

# Baza de date a ONG-urilor

Proiect SGBD

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## **1) Prezentarea pe scurt a bazei de date și a utilității ei**

Având în vedere numărul mare de Organizații Neguvernamentale (ONG) existente atât în țară cât și în străinătate, am decis să implementez un sistem de gestiune a bazelor de date gândit special pentru ONG-uri.

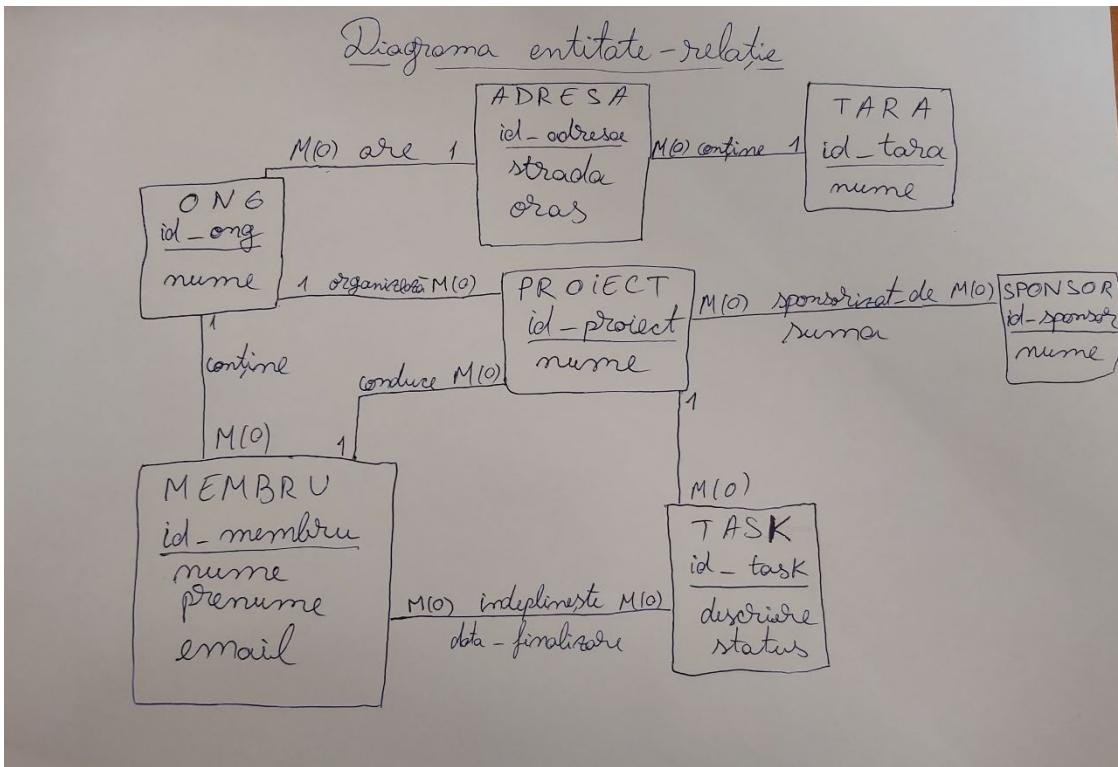
ONG-urile sunt caracterizate prin nume și locație. Acestea organizează proiecte și conțin mai mulți membri. Proiectele sunt susținute financiar de sponsori și împărtășite membrilor sub formă de task-uri. Membrii pot lucra la mai multe task-uri în același timp, iar task-urile pot fi soluționate de mai mulți membri. De asemenea, și sponsorii pot contribui financiar la mai multe proiecte, iar acestea pot fi susținute de mai mulți sponsori.

Luând în considerare toate aceste necesități ale ONG-urilor, principalele funcționalități oferite de baza de date sunt:

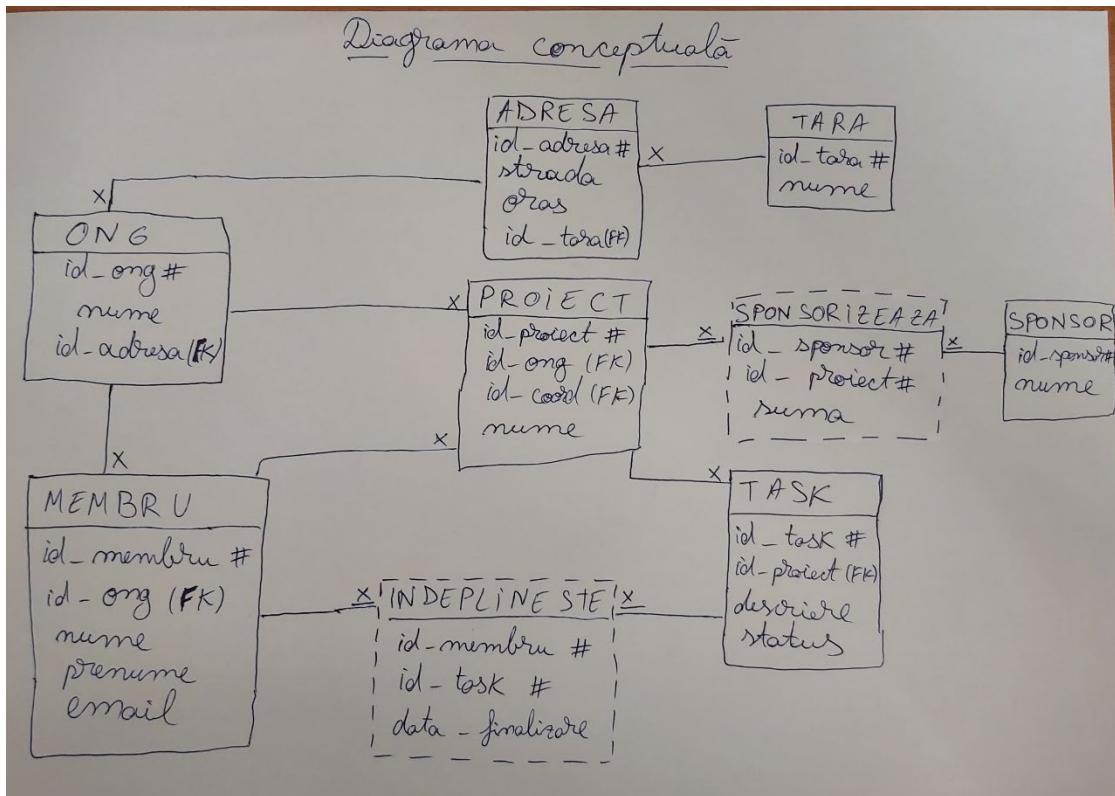
- memorarea datelor despre ONG-uri
- sortarea lor în funcție de țară, adresă etc
- înscrierea membrilor în ONG-uri
- organizarea și coordonarea de proiecte în cadrul ONG-urilor
- management de task-uri în cadrul proiectelor
- asignarea de task-uri membrilor
- gestiunea sumelor primite de la sponsori pentru proiecte

Astfel, baza de date este constituită din 7 entități independente și 2 tabele associative, detaliiate în diagramele ce urmează.

## 2) Diagrama entitate-relație



## 3) Diagrama conceptuală



#### **4) Definire tabele și implementare constrângeri de integritate**

```
CREATE TABLE sponsor(  
    id_sponsor NUMBER(4) NOT NULL,  
    nume VARCHAR2(30) CONSTRAINT sp_nume NOT NULL,  
    CONSTRAINT PK_sponsor PRIMARY KEY(id_sponsor)  
);
```

```
CREATE TABLE tara(  
    id_tara CHAR(2) NOT NULL,  
    nume VARCHAR2(30) CONSTRAINT nume_tara NOT NULL,  
    CONSTRAINT PK_tara PRIMARY KEY(id_tara)  
);
```

```
CREATE TABLE adresa(  
    id_adresa NUMBER(4) NOT NULL,  
    strada VARCHAR2(30),  
    oras VARCHAR2(30) CONSTRAINT nume_oras NOT NULL,  
    id_tara CHAR(2),  
    CONSTRAINT PK_adr PRIMARY KEY (id_adresa),  
    CONSTRAINT FK_adr_tara FOREIGN KEY (id_tara) REFERENCES  
        tara(id_tara)  
);
```

```
CREATE TABLE ong(
```

```
    id_ong NUMBER(4) NOT NULL,  
    nume VARCHAR2(30) CONSTRAINT ong_nume NOT NULL,  
    id_adresa NUMBER(4),  
    CONSTRAINT PK_ong PRIMARY KEY (id_ong),  
    CONSTRAINT FK_ong_adr FOREIGN KEY (id_adresa) REFERENCES  
adresa(id_adresa)  
);
```

```
CREATE TABLE membru(  
    id_membru NUMBER(4) NOT NULL,  
    id_ong NUMBER(4),  
    nume VARCHAR2(30) CONSTRAINT mem_nume NOT NULL,  
    prenume VARCHAR2(30) CONSTRAINT mem_prenume NOT NULL,  
    email VARCHAR2(30),  
    CONSTRAINT PK_mem PRIMARY KEY (id_membru),  
    CONSTRAINT FK_membru_ong FOREIGN KEY (id_ong) REFERENCES  
ong(id_ong)  
);
```

```
CREATE TABLE proiect(  
    id_proiect NUMBER(4) NOT NULL,  
    id_ong NUMBER(4),  
    id_coord NUMBER(4),  
    nume VARCHAR2(30) CONSTRAINT pro_nume NOT NULL,  
    CONSTRAINT PK_pro PRIMARY KEY (id_proiect),
```

```
CONSTRAINT FK_pro_ong FOREIGN KEY (id_ong) REFERENCES
ong(id_ong),
CONSTRAINT FK_pro_mem FOREIGN KEY (id_coord) REFERENCES
membru(id_membru)
);
```

```
CREATE TABLE sponsorizeaza(
    id_sponsor NUMBER(4) REFERENCES sponsor(id_sponsor),
    id_proiect NUMBER(4) REFERENCES proiect(id_proiect),
    suma NUMBER(5) CONSTRAINT sp_suma NOT NULL,
    PRIMARY KEY(id_sponsor, id_proiect)
);
```

```
CREATE TABLE task(
    id_task NUMBER(4) NOT NULL,
    id_proiect NUMBER(4),
    descriere VARCHAR2(30) CONSTRAINT task_desc NOT NULL,
    status VARCHAR2(30),
    CONSTRAINT PK_task PRIMARY KEY(id_task),
    CONSTRAINT FK_task_pro FOREIGN KEY(id_proiect) REFERENCES
proiect(id_proiect)
);
```

```
CREATE TABLE indeplineste(
    id_membru NUMBER(4) REFERENCES membru(id_membru),
    id_task NUMBER(4) REFERENCES task(id_task),
```

```

data_finalizare DATE,
PRIMARY KEY(id_membru, id_task)
);

```

--Testare

```
SELECT * FROM USER_TABLES;
```

The screenshot shows the Oracle SQL Developer interface with two windows side-by-side. Both windows have the title 'Oracle SQL Developer : C:\Users\const\Desktop\project.sql'.

