virtusa®

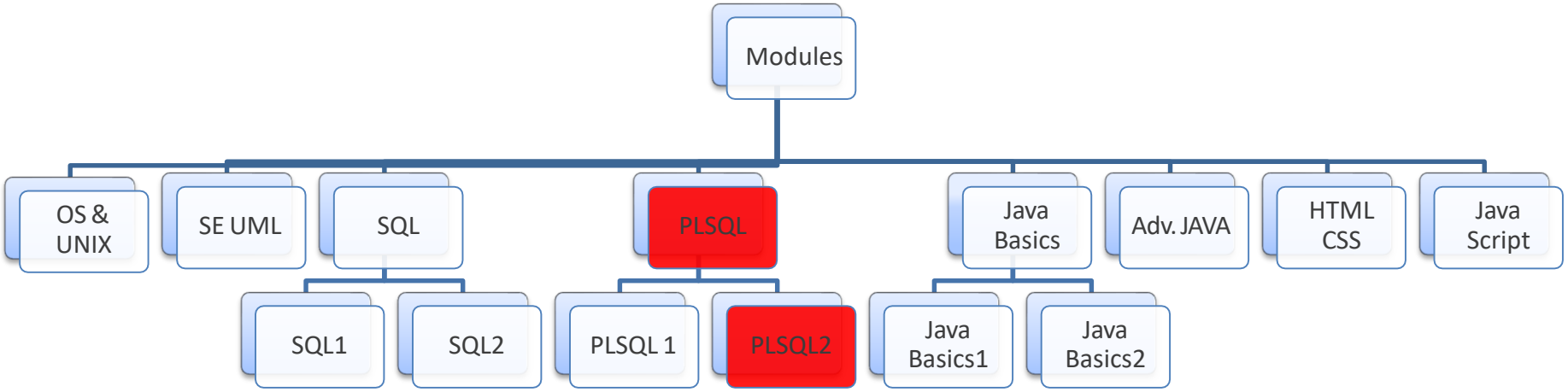
Accelerating Business Outcomes

PLSQL-Part 2

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 2** (highlighted in red) underwrites Basics of PLSQL 2 and will enable you to enhance one's coding skills using PLSQL Stored procedures, functions, exceptions and triggers.



* **Recommended duration: 5 hours**

Module Objectives

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

- Create and use Procedures
- Create and use Functions
- Create and Manage Packages
- Handle Exceptions
- Use Triggers for Event Handling

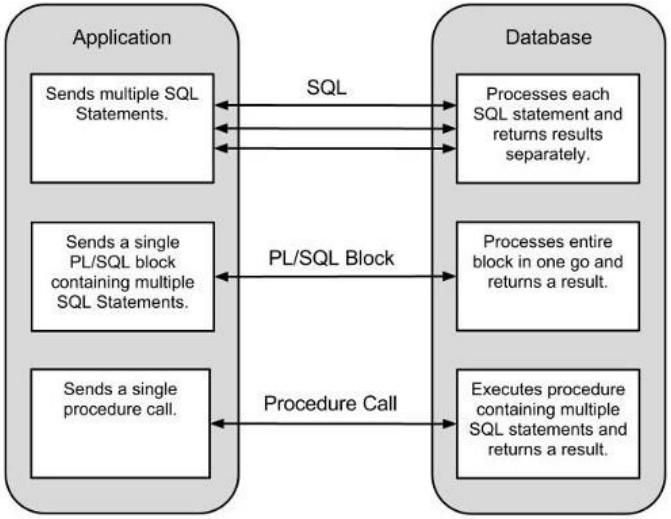
PLSQL – Procedures - Define PLSQL Procedures

What is Procedure ?

- A Procedure or a subprogram is a program unit/ module that performs a particular task.
- These subprograms are combined to form larger programs. This is basically called the **'Modular design**'. A subprogram can be invoked by another subprogram or program which is called the calling program.

