Advanced SQL

By

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Advanced SQL

- SQL does not support the conditional execution of procedures (IF-THEN-ELSE) or loops
- One way to do this is by writing procedural code in a programming language and including SQL statements in the progam
  - This spreads out SQL code in many programs and make changes difficult
- A better way is to isolate critical code and have all applications call this shared code
  - Needed by distributed and OO databases
  - SQL 99 defined the use of **persistent stored modules** (PSMs)

Cont..

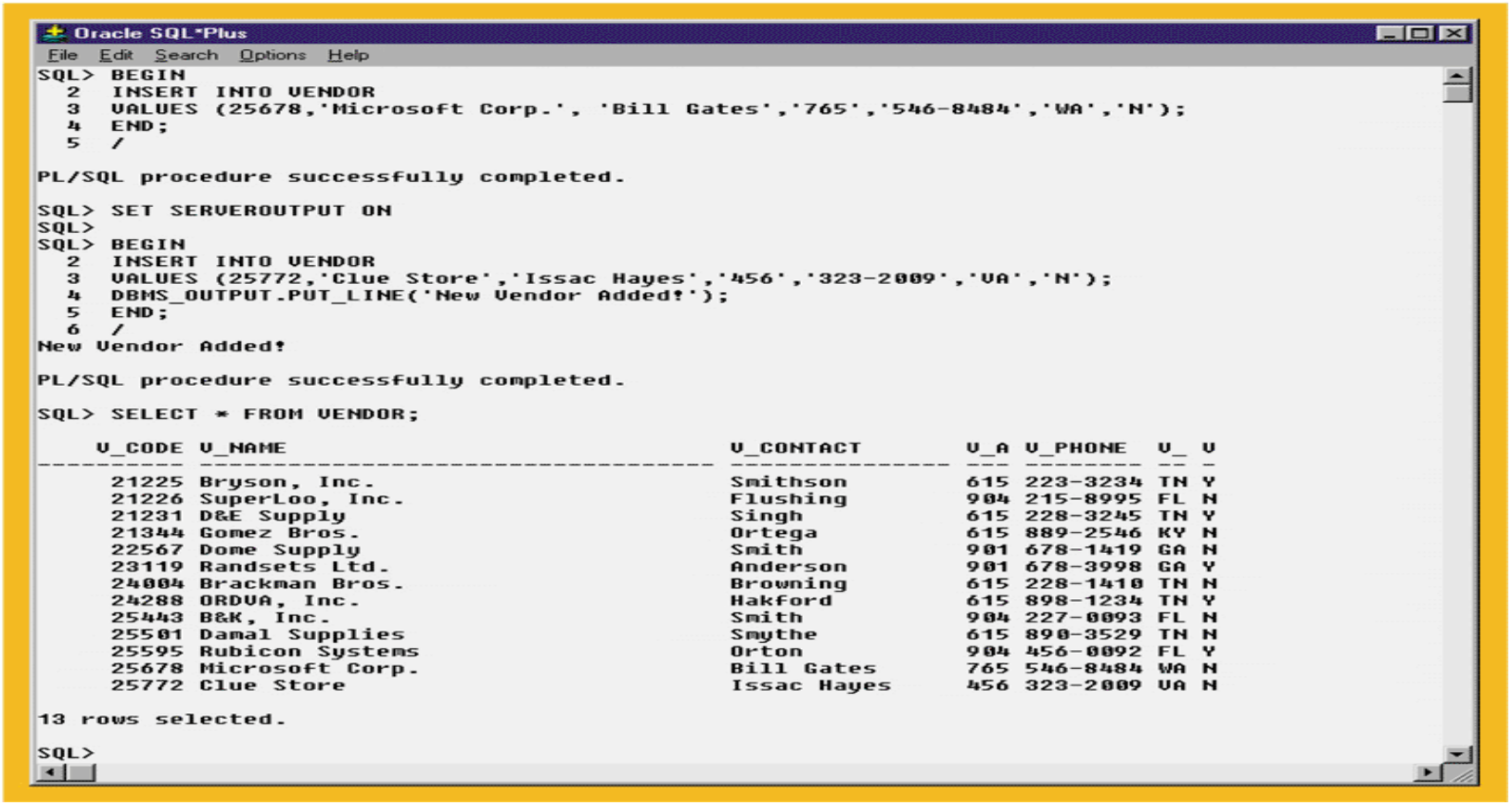
- A PSM is a block of code that is stored and executed at the DBMS server
  - Represents business logic that can be shared among multiple database users
  - Access can be controlled by the DBA
  - Oracle supports this through Procedural SQL – PL/SQL