**Top Window (Script Output):**

```

Table TASK created.

Table INDEPLINESTE created.

```

**Bottom Window (Script Output):**

```

TABLE_NAME TABLESPACE_NAME CLUSTER_... IOT_NAME STATUS PCT_FREE PCT_USED INIT_TRANS MAX_TRANS INITIAL_EXTENT NEXT_EXTENT
158 SPONSOR SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
159 TARA SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
160 ARESA SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
161 ONG SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
162 MEMBRU SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
163 PROIECT SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
164 SPONSORIZEAZA SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
165 TASK SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
166 INDEPLINESTE SYSTEM (null) (null) VALID 10 40 1 255 65536 10485

```

The screenshot shows the Oracle SQL Developer interface with two windows side-by-side. Both windows have the title 'Oracle SQL Developer : C:\Users\const\Desktop\project.sql'.

**Top Window (Script Output):**

```

Table TASK created.

Table INDEPLINESTE created.

```

**Bottom Window (Script Output):**

```

TABLE_NAME TABLESPACE_NAME CLUSTER_... IOT_NAME STATUS PCT_FREE PCT_USED INIT_TRANS MAX_TRANS INITIAL_EXTENT NEXT_EXTENT
158 SPONSOR SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
159 TARA SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
160 ARESA SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
161 ONG SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
162 MEMBRU SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
163 PROIECT SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
164 SPONSORIZEAZA SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
165 TASK SYSTEM (null) (null) VALID 10 40 1 255 65536 10485
166 INDEPLINESTE SYSTEM (null) (null) VALID 10 40 1 255 65536 10485

```

## **5) Populare tabele create**

INSERT INTO tara VALUES

```
( 'JP'  
, 'Japonia'  
);
```

INSERT INTO tara VALUES

```
( 'RO'  
, 'Romania'  
);
```

INSERT INTO tara VALUES

```
( 'US'  
, 'Statele Unite ale Americii'  
);
```

INSERT INTO tara VALUES

```
( 'CN'  
, 'China'  
);
```

INSERT INTO tara VALUES

```
( 'ZW'  
, 'Zimbabwe'
```

);

INSERT INTO tara VALUES

( 'UK'  
, 'Marea Britanite'  
);

INSERT INTO adresa VALUES

(1  
, 'Iuliu Maniu 160'  
, 'Bucuresti'  
, 'RO'  
);

INSERT INTO adresa VALUES

(2  
, 'Iuliu Maniu 240'  
, 'Bucuresti'  
, 'RO'  
);

INSERT INTO adresa VALUES

(3  
, 'Constantin Brancoveanu 144'  
, 'Bucuresti'  
, 'RO'

);

INSERT INTO adresa VALUES

(4

, 'Mihail Lungeanu 16'

, 'Pitesti'

, 'RO'

);

INSERT INTO adresa VALUES

(5

, 'Sakurada-dori 1'

, 'Tokyo'

, 'JP'

);

INSERT INTO ong VALUES

( 1

, 'Clubul cainilor utilitari'

, 1

);

INSERT INTO ong VALUES

(2

, 'Asociatia pt boli hemoragice'

, 2

);

INSERT INTO ong VALUES

(3  
, 'OPTAR'  
, 3  
);

INSERT INTO ong VALUES

(4  
, 'Fundatia 1 si 1'  
, 4  
);

INSERT INTO ong VALUES

(5  
, 'Make IT'  
, 5  
);

INSERT INTO membru VALUES

(1  
, 3  
, 'Costel'  
, 'Alex'  
, 'a\_c@gmail.com'  
);

INSERT INTO membru VALUES

```
(2
, 3
, 'Constantin'
, 'Gabriel'
, 'g_c@gmail.com'
);
```

INSERT INTO membru VALUES

```
(3
, 3
, 'Ursache'
, 'Mircea'
, 'u_m@protonmail.com'
);
```

INSERT INTO membru VALUES

```
(4
, 4
, 'Codrescu'
, 'Marcel'
, 'c_m@gmail.com'
);
```

INSERT INTO membru VALUES

```
(5
, 3
, 'Matache'
, 'Ion'
```

, 'ion\_m@protonmail.com'

);

INSERT INTO membru VALUES

(6

, 1

, 'Maxim'

, 'Cristian'

, 'cris\_m@yahoo.com'

);

INSERT INTO membru VALUES

(7

, 2

, 'Aur'

, 'Costel'

, 'a\_c@yahoo.com'

);

INSERT INTO proiect VALUES

(1

, 3

, 2

, 'Prima banda libera'

);

INSERT INTO proiect VALUES

(2

, 3  
, 3  
, 'Responsabilizare soferi'  
);

INSERT INTO proiect VALUES  
(3  
, 2  
, 4  
, 'Preventie'  
);

INSERT INTO proiect VALUES  
(4  
, 2  
, 4  
, 'Tratament'  
);

INSERT INTO proiect VALUES  
(5  
, 1  
, 6  
, 'Importanta cainilor utilitari'  
);

INSERT INTO proiect VALUES  
(6  
, 4

, 4  
, 'Donatie produse alimentare'  
);

INSERT INTO sponsor VALUES

(1  
, 'BLM INC'  
);

INSERT INTO sponsor VALUES

(2  
, 'SC Herman'  
);

INSERT INTO sponsor VALUES

(3  
, 'Selea Mihai'  
);

INSERT INTO sponsor VALUES

(4  
, 'Mihai Ion'  
);

INSERT INTO sponsorizeaza VALUES

( 1  
, 1

, 200

);

INSERT INTO sponsorizeaza VALUES

( 1

, 2

, 100

);

INSERT INTO sponsorizeaza VALUES

( 1

, 3

, 220

);

INSERT INTO sponsorizeaza VALUES

( 1

, 4

, 320

);

INSERT INTO sponsorizeaza VALUES

( 2

, 2

, 440

);

INSERT INTO sponsorizeaza VALUES

( 2

, 3

, 200

);

INSERT INTO sponsorizeaza VALUES

( 2

, 4

, 100

);

INSERT INTO sponsorizeaza VALUES

( 3

, 1

, 620

);

INSERT INTO sponsorizeaza VALUES

( 3

, 2

, 300

);

INSERT INTO sponsorizeaza VALUES

( 3

, 3

, 400

);

INSERT INTO sponsorizeaza VALUES

( 3

, 4

, 700

);

INSERT INTO sponsorizeaza VALUES

( 3

, 4

, 700

);

INSERT INTO sponsorizeaza VALUES

( 4

, 6

, 100

);

INSERT INTO sponsorizeaza VALUES

( 1

, 6

, 100

);

INSERT INTO task VALUES

( 1

, 1

, 'masure timpi intre statii'

, 'NEFINALIZAT'

);

INSERT INTO task VALUES

```
( 2
, 1
, 'masure timpi blocat in trafic'
, 'NEFINALIZAT'
);
```

INSERT INTO task VALUES

```
( 3
, 1
, 'impact restictionare banda'
, 'NEFINALIZAT'
);
```

INSERT INTO task VALUES

```
( 4
, 1
, 'calcul timp mediu asteptare'
, 'FINALIZAT'
);
```

INSERT INTO task VALUES

```
( 5
, 2
, 'tutorial resuscitare'
, 'NEFINALIZAT'
);
```

INSERT INTO task VALUES

```
( 6
, 1
, 'viteza mijloace alternative'
, 'NEFINALIZAT'
);
```

```
INSERT INTO task VALUES
```

```
( 7
, 5
, 'pliante si afise publicitare'
, 'NEFINALIZAT'
);
```

```
INSERT INTO indeplineste VALUES
```

```
( 1
, 2
, '14-FEB-2021'
);
```

```
INSERT INTO indeplineste VALUES
```

```
( 1
, 1
, '14-JAN-2021'
);
```

```
INSERT INTO indeplineste VALUES
```

```
( 1
```

, 3  
, '14-NOV-2020'  
);

INSERT INTO indeplineste VALUES  
( 1  
, 4  
, '10-NOV-2020'  
);

INSERT INTO indeplineste VALUES  
( 2  
, 1  
, '18-DEC-2020'  
);

INSERT INTO indeplineste VALUES  
( 2  
, 2  
, '16-NOV-2020'  
);

INSERT INTO indeplineste VALUES  
( 2  
, 3  
, '24-OCT-2020'  
);

INSERT INTO indeplineste VALUES  
( 2

```
, 4  
, '10-DEC-2020'  
);
```

```
INSERT INTO indeplineste VALUES  
( 3  
, 1  
, '14-OCT-2020'  
);
```

```
INSERT INTO indeplineste VALUES  
( 3  
, 2  
, '18-DEC-2020'  
);
```

```
INSERT INTO indeplineste VALUES  
( 5  
, 6  
, '11-FEB-2021'  
);
```

```
INSERT INTO indeplineste VALUES  
( 6  
, 7  
, '20-FEB-2021'  
);
```

```
COMMIT;
```

--Testare

```
SELECT * FROM sponsorizeaza;
```

```
SELECT * FROM sponsor;
```

```
SELECT * FROM proiect;
```

```
SELECT * FROM ong;
```

```
SELECT * FROM membru;
```

```
SELECT * FROM adresa;
```

```
SELECT * FROM tara;
```

```
SELECT * FROM task;
```

```
SELECT * FROM indeplineste;
```

The screenshot shows the Oracle SQL Developer interface with a query window titled 'project.sql'. The code in the worksheet includes a comment '--Testare' followed by a SELECT statement. The script output pane shows the results of the query execution, indicating 1 row inserted. The database output pane is empty.

```
--Testare
SELECT * FROM sponsorizeaza;
```

Script Output X | Task completed in 0.272 seconds

1 row inserted.

1 row inserted.

Commit complete.

Dbsm Output

Saved: C:\Users\const\Desktop\project.sql

Line 449 Column 1 | Insert | Windows: Cl

2135 ENG 04/01/2021

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_01g
  - local
  - recap\_01g
  - sgbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

Reports

All Reports

- Analytic View Reports
- Data Dictionary Reports
- Data Modeler Reports
- OLAP Reports
- TimesTen Reports
- User Defined Reports

project.sql

SQL Worksheet History

Worksheet Query Builder

```

447
448 COMMIT;
449
450 --Testare
451 SELECT * FROM sponsorizeaza;
452 SELECT * FROM sponsor;
453 SELECT * FROM project;

```

Script Output x Query Result x

All Rows Fetched: 13 in 0.006 seconds

ID_SPONSOR	ID_PROJECT	SUMA
6	2	3 200
7	2	4 100
8	3	1 620
9	3	2 300
10	3	3 400
11	3	4 700
12	4	6 100
13	1	6 100

Dmbs Output

+ SQL Buffer Size: 20000 |

Saved: C:\Users\const\Desktop\project.sql | Line 451 Column 21 | Insert | Windows: CI

Windows Taskbar

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_01g
  - local
  - recap\_01g
  - sgbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

Reports

All Reports

- Analytic View Reports
- Data Dictionary Reports
- Data Modeler Reports
- OLAP Reports
- TimesTen Reports
- User Defined Reports

project.sql

SQL Worksheet History

Worksheet Query Builder

```

447
448 COMMIT;
449
450 --Testare
451 SELECT * FROM sponsorizeaza;
452 SELECT * FROM sponsor;
453 SELECT * FROM project;
454 SELECT * FROM ong;

