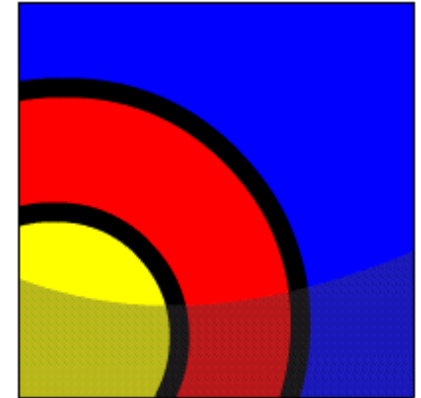# Benefits of PL/SQL

What Will I Learn?

In this lesson, you will learn how to:

- List and explain the benefits of PL/SQL
- List the differences between PL/SQL and other programming languages
- Give examples of how to use PL/SQL in other Oracle products

Why Learn It?

In this lesson, you learn about the benefits of the PL/SQL programming language.

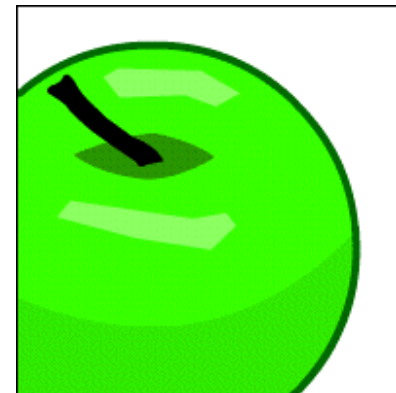You also learn how PL/SQL compares to other programming languages.

Finally, you see how PL/SQL relates to other Oracle products.

Tell Me/Show Me

Benefits of PL/SQL

There are many benefits to using the PL/SQL programming language with an Oracle database. You explore each of these benefits in this lesson.

1. Integration of procedural constructs with SQL
2. Modularized program development
3. Improved performance
4. Integration with Oracle tools
5. Portability
6. Exception handling

Tell Me/Show Me

Benefit 1: Integration of Procedural Constructs With SQL
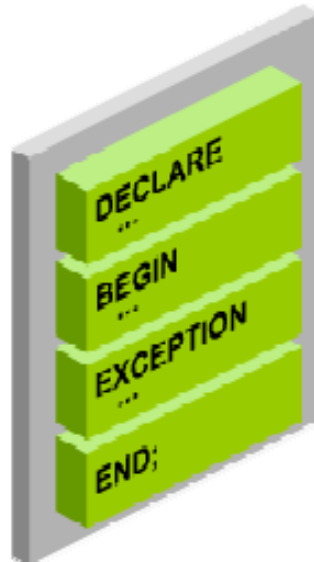
The first and foremost advantage of PL/SQL is the integration of procedural constructs with SQL.

- SQL is a nonprocedural language. When you issue an SQL command, your command tells the database server what to do. However, you cannot specify how to do it.

- PL/SQL integrates control statements and conditional statements with SQL. This gives you better control of your SQL statements and their execution.

Tell Me/Show Me

Benefit 2: Modularized Program Development

The basic unit in a PL/SQL program is a block. All PL/SQL programs consist of blocks. You can think of these blocks as modules and you can "modularize" these blocks in a sequence or nest them in other blocks.
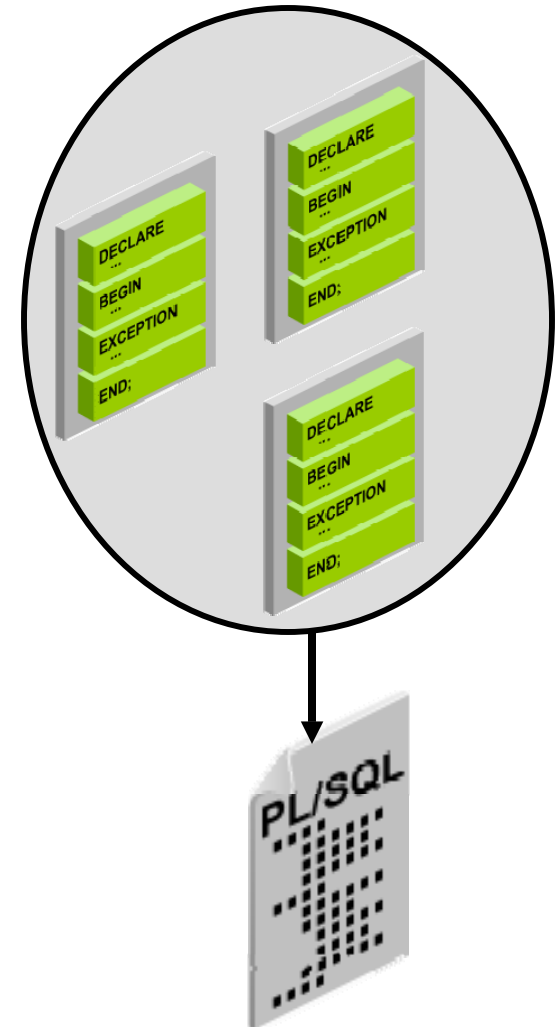
Tell Me/Show Me

