

Report writing in SQL

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For writing a report we need to create an editor file ! nano file name .SQL

T title "Salary report"

B title "end of report"

Ex:- select emp-name from emp

union
select customer-name from customer

NOTE:- It will generate a list of all names in the emp table and customer table

NOTE:- To show rows that exists in the 1st query but not in the second query.

Ex:- select emp-name from emp

minus

select customer-name from customer;

NOTE:- Returns all distinct rows returned by both queries.

Ex:- select emp-name from emp

intersect

select customer-name from customer;

NOTE:- The corresponding columns must have equivalent data type. The column names can be different along with the size.

View :- Views are logical table of data extracted from existing table. It can be queried just like a table but does not require disk space.

Use :- i) It can be used to hide sensitive columns.

ii) It can be used to hide complex queries involving multiple tables.

iii) Views created with a check option prevents the updating of other rows and columns.

To Create View :- CREATE VIEW VIEW_NAME
AS SELECT COLUMN 1, COLUMN 2
FROM TABLENAME;

Display the View name :- SELECT * FROM VIEW NAME
desc view name;
Drop view name;

Note :- The order by clause cannot be used to create a view statement.

SQL Plus inputs and Variables

SQL plus allows interactive input using the accept statement and the prompt statement.

Example :- prompt Enter Roll Number
\$rn;
Accept

Example :- Prompt enter salary
Accept sal no.
select * from salary
where basic > \$sal;

PL / SQLDisadvantages of SQL

- 1) It does not have any procedural capabilities.
- 2) It does not provide the programming technique of conditional checking, looping and branching.
- 3) SQL statements are passed to oracle engine one at a time. Each time an SQL statement is executed a call is made to the engine's resources. In multiuser environment it decreases the speed of data processing.
- 4) If any error occurs the oracle engine displays its own message. It has no facility for programming handling errors that arises during manipulation of data.

Advantages of PL/SQL

- 1) Calculation can be done efficiently without oracle engine.
 - 2) portable to every environment.
 - 3) can store intermediate results of a query for later processing.
- PL/SQL, Code blocks Diagram Representation,
- i) Declare :- declaration of memory variables constants cursor's etc in PL/SQL.
- ii) Begin :-
- ii) SQL executable statement.
 - ii) PL/SQL executable statement.
- iii) Exception :- PL/SQL code to handle errors that may arises during the execution of code block.
- iv) end :-
- v) Semicolon :-

PL/SQL Block Code

Oracle Engine

Declare (Procedural statement); \leftrightarrow PL/SQL Engine

Begin (Procedural Statement);
SQL Statements;

exception PL/SQL Statements; \rightarrow SQL Statement

end; \leftrightarrow executor

Example of a PL/SQL CODE

Set server output on

Prompt Enter emp-no

Accept n

Declare

DName emp.emp-name%type;

DBasic emp.Basic%type;

Ddesig emp.desig%type;

Begin

Select emp.name, basic, desig

into Dname, DBasic, Ddesig

from emp

where emp-no = \$n,

DBMS_OUTPUT.PUT-LIKE('NAME:'//DName);

DBMS_OUTPUT.PUT-LIKE('Salary:' DBasic);

DBMS_OUTPUT.PUT-LIKE('Designation' Ddesig);

End;

Set server output off.

'%' type (Data Type)

It indicates a variable or a constant to have the same data type as that a previously defined variable or a column in a table.

Select Into :-

It used to retrieve single row from a table for processing

Select <V₁> ,<V₂> into
<DV₁> ,<DV₂> from

table name where <query>;

V₁, V₂ → columns from the table

DV₁, DV₂ → are variables that are declared in the declare section of the program

This is also called PL/SQL Variables

DBMS_OUTPUT :

It is a system packages. It includes a number of procedures and functions that accumulate information in buffer so that it can be retrieved. It is also used to display message to the user

PUT_LIKE :-

It is procedure. It is used to display a message and also known as message string. It accepts a single parameter of character datatype.

