

Triggeri compuși (compound triggers)

NOTĂ: Acest exercițiu se află și în proiectul final pentru SGBD.

Exercițiu

Definiți un declanșator de tip LMD la nivel de comandă care permite inserarea, actualizarea și ștergerea datelor din tabela SENTINȚĂ doar în intervalul orar 6:00 – 20:59, de luni până vineri. De asemenea, să se permită ștergerea informațiilor din tabelul SENTINȚĂ doar utilizatorului ADMIN. Comenzile care s-au executat cu succes să se introducă în tabelul INFO_SENTINȚĂ, alături de user-ul care a executat comanda, data executării și denumirea comenzii.

Cod SQL:

```
create sequence seq_info
increment by 1
start with 1
nocache
nocycle;

create table info_sentinta (id int primary key,
                           utilizator varchar2(30),
                           data date,
                           comanda varchar2(100));

create or replace trigger restrictie_interval_orar_si_user
for insert or update or delete on sentinta
compound trigger
before statement is
begin
    if (to_char(sysdate, 'D') = 7) or (to_char(sysdate, 'D') = 1)
    or (to_char(sysdate, 'HH24') not between 6 and 20) then
        raise_application_error(-20003, 'Tabelul SENTINTA nu poate
                                         fi actualizat in afara
                                         orelor de program!');
    end if;

    if deleting then
        if user <> 'ADMIN' then
            raise_application_error(-20004, 'Dvs sunteti ' ||
                                         user || '. Nu aveti voie sa
                                         stergeti informatii din acest
                                         tabel. Doar ADMIN-ul are
                                         voie.');
```

Temă SGBD

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```
        end if;
    end if;
end before statement;

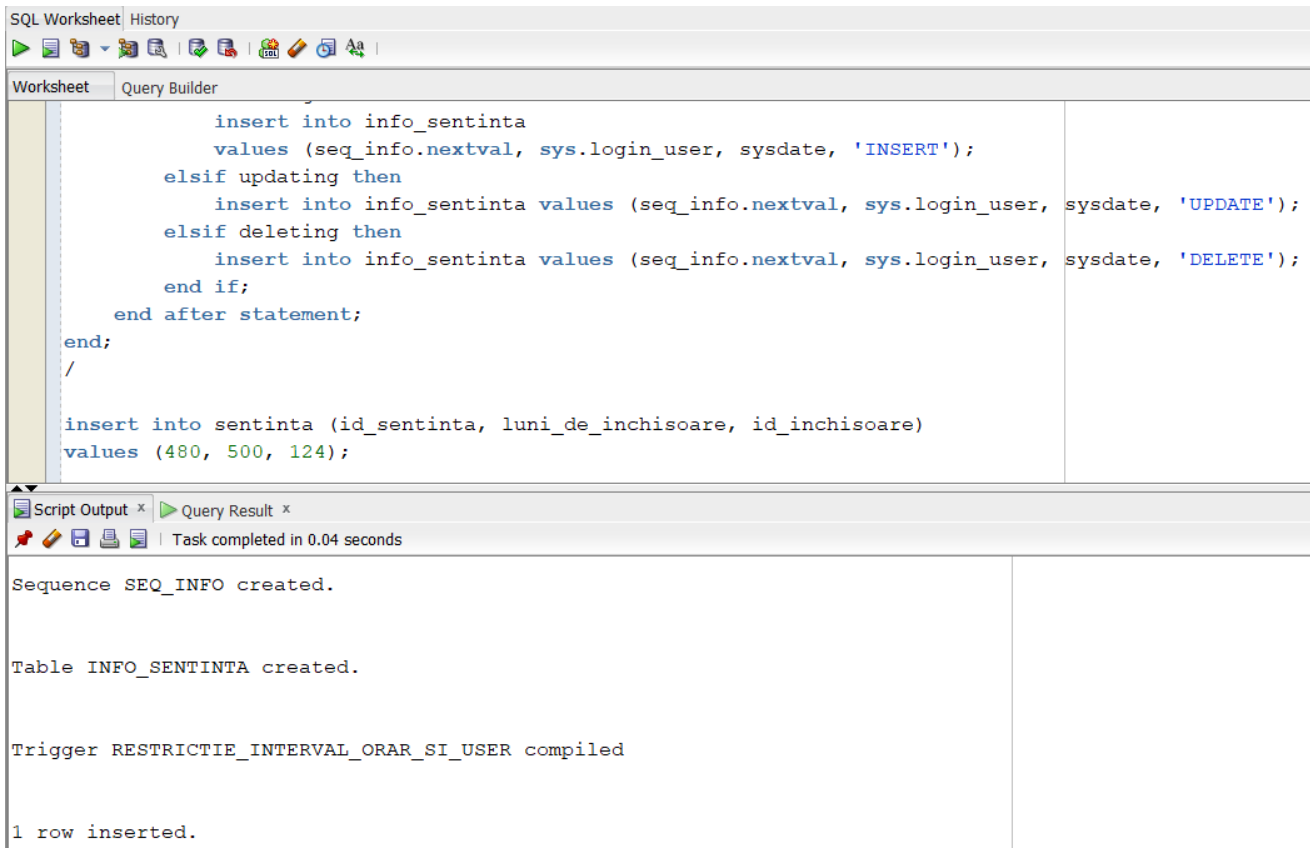
after statement is
begin
    if inserting then
        insert into info_sentinta
        values (seq_info.nextval, sys.login_user, sysdate,
                'INSERT');
    elsif updating then
        insert into info_sentinta
        values (seq_info.nextval, sys.login_user, sysdate,
                'UPDATE');
    elsif deleting then
        insert into info_sentinta
        values (seq_info.nextval, sys.login_user, sysdate,
                'DELETE');
    end if;
end after statement;
end;
/