```

Script Output x Query Result x

All Rows Fetched: 4 in 0.003 seconds

ID_SPONSOR	NUME
1	1 BLM INC
2	2 SC Herman
3	3 Selea Mihael
4	4 Mihai Ion

Dmbs Output

+ SQL Buffer Size: 20000 |

Saved: C:\Users\const\Desktop\project.sql | Line 452 Column 23 | Insert | Windows: CI

Windows Taskbar

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_01g
  - local
  - recap\_01g
  - sgbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

SQL Worksheet History

```

449
450 --Testare
451 SELECT * FROM sponsorizeaza;
452 SELECT * FROM sponsor;
453 SELECT * FROM project;
454 SELECT * FROM ong;
455 SELECT * FROM membru;

```

Worksheet Query Builder

Script Output x Query Result x

All Rows Fetched: 6 in 0.003 seconds

ID_PROJECT	ID_ONG	ID_COORD	NUME
1	1	3	2 Prima banda libera
2	2	3	3 Responsabilizare soferi
3	3	2	4 Preventie
4	4	2	4 Tratament
5	5	1	6 Importanta cainilor utilitari
6	6	4	4 Donatie produse alimentare

Dbsm Output

+ SQL Buffer Size: 20000 |

Saved: C:\Users\const\Desktop\project.sql | Line 453 Column 23 | Insert | Windows: CI

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_01g
  - local
  - recap\_01g
  - sgbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

SQL Worksheet History

```

450 --Testare
451 SELECT * FROM sponsorizeaza;
452 SELECT * FROM sponsor;
453 SELECT * FROM project;
454 SELECT * FROM ong;
455 SELECT * FROM membru;
456 SELECT * FROM adresa;

```

Worksheet Query Builder

Script Output x Query Result x

All Rows Fetched: 5 in 0.003 seconds

ID_ONG	NUME	ID_ADRESA
1	1 Clubul cainilor utilitari	1
2	2 Asociatia pt boli hemoragice	2
3	3 OPTAR	3
4	4 Fundatia l si l	4
5	5 Make IT	5

Dbsm Output

+ SQL Buffer Size: 20000 |

Saved: C:\Users\const\Desktop\project.sql | Line 454 Column 19 | Insert | Windows: CI

The screenshot shows the Oracle SQL Developer interface. The title bar reads "Oracle SQL Developer : C:\Users\const\Desktop\project.sql". The menu bar includes File, Edit, View, Navigate, Run, Source, Team, Tools, Window, Help. The toolbar has icons for New, Open, Save, Run, Stop, Refresh, Undo, Redo, Copy, Paste, Find, Replace, and Help. The Connections sidebar shows "Oracle Connections" with entries: grupa4\_2\_011g, local, recap\_011g, sgbd\_an2, and Oracle NoSQL Connections. The Database Schema Service Connect entry is expanded. The Reports sidebar shows All Reports, Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, TimesTen Reports, and User Defined Reports, all of which are collapsed. The main workspace contains a "project.sql" worksheet with the following SQL code:

```
451: SELECT * FROM sponsorizeaza;
452: SELECT * FROM sponsor;
453: SELECT * FROM proiect;
454: SELECT * FROM ong;
455: SELECT * FROM membru;
456: SELECT * FROM adresa;
457: SELECT * FROM tara;
```

The "Script Output" tab shows the results of the query, with 7 rows fetched in 0.003 seconds. The results are displayed in a table:

ID_MEMBRI	ID_ONG	NUME	PRENUME	EMAIL
1	1	3 Costel	Alex	a_c@gmail.com
2	2	3 Constantin	Gabriel	g_c@gmail.com
3	3	3 Ursache	Mircea	u_m@protonmail.com
4	4	4 Codrescu	Marcel	c_m@gmail.com
5	5	3 Matache	Ion	ion_m@protonmail.com
6	6	1 Maxim	Cristian	cris_m@yahoo.com
7	7	2 Aur	Costel	a_c@yahoo.com

The "Dbms Output" tab is visible at the bottom left. The status bar at the bottom right shows "Line 455 Column 19 | Insert | Windows: C | 21:37 | ENG | 04/01/2021".

The screenshot shows the Oracle SQL Developer interface. The top menu bar includes File, Edit, View, Navigate, Run, Source, Team, Tools, Window, and Help. The left sidebar displays connections under 'Connections' (Oracle Connections: grupa42\_o11g, local, recap\_o11g, sgbd\_an2) and 'Oracle NoSQL Connections'. Below that is the 'Reports' section with options like All Reports, Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, CLAP Reports, TimesTen Reports, and User Defined Reports. The main workspace has a 'project.sql' tab open in the 'Worksheet' tab. The code contains several SELECT statements:

```
452: SELECT * FROM sponsor;
453: SELECT * FROM project;
454: SELECT * FROM org;
455: SELECT * FROM membru;
456: SELECT * FROM adresa;
457: SELECT * FROM tara;
458: SELECT * FROM task;
```

Below the worksheet is a 'Script Output' tab showing the results of the query:

ID_ADRESA	STRADA	ORAS	ID_TARA
1	Iuliu Maniu 160	Bucuresti	RO
2	Iuliu Maniu 240	Bucuresti	RO
3	Constantin Brancoveanu 144	Bucuresti	RO
4	Mihail Lungeanu 16	Pitesti	RO
5	Sakurada-dori 1	Tokyo	JP

The bottom status bar shows the path 'Saved: C:\Users\const\Desktop\project.sql', line 456, column 19, and the date/time '04/01/2021 21:37'.

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_01g
  - local
  - recap\_01g
  - sbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

SQL Worksheet History

```
453 | SELECT * FROM project;
454 | SELECT * FROM ong;
455 | SELECT * FROM membru;
456 | SELECT * FROM adresa;
457 | SELECT * FROM tara;
458 | SELECT * FROM task;
459 | SELECT * FROM indeplineste;
```

Worksheet Query Builder

Script Output x Query Result x

All Rows Fetched: 6 in 0.003 seconds

ID_TARA	NUME
1	JP
2	RO
3	US
4	CN
5	ZW
6	UK

Dbsm Output

+ SQL Buffer Size: 20000 |

Saved: C:\Users\const\Desktop\project.sql | Line 457 Column 19 | Insert | Windows: CI | 21:37 04/01/2021

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_01g
  - local
  - recap\_01g
  - sbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

SQL Worksheet History

```
454 | SELECT * FROM ong;
455 | SELECT * FROM membru;
456 | SELECT * FROM adresa;
457 | SELECT * FROM tara;
458 | SELECT * FROM task;|
459 | SELECT * FROM indeplineste;
460 |
```

Worksheet Query Builder

Script Output x Query Result x

All Rows Fetched: 7 in 0.002 seconds

ID_TASK	ID_PROJECT	DESCRIERE	STATUS
1	1	1 măsuri timp intre statii	NEFINALIZAT
2	2	1 măsuri timp blocat in trafic	NEFINALIZAT
3	3	1 impact restricționare banda	NEFINALIZAT
4	4	1 calcul timp mediu așteptare	FINALIZAT
5	5	2 tutorial resuscitare	NEFINALIZAT
6	6	1 viteza mijloace alternative	NEFINALIZAT
7	7	5 plante si afise publicitare	NEFINALIZAT

Dbsm Output

+ SQL Buffer Size: 20000 |

Saved: C:\Users\const\Desktop\project.sql | Line 458 Column 20 | Insert | Windows: CI | 21:37 04/01/2021

The screenshot shows the Oracle SQL Developer interface. In the top-left corner, the title bar reads "Oracle SQL Developer : C:\Users\const\Desktop\project.sql". The menu bar includes File, Edit, View, Navigate, Run, Source, Team, Tools, Window, and Help. The Connections sidebar lists several Oracle connections, including "grupa42\_011g", "local", "recap\_011g", and "sgbd\_an2". The main workspace contains a "project.sql" tab in the SQL Worksheet pane. The worksheet shows the following SQL code:

```

453 SELECT * FROM membru;
454 SELECT * FROM adresa;
455 SELECT * FROM tara;
456 SELECT * FROM task;
457 SELECT * FROM indeplineste;
458
459
460
461

```

The "Query Result" pane below displays the results of the query:

ID_MEMBRU	ID_TASK	DATA_FINALIZARE
5	2	1 18-DEC-20
6	2	2 16-NOV-20
7	2	3 24-OCT-20
8	2	4 10-DEC-20
9	3	1 14-OCT-20
10	3	2 18-DEC-20
11	5	6 11-FEB-21
12	6	7 20-FEB-21

The status bar at the bottom indicates "Saved: C:\Users\const\Desktop\project.sql" and "Line 459 Column 27 | Insert | Windows: CI".

## 6) Un subprogram stocat care menține într-o colecție datele membrilor care coordonează cel puțin un proiect și le afișează

CREATE OR REPLACE PROCEDURE p6

IS

TYPE date\_membru IS TABLE OF membru%ROWTYPE INDEX BY  
BINARY\_INTEGER;

t date\_membru;

BEGIN

SELECT \*

BULK COLLECT INTO t

FROM membru

WHERE id\_membru IN (SELECT id\_coord

FROM proiect

GROUP BY id\_coord

```
HAVING COUNT(*)>=1);

FOR i in t.FIRST..t.LAST LOOP

    DBMS_OUTPUT.PUT_LINE('id membru: ' || t(i).id_membru || ', id ong: ' ||
t(i).id_ong || ', nume: ' || t(i).nume || ', prenume: ' || t(i).prenume || ', email: ' ||
t(i).email);

    END LOOP;

EXCEPTION

    WHEN OTHERS THEN

        RAISE_APPLICATION_ERROR(-20000, 'Nu exista membru care sa
inredeplineasca aceste criterii');

    END p6;

/

```

--Apelare

BEGIN

p6;

END;

/

```

482  END p6;
483  /
484
485  --Apelare
486  BEGIN
487  |  p6;
488  END;
489  /
490

```

PL/SQL procedure successfully completed.