2nd Example of PL/SQL CODE :-

Declare

```
pi constant number (4,2) := 3.14;  
radius number (5);  
area number (14,2);
```

Begin

```
radius := 3;
```

```
while radius <= 7
```

```
loop
```

```
area := pi * power(radius, 2);
```

Insert into Areas

```
values (radius, area);
```

```
radius := radius + 1;
```

```
end loop;
```

PL/SQL tables :-

Objects of type tables are called PL/SQL tables which are modelled on (but not the same as) database tables.

PL/SQL tables use a primary key table to give the query like access of the rows.

Declaring PL/SQL table

It is declared into two steps

- 1) Define a table type,
- 2) Declare PL/SQL table of that type. If the declarative part of any block, subprogram or package

Example:- Type TBL is table of
emp. emp-name % type
Identify binary-integer;

Exception are error situation, where a program is executed certain errors are automatically recognized by oracle. Those are called system exception and some error situations must be recognized by the program itself. Those are called user-defined exception. User defined exceptions are declared in the declaration section of the program and is defined in exception part of the program. In the declare part,

Declare.

exp exception;

when Exp them

acts on;

Cursors, Triggers.

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The oracle engine used a work area for its internal processing in order to execute an SQL Statement. This work area is private to SQL operations and its called a cursor.

This is used when the SQL select statement is expected to return more than one row. the data that is stored in the cursor is called the active data set.

Types :-

It is classified depending on the circumstances under which they are defined. Opened, if the oracle engine for its internal processing has open a cursor, they are known as Implicit Cursor.

A user can also open a cursor for processing data as required. Such type of cursors known as Explicit Cursor.

A cursor must be declared in the declare section of the program, the def. of the cursor contains the query. A cursor must be opened before processing and must be closed after processing.

Syntax :-

cursor cur-sql
 <cursor name> is

select * from <Table>

Example :- cursor cursor-sal is
 select * from salary
 where basic > 2500;

open <cursor_name>

close <cursor-name>

fetch <cursor-name> into (record-name);

Cursor Attributes:-

There are total four types of Attributes to provide info of the status of a cursor

Attributes

(i) % Not found

To determine if the row has retrieved, used after fetch. It is true if a row was not retrieved. Not found is false if the row has retrieved.

(ii) % found

To determine if a row was retrieved, used after fetch.

(iii) % RowCount

Row count is zero when the cursor key is opened. Row count returns the numbers of rows retrieved.

(iv) % Is opened

To determine if a cursor is opened, is true or false if it is not.

Trigger

A trigger consists of PL/SQL code which defines some action, that the database should take when some database related event occurs. Triggers are executed when the data manipulation command that is (Insert, delete, update) is performed on a table for which

These are opened executed automatically and are transparent to user.

In order to create a trigger, the user must have the create trigger executed. It is the part of the resource role.

use:- (i) To enforce rules that can be coded through referencial integrity.

(ii) To enforce certain business rules in an application.

(iii) To maintain and audit of changes made to data.

iv) Derive Column Values.

v) Triggers fires before the DML (Security check)- before
This is called before triggers.

vi) Triggers fires after the DML (Intrigity check)- After.
This is called After triggers.

Triggers are associate with a table and are automatically fired (executed) when the user performs any DML on the table.

There can be many triggers for one table.

(i) There can be only one trigger of a particular type

ii) Only one table can be specified in the triggering statement.

- iii) Triggers can't include commit, roll back and save points.
- iv) Trigger code can tight at SQL Plus command prompt or any other editor.
- v) Inside the trigger the co-relation names
names : $[: \text{new}]$
 $[: \text{old}]$
(:new,:old) can be used to refer to data on the command line and data in the table respectively

Create trigger <trigger-name>
Replace trigger <trigger-name>
drop trigger <trigger-name>
Alter trigger <trigger-name> disabled/enable

Types of triggers

- i) Row triggers
- ii) Statement triggers
- iii) before v/s after triggers.