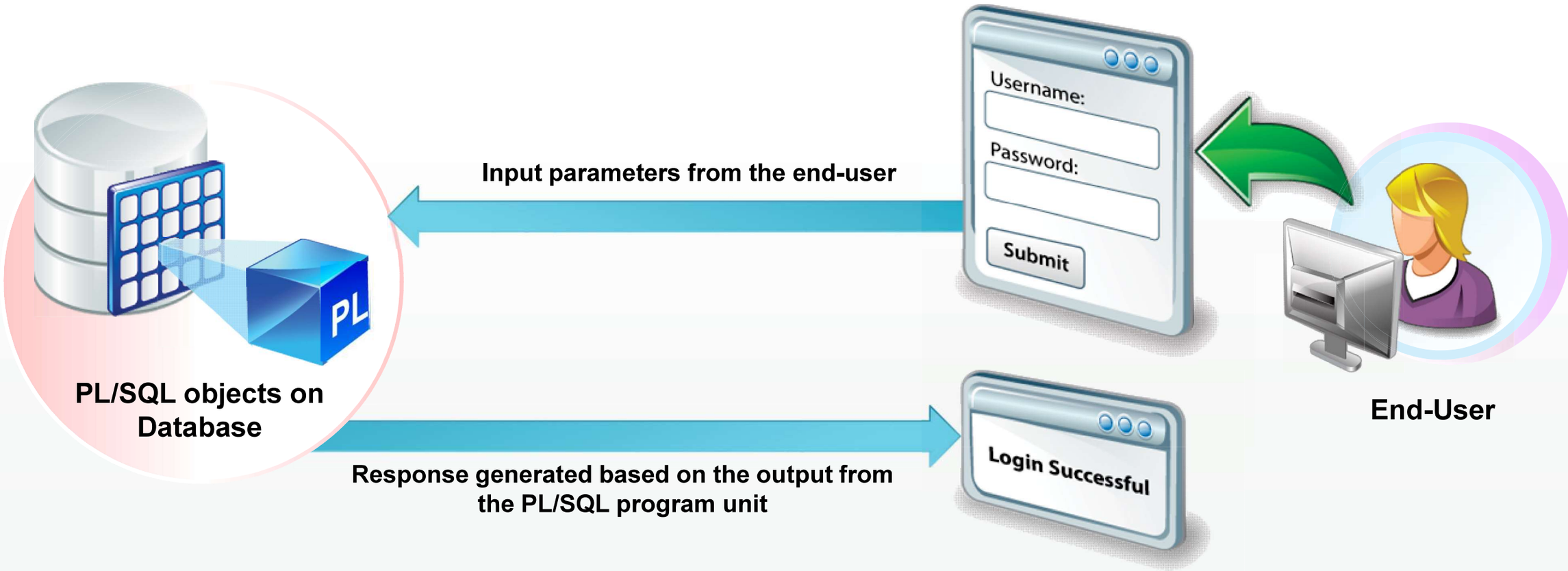
Limitations of SQL

- Performs one operation at a time on the database
- Lacks the capability of logically grouping multiple database operations

Why PL/SQL?

- Enables modularization in the application
- Provides better security
- Enables maintainability
- Provides exception handling

Why PL/SQL


Username:
Password:
Submit
Input parameters from the end-user
PL
PL/SQL objects on Database
Response generated based on the output from the PL/SQL program unit
Login Successful
End-User