Dbs Output

```

id membru: 2, id ong: 3, nume: Constantin, prenume: Gabriel, email: g_c@gmail.com
id membru: 3, id ong: 3, nume: Ursache, prenume: Mircea, email: u_m@protonmail.com
id membru: 4, id ong: 4, nume: Codrescu, prenume: Marcel, email: c_m@gmail.com
id membru: 6, id ong: 1, nume: Maxim, prenume: Cristian, email: cris_m@yahoo.com

```

**7) Un subprogram stocat care utilizând cel puțin un cursor realizează top 3 membri. Acesta afișează datele membrilor din clasament pentru fiecare proiect, numele proiectului fiind afișat o singură dată la început.**

**Top-ul este constituit în funcție de numărul de task-uri corespunzătoare fiecărui membru, număr ce va fi afișat în dreptul lui.**

**Dacă există mai mulți membri cu același număr de task-uri, atunci aceștia vor ocupa aceeași poziție în top.**

**Se vor afișa mesaje corespunzătoare în cazul în care nu există suficienți membri pentru a popula top-ul sau nu există membri care să îndeplinească task-uri.**

CREATE OR REPLACE PROCEDURE p7

IS

CURSOR p IS SELECT id\_proiect, nume FROM proiect;

CURSOR m(PARAM NUMBER) IS SELECT i.id\_membru, nume, COUNT(\*)

```

        FROM indeplineste i JOIN task t ON(t.id_task=i.id_task)
                                JOIN membru m ON(i.id_membru=m.id_membru)
        WHERE id_proiect = PARAM
        GROUP BY i.id_membru, nume
        ORDER BY COUNT(*) DESC;

pr_id proiect.id_proiect%TYPE;
pr_nume proiect.nume%TYPE;
mb_id membru.id_membru%TYPE;
mb_nume membru.nume%TYPE;
t_nr NUMBER(5);
old_t_nr NUMBER(5);
nr NUMBER;
BEGIN
OPEN p;
LOOP
FETCH p INTO pr_id, pr_nume;
EXIT WHEN p%NOTFOUND;
DBMS_OUTPUT.PUT_LINE('Proiect: ' || pr_nume);
nr := 0;
OPEN m(pr_id);
LOOP
FETCH m INTO mb_id, mb_nume, t_nr;
EXIT WHEN m%NOTFOUND OR nr=3;
DBMS_OUTPUT.PUT_LINE('Membrul cu id-ul ' || mb_id ||' si numele ' ||
mb_nume ||' indeplineste '|| t_nr || ' task-uri');
IF nr = 0 OR t_nr != old_t_nr THEN

```

```

nr := nr + 1;
END IF;
old_t_nr := t_nr;
END LOOP;
IF m%ROWCOUNT = 0 THEN
    DBMS_OUTPUT.PUT_LINE(' Nu exista membrii care au indeplinit taskuri');
ELSE IF nr < 3 THEN
    DBMS_OUTPUT.PUT_LINE('--membrii insuficienti pentru cele 3 pozitii');
    END IF;
END IF;
CLOSE m;
END LOOP;
CLOSE p;
END p7;
/

```

--Apelare

BEGIN

p7;

END;

/

```

541
542 --Apelare
543 BEGIN
544 p7;
545 END;
546 /

```

PL/SQL procedure successfully completed.

Dbms Output

```

local *
Project: Prima banda libera
Membrul cu id-ul 1 si numele Costel indeplineste 4 task-uri
Membrul cu id-ul 2 si numele Constantin indeplineste 4 task-uri
Membrul cu id-ul 3 si numele Ursache indeplineste 2 task-uri
Membrul cu id-ul 5 si numele Matache indeplineste 1 task-uri
Project: Responsabilizare soferi
Nu exista membrii care au indeplinit taskuri

```

**8) Un subprogram stocat de tip funcție care determină id-ul ONG-ului care are un anumit număr de membri dintr-un oraș identificat prin nume. Numărul de membri și numele orașului vor fi date ca parametru. În cazul în care nu sunt specificate, se vor alege implicit valorile 2 și *Bucuresti*.**

**Se tratează cazurile în care numărul de membri introdus este negativ, există mai multe ONG-uri sau nu există un ONG care să respecte criteriile date afișându-se mesaje corespunzătoare și oprindu-se execuția.**

Subprogramul utilizează 3 dintre tabelele definite.

CREATE OR REPLACE FUNCTION f8

```

(v_oras adresa.oras%TYPE DEFAULT 'Bucuresti',
v_nr NUMBER DEFAULT 2)

RETURN NUMBER IS
ONG_ID NUMBER(3);

```

```

negative_nr EXCEPTION;
BEGIN
  IF v_nr < 0 THEN
    RAISE negative_nr;
  END IF;
  SELECT id_ong
  INTO ONG_ID
  FROM ong o JOIN adresa a ON (o.id_adresa=a.id_adresa)
  WHERE UPPER(oras)=UPPER(v_oras) AND (SELECT
COUNT(id_membru)
  FROM membru
  WHERE id_ong = o.id_ong)=v_nr;
  RETURN ONG_ID;
EXCEPTION
  WHEN negative_nr THEN
    RAISE_APPLICATION_ERROR(-20003, 'Numarul de membri introdus
este negativ!');
  WHEN NO_DATA_FOUND THEN
    RAISE_APPLICATION_ERROR(-20000, 'Nu exista ONG care sa
indeplineasca aceste criterii');
  WHEN TOO_MANY_ROWS THEN
    RAISE_APPLICATION_ERROR(-20001, 'Exista mai multe ONG-uri care
indeplinesc aceste criterii');
  WHEN OTHERS THEN
    RAISE_APPLICATION_ERROR(-20002, 'Alta eroare!');
END f8;
/

```

```

--Testare ex 8

--Exemplificare exceptie NO_DATA_FOUND

BEGIN
    DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este: ''||f8);
END;
/

BEGIN
    DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este: ''||f8('Pitesti', 1));
END;
/

--Exemplificare exceptie TOO_MANY_ROWS

BEGIN
    DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este: ''||f8('Bucuresti', 1));
END;
/

--Exemplificare exceptie numar negativ

BEGIN
    DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este: ''||f8('Bucuresti', -2));
END;

```

The image shows two screenshots of the Oracle SQL Developer interface, illustrating the execution of PL/SQL code.

**Screenshot 1:**

```

580 |BEGIN
581 |DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este:'||f8('Pitesti', 1));
582 |END;
583 |
584 --Exemplificare exceptie TOO_MANY_ROWS
585 BEGIN
586   DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este:'||f8('Bucuresti', 1));
587 END;

```

Script Output:

```

PL/SQL procedure successfully completed.

Dbms Output:
local
Id-ul ONG-ului cautat este: 4

```

**Screenshot 2:**

```

573 /
574 --Testare ex 8
575 --Exemplificare exceptie NO_DATA_FOUND
576 BEGIN
577   DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este:'||f8());
578 END;
579 /

```

Script Output:

```

END;
Error report -
ORA-20000: Nu exista ONG care sa indeplineasca aceste criterii
ORA-06512: at "SYSTEM.F8", line 16
ORA-06512: at line 2

```

Dbms Output:

The screenshot displays two instances of Oracle SQL Developer running on a Windows operating system. Both instances have the same connection settings:

- Connections:** Oracle Connections (grupa42\_011g, local, recap\_011g, sgbd\_an2)
- Reports:** All Reports, Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, TimesTen Reports, User Defined Reports

**Session 1 (Top):**

```

582 END;
583 /
584 --Exemplificare exceptie TOO_MANY_ROWS
585 BEGIN
586   DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este:'||f8('Bucuresti', 1));
587 END;
588 /
589

```

**Script Output:** Task completed in 0.033 seconds

```

DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este:'||f8('Bucuresti', 1));
END;
Error report -
ORA-20001: Există mai multe ONG-uri care îndeplinesc aceste criterii
ORA-06512: at "SYSTEM.F8", line 18

```

**Session 2 (Bottom):**

```

582 END;
583 /
584 --Exemplificare exceptie TOO_MANY_ROWS
585 BEGIN
586   DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este:'||f8('Pitesti', 1));
587 END;
588 /
589 --Exemplificare exceptie numar negativ
590 BEGIN
591   DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este:'||f8('Bucuresti', -1));
592 END;
593 /
594 --Exemplificare exceptie numar negativ
595 BEGIN
596   DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este:'||f8('Bucuresti', -2));
597 END;
598 /
599 /
600 /
601 /
602

```

**Script Output:** Task completed in 0.055 seconds

**Error report -**

```

ORA-20003: Numarul de membri introdus este negativ!
ORA-06512: at "SYSTEM.F8", line 20
ORA-06512: at line 2

```

**9) Un subprogram stocat de tip procedură care afișează suma donată și numele sponsorului care a donat în total cel mai mult pentru un ONG dintr-un oraș dat ca parametru.**

**Se vor trata exceptiile afisandu-se mesaje corespunzatoare si oprindu-se execuția când nu există orașul dat, există mai mulți sponsori sau nu există sponsor care să îndeplinească criteriile date.**

Subprogramul utilizează 5 dintre tabelele definite.

CREATE OR REPLACE PROCEDURE p9

(v\_oras adresa.oras%TYPE)

IS

wrong\_city EXCEPTION;

v\_nr NUMBER(5);

v\_nume sponsor.nume%TYPE;

v\_id\_sponsor sponsor.id\_sponsor%TYPE;

v\_id\_ong ong.id\_ong%TYPE;

v\_suma sponsorizeaza.suma%TYPE;

BEGIN

v\_nr := 0;

--verificare daca exista in db orasul introdus

SELECT COUNT(\*)

INTO v\_nr

FROM adresa

WHERE UPPER(oras) = UPPER(v\_oras);

IF v\_nr = 0 THEN

    RAISE wrong\_city;

END IF;

```

SELECT SUM(suma), p.id_ong, s.id_sponsor, sp.nume
INTO v_suma, v_id_ong, v_id_sponsor, v_nume
FROM sponsorizeaza s JOIN proiect p ON (s.id_proiect = p.id_proiect)
    JOIN sponsor sp ON (s.id_sponsor = sp.id_sponsor)
    JOIN ong o ON (p.id_ong = o.id_ong)
    JOIN adresa a ON (o.id_adresa = a.id_adresa)
WHERE UPPER(a.oras)=UPPER(v_oras)
GROUP BY p.id_ong, s.id_sponsor, sp.nume
HAVING SUM(suma) IN (
    SELECT MAX(SUM(suma))
    FROM sponsorizeaza s JOIN proiect p ON (s.id_proiect =
p.id_proiect)
        JOIN sponsor sp ON (s.id_sponsor = sp.id_sponsor)
        JOIN ong o ON (p.id_ong = o.id_ong)
        JOIN adresa a ON (o.id_adresa = a.id_adresa)
    WHERE UPPER(a.oras)=UPPER(v_oras)
    GROUP BY p.id_ong, s.id_sponsor);
DBMS_OUTPUT.PUT_LINE('Cel mai generos sponsor este ' || v_nume || ' cu
suma totala de ' || v_suma);

EXCEPTION
WHEN wrong_city THEN
    DBMS_OUTPUT.PUT_LINE('Orasul introdus nu se afla in baza de date');
WHEN NO_DATA_FOUND THEN
    RAISE_APPLICATION_ERROR(-20000, 'Nu exista sponsorul cautat');
WHEN TOO_MANY_ROWS THEN

```

```
    RAISE_APPLICATION_ERROR(-20001, 'Exista mai multi sponsori care
independeaza acest criteriu');

WHEN OTHERS THEN

    RAISE_APPLICATION_ERROR(-20002, 'Alta eroare!');

END p9;

/
```

--Testare ex 9

```
BEGIN

    p9('bucuresti');

END;
```

/

--Exemplificare exceptie TOO\_MANY\_ROWS

```
BEGIN

    p9('pitesti');

END;
```

/

--Exemplificare exceptie NO\_DATA\_FOUND

```
BEGIN

    p9('tokyo');

END;
```

/

--Exemplificare exceptie wrong\_city

```
BEGIN

    p9('budapest');

END;
```

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections    project.sql    History

Worksheet Query Builder

```

E26 /
E27
E28 --Testare ex 9
E29 BEGIN
E30   p9('bucuresti');
E31 END;
E32 /

```

Script Output X

PL/SQL procedure successfully completed.

