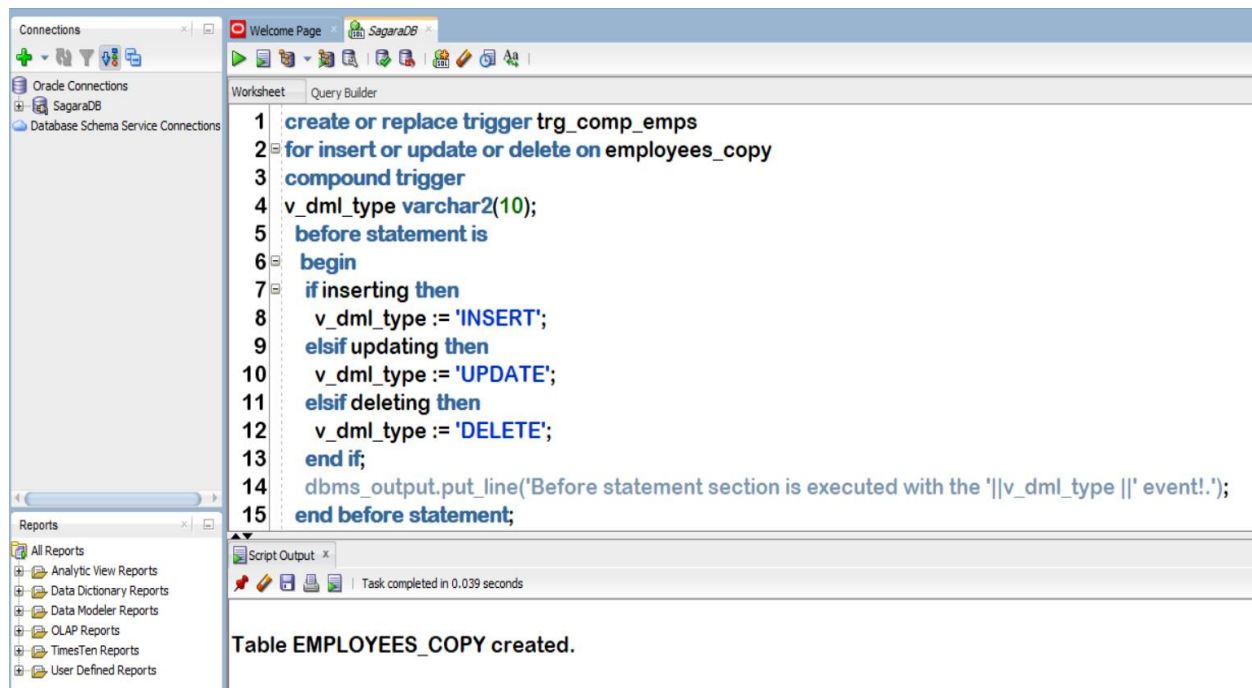


Week 11 – PL/SQL Labs

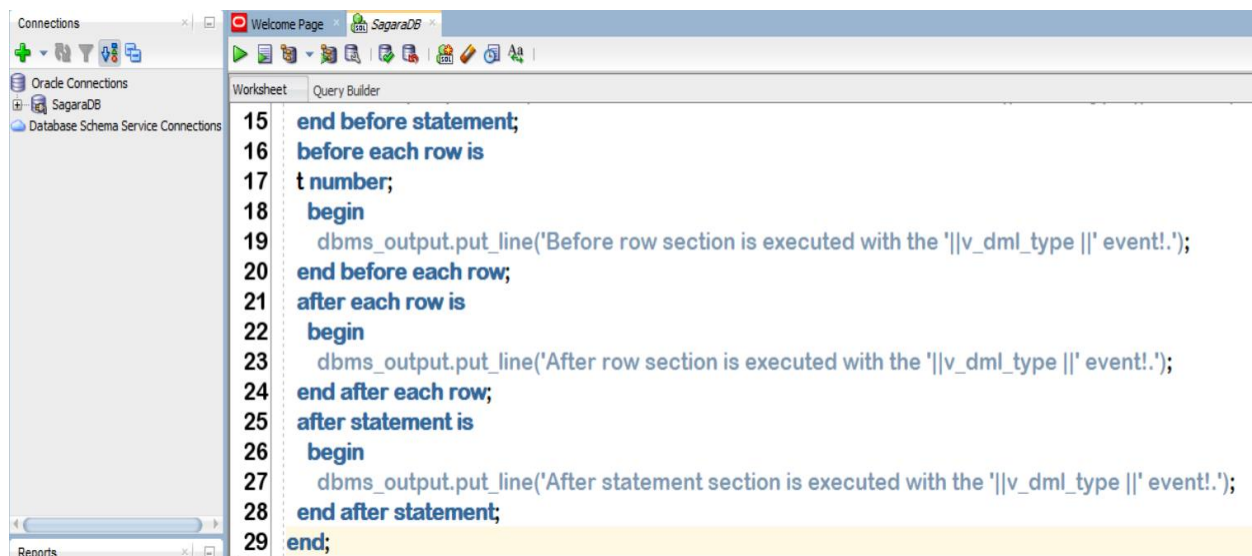
Compound Trigger



The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane is open, showing 'SagaraDB' selected. The main window displays a PL/SQL script in the 'Worksheet' tab. The script creates a compound trigger named 'trg_comp_emps' for the 'employees_copy' table. The trigger has a 'before statement' section that sets a variable 'v_dml_type' based on the type of DML operation (INSERT, UPDATE, or DELETE) and outputs a message. The 'Script Output' pane at the bottom shows the message: 'Table EMPLOYEES_COPY created.' and 'Task completed in 0.039 seconds'.

```
1 create or replace trigger trg_comp_emps
2 for insert or update or delete on employees_copy
3 compound trigger
4 v_dml_type varchar2(10);
5 before statement is
6 begin
7     if inserting then
8         v_dml_type := 'INSERT';
9     elsif updating then
10        v_dml_type := 'UPDATE';
11    elsif deleting then
12        v_dml_type := 'DELETE';
13    end if;
14    dbms_output.put_line('Before statement section is executed with the '||v_dml_type ||' event!');
15 end before statement;
```

Table EMPLOYEES_COPY created.