A subprogram can be created:

- At schema level
- Inside a package
- Inside a PLSQL block



Creating a Procedure syntax:

```
CREATE [OR REPLACE] PROCEDURE procedure_name
[(parameter_name [IN | OUT | IN OUT] type [, ...])] {IS | AS}
        BEGIN
                < procedure_body >
        END procedure_name;
```

References

- http://www.tutorialspoint.com/plsql/plsql_procedures.htm

PLSQL – Functions - Define PLSQL – Functions

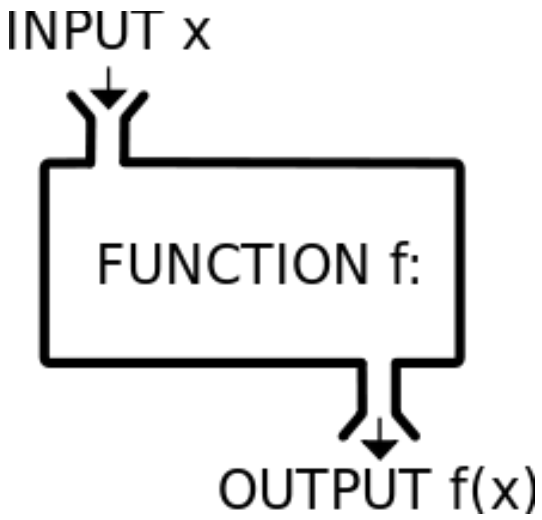
What is a Function?

A PLSQL function is same as a procedure except that it returns a value.

Creating a Function syntax:

- A standalone function is created using the CREATE FUNCTION statement.

```
CREATE [OR REPLACE] FUNCTION function_name
[(parameter_name  [IN | OUT | IN OUT] type [, ...])] RETURN
return_datatype {IS | AS}
        BEGIN
            <
        function_body >
        END
        [function_name];
```



References

- http://www.tutorialspoint.com/plsql/plsql_functions.htm

PLSQL – Packages - Define PLSQL – Packages

What is Package ?

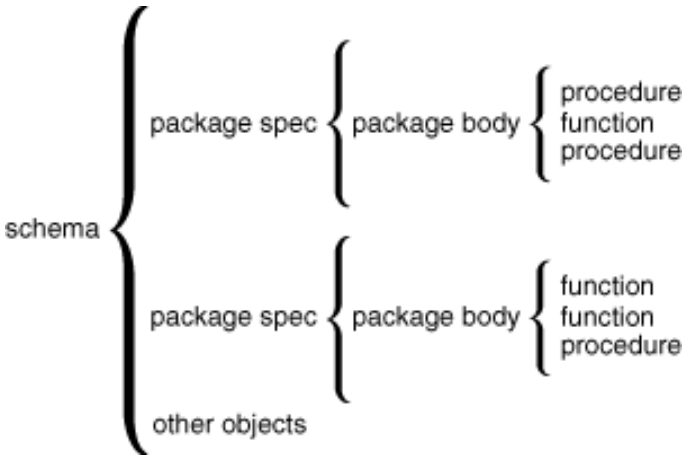
PLSQL packages are schema objects that groups logically related PLSQL types, variables and subprograms.

A package will have two mandatory parts:

1. Package specification
2. Package body or definition

Package Specification:

- The specification is the interface to the package. It just DECLARES the types, variables, constants, exceptions, cursors, and subprograms that can be referenced from outside the package.
- In other words, it contains all information about the content of the package, but excludes the code for the subprograms.