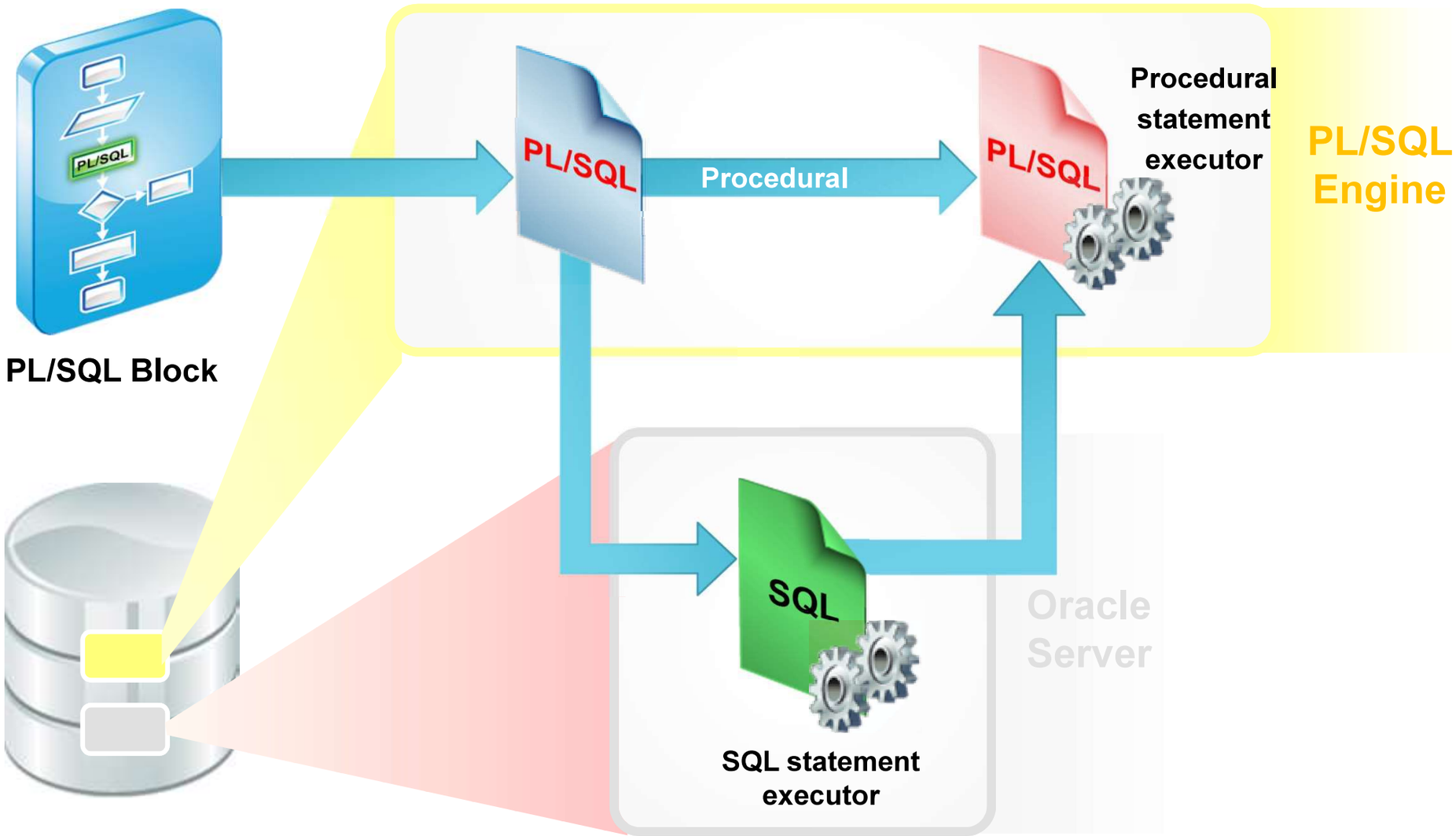
About PL/SQL

- Stands for “Procedural Language Extension to SQL”
- Integrates procedural constructs with SQL
- Provides a block structure for executable units of code
- Provides procedural constructs such as:
  - Variables, constants, and data types
  - Control structures: Loops, conditional statements
- Enables writing reusable program units