Basic Syntax

```
DECLARE
<declarations section>
BEGIN
<executable command(s)>
EXCEPTION
<exception handling>
END;
```

PL/SQL Block Examples

FIGURE 7.28 ANONYMOUS PL/SQL BLOCK EXAMPLES



Ex-Program : Calling a procedure to add two numbers with input output parameters

```
create or replace procedure add(n1
in int,n2 in int, result out int)
as
begin result :=n1+n2;
end;
```

this procedure is created successfully,

```
declare result int;
 begin add(5,5,result);
dbms_output.putline(result);
end;
```

- (Or)

```
Declare
X number(7);
Y number (7);
Z number (7);
X:=10;
Y:=20;
Z:=x+y;
dbms_output.putline(‘ sum is’  ||
z); end;
```

Find the Minimum No's

```
DECLARE a number;
 b number;
 c number;
PROCEDURE findMin(x IN number, y IN number, z OUT number)
IS BEGIN IF x < y THEN z:= x;
ELSE z:= y;
 END IF;
END;
BEGIN a:= 23;
b:= 45;
findMin(a, b, c);
dbms_output.put_line(' Minimum of (23, 45) : ' || c);
END;
```

Advantages

- Substantially reduce network traffic and increase performance
- No transmission of individual SQL statements over network
- Help reduce code duplication by means of code isolation and code sharing
- Minimize chance of errors and cost of application development and maintenance

TRIGGER

- A **trigger** is a special kind of stored procedures that automatically executes when an event occurs in the database server.
- **Triggers** executes when a user tries to modify data through a data manipulation language (DML) event, such as Insert, Delete, Update.

Trigger	Stored Procedure
Trigger is an act which is performed automatically before or after an event occurs.	Stored procedure is a set of functionality which is executed when it is explicitly invoked.
It cannot accept parameters.	It can accept parameters.
A trigger cannot return any value.	A stored procedure can return a value.
It is executed automatically on some event.	It needs to be explicitly called.
Triggers are used for insertion, update and deletion.	Stored procedures are often using independently in the database.

SQL Vs PL / SQL

S.NO	SQL	PL/SQL
1	It is a database Structured Query Language.	It is a database programming language using SQL.
2	Data variable are not available	Data variable are available.
3	No Supported Control Structures.	Control Structures are available Like, For loop, While loop.
4	Query performs single operation.	PLSQL block performs Group of Operation as single bloack.
5	SQL is declarative language.	PLSQL is procedural language.
6	SQL can be embedded in PLSQL	PLSQL can be embedded in SQL.
7	It is directly interact with the database server.	It is not interact with the database server.
8	It is Data oriented language.	It is application oriented language.

ACTIVITY

SQL Vs PL / SQL

S.NO	SQL	PL/SQL
1	It is a database _____Query Language.	It is a database _____ language using SQL.
2	Data variable are_____ available	Data variable are available.
3	No Supported_____.	Control Structures are available Like, _____
4	Query performs _____ operation.	PLSQL block performs _____ Operation as single block.
5	SQL is _____ language.	PLSQL is _____ language.
6	It is _____ oriented language.	It is _____ oriented language.

Thank You