Dyms Output

local x

Cel mai generos sponsor este Seleac Mihai cu suma totala de 1100

Saved: C:\Users\const\Desktop\project.sql

Windows Taskbar: File Explorer, Chrome, File, Oracle SQL Developer, Database, Database Schema Service Connect, Reports, All Reports, Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, TimesTen Reports, User Defined Reports

Oracle SQL Developer

File Edit View Navigate Run Team Tools Window Help

Connections    project.sql    History

Worksheet Query Builder

```

E30 /
E31
E32 --Exemplificare exceptie TOO_MANY_ROWS
E33 BEGIN
E34   p9('pitesti');
E35 END;
E36 /
E37 --
E38 --Exemplificare exceptie NO_DATA_FOUND

```

Script Output X

Task completed in 0.032 seconds

ORA-20001: Există mai multi sponsori care îndeplinesc acest criteriu  
ORA-06512: at "SYSTEM.P9", line 30  
ORA-06512: at line 2

Dyms Output

local x

Saved: C:\Users\const\Desktop\project.sql

Windows Taskbar: File Explorer, Chrome, File, Oracle SQL Developer, Database, Database Schema Service Connect, Reports, All Reports, Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, TimesTen Reports, User Defined Reports

The screenshot displays two instances of Oracle SQL Developer running side-by-side on a Windows desktop.

**Top Session (ORA-20000 Error):**

- Connections:** Oracle Connections (grupa42\_011g, local, recap\_011g, sgbd\_an2).
- SQL Worksheet:** Contains the following PL/SQL code:
 

```

E37  END;
E38  /
E39  --Exemplificare exceptie NO_DATA_FOUND
E40  BEGIN
E41  |  p9('tokyo');
E42  END;
E43
      
```
- Script Output:** Shows the error message:
 

```

Error report -
ORA-20000: Nu exista sponsorul cautat
ORA-06512: at "SYSTEM.P9", line 28
ORA-06512: at line 2
      
```
- Dbsm Output:** Empty.

**Bottom Session (Procedure Compiled):**

- Connections:** Oracle Connections (grupa42\_011g, local, recap\_011g, sgbd\_an2).
- SQL Worksheet:** Contains the same PL/SQL code as the top session, but it is being compiled:
 

```

663  /
664  --Exemplificare exceptie TOO_MANY_ROWS
665  BEGIN
666  |  p9('pitesti');
667  END;
668  /
669  --Exemplificare exceptie NO_DATA_FOUND
670  BEGIN
671  |  p9('tokyo');
672  END;
673  /
674  --Exemplificare exceptie wrong_city
675  BEGIN
676  |  p9('budapest');
677  END;
678  /
      
```
- Script Output:** Shows the compilation results:
 

```

Procedure P9 compiled

PL/SQL procedure successfully completed.
      
```
- Dbsm Output:** Shows the message:
 

```

Orasul introdus nu se afla in baza de date
      
```

**10) Un trigger LMD la nivel de comandă care nu permite  
INSERT,UPDATE,DELETE pe tabela ONG în weekend (sâmbăta și  
duminica) și în cursul săptămânii în afara orelor 6-22  
Se vor afișa mesaje corespunzătoare pentru fiecare caz.**

```
CREATE OR REPLACE TRIGGER t_late
BEFORE INSERT OR UPDATE OR DELETE ON ong
BEGIN
IF (TO_CHAR(SYSDATE, 'D')=6) OR (TO_CHAR(SYSDATE, 'D')=7) THEN
    RAISE_APPLICATION_ERROR(-20009, 'Tabela nu poate fi actualizata in
weekend!');
ELSIF TO_CHAR(SYSDATE, 'HH24') NOT BETWEEN 6 AND 22 THEN
    RAISE_APPLICATION_ERROR(-20009, 'Tabela nu poate fi actualizata in
acest interval orar!');
END IF;
END;
/
```

```
--Testare trigger 10
SELECT TO_CHAR(SYSDATE, 'D') FROM DUAL;
UPDATE ong
SET nume = 'makit'
WHERE id_ong = 5;
```

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections local

SQL Worksheet History

Worksheet Query Builder

```

646 --Se vor afisa mesaje corespunzatoare pentru fiecare caz.
647 CREATE OR REPLACE TRIGGER t_late
648 BEFORE INSERT OR UPDATE OR DELETE ON ong
649 BEGIN
650 IF (TO_CHAR(SYSDATE, 'D')=6) OR (TO_CHAR(SYSDATE, 'D')=7) THEN
651 RAISE_APPLICATION_ERROR(-20009, 'Tabela nu poate fi actualizata in weekend!');
652 ELSIF TO_CHAR(SYSDATE, 'HH24') NOT BETWEEN 6 AND 22 THEN
653 RAISE_APPLICATION_ERROR(-20009, 'Tabela nu poate fi actualizata in weekend!');
654 END IF;
655 END;

```

Script Output Task completed in 0.038 seconds

Trigger T\_LATE compiled

Dbsm Output Buffer Size: 20000

local

Saved: C:\Users\const\Desktop\project.sql | Line 647 Column 33 | Insert | Windows: C:\ | 21:51 04/01/2021

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections local

SQL Worksheet History

Worksheet Query Builder

```

ELSIF TO_CHAR(SYSDATE, 'HH24') NOT BETWEEN 6 AND 22 THEN
    RAISE_APPLICATION_ERROR(-20009, 'Tabela nu poate fi actualizata in acest interval orar!');
END IF;
END;
/

--Testare trigger 10
SELECT TO_CHAR(SYSDATE, 'D') FROM DUAL;
UPDATE ong
SET nume = 'makit'
WHERE id_ong = 5;

--ii
--trigger LMD la nivel de linie care nu permite inserarea/actualizarea cu o suma negativă oferită de un sponsor
CREATE OR REPLACE TRIGGER t_suma
BEFORE INSERT OR UPDATE OF suma ON sponsorizeaza

```

Script Output Task completed in 0.072 seconds

Trigger T\_LATE compiled

Dbsm Output

```

Error starting at line : 662 in command -
UPDATE ong
SET nume = 'makit'
WHERE id_ong = 5
Error report -
ORA-20009: Tabela nu poate fi actualizata in acest interval orar!
ORA-06512: at "SYSTEM.T_LATE", line 5
ORA-04088: error during execution of trigger 'SYSTEM.T_LATE'

```

Line 664 Column 11 | Insert | Windows: C:\ | 23:13 04/01/2021

## 11) Un trigger LMD la nivel de linie care nu permite inserarea sau actualizarea cu o sumă negativă oferită de un sponsor

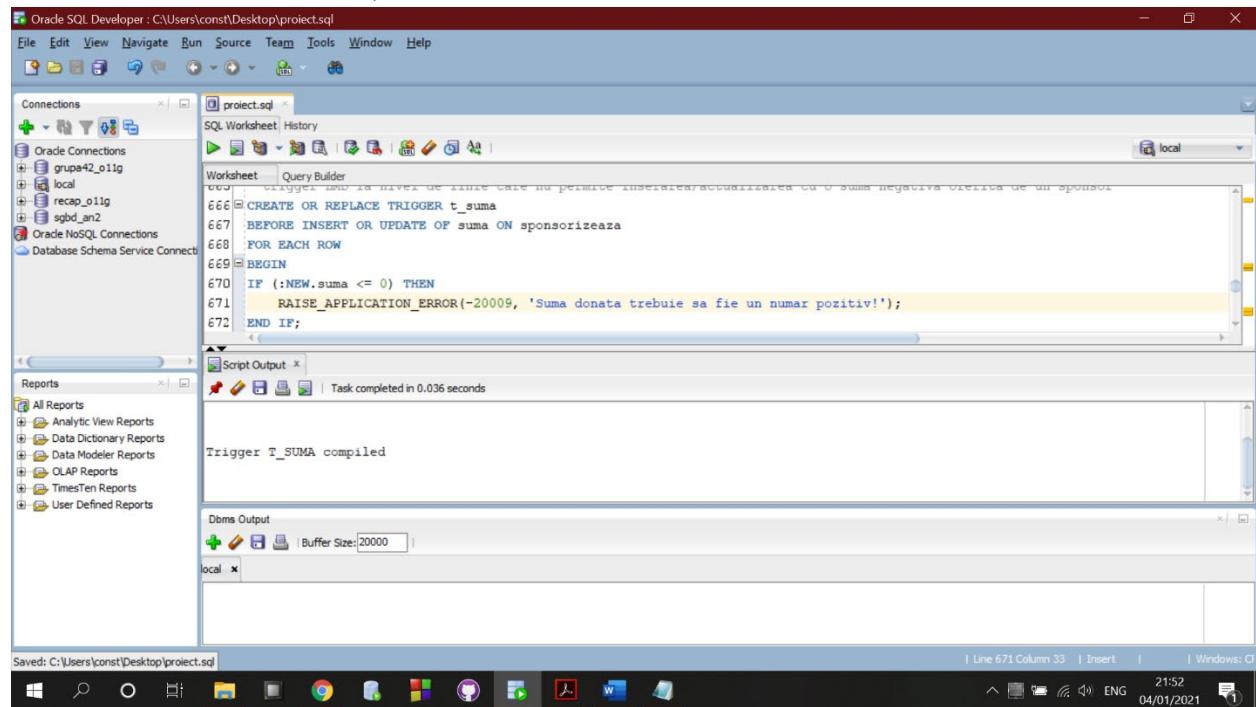
CREATE OR REPLACE TRIGGER t\_suma

BEFORE INSERT OR UPDATE OF suma ON sponsorizeaza  
FOR EACH ROW  
BEGIN  
IF (:NEW.suma <= 0) THEN  
RAISE\_APPLICATION\_ERROR(-20009, 'Suma donata trebuie sa fie un numar pozitiv!');  
END IF;  
END;  
/

--Testare trigger 11

UPDATE sponsorizeaza

SET suma = suma - 500;



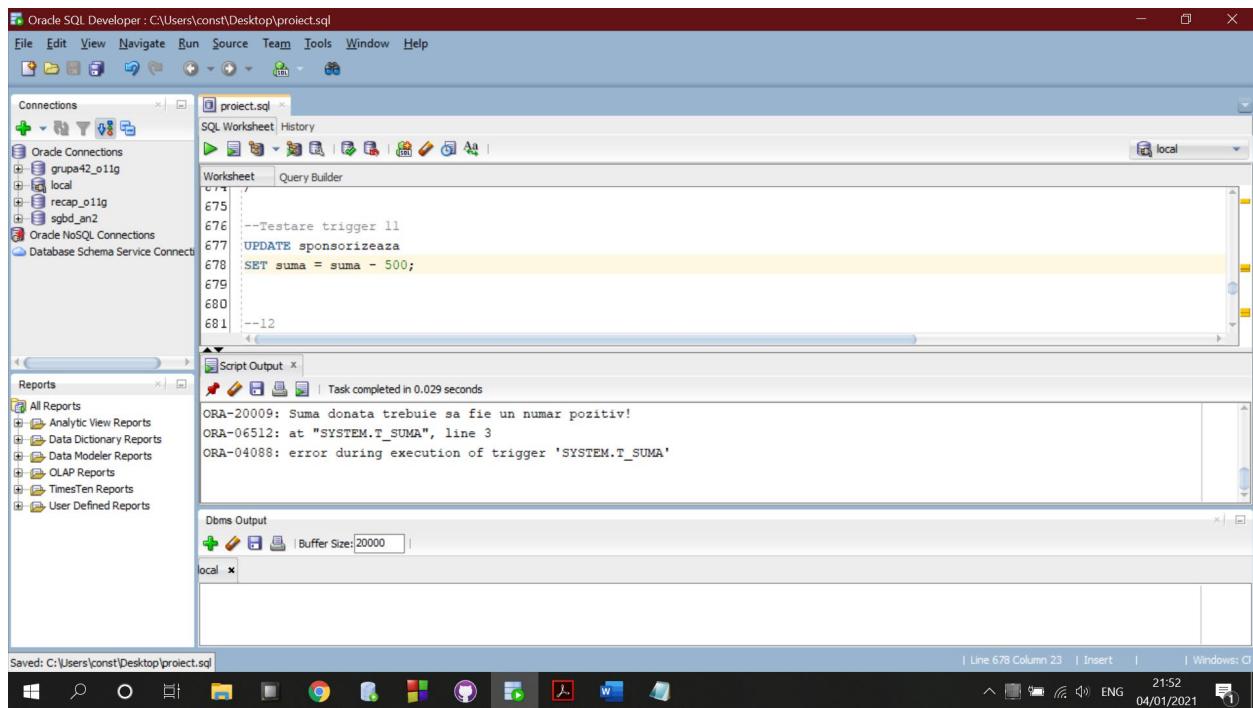
The screenshot shows the Oracle SQL Developer interface with the following details:

