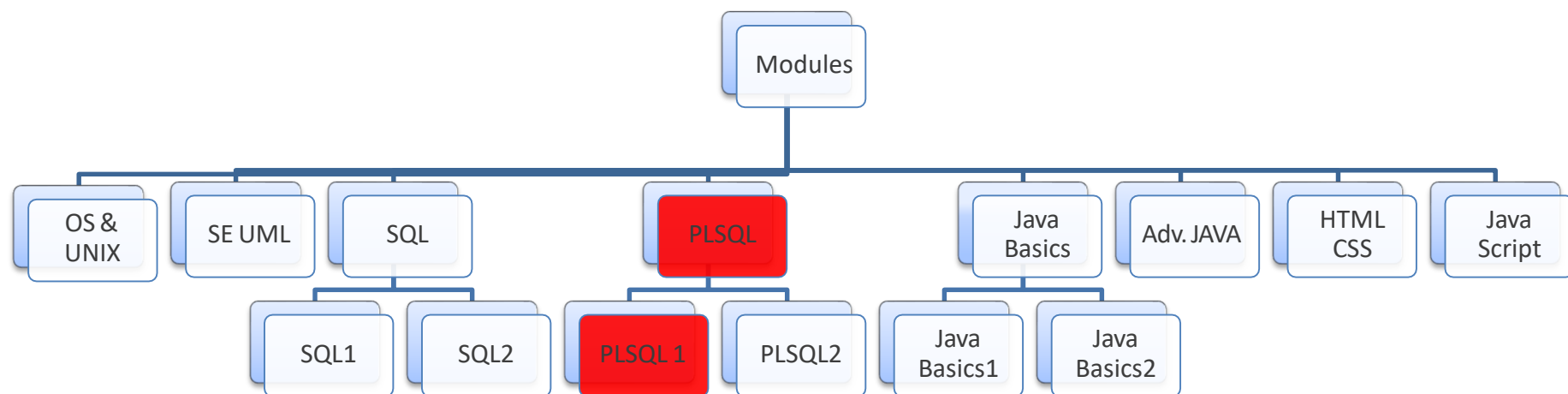


# **PLSQL-Part 1**

### Module Overview

The following module hierarchy presents the technical modules required to build the basic IT skills and acquaints you with relevant technology basics.

The current module – PLSQL 1 (highlighted in red) underwrites Basics of PLSQL 1 and will enable you to enhance one's coding skills using PLSQL Block structures and cursors.



**\* Recommended duration: 5 hours**

## Module Objectives

**By the end of this module, you will be able to:**

- Understand PLSQL and its usage in Oracle
- Create PLSQL blocks
- Use language constructs in blocks
- Fetch DB data, manipulate and display in PLSQL blocks
- Create and use Implicit, Explicit and REF Cursors

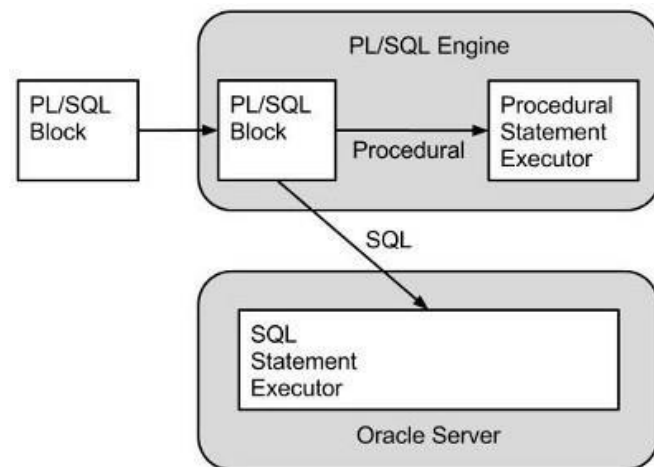
## PLSQL - PLSQL and its usage in Oracle

### Origin

The PLSQL programming language was developed by Oracle Corporation in the late 1980s as procedural extension language for SQL and the Oracle relational database.

### What is PLSQL ?

- PLSQL is a completely portable, high-performance transaction-processing language.
- PLSQL provides a built-in interpreted and OS independent programming environment.
- PLSQL can also directly be called from the command-line SQL\*Plus interface.
- Direct call can also be made from external programming language calls to database.
- PLSQL's general syntax is based on that of ADA and Pascal programming language.
- Apart from Oracle, PLSQL is available in Times Ten in-memory database and IBM DB2.



### References

- [http://www.tutorialspoint.com/plsql/plsql\\_overview.htm](http://www.tutorialspoint.com/plsql/plsql_overview.htm)

## PLSQL Blocks - Declare and Use of PLSQL Blocks

PLSQL is a block-structured language, meaning that PLSQL programs are divided and written in logical blocks of code.

Each block consists of three sub-parts.