Benefit 2: Modularized Program development (continued)

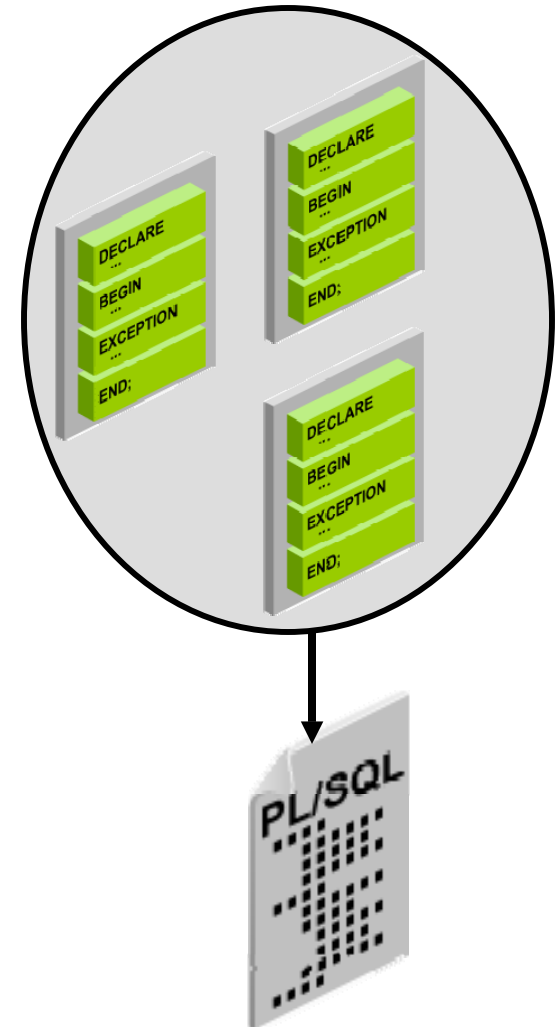Modularized program development has the following advantages:

- You can group logically related statements within blocks.

- You can nest blocks inside other blocks to build powerful programs.