- Connections:** Oracle Connections (grupa42\_01g, local, recap\_01g, sgbd\_an2).
- Reports:** All Reports, Analytic View Reports, Data Dictionary Reports, Data Modeler Reports, OLAP Reports, TimesTen Reports, User Defined Reports.
- SQL Worksheet:** The script being run is named project.sql. The code is as follows:

```

666 CREATE OR REPLACE TRIGGER t_suma
667 BEFORE INSERT OR UPDATE OF suma ON sponsorizeaza
668 FOR EACH ROW
669 BEGIN
670 IF (:NEW.suma <= 0) THEN
671 RAISE_APPLICATION_ERROR(-20009, 'Suma donata trebuie sa fie un numar pozitiv!');
672 END IF;
673

```
- Script Output:** Shows the message "Trigger T\_SUMA compiled".
- Dbms Output:** Shows the message "Task completed in 0.036 seconds".
- Status Bar:** Shows the path "Saved: C:\Users\const\Desktop\project.sql", line 671, column 33, insert mode, and the date/time "04/01/2021 21:52".



**12) Un trigger LDD care să introducă date în tabela log\_dbs care stochează informații cu privire la operațiile LDD efectuate. Se va crea tabela pentru a stoca aceste date.**

```

CREATE TABLE log_dbs
(
    dbs_user VARCHAR2(30),
    log_date DATE,
    event VARCHAR2(20),
    dbs_name VARCHAR2(50),
    target_name VARCHAR2(30)
);

```

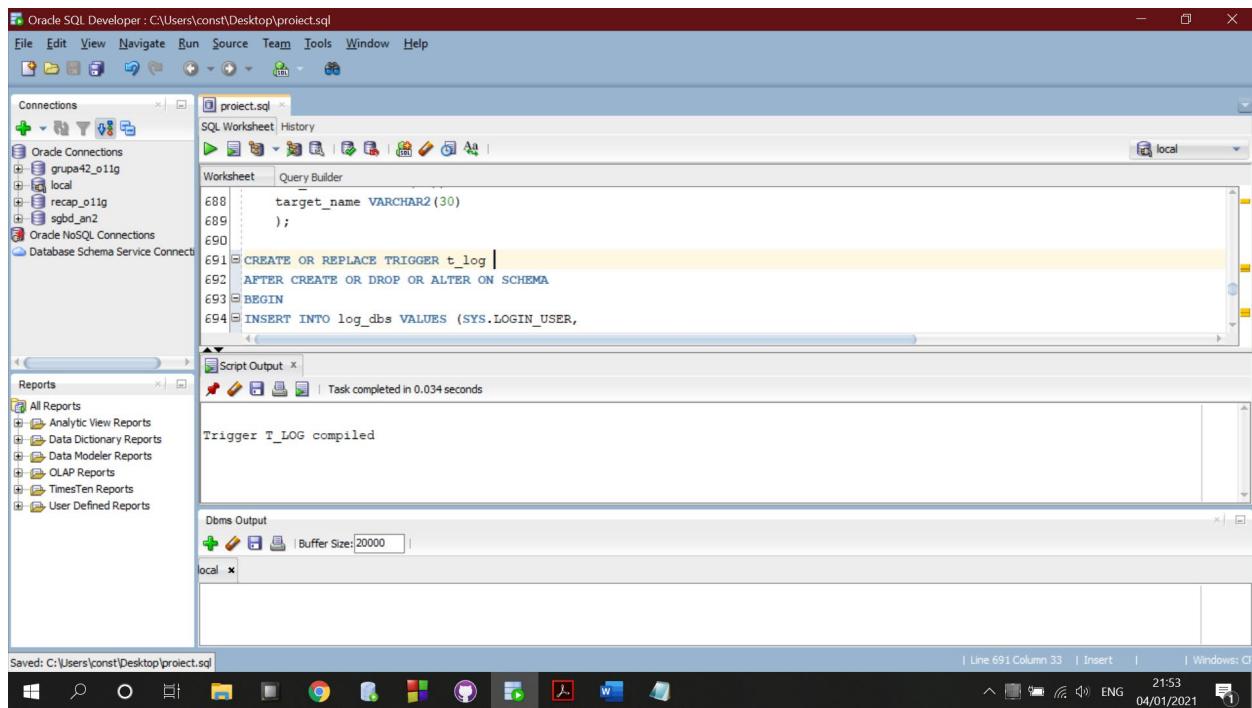
```

CREATE OR REPLACE TRIGGER t_log
AFTER CREATE OR DROP OR ALTER ON SCHEMA

```

```
BEGIN  
  INSERT INTO log_dbs VALUES (SYS.LOGIN_USER,  
    SYSDATE,  
    SYS.SYSEVENT,  
    SYS DATABASE_NAME,  
    SYS DICTIONARY_OBJ_NAME  
  );  
END;  
/
```

```
--Testare trigger 12  
ALTER TABLE tara ADD membra_ue VARCHAR2(3);  
ALTER TABLE adresa  
DROP CONSTRAINT FK_ADR_TARA;  
DROP TABLE tara;  
SELECT * FROM log_dbs;
```



Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_011g
  - local
  - recap\_011g
  - sgbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

Reports

- All Reports
  - Analytic View Reports
  - Data Dictionary Reports
  - Data Modeler Reports
  - OLAP Reports
  - TimesTen Reports
  - User Defined Reports

project.sql

SQL Worksheet History

Worksheet Query Builder

```
688 target_name VARCHAR2 (30)
689 );
690
691 CREATE OR REPLACE TRIGGER t_log
692 AFTER CREATE OR DROP OR ALTER ON SCHEMA
693 BEGIN
694 INSERT INTO log_dbs VALUES (SYS.LOGIN_USER,
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
```

Script Output

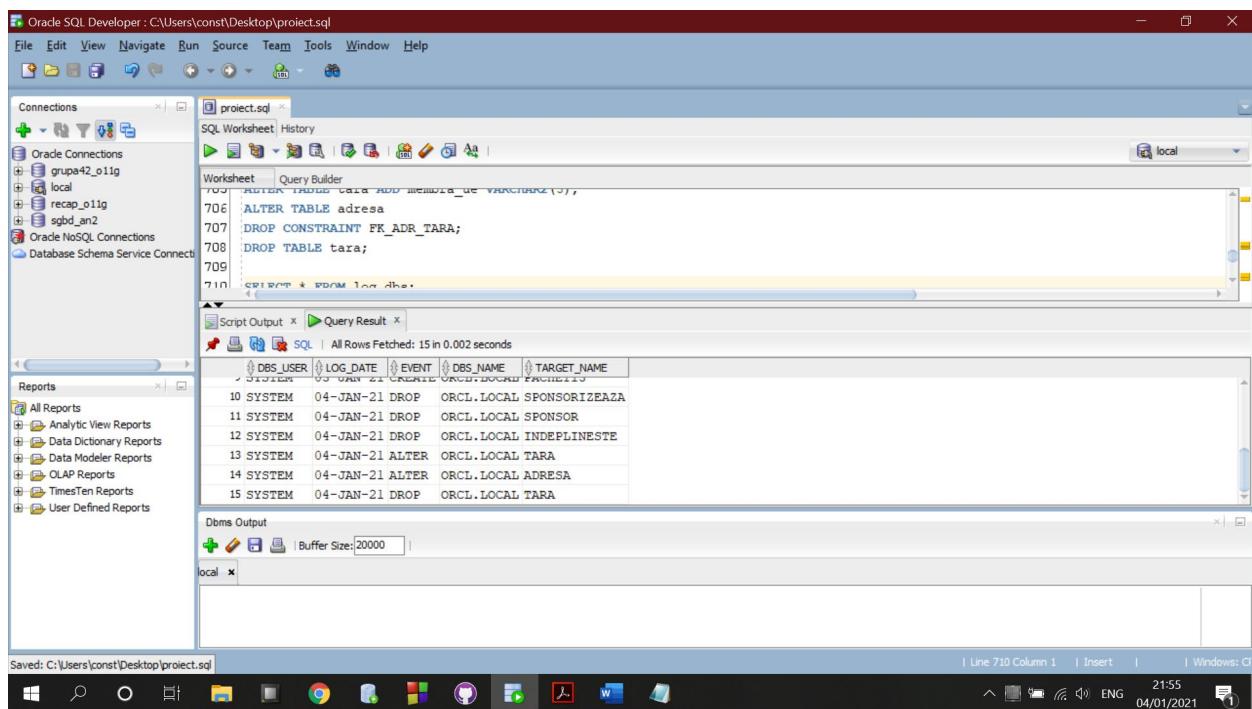
Trigger T\_LOG compiled

Dbs Output

local

Saved: C:\Users\const\Desktop\project.sql | Line 691 Column 33 | Insert | Windows: CI

2153 04/01/2021



Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_011g
  - local
  - recap\_011g
  - sgbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

Reports

- All Reports
  - Analytic View Reports
  - Data Dictionary Reports
  - Data Modeler Reports
  - OLAP Reports
  - TimesTen Reports
  - User Defined Reports

project.sql

SQL Worksheet History

Worksheet Query Builder

```
701
702
703
704
705
706
707
708
709
710
```

Script Output

All Rows Fetched: 15 in 0.002 seconds

DBS_USER	LOG_DATE	EVENT	DB_NAME	TARGET_NAME
10	SYSTEM	04-JAN-21	DROP	ORCL.LOCAL SPONSORIZEAZA
11	SYSTEM	04-JAN-21	DROP	ORCL.LOCAL SPONSOR
12	SYSTEM	04-JAN-21	DROP	ORCL.LOCAL INDEFINESTE
13	SYSTEM	04-JAN-21	ALTER	ORCL.LOCAL TARA
14	SYSTEM	04-JAN-21	ALTER	ORCL.LOCAL ADRESA
15	SYSTEM	04-JAN-21	DROP	ORCL.LOCAL TARA

Dbs Output

local

Saved: C:\Users\const\Desktop\project.sql | Line 710 Column 1 | Insert | Windows: CI

