

## PL-SQL

- Introduction to programming languages
- Introduction to PL/SQL
- PL/SQL Architecture
- PL/SQL Data types
- Variable and constants
- Using built-in functions
- Conditional and unconditional statements
  
- Simple IF, ELSIF, ELSE...IF
- Selection case, simple case, GOTO label and EXIT
- Iterations in PL/SQL
  
- Simple LOOP, WHILE LOOP, FOR LOOP and NESTED LOOPS
  
- SQL within PL/SQL
- Composite data types (complete)
- Cursor management in PL/SQL
  - Implicit cursors
  - Explicit cursors
  - Cursor attributes
  - Cursor with parameters
  - Cursors with LOOPS
  - Cursors with sub queries
  - Ref.cursors
- Record and PL/SQL Table types

## Advanced PL/SQL

### Procedures in PL/SQL:

- STORED PROCEDURES
- PROCEDURE with parameters (IN,OUT and IN OUT)
- POSITIONAL Notation and NAMED Notation
- Procedure with cursors
- Dropping a procedure

### Functions in PL/SQL

- Difference between procedures and functions
- User defined functions
- Nested functions

- Using stored function in SQL statements

### Packages in PL/SQL:

- Creating PACKAGE specification and PACKAGE body
- Private and public objects in PACKAGE

### EXCEPTIONS in PL/SQL:

#### Types of exceptions:

- User defined exceptions
- Pre defined exceptions
- RAISE\_APPLICATION\_ERROR
- PRAGMA\_AUTONOMOUS\_TRANSACTION
- SQL Error code values

### Data base triggers in PL/SQL:

#### Types of triggers

- Row level triggers
- Statement level triggers
- DDL Triggers
- Trigger auditing

### File input/output:

- PL/SQL file I/O (input/output) using UTL\_FILE package

### Implementing object technology

- What is object technology?
- OOPS-object instances
- Creation of objects
- Creating user defined data types
- Creating object tables
- Inserting rown in a table using objects
- Retrieving data from object based tables
- Calling a method
- Indexing abstract data type attributes

### Using LOBS

- Large objects (LOBS)

- Creating tables-LOB
- Working with LOB values
- Inserting, updating & Deleting values in LOBs
- Populating lobis DBMS\_LOB routines
- Using B-FILE
- Returning into clause
- Bulk collect
- About flash back queries
- Dynamic SQL
- New 11g features

## Using collections

- Advantages of collection
- Ref cursor (dynamic cursor)
- Weak ref cursor
- Strong ref cursor
- Nested tables VARRAYS or VARYING arrays
- Creating tables using nested tables
- Inserting, updating & deleting nested table records
- Nested table in PL/SQL

## Oracle data base architecture

- Introduction to oracle database architecture
- Physical structures logical structures
- DB Memory structures background process
- 2tire, 3tire, N-tier architecture

## Advanced features

- 9i joins
- New date function
- Rename column
- Inner join/natural join
- Left outer join/right outer join
- Full outer join
- Multiple inserts
- Insert all command
- Merge statement
- NVL2(), NULLIF(), COALESCE()
- CASE expression of select command
- Temporary tables/global tables
- New function EXTRACT()
- Autonomous traction
- Pragma\_autonomous\_transaction()

## Future Q Technologies