Tell Me/Show Me

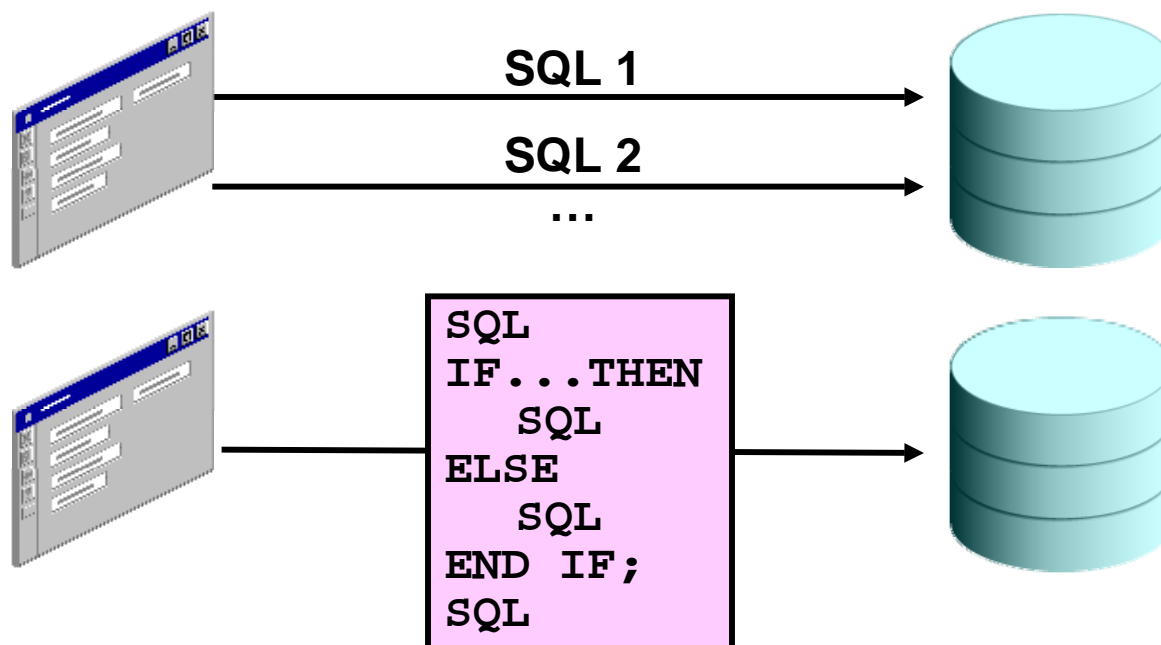**Benefit 2: Modularized Program Development (continued)**

- You can break your application into smaller modules. If you are designing a complex application, PL/SQL allows you to break down the application into smaller, manageable, and logically related modules.

- You can easily read, maintain, and debug the code.

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Tell Me/Show Me
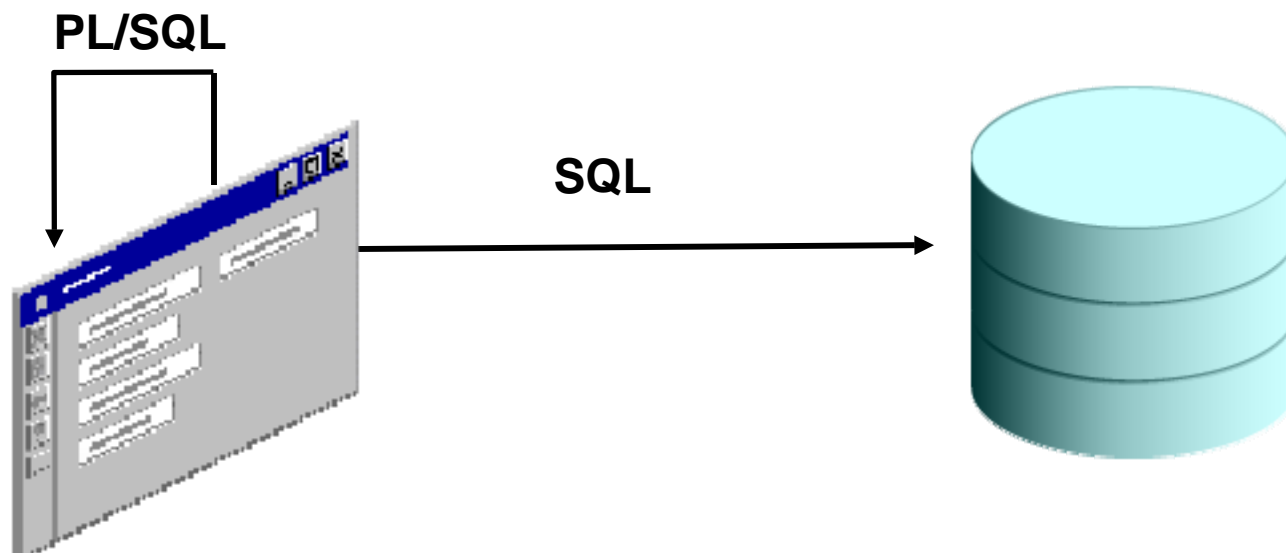
Benefit 3: Improved Performance

PL/SQL allows you to logically combine multiple SQL statements as one unit or block. The application can send the entire block to the database instead of sending the SQL statements one at a time. This significantly reduces the number of database calls.