References

- http://www.tutorialspoint.com/plsql/plsql_packages.htm

PLSQL – Handle Exceptions - Use Exceptions Handling in PLSQL blocks

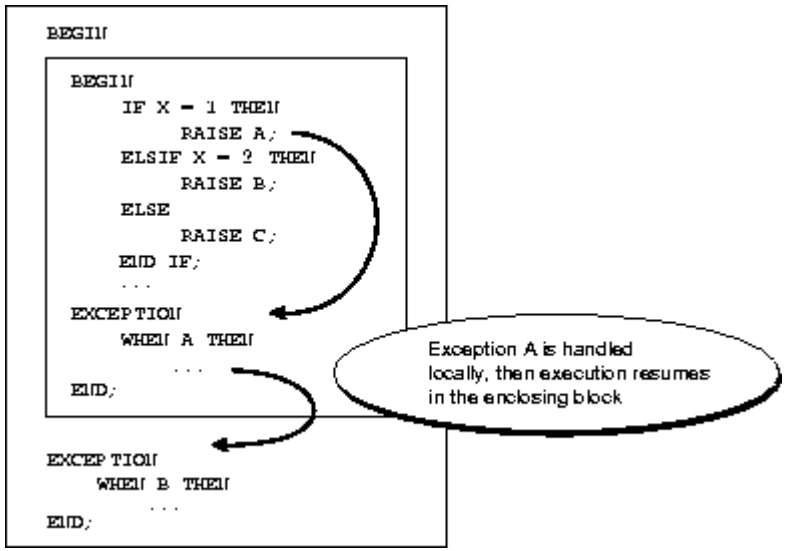
What is Exception ?

- An error condition during a program execution is called an exception in PLSQL.
- PLSQL supports programmers to catch such conditions using EXCEPTION block in the program and an appropriate action is taken against the error condition.

Types

There are two types of exceptions:

- System-defined exceptions
- User-defined exceptions



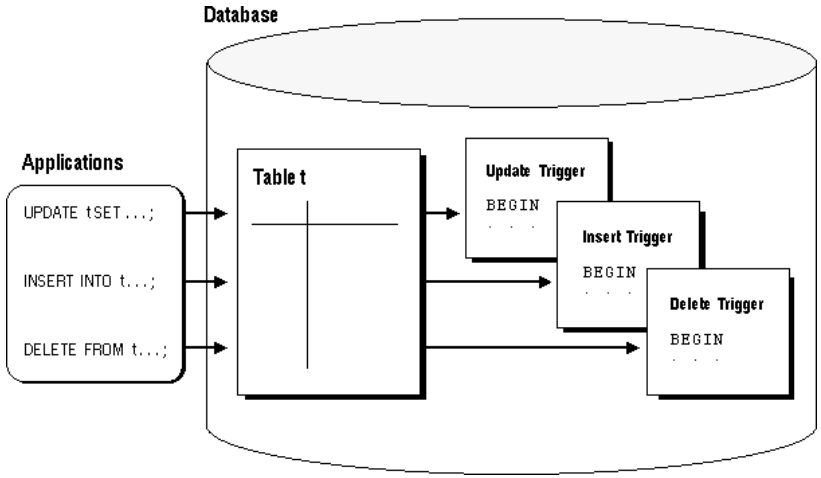
References

- http://www.tutorialspoint.com/plsql/plsql_exceptions.htm

PLSQL – Triggers

What is a Trigger ?

- Triggers are stored programs which are automatically executed or fired when some events occur.
- A database manipulation (DML) statement (DELETE, INSERT, or UPDATE).
- A database definition (DDL) statement (CREATE, ALTER, or DROP).
- A database operation (SERVERERROR, LOGON, LOGOFF, STARTUP, or SHUTDOWN).
- Triggers could be defined on the table, view, schema, or database with which the event is associated.



Benefits of Triggers:

- Generating some derived column values automatically
- Enforcing referential integrity
- Event logging and storing information on table access
- Synchronous replication of tables
- Imposing security authorizations
- Preventing invalid transactions

References

- http://www.tutorialspoint.com/plsql/plsql_triggers.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 http://plsql-tutorial.com/

Books:

Oracle PL/SQL 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 PLSQL Part 2 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.**
- Do **submit the Solutions** for the given assignment and refer the ***Participant guide*** for submission procedure.

Module Summary

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

- Define and Execute Procedures
- Create Functions to compute values.
- Declare and Define Packages.
- Handle System defined and User defined Exceptions.
- Use Triggers for Event Handling.

Thank you!