Benefits of PL/SQL

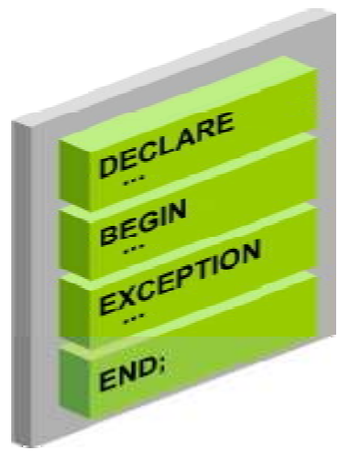
- Integration of procedural constructs with SQL
- Improved performance
- Modularized program development
- Integration with Oracle tools
- Portability
- Exception handling
- Support for Object Oriented Programming

PL/SQL Runtime Architecture



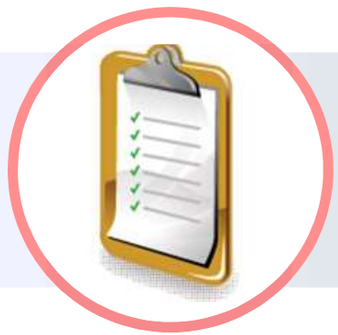
PL/SQL Block Structure

- `DECLARE` (optional)
  - Variables, cursors, user-defined exceptions
- `BEGIN` (mandatory)
  - SQL statements
  - PL/SQL statements
- `EXCEPTION` (optional)
  - Actions to perform when exceptions occur
- `END` (mandatory)

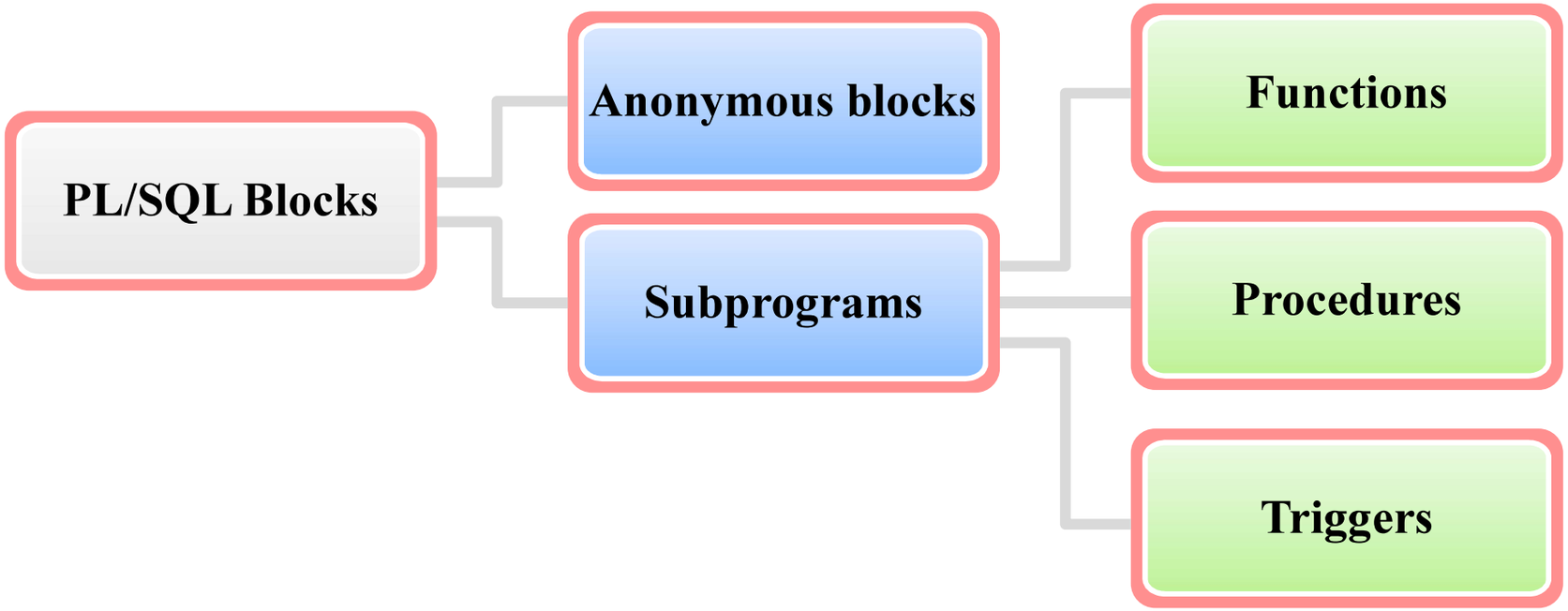


Agenda

- Understanding the benefits and structure of PL/SQL
- Understanding PL/SQL blocks
- Generating output messages in PL/SQL