insert into sentinta (id_sentinta, luni_de_inchisoare, id_inchisoare)
values (480, 500, 124);

delete from sentinta
where id_sentinta = 480
and luni_de_inchisoare = 500
and id_inchisoare = 124;

select * from info_sentinta;
```

INSERARE ÎN INTERVALUL ORAR 6:00 – 20:59



The screenshot shows an SQL Worksheet interface. The top pane contains a PL/SQL script for creating a trigger. The bottom pane shows the output of the script execution.

```
insert into info_sentinta
values (seq_info.nextval, sys.login_user, sysdate, 'INSERT');
elsif updating then
insert into info_sentinta values (seq_info.nextval, sys.login_user, sysdate, 'UPDATE');
elsif deleting then
insert into info_sentinta values (seq_info.nextval, sys.login_user, sysdate, 'DELETE');
end if;
end after statement;
end;
/

insert into sentinta (id_sentinta, luni_de_inchisoare, id_inchisoare)
values (480, 500, 124);
```

Script Output x Query Result x
Task completed in 0.04 seconds

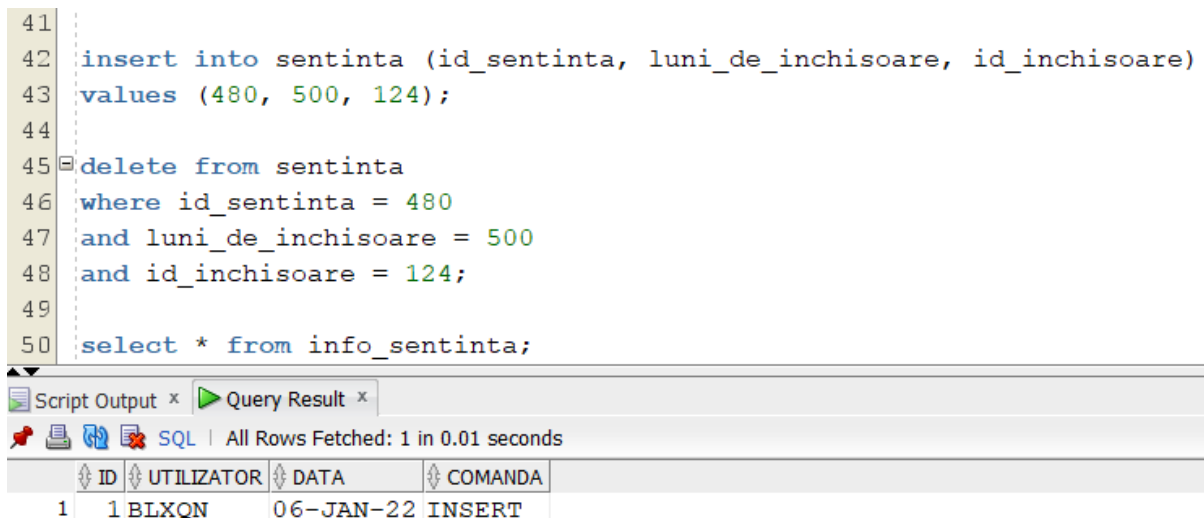
Sequence SEQ_INFO created.

Table INFO_SENTINTA created.

Trigger RESTRICTIE_INTERVAL_ORAR_SI_USER compiled

1 row inserted.

Tabelul INFO_SENTINȚĂ:



The screenshot shows an SQL Worksheet interface. The top pane contains a SQL query. The bottom pane shows the output of the query execution.

