PROIECT SISTEME DE GESTIUNE A BAZELOR DE DATE

Dudau Claudia Maria – grupa 243

1. Prezentare pe scurt a bazei de date

O baza de date ce conține informații despre seriale, producători, sezoane, episoade, actori si personaje, în scopul manipulării acestora.

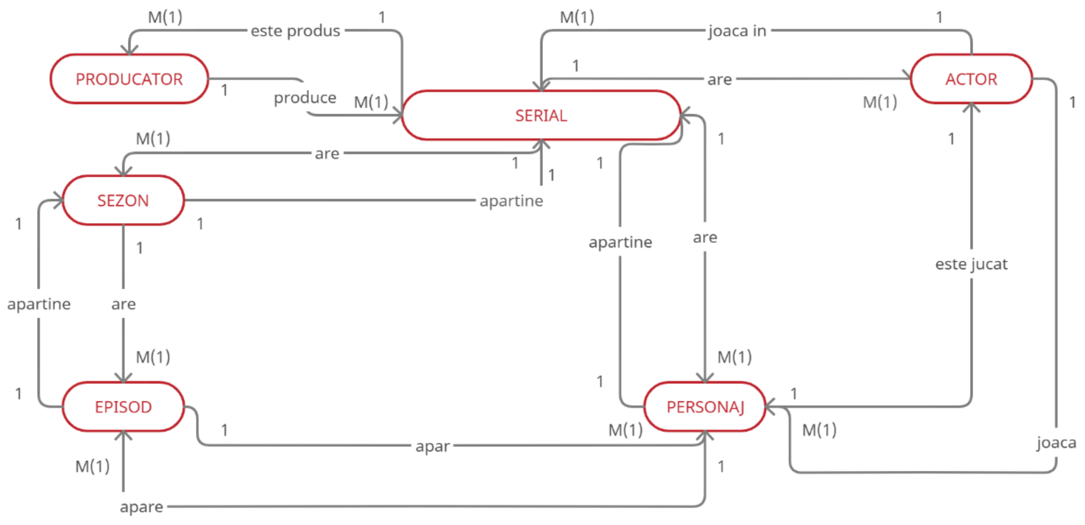
Ca orice baza de date, scopul său principal este acela de a oferi o structura logica a componentelor și a relațiilor dintre acestea pentru ca informațiile sa poată fi accesate cu ușurință.

Aceasta este utila in special site-urilor ce se ocupa cu oferirea de informații legate de diverse seriale (cum ar fi imdb), dar si pentru aplicații care se ocupa cu gestionarea datelor de acest fel (adăugare, modificare, ștergere).