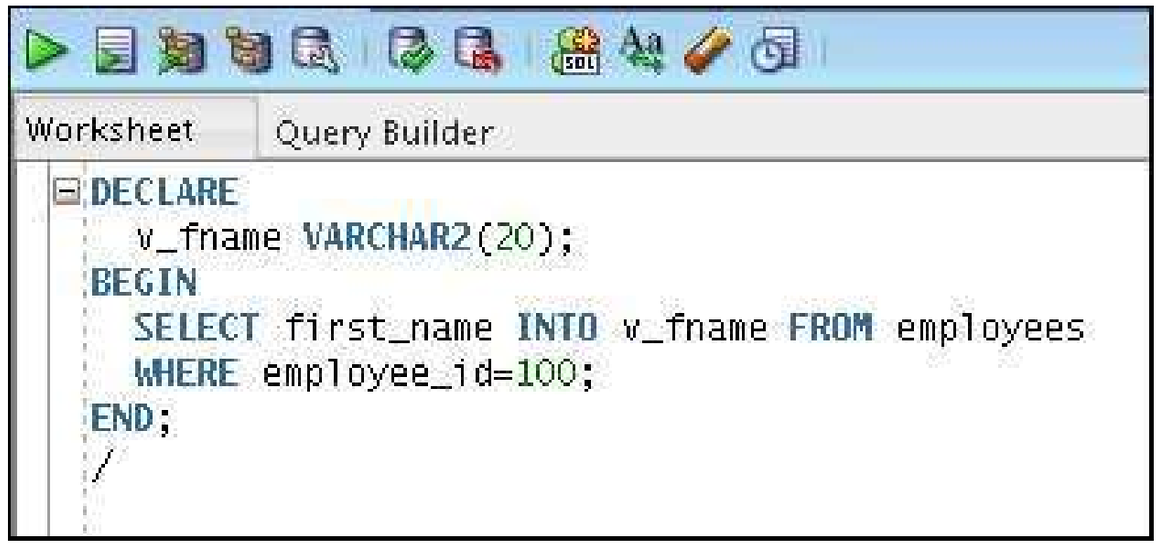


Block Types


PL/SQL Blocks
Anonymous blocks
Subprograms
Functions
Procedures
Triggers

Examining an Anonymous Block

- An anonymous block in the SQL Developer workspace:



Executing an Anonymous Block

- Click the Run Script icon to execute the anonymous block:

Agenda

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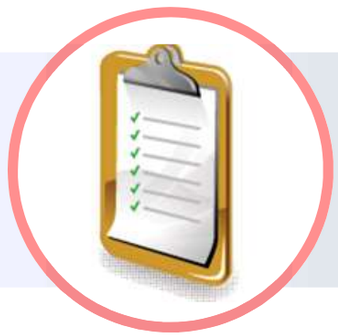


