



Advanced SQL

By K.Karthikeyan

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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)







- 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

差 Oracle SQL*Plus				
<u>File Edit Search Options H</u> elp				
SQL> BEGIN				
2 INSERT INTO VENDOR				
3 UALUES (25678, MICROSOFT COPP.', 'Bill Ga	ates','705','540-	-8484', WH', N');		
5 /				
PL/SQL procedure successfully completed.				
SOLS SEL SERVERUUTPUT UN				
SQL> BEGIN				
2 INSERT INTO VENDOR				
3 VALUES (25772, 'Clue Store', 'Issac Hayes',	, 456 , 323-2009	','UA','N');		
5 END:				
6 /				
New Vendor Added!				
PL/SQL procedure successfully completed.				
SQL> SELECT * FROM VENDOR;				
V_CODE V_NAME	U_CONTACT	V_A V_PHONE V_ V		
21225 Bruson, Inc.	Smithson	615 223-3234 TN V		
21226 SuperLoo, Inc.	Flushing	904 215-8995 FL N		
21231 D&E Supply	Singh	615 228-3245 TN Y		
21344 Gomez Bros.	Ortega	615 889-2546 KY N		
22567 Dome Supply 23110 Bandcots Ltd	Smith	901 678-1419 GA N		
24004 Brackman Bros.	Browning	615 228-1410 TN N		
24288 ORDVA, Inc.	Hakford	615 898-1234 TN Y		
25443 B&K, Inc.	Smith	904 227-0093 FL N		
25501 Damal Supplies	Smythe	615 890-3529 TN N		
25595 RUDICON SYSTEMS 25678 Microsoft Corp	Bill Cates	904 450-0092 FL Y 765 546-8484 MA N		
25772 Clue Store	Issac Haves	456 323-2009 VA N		
13 rows selected.				
501 >				
		<u> </u>		

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



```
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;
```



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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;
```

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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,

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opu	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.
2/15/2025	A trigger cannot return any value. 23CST207 DBMS /K	A stored procedure can return a value. KARTHIKEYAN/AP-CSE, SNSCE



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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. 23CST207 DBMS /K.KARTHII	PLSQL is procedural language.

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ACTIVITY

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Thank You

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