2155 04/01/2021

### 13) Un pachet care conține toate obiectele definite în cadrul proiectului

```
CREATE OR REPLACE PACKAGE pachet13 AS
    PROCEDURE p6;
    PROCEDURE p7;
    FUNCTION f8(v_oras adresa.oras%TYPE DEFAULT 'Bucuresti', v_nr
NUMBER DEFAULT 2)
        RETURN NUMBER;
    PROCEDURE p9(v_oras adresa.oras%TYPE);
END pachet13;
/
```

```
CREATE OR REPLACE PACKAGE BODY pachet13 AS
```

```
--6
```

```
PROCEDURE p6
IS
    TYPE date_membru IS TABLE OF membru%ROWTYPE INDEX BY
    BINARY_INTEGER;
    t date_membru;
BEGIN
    SELECT *
    BULK COLLECT INTO t
    FROM membru
    WHERE id_membru IN (SELECT id_coord
        FROM proiect
        GROUP BY id_coord
        HAVING COUNT(*)>=1);
    FOR i in t.FIRST..t.LAST LOOP
```

```

    DBMS_OUTPUT.PUT_LINE('id membru: ' || t(i).id_membru || ', id ong: ' ||
t(i).id_ong || ', nume: ' || t(i).nume || ', prenume: ' || t(i).prenume || ', email: ' ||
t(i).email);

END LOOP;

EXCEPTION

WHEN OTHERS THEN

    RAISE_APPLICATION_ERROR(-20000, 'Nu exista membru care sa
independeasca aceste criterii');

END p6;

```

--7

```

PROCEDURE p7
IS
CURSOR p IS SELECT id_proiect, nume FROM proiect;
CURSOR m(PARAM NUMBER) IS SELECT i.id_membru, nume, COUNT(*)
    FROM independeasca i JOIN task t ON(t.id_task=i.id_task)
        JOIN membru m ON(i.id_membru=m.id_membru)
    WHERE id_proiect = PARAM
        GROUP BY i.id_membru, nume
        ORDER BY COUNT(*) DESC;

pr_id proiect.id_proiect%TYPE;
pr_nume proiect.nume%TYPE;
mb_id membru.id_membru%TYPE;
mb_nume membru.nume%TYPE;
t_nr NUMBER(5);
old_t_nr NUMBER(5);

```

```

nr NUMBER;
BEGIN
    OPEN p;
    LOOP
        FETCH p INTO pr_id, pr_nume;
        EXIT WHEN p%NOTFOUND;
        DBMS_OUTPUT.PUT_LINE('Proiect: ' || pr_nume);
        nr := 0;
        OPEN m(pr_id);
        LOOP
            FETCH m INTO mb_id, mb_nume, t_nr;
            EXIT WHEN m%NOTFOUND OR nr=3;
            DBMS_OUTPUT.PUT_LINE('Membrul cu id-ul ' || mb_id || ' si numele ' ||
mb_nume || ' indeplineste '|| t_nr || ' task-uri');
            IF nr = 0 OR t_nr != old_t_nr THEN
                nr := nr + 1;
            END IF;
            old_t_nr := t_nr;
        END LOOP;
        IF m%ROWCOUNT = 0 THEN
            DBMS_OUTPUT.PUT_LINE(' Nu exista membrii care au indeplinit
taskuri');
        ELSE IF nr < 3 THEN
            DBMS_OUTPUT.PUT_LINE('--membrii insuficienti pentru cele 3
pozitii');
        END IF;
    END LOOP;

```

```
END IF;  
CLOSE m;  
END LOOP;  
CLOSE p;  
END p7;
```

--8

FUNCTION f8

```
(v_oras adresa.oras%TYPE DEFAULT 'Bucuresti',  
 v_nr NUMBER DEFAULT 2)  
RETURN NUMBER IS  
    ONG_ID NUMBER(3);  
    negative_nr EXCEPTION;  
BEGIN  
    --verificare nr de membri introdus  
    IF v_nr < 0 THEN  
        RAISE negative_nr;  
    END IF;  
    SELECT id_ong  
    INTO ONG_ID  
    FROM ong o JOIN adresa a ON (o.id_adresa=a.id_adresa)  
    WHERE UPPER(oras)=UPPER(v_oras) AND (SELECT  
    COUNT(id_membru)  
    FROM membru  
    WHERE id_ong = o.id_ong)=v_nr;  
    RETURN ONG_ID;
```

```

EXCEPTION
  WHEN negative_nr THEN
    RAISE_APPLICATION_ERROR(-20003, 'Numarul de membri introdus
este negativ!');
  WHEN NO_DATA_FOUND THEN
    RAISE_APPLICATION_ERROR(-20000, 'Nu exista ONG care sa
indeplineasca aceste criterii');
  WHEN TOO_MANY_ROWS THEN
    RAISE_APPLICATION_ERROR(-20001, 'Exista mai multe ONG-uri care
indeplinesc aceste criterii');
  WHEN OTHERS THEN
    RAISE_APPLICATION_ERROR(-20002, 'Alta eroare!');
END f8;

```

--9

```

PROCEDURE p9
  (v_oras adresa.oras%TYPE)
IS
  wrong_city EXCEPTION;
  v_nr NUMBER(5);
  v_nume sponsor.nume%TYPE;
  v_id_sponsor sponsor.id_sponsor%TYPE;
  v_id_ong ong.id_ong%TYPE;
  v_suma sponsorizeaza.suma%TYPE;
BEGIN
  v_nr := 0;

```

```

--verificare daca exista in db orasul introdus
SELECT COUNT(*)
INTO v_nr
FROM adresa
WHERE UPPER(oras) = UPPER(v_oras);
IF v_nr = 0 THEN
    RAISE wrong_city;
END IF;
SELECT SUM(suma), p.id_ong, s.id_sponsor, sp.nume
INTO v_suma, v_id_ong, v_id_sponsor, v_nume
FROM sponsorizeaza s JOIN proiect p ON (s.id_proiect = p.id_proiect)
    JOIN sponsor sp ON (s.id_sponsor = sp.id_sponsor)
    JOIN ong o ON (p.id_ong = o.id_ong)
    JOIN adresa a ON (o.id_adresa = a.id_adresa)
WHERE UPPER(a.oras)=UPPER(v_oras)
GROUP BY p.id_ong, s.id_sponsor, sp.nume
HAVING SUM(suma) IN (
    SELECT MAX(SUM(suma))
    FROM sponsorizeaza s JOIN proiect p ON (s.id_proiect =
p.id_proiect)
        JOIN sponsor sp ON (s.id_sponsor = sp.id_sponsor)
        JOIN ong o ON (p.id_ong = o.id_ong)
        JOIN adresa a ON (o.id_adresa = a.id_adresa)
    WHERE UPPER(a.oras)=UPPER(v_oras)
    GROUP BY p.id_ong, s.id_sponsor);

```

```
DBMS_OUTPUT.PUT_LINE('Cel mai generos sponsor este ' || v_nume || ' cu  
suma totala de ' || v_suma);
```

```
EXCEPTION
```

```
WHEN wrong_city THEN
```

```
    DBMS_OUTPUT.PUT_LINE('Orasul introdus nu se afla in baza de date');
```

```
WHEN NO_DATA_FOUND THEN
```

```
    RAISE_APPLICATION_ERROR(-20000, 'Nu exista sponsorul cautat');
```

```
WHEN TOO_MANY_ROWS THEN
```

```
    RAISE_APPLICATION_ERROR(-20001, 'Exista mai multi sponsori care  
indeclină aceast criteriu');
```

```
WHEN OTHERS THEN
```

```
    RAISE_APPLICATION_ERROR(-20002, 'Alta eroare!');
```

```
END p9;
```

```
END pachet13;
```

```
/
```

```
--Testare ex 9
```

```
BEGIN
```

```
    pachet13.p9('bucuresti');
```

```
END;
```

```
/
```

```
--Exemplificare exceptie TOO_MANY_ROWS
```

```
BEGIN
```

```
    pachet13.p9('pitesti');
```

```
END;
```

```

/
--Exemplificare exceptie NO_DATA_FOUND
BEGIN
    pachet13.p9('tokyo');
END;
/
--Exemplificare exceptie wrong_city
BEGIN
    pachet13.p9('budapest');
END;
/
--Testare ex 8
--Exemplificare exceptie NO_DATA_FOUND
BEGIN
    DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este: '||pachet13.f8);
END;
/
BEGIN
    DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este:
'||pachet13.f8('Pitesti', 1));
END;
/
--Exemplificare exceptie TOO_MANY_ROWS
BEGIN

```

```
DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este:  
'||pachet13.f8('Bucuresti', 1));
```

```
END;
```

```
/
```

```
--Exemplificare exceptie numar negativ
```

```
BEGIN
```

```
DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este:  
'||pachet13.f8('Bucuresti', -2));
```

```
END;
```

```
/
```

```
--Testare ex 7
```

```
BEGIN
```

```
pachet13.p7;
```

```
END;
```

```
/
```

```
--Testare ex 6
```

```
BEGIN
```

```
pachet13.p6;
```

```
END;
```

```
/
```

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

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Connections

- Oracle Connections
  - grupa42\_01g
  - local
  - recap\_01g
  - sbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

Reports

All Reports

- Analytic View Reports
- Data Dictionary Reports
- Data Modeler Reports
- OLAP Reports
- TimesTen Reports
- User Defined Reports

project.sql

SQL Worksheet History

Worksheet Query Builder

```

716     RETURN NUMBER;
717     PROCEDURE p9(v_oras adresa.oras%TYPE);
718   END pachet13;
719 /
720 CREATE OR REPLACE PACKAGE BODY pachet13 AS
721
722   --6
723   PROCEDURE p6
    
```

Script Output x Query Result x

Package PACHET13 compiled

Package Body PACHET13 compiled

Dbs Output

Buffer Size: 20000

local x

Saved: C:\Users\const\Desktop\project.sql | Line 720 Column 30 | Insert | Windows: CI

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_01g
  - local
  - recap\_01g
  - sbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

Reports

All Reports

- Analytic View Reports
- Data Dictionary Reports
- Data Modeler Reports
- OLAP Reports
- TimesTen Reports
- User Defined Reports

project.sql

SQL Worksheet History

Worksheet Query Builder

```

847   END pachet13;
848 /
849 --Testare ex 9
850 BEGIN
851   pachet13.p9('bucuresti');
852 END;
853 /
854 --Exemplificare spuneamca TOO MANY ROWS
    
```

Script Output x Query Result x

Package Body PACHET13 compiled

PL/SQL procedure successfully completed.

