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Database Programming with PL/SQL 1-1: Introduction to PL/SQL

# Practice Activities

## Vocabulary

Identify the vocabulary word for each definition below:

|  |  |
| --- | --- |
| Procedural Constructs | Programming language features such as reusable/callable program units, modular blocks, cursors, constants, variables, assignment statements, conditional control statements, and loops |
| PL/SQL | Oracle Corporations standard procedural language for relational databases which allows basic program logic and control flow to be combined with SQL statements |

## Try It / Solve It

1. Circle the programming language meeting the criteria

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Criteria** | **Language** | | **Jawab** |  |
| 3GL | PL/SQL | SQL | PL/SQL |  |
| 4GL | PL/SQL | SQL | SQL |  |
| Is proprietary to Oracle Corporation | PL/SQL | SQL | PL/SQL |  |
| Nonprocedural | PL/SQL | SQL | SQL |  |
| Procedural | PL/SQL | SQL | PL/SQL |  |
| Is ANSI-compliant | PL/SQL | SQL | SQL |  |

1. In your own words, describe why a procedural language like PL/SQL is needed.

**Jawab**: Bahasa procedural dan PL/SQL diperlukan karena dapat mengizinkan logika program dasar dan alur control digabungkan dengan pernyataan SQL Sehingga memungkinkan untuk membuat program yang lebih bermanfaat.

1. List some examples of procedural constructs in PL/SQL.

**Jawab**: Bahasa procedural dan PL/SQL diperlukan karena dapat mengizinkan logika program dasar dan alur control digabungkan dengan pernyataan SQL Sehingga memungkinkan untuk membuat program yang lebih bermanfaat.

1. In the following code, identify (circle or highlight) examples of these procedural constructs: variable, conditional control statement, reusable/callable program unit, and an assignment statement.

DECLARE

v\_first\_name varchar2(40); v\_last\_name varchar2(40); v\_first\_letter varchar2(1);

BEGIN

SELECT first\_name, last\_name INTO v\_first\_name, v\_last\_name FROM students

WHERE student\_id = 105; v\_first\_letter := get\_first\_letter(v\_last\_name); IF 'N' > 'v\_first\_letter' THEN

DBMS\_OUTPUT.PUT\_LINE('The last name for ' || v\_first\_name || ' ' || v\_last\_name || ' is between A and M');

ELSE

DBMS\_OUTPUT.PUT\_LINE('The last name for ' || v\_first\_name || ' ' || v\_last\_name || ' is between N and Z');

END IF; END;

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Database Programming with PL/SQL 1-2: Benefits of PL/SQL

# Practice Activities

## Vocabulary

Identify the vocabulary word for each definition below:

|  |  |
| --- | --- |
| Portability | The ability for PL/SQL programs to run anywhere an Oracle server runs. |
| Blocks | The basic unit of PL/SQL programs- also known as modules. |
| Exception | An error that occurs in the database or in a user’s program during runtime. |

## Try It / Solve It

1. Why is it more efficient to combine SQL statements into PL/SQL blocks

**Jawab**: Lebih efisien menggunakan pernyataan SQL dalam blok PL/SQL karena lalu lintas jaringan dapat dikurangi secara signifikan, dan aplikasi juga menjadi lebih efisien.

1. Why is it beneficial to use PL/SQL with an Oracle database? List at least three reasons.

Jawab:

• Integrasi konstruksi prosedural dengan SQL

• Pengembangan program termodulasi

• Peningkatan kinerja

• Integrasi dengan alat Oracle

• Portabilitas

• Penanganan pengecualian

1. How is PL/SQL different from C and Java? List three differences.

Jawab:

• PL/SQL membutuhkan database atau alat Oracle.

• PL/SQL memungkinkan untuk beberapa teknik pemrograman berorientasi objek, tetapi tidak seluas Java

• PL/SQL adalah bahasa yang paling efisien untuk digunakan dengan database Oracle.

1. List three examples of what you can build with PL/SQL code.

**Jawab**:

* Membuat Web dan aplikasi lainnya
* Mengelola data aplikasi
* Mengelola database Oracle

 



Database Programming with PL/SQL 1-3: Creating PL/SQL Blocks

# Practice Activities

## Vocabulary

Identify the vocabulary word for each definition below:

|  |  |
| --- | --- |
| Block | Unnamed blocks of code not stored in the database and do not exist after they are executed |
| Function | A program that computes and returns a single value |
| Subprograms | Named PL/SQL blocks that are stored in the database and can be declared as procedures or functions |
| Compiler | Software that checks and translates programs written in high- level programming languages into binary code to execute |
| Procedures | A program that performs an action, but does not have to return a value |

## Try It / Solve It

1. Complete the following chart defining the syntactical requirements for a PL/SQL block:

|  |  |  |
| --- | --- | --- |
|  | Optional or Mandatory? | Describe what is included in this section |
| DECLARE | Optional | Variables, cursors, user defined exceptions |
| BEGIN | Mandatory | SQL statements, PL/SQL statements |
| EXCEPTION | Optional | Actions to perform when errors occur |
| END; | Mandatory | End; (with semicolon) |

1. Which of the following PL/SQL blocks executes successfully? For the blocks that fail, explain why they fail
   1. BEGIN END;

Jawab:

Gagal karena bagian yang dapat dieksekusi harus berisi setidaknya satu pernyataan

* 1. DECLARE

amount INTEGER(10); END;

Jawab:

Gagal karena tidak ada bagian yang dapat dieksekusi (BEGIN is missing)

* 1. DECLARE BEGIN END;

Jawab:

Gagal karena bagian yang dapat dieksekusi harus berisi setidaknya satu pernyataan.

* 1. DECLARE

amount NUMBER(10); BEGIN

DBMS\_OUTPUT.PUT\_LINE(amount); END;

Jawab:

Sukses/Berhasil

1. Fill in the blanks:
   1. PL/SQL blocks that have no names are called anonymous blocks .
   2. Procedures and Function are named blocks and are stored in the database.
2. In Application Express, create and execute a simple anonymous block that outputs “Hello World.”

BEGIN

DBMS\_OUTPUT.PUT\_LINE ('Hello World');

END;

1. Create and execute a simple anonymous block that does the following:

* Declares a variable of datatype DATE and populates it with the date that is six months from today
* Outputs “In six months, the date will be: <insert date>.”

DECLARE v\_timestamp DATE;

BEGIN

SELECT ADD\_MONTHS(SYSDATE,6) INTO v\_timestamp FROM

DUAL;

DBMS\_OUTPUT.PUT\_LINE('In six months, the date will be:'||v\_timestamp);

END;

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