Chapter Complement:

Substitution variable Using & Numeric functions SQRT, POWER

Guide to Oracle

Lesson A Objectives

After completing this lesson, you should be able to:

- Interactive End-users Inputs Using &
- PL/SQL functions SQRT, POWER, ROUND

Using Substitution Variables

- A substitution variable is a user variable name preceded by one ampersand (&).
- Now run the command and respond as shown below to the prompts for values:

```
SQL> select &myField from &myTable;
Enter value for myfield: PROJECT_NAME
Enter value for mytable: PROJECT
old   1: select &myField from &myTable
new   1: select PROJECT_NAME from PROJECT

PROJECT_NAME
----------------------------
Design Android App
Devel. SIP phone
Web-Based Systems
Design Apple App
Sensor Networking App
Embedded Systems Using CORBA

6 rows selected.
```

Using Substitution Variables in PL/SQL

- A substitution variable is a user variable name preceded by one ampersand (&).
- Now run the PL/SQL program as shown below to the prompts for values:

SQL Plus

```
SQL> DECLARE
  2     x BINARY_INTEGER ;
  3     y BINARY_INTEGER ;
  4  BEGIN
  5     x := &x;
  6     y := &y;
  7
  8     DBMS_OUTPUT.PUT_LINE('x = '||x || ' y = ' || y) ;
  9  END;
 10  /
Enter value for x: 15
old   5:     x := &x;
new   5:     x := 15;
Enter value for y: 56
old   6:     y := &y;
new   6:     y := 56;
x = 15 y = 56

PL/SQL procedure successfully completed.
```

Numeric Functions

- The numeric functions take numeric value(s) and return a numeric value.
- The POWER function finds the power of a number (np). For example,

POWER (2, 4) = 16
POWER (5, 3) = 125

```
SQL> select POWER (2,4) from dual;

POWER(2,4)
----------
        16
```

- The ABS function returns the absolute value of a column, expression, or value. For example,

ABS (–10) = 10

- The SQRT is a built-in function which returns the square root of a **numeric** input. It returns positive output if the input argument is a number. For example,

SQRT (81) = 9

```
SQL> select SQRT (81) from dual;

  SQRT(81)
----------
         9
```

Using Numeric Functions in PL/SQL

- The ROUND function rounds the value, expression or column to ndecimal places. For example,

ROUND (25.465, 2) = 25.47

```
SQL> select round(25.465,2) from dual;

ROUND(25.465,2)
---------------
          25.47
```

- The numeric functions take numeric value(s) and return a numeric value.

```
SQL> DECLARE
  2     x NUMBER  ;
  3     y NUMBER ;
  4     z NUMBER;
  5  BEGIN
  6     x:=&x;
  7
  8     y:=SQRT(x);
  9     z:=ROUND(y,2);
 10
 11     DBMS_OUTPUT.PUT_LINE('Square root of '||x || ' is y = ' || y) ;
 12     DBMS_OUTPUT.PUT_LINE('Rounding y: '|| z) ;
 13  END;
 14  /
Enter value for x: 81.697
Square root of 81.697 is y = 9.038639278121458476682957179876177350 15
Rounding y: 9.04

PL/SQL procedure successfully completed.
```

Defining a User Variable

- To define a user variable EMPLOYEE and give it the value "SMITH", enter the following command:
- SQL> DEFINE EMPLOYEE = SMITH
- To confirm the definition of the variable, enter DEFINE followed by the variable name:
- SQL> DEFINE EMPLOYEE
- To delete a user variable, use the SQL*Plus command UNDEFINE followed by the variable name.

Lesson A Summary

- Interactive End-users Inputs Using &
  - Using SQL command line
  - Using PL/SQL program
- PL/SQL functions SQRT, POWER, ROUND
  - Using SQL command line
  - Using PL/SQL program