S.No	Sections & Description
1	<b>Declarations</b> This section starts with the keyword <b>DECLARE</b> . It is an optional section and defines all variables, cursors, subprograms, and other elements to be used in the program.
2	<b>Executable Commands</b> This section is enclosed between the keywords <b>BEGIN</b> and <b>END</b> and it is a mandatory section. It consists of the executable PLSQL statements of the program. It should have at least one executable line of code, which may be just a NULL command to indicate that nothing should be executed.
3	<b>Exception Handling</b> This section starts with the keyword <b>EXCEPTION</b> . This section is again optional and contains exception(s) that handle errors in the program.

```

DECLARE
    CURSOR emp_cur IS ...;
BEGIN
    DECLARE
        total_sales NUMBER;
    BEGIN
        DECLARE
            hiredate DATE;
        BEGIN
            ...
        END;
    END;
END;
```

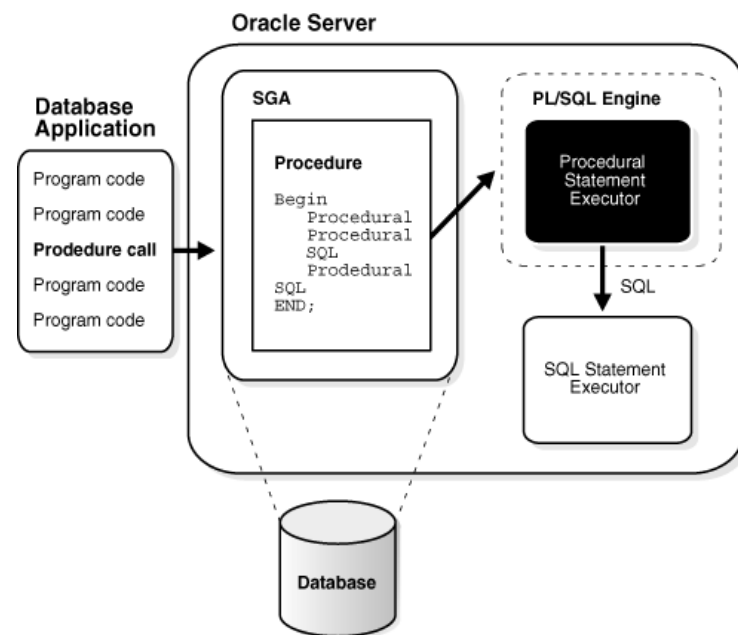
### References

- [http://www.tutorialspoint.com/plsql/plsql\\_basic\\_syntax.htm](http://www.tutorialspoint.com/plsql/plsql_basic_syntax.htm)

### PLSQL Language Constructs - Define PLSQL Language Constructs in Blocks

Following are the various PLSQL language constructs:

- PLSQL - Data Types
- PLSQL - Variables
- PLSQL - Constants
- PLSQL - Operators
- PLSQL - Conditions
- PLSQL - Loops
- PLSQL - Strings
- PLSQL - Arrays

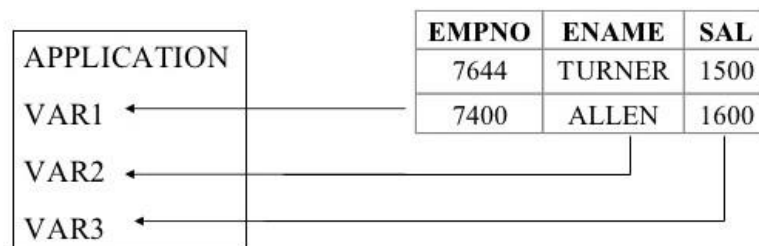


#### References

- [http://www.tutorialspoint.com/plsql/plsql\\_data\\_types.htm](http://www.tutorialspoint.com/plsql/plsql_data_types.htm)

## Fetch and Manipulate DB data - Fetch DB data, manipulate and display in PLSQL blocks

- The simplest form of program has some declarations followed by an executable section consisting of one or more of the SQL statements.
- The major nuance is that the form of the SELECT statement is different from its SQL form.
- After the SELECT clause, we must have an INTO clause listing variables, one for each attribute in the SELECT clause, into which the components of the retrieved tuple must be placed.



### References

- <http://www.freejavaguide.com/plsql.htm#programs>

## PLSQL – Cursors - Use PLSQL – Cursors

Oracle creates a memory area, known as context area, for processing an SQL statement, which contains all information needed for processing the statement, for example, number of rows processed, etc.

### What is Cursor ?

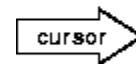
- A cursor is a pointer to this context area. PLSQL controls the context area through a cursor. A cursor holds the rows (one or more) returned by a SQL statement. The set of rows the cursor holds is referred to as the active set.
- You can name a cursor so that it could be referred to in a program to fetch and process the rows returned by the SQL statement, one at a time.

### Types

There are two types of cursors:

1. Implicit cursors
2. Explicit cursors

Result Set			Current Row
7369	SMITH	CLERK	
7566	JONES	MANAGER	
7788	SCOTT	ANALYST	
7876	ADAMS	CLERK	
7902	FORD	ANALYST	



### References

- [http://www.tutorialspoint.com/plsql/plsql\\_cursors.htm](http://www.tutorialspoint.com/plsql/plsql_cursors.htm)



## Additional References

To explore more on the subject, refer the below links and books:

### **Links:**

[https://docs.oracle.com/cd/E11882\\_01/appdev.112/e25519.pdf](https://docs.oracle.com/cd/E11882_01/appdev.112/e25519.pdf)

<http://plsql-tutorial.com/>

### **Books:**

Oracle PLSQL Programming, 5th Edition By Steven Feuerstein, Bill Pribyl  
Publisher: O'Reilly Media

## Self Check?

### **Instructions to write Self Evaluation Sheet:**

Open the excel sheet, refer PL SQL Part 1 sheet, write down the solutions for all questions, save a local copy in your machine.

## Lab Assignment

- Refer ***Assignment Document*** for this module to proceed with **Lab Assignment**
- You are required to ***submit the Solutions*** for the given assignment and refer the ***Participant guide*** to get know the submission procedure.

## Module Summary

Now that you have completed this module, you will be able to:

- Understand PLSQL Blocks and it's usage.
- Create Anonymous blocks in PLSQL .
- Handle language constructs in blocks.
- Retrieve data from the database and display in PLSQL blocks.
- Apply Implicit, Explicit & REF Cursor in blocks.

# Thank you!