Dbs Output

Buffer Size: 20000

local x

Cel mai generos sponsor este Selea Mihai cu suma totala de 1100

Saved: C:\Users\const\Desktop\project.sql | Line 850 Column 6 | Insert | Windows: CI

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_01g
  - local
  - recap\_01g
  - sgbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

Reports

All Reports

- Analytic View Reports
- Data Dictionary Reports
- Data Modeler Reports
- OLAP Reports
- TimesTen Reports
- User Defined Reports

project.sql

SQL Worksheet History

Worksheet Query Builder

```

852   END;
853   /
854 --Exemplificare exceptie TOO_MANY_ROWS
855 BEGIN
856   pachet13.p9('pitesti');
857 END;
858 /
859 --Exemplificare exceptie NO_DATA_FOUND

```

Script Output x Query Result x

Error report -

ORA-2000: Există mai multi sponsori care îndeplinesc acest criteriu  
 ORA-06512: at "SYSTEM.PACHET13", line 122  
 ORA-06512: at line 2

Dbsm Output

Buffer Size: 20000 |

local x

Cel mai generos sponsor este Seleac Mihai cu suma totala de 1100

Saved: C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_01g
  - local
  - recap\_01g
  - sgbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

Reports

All Reports

- Analytic View Reports
- Data Dictionary Reports
- Data Modeler Reports
- OLAP Reports
- TimesTen Reports
- User Defined Reports

project.sql

SQL Worksheet History

Worksheet Query Builder

```

857   END;
858   /
859 --Exemplificare exceptie NO_DATA_FOUND
860 BEGIN
861   pachet13.p9('tokyo');
862 END;
863 /
864

```

Script Output x Query Result x

Error report -

ORA-2000: Nu există sponsorul căutat  
 ORA-06512: at "SYSTEM.PACHET13", line 120  
 ORA-06512: at line 2  
 20000. 00000 - "%s"

Dbsm Output

Buffer Size: 20000 |

local x

Cel mai generos sponsor este Seleac Mihai cu suma totala de 1100

Saved: C:\Users\const\Desktop\project.sql

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

```

Connections
  Oracle Connections
    grupa42_011g
    local
    recap_011g
    sgbd_an2
  Oracle NoSQL Connections
  Database Schema Service Connections

Reports
  All Reports
    Analytic View Reports
    Data Dictionary Reports
    Data Modeler Reports
    OLAP Reports
    TimesTen Reports
    User Defined Reports

project.sql
SQL Worksheet History
Worksheet | Query Builder
915 /
916 --Exemplificare exceptie wrong_city
917 BEGIN
918   pachet13.p9('budapest');
919 END;
920 /
921 --Testare ex 8
922 BEGIN
923   --Exemplificare exceptie NO_DATA_FOUND
924   DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este: '||pachet13.f8);
925 END;
926 /
927 /
928 /*****
```

Script Output | Query Result x

PL/SQL procedure successfully completed.

Dbm Output

local x

Orasul introdus nu se afla in baza de date

Saved: C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

23:38 ENG 08/01/2021

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

```

Connections
  Oracle Connections
    grupa42_011g
    local
    recap_011g
    sgbd_an2
  Oracle NoSQL Connections
  Database Schema Service Connections

Reports
  All Reports
    Analytic View Reports
    Data Dictionary Reports
    Data Modeler Reports
    OLAP Reports
    TimesTen Reports
    User Defined Reports

project.sql
SQL Worksheet History
Worksheet | Query Builder
864
865 --Testare ex 8
866 --Exemplificare exceptie NO_DATA_FOUND
867 BEGIN
868   DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este: '||pachet13.f8);
869 END;
870 /
871 BEGIN
```

Script Output | Query Result x

DBMS\_OUTPUT.PUT\_LINE('Id-ul ONG-ului cautat este: '||pachet13.f8);

END;

Error report -

ORA-20000: Nu exista ONG care sa indeplineasca aceste criterii  
ORA-06512: at "SYSTEM.PACHET13", line 85  
ORA-06512: at line 2

Dbm Output

local x

Saved: C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Line 867 Column 2 | Insert | Windows: C 22:00 ENG 04/01/2021

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_01g
  - local
  - recap\_01g
  - sgbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

Reports

All Reports

- Analytic View Reports
- Data Dictionary Reports
- Data Modeler Reports
- OLAP Reports
- TimesTen Reports
- User Defined Reports

project.sql

SQL Worksheet History

Worksheet Query Builder

```

868   DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este: ''||pachet13.f8);
869   END;
870 /
871 BEGIN
872   DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este: ''||pachet13.f8('Pitești', 1));
873 END;
874 /
875 --Exemplificare exceptie TOO_MANY_ROWS

```

Script Output x Query Result x

Action: Correct the problem as described in the error message or contact the application administrator or DBA for more information.

PL/SQL procedure successfully completed.

Dbsm Output

Buffer Size: 20000 |

local x

Id-ul ONG-ului cautat este: 4

Saved: C:\Users\const\Desktop\project.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

- Oracle Connections
  - grupa42\_01g
  - local
  - recap\_01g
  - sgbd\_an2
- Oracle NoSQL Connections
- Database Schema Service Connect

Reports

All Reports

- Analytic View Reports
- Data Dictionary Reports
- Data Modeler Reports
- OLAP Reports
- TimesTen Reports
- User Defined Reports

project.sql

SQL Worksheet History

Worksheet Query Builder

```

873   END;
874 /
875 --Exemplificare exceptie TOO_MANY_ROWS
876 BEGIN
877   DBMS_OUTPUT.PUT_LINE('Id-ul ONG-ului cautat este: ''||pachet13.f8('București', 1));
878 END;
879 /
880

```

Script Output x Query Result x

ORA-20001: Există mai multe ONG-uri care îndeplinesc aceste criterii  
ORA-06512: at "SYSTEM.PACHET13", line 87  
ORA-06512: at line 2

Dbsm Output

Buffer Size: 20000 |

local x

Id-ul ONG-ului cautat este: 4

Saved: C:\Users\const\Desktop\project.sql

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

```

Connections
  Oracle Connections
    grupa42_011g
    local
    recap_011g
    sgbd_an2
  Oracle NoSQL Connections
  Database Schema Service Connections

Reports
  All Reports
  Analytic View Reports
  Data Dictionary Reports
  Data Modeler Reports
  OLAP Reports
  TimesTen Reports
  User Defined Reports

Script Output | Query Result | Task completed in 0.058 seconds
ORA-20003: Numarul de membri introdus este negativ!
ORA-06512: at "SISTEM.PACRET13", line 90
ORA-06512: at line 2

Dbsm Output
  Buffer Size[20000]
local

```

Saved: C:\Users\const\Desktop\project.sql

Oracle SQL Developer : C:\Users\const\Desktop\project.sql

```

File Edit View Navigate Run Source Team Tools Window Help
Connections
  Oracle Connections
    grupa42_011g
    local
    recap_011g
    sgbd_an2
  Oracle NoSQL Connections
  Database Schema Service Connections

Reports
  All Reports
  Analytic View Reports
  Data Dictionary Reports
  Data Modeler Reports
  OLAP Reports
  TimesTen Reports
  User Defined Reports

Script Output | Query Result | Task completed in 0.02 seconds
PL/SQL procedure successfully completed.

Dbsm Output
  Buffer Size[20000]
local
Project: Prima banda libera
Membrul cu id-ul 1 si numele Costel indeplineste 4 task-uri
Membrul cu id-ul 2 si numele Constantin indeplineste 4 task-uri
Membrul cu id-ul 3 si numele Ursache indeplineste 2 task-uri
Membrul cu id-ul 5 si numele Matache indeplineste 1 task-uri

Saved: C:\Users\const\Desktop\project.sql

```

Line 884 Column 5 | Insert | Windows: C | 22:01 | ENG | 04/01/2021

```

885  /
886
887 --Testare ex 6
888 BEGIN
889   pachet13.p6;
890 END;
891 /

```

PL/SQL procedure successfully completed.

Dbms Output

```

id membru: 2, id ong: 3, nume: Constantin, prenume: Gabriel, email: g_c@gmail.com
id membru: 3, id ong: 3, nume: Ursache, prenume: Mircea, email: u_m@protonmail.com
id membru: 4, id ong: 4, nume: Codrescu, prenume: Marcel, email: c_m@gmail.com
id membru: 6, id ong: 1, nume: Maxim, prenume: Cristian, email: cris_m@yahoo.com

```

**14) Un pachet care utilizează un tip de date complex (vector de vectori) pentru a menține și a afișa ONG-urile și numărul lor pentru fiecare oraș.**

Astfel, vom avea un vector de perechi de tipul (`v_o, v_ong`), unde `v_o` este numele orașului și `v_ong` este vectorul ce conține ONG-urile din acel oraș.

**Pachetul utilizează o funcție ce returnează vectorul de ong-uri dintr-un oraș dat ca parametru.**

**Această funcție este folosită apoi de o procedură pentru a popula vectorul de vectori, procedură care la rândul ei oferă acest vector de vectori unei alte proceduri pentru afișare.**

```

TYPE ongs IS VARRAY(30) OF VARCHAR2(40);
TYPE tuple IS RECORD (city VARCHAR2(30), o ongs);
TYPE vector IS VARRAY(30) OF tuple;
FUNCTION f_ong_14(
    v_oras adresa.oras%TYPE
)
RETURN ongs;
PROCEDURE pop_14;
PROCEDURE display_14(vec vector);

END pachet14;
/

```

```
CREATE OR REPLACE PACKAGE BODY pachet14 AS
```

```

FUNCTION f_ong_14(
    v_oras adresa.oras%TYPE
)
RETURN ongs IS o ongs;
BEGIN
    SELECT nume
        BULK COLLECT INTO o
    FROM ong og JOIN adresa a ON (og.id_adresa = a.id_adresa)
    WHERE UPPER(v_oras) = UPPER(a.oras);
    RETURN o;

```

```
END;
```

```
PROCEDURE pop_14 IS
TYPE voras IS VARRAY(30) OF VARCHAR2(30);
vec vector := vector();
voras voras;
BEGIN
SELECT DISTINCT(oras)
BULK COLLECT INTO voras
FROM adresa;

FOR i in voras.FIRST..voras.LAST LOOP
    vec.extend();
    vec(i).city := voras(i);
    vec(i).o := f_ong_14(voras(i));
END LOOP;
display_14(vec);
END;
```

```
PROCEDURE display_14 (vec vector) IS
BEGIN
FOR i in vec.FIRST..vec.LAST LOOP
    DBMS_OUTPUT.PUT_LINE('----ORAS: ' || vec(i).city || '----');
    DBMS_OUTPUT.PUT_LINE('---numar ong-uri: ' || vec(i).o.LAST);
    FOR j in vec(i).o.FIRST..vec(i).o.LAST LOOP
```

```

DBMS_OUTPUT.PUT_LINE(vec(i).o(j));

END LOOP;

DBMS_OUTPUT.PUT_LINE(");

END LOOP;

END;

```

END pachet14;

/

```

--Testare pachet 14

BEGIN

pachet14.pop_14;

END;

```

/

The screenshot shows the Oracle SQL Developer interface with the following details:

- Connections:** Local connection.
- Worksheet:** Contains the PL/SQL code for the procedure PACHET14.
- Script Output:** Shows the successful compilation of the procedure.
- Query Result:** Displays the execution results for each city, showing the number of locations and their types.
- Reports:** Shows various report types like All Reports, Analytic View Reports, Data Dictionary Reports, etc.
- Status Bar:** Shows the line and column numbers (Line 964 Column 5), the date and time (16:27 08/01/2021), and the location (ROU).

```

954     DBMS_OUTPUT.PUT_LINE('');
955   END LOOP;
956
957
958 END pachet14;
959 /
960
961 --Testare pachet 14
962 BEGIN
963   pachet14.pop_14;
964 END;
965 /
966

PL/SQL procedure successfully completed.

-----ORAS: Tokyo-----
--numar ong-uri: 1
Make IT

-----ORAS: Pitesti-----
--numar ong-uri: 1
Fundatia 1 si 1

-----ORAS: Bucuresti-----
--numar ong-uri: 3
Clubul cainilor utilitari
Accesari la bani hanoracice

```