Enabling Output of a PL/SQL Block

1. To enable output in SQL Developer, execute the following command before running the PL/SQL block:

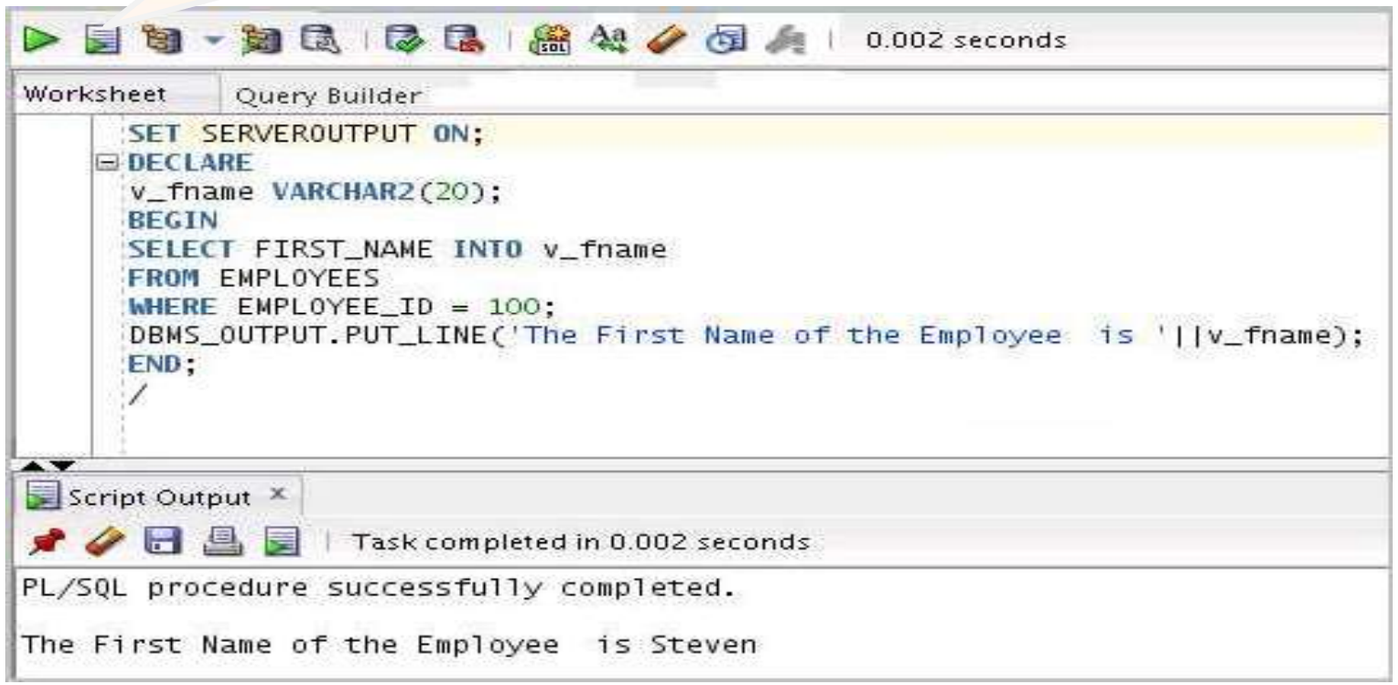
```
SET SERVEROUTPUT ON
```

2. Use a predefined Oracle package and its procedure in the anonymous block:
   - DBMS_OUTPUT.PUT_LINE

```
DBMS_OUTPUT.PUT_LINE(' The First Name of the Employee is ' ||
v_fname);
…
```

Viewing the Output of a PL/SQL Block

Press F5 to execute the command and PL/SQL block.



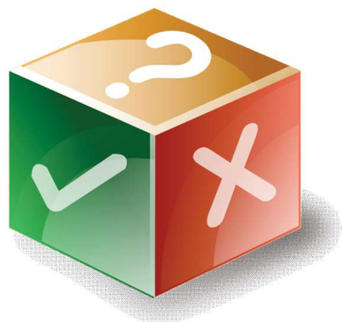
Quiz

A PL/SQL block *must* consist of the following three sections:

- A Declarative section, which begins with the keyword `DECLARE` and ends when the executable section starts
- An Executable section, which begins with the keyword `BEGIN` and ends with `END`
- An Exception handling section, which begins with the keyword `EXCEPTION` and is nested within the executable section

a. True

b. False



Summary

In this lesson, you should have learned how to:

- Explain the need for PL/SQL
- Explain the benefits of PL/SQL
- Identify the different types of PL/SQL blocks
- Output messages in PL/SQL

Practice 2: Overview

- This practice covers the following topics:
  - Identifying PL/SQL blocks that execute successfully
  - Creating and executing a simple PL/SQL block