SQL 1

SQL 2

...

```
SQL
IF...THEN
    SQL
ELSE
    SQL
END IF;
SQL
```

Tell Me/Show Me

Benefit 4: Integration With Oracle Tools

PL/SQL is integrated in Oracle tools, such as Oracle Forms Developer, Oracle Report Builder, and Application Express.

PL/SQL

SQL

Tell Me/Show Me

Benefit 5: Portability

PL/SQL programs can run anywhere an Oracle server runs, regardless of the operating system and the platform. PL/SQL programs do not need to be tailored for different operating systems and platforms.

You can write portable program packages and create libraries that can be reused on Oracle databases in different environments.

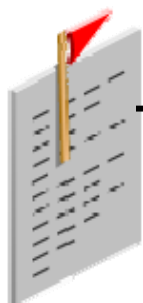**Linux**   **HP Tru64**   **IBM z/OS**   **Solaris**

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Tell Me/Show Me

Benefit 6: Exception Handling

An exception is an error that occurs in the database or in a user's program during runtime. Examples of errors include: hardware or network failures, application logic errors, data integrity errors, and so on. You can prepare for errors by writing exception handling code. Exception handling code tells your program what to do in the event of an exception.

PL/SQL allows you to handle database and program exceptions efficiently. You can define separate blocks for dealing with exceptions.

If there is no data found then …

If too many rows are found then…

If an invalid number is calculated then …

Tell Me/Show Me

PL/SQL Compared to Other Languages

	PL/SQL	C	Java
Requires Oracle database or tool	Yes	No	No
Object-oriented	Some features	No	Yes
Performance against an Oracle database	Very efficient	Less efficient	Less efficient
Portable to different operating systems	Yes	Somewhat	Yes
Ease of learning	Relatively easy	More difficult	More difficult

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PL/SQL in Oracle Products

ORACLE DATABASE 10^g — You can write PL/SQL code to manage application data or to manage the Oracle database itself. For example, you can write code for updating data (DML), creating data (DDL), generating reports, managing security, and so on.

ORACLE APPLICATION SERVER 10^g — Using the Web Application Toolkit, you can create database-centric web applications written entirely or partially in PL/SQL.

ORACLE DEVELOPER SUITE 10^g — Using Forms Builder and Reports Developer, Oracle's client-side developer tools, you can build database-centric web applications and reports that include PL/SQL.

ORACLE Application Express — Using a Web browser you can develop web applications that include PL/SQL.
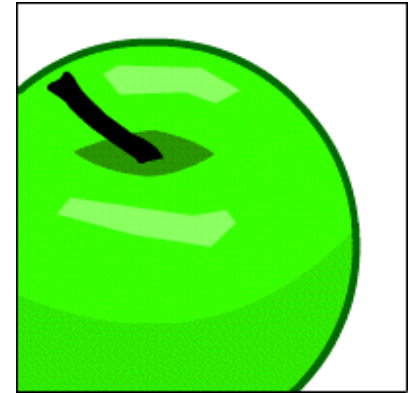
Tell Me / Show Me

Terminology

Key terms used in this lesson include:

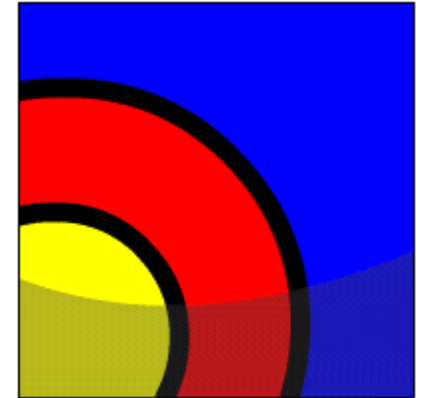Blocks

Portability

Exceptions

Summary

In this lesson, you have learned how to:

- List and explain the benefits of PL/SQL
- List differences between PL/SQL and other programming languages
- Give examples of how to use PL/SQL in other Oracle products

Try It/Solve It

The exercises in this lesson cover the following topics:

- Listing and explaining the benefits of PL/SQL

- Differentiating between PL/SQL and other programming languages

- Describing how to use PL/SQL with other Oracle products