```
insert into sentinta (id_sentinta, luni_de_inchisoare, id_inchisoare)
values (480, 500, 124);

delete from sentinta
where id_sentinta = 480
and luni_de_inchisoare = 500
and id_inchisoare = 124;

select * from info_sentinta;
```

Script Output x Query Result x
SQL | All Rows Fetched: 1 in 0.01 seconds

ID	UTILIZATOR	DATA	COMANDA
1	1 BLXQN	06-JAN-22	INSERT

INSERARE ÎN AFARA INTERVALULUI ORAR 6:00 – 20:59

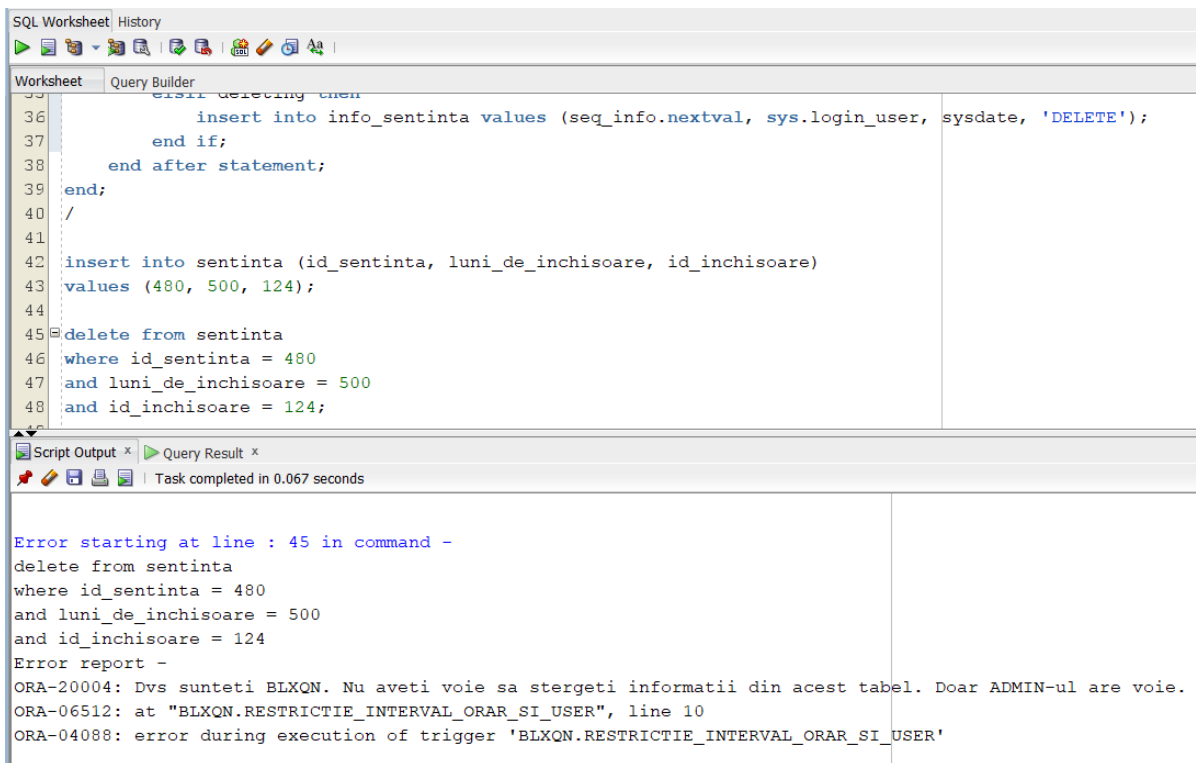
The screenshot displays an SQL Worksheet application. The top toolbar includes icons for running, saving, and other standard database operations. The main editor area contains a PL/SQL script with line numbers 35 through 50. The script includes a trigger body with an 'insert into info_sentinta' statement, followed by a 'delete from sentinta' statement and a 'select * from info_sentinta;' statement. Below the editor, the 'Script Output' tab is active, showing the execution results. The output indicates an error starting at line 42, with the message: 'ORA-20003: Tabelul SENTINTA nu poate fi actualizat in afara orelor de program!'. Other error messages include 'ORA-06512: at "BLXQN.RESTRICTIE_INTERVAL_ORAR_SI_USER", line 5' and 'ORA-04088: error during execution of trigger 'BLXQN.RESTRICTIE_INTERVAL_ORAR_SI_USER''.