This screenshot shows the continuation of the PL/SQL script from the previous image. The script continues with the 'after statement' section, which outputs a message, followed by the 'end after statement;' and 'end;' statements. The script is now complete, and the 'end;' statement is highlighted in yellow.

```
15 end before statement;
16 before each row is
17 t number;
18 begin
19     dbms_output.put_line('Before row section is executed with the '||v_dml_type ||' event!');
20 end before each row;
21 after each row is
22 begin
23     dbms_output.put_line('After row section is executed with the '||v_dml_type ||' event!');
24 end after each row;
25 after statement is
26 begin
27     dbms_output.put_line('After statement section is executed with the '||v_dml_type ||' event!');
28 end after statement;
29 end;
```

Connections

Oracle Connections

SagaraDB

Tables (Filtered)

Views

Indexes

Packages

Procedures

Functions

Operators

Queues

Queues Tables

Triggers

Types

Sequences

Materialized Views

Materialized View Logs

Synonyms

Public Synonyms

Database Links

Public Database Links

Directories

Worksheet

Query Builder

```
1 UPDATE EMPLOYEES_COPY
2 SET SALARY = SALARY-100
3 WHERE department_id=90;
4
```

Script Output x Query Result x

Task completed in 0.035 seconds

After row section is executed with the UPDATE event!.

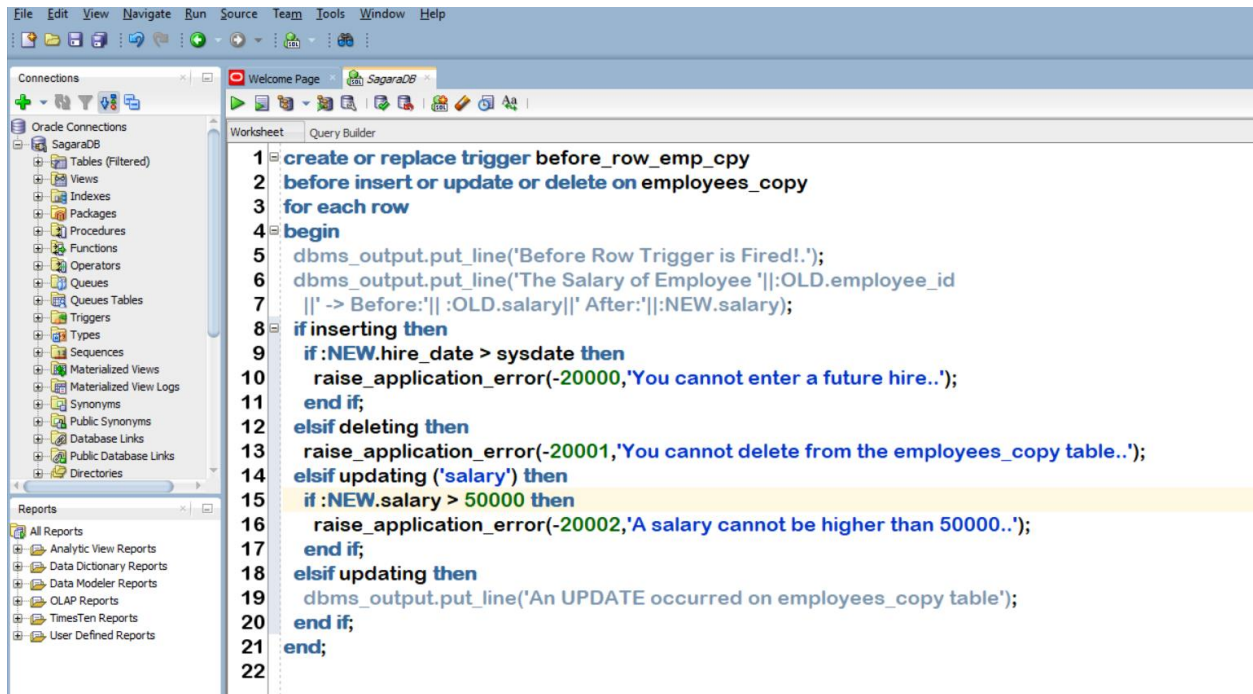
Before row section is executed with the UPDATE event!.