```
35         elsif deleting then
36             insert into info_sentinta values (seq_info.nextval, sys.login_user, sysdate, 'DELETE');
37         end if;
38     end after statement;
39 end;
40 /
41
42 insert into sentinta (id_sentinta, luni_de_inchisoare, id_inchisoare)
43 values (480, 500, 124);
44
45 delete from sentinta
46 where id_sentinta = 480
47 and luni_de_inchisoare = 500
48 and id_inchisoare = 124;
49
50 select * from info_sentinta;
```

Script Output x Query Result x
Task completed in 0.038 seconds

Error starting at line : 42 in command -
insert into sentinta (id_sentinta, luni_de_inchisoare, id_inchisoare)
values (480, 500, 124)
Error report -
ORA-20003: Tabelul SENTINTA nu poate fi actualizat in afara orelor de program!
ORA-06512: at "BLXQN.RESTRICTIE_INTERVAL_ORAR_SI_USER", line 5
ORA-04088: error during execution of trigger 'BLXQN.RESTRICTIE_INTERVAL_ORAR_SI_USER'

STERGERE



The screenshot displays an SQL Worksheet interface. The top section, titled 'Worksheet', contains a PL/SQL script. The script includes a trigger definition (lines 36-40) and two SQL statements: an insert into 'sentinta' (lines 42-43) and a delete from 'sentinta' (lines 45-48). The bottom section, titled 'Script Output', shows the execution results, including an error report with three messages: ORA-20004, ORA-06512, and ORA-04088.

```
36      insert into info_sentinta values (seq_info.nextval, sys.login_user, sysdate, 'DELETE');
37      end if;
38      end after statement;
39  end;
40  /
41
42  insert into sentinta (id_sentinta, luni_de_inchisoare, id_inchisoare)
43  values (480, 500, 124);
44
45  delete from sentinta
46  where id_sentinta = 480
47  and luni_de_inchisoare = 500
48  and id_inchisoare = 124;
```

Error starting at line : 45 in command -
delete from sentinta
where id_sentinta = 480
and luni_de_inchisoare = 500
and id_inchisoare = 124
Error report -
ORA-20004: Dvs sunteti BLXQN. Nu aveti voie sa stergeti informatii din acest tabel. Doar ADMIN-ul are voie.
ORA-06512: at "BLXQN.RESTRICTIE_INTERVAL_ORAR_SI_USER", line 10
ORA-04088: error during execution of trigger 'BLXQN.RESTRICTIE_INTERVAL_ORAR_SI_USER'