After row section is executed with the UPDATE event!.

After statement section is executed with the UPDATE event!.

3 rows updated.

Raise Application Error



Now try to increase the salary by 50000

The screenshot displays the Oracle SQL Developer environment. On the left, the 'Connections' pane shows 'SagaraDB' selected, with a tree view of database objects including Tables, Views, Indexes, Packages, Procedures, Functions, Operators, Queues, Queues Tables, Triggers, Types, Sequences, Materialized Views, Materialized View Logs, Synonyms, Public Synonyms, Database Links, Public Database Links, and Directories. Below this is the 'Reports' pane with categories like All Reports, Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, TimesTen Reports, and User Defined Reports.

The main workspace is divided into two tabs: 'Worksheet' and 'Query Builder'. The 'Worksheet' tab is active, showing a SQL script with three lines:

```
1 UPDATE employees_copy
2 SET SALARY=SALARY+50000
3 WHERE DEPARTMENT_ID=20;
```

Below the script, the 'Script Output' pane shows the execution results. It indicates that the task completed in 0.046 seconds. The output contains an error message:

Error starting at line : 1 in command -
UPDATE employees_copy
SET SALARY=SALARY+50000
WHERE DEPARTMENT_ID=20
Error report -
ORA-20002: A salary cannot be higher than 50000..
ORA-06512: at "SYSTEM.BEFORE_ROW_EMP_CPY", line 13
ORA-04088: error during execution of trigger 'SYSTEM.BEFORE_ROW_EMP_CPY'

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane shows 'SagaraDB' selected. The main window displays a SQL query in the 'Query Builder' tab:

```
1 UPDATE employees_copy
2 SET SALARY=SALARY+300
3 WHERE DEPARTMENT_ID=20;
4
```

An orange arrow points from the handwritten '300' to the '300' in the SQL query. Below the query, the 'Script Output' pane shows the execution results:

```
Task completed in 0.036 seconds

Before row section is executed with the UPDATE event!.
Before Row Trigger is Fired!.
The Salary of Employee 201 -> Before:23000 After:23300
After row section is executed with the UPDATE event!.
Before row section is executed with the UPDATE event!.
Before Row Trigger is Fired!.
The Salary of Employee 202 -> Before:16000 After:16300
After row section is executed with the UPDATE event!.
After statement section is executed with the UPDATE event!.
```

An orange circle highlights the text '2 rows updated.' at the bottom of the output pane.

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane shows 'SagaraDB' selected. The main window displays a SQL query in the 'Query Builder' tab:

```
1 DELETE employees_copy
2 WHERE DEPARTMENT_ID=20;
3
```

Below the query, the 'Script Output' pane shows the execution results:

```
Task completed in 0.043 seconds

Before row section is executed with the DELETE event!.
Before Row Trigger is Fired!.
The Salary of Employee 201 -> Before:23300 After:
```

Below the output, an error message is displayed:

```
Error starting at line : 1 in command -
DELETE employees_copy
WHERE DEPARTMENT_ID=20
Error report -
ORA-20001: You cannot delete from the employees_copy table..
ORA-06512: at "SYSTEM.BEFORE_ROW_EMP_COPY", line 10
ORA-04088: error during execution of trigger 'SYSTEM.BEFORE_ROW_EMP_COPY'
```

Simple Way of Doing it (with performance Gain)