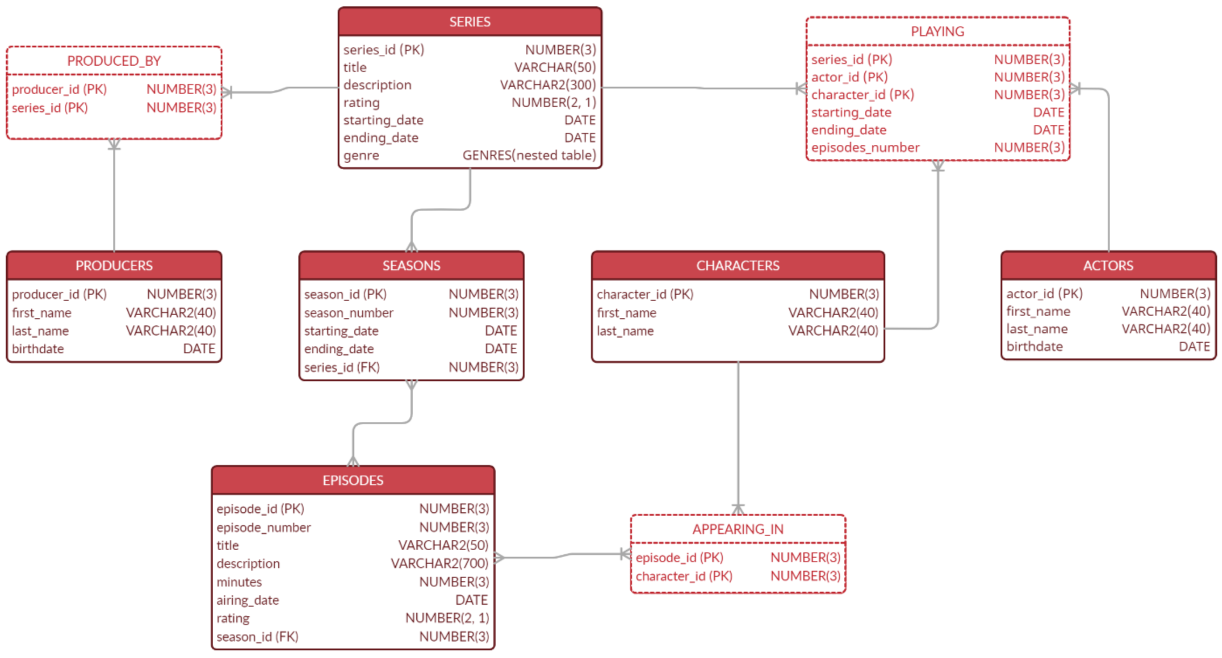
In acest sens, baza de date este conceputa cu 6 tabele independente (producers, series, seasons, episodes, actors, characters) si 3 tabele asociative pentru a rezolva legăturile de tip many to many (produced_by, appearing_in, playing). Din punct de vedere al relațiilor, sunt implementate următoarele reguli:

- un producător poate produce unul sau mai multe seriale, iar un serial poate fi produs de unul sau mai mulți producători;
- un actor joacă în unul sau mai multe seriale, un serial având unul sau mai mulți actori;
- un serial are unul sau mai multe sezoane, iar un sezon aparține unui singur serial;
- un sezon are unul sau mai multe episoade, iar un episod aparține unui singur sezon;
- un actor joacă unul sau mai multe personaje, iar un personaj este jucat de un singur actor;
- un personaj apare în unul sau mai multe episoade, în timp ce într-un episod pot apărea unul sau mai multe personaje.

2. Diagrama E/R



3. Diagrama conceptuala



SERIES	
series_id (PK)	NUMBER(3)
title	VARCHAR(50)
description	VARCHAR2(300)
rating	NUMBER(2, 1)
starting_date	DATE
ending_date	DATE
genre	GENRES(nested table)

PRODUCED_BY	
producer_id (PK)	NUMBER(3)
series_id (PK)	NUMBER(3)

PLAYING	
series_id (PK)	NUMBER(3)
actor_id (PK)	NUMBER(3)
character_id (PK)	NUMBER(3)
starting_date	DATE
ending_date	DATE
episodes_number	NUMBER(3)

PRODUCERS	
producer_id (PK)	NUMBER(3)
first_name	VARCHAR2(40)
last_name	VARCHAR2(40)
birthdate	DATE

SEASONS	
season_id (PK)	NUMBER(3)
season_number	NUMBER(3)
starting_date	DATE
ending_date	DATE
series_id (FK)	NUMBER(3)

CHARACTERS	
character_id (PK)	NUMBER(3)
first_name	VARCHAR2(40)
last_name	VARCHAR2(40)

ACTORS	
actor_id (PK)	NUMBER(3)
first_name	VARCHAR2(40)
last_name	VARCHAR2(40)
birthdate	DATE

EPISODES	
episode_id (PK)	NUMBER(3)
episode_number	NUMBER(3)
title	VARCHAR2(50)
description	VARCHAR2(700)
minutes	NUMBER(3)
airing_date	DATE
rating	NUMBER(2, 1)
season_id (FK)	NUMBER(3)

APPEARING_IN	
episode_id (PK)	NUMBER(3)
character_id (PK)	NUMBER(3)

4. Implementarea in Oracle a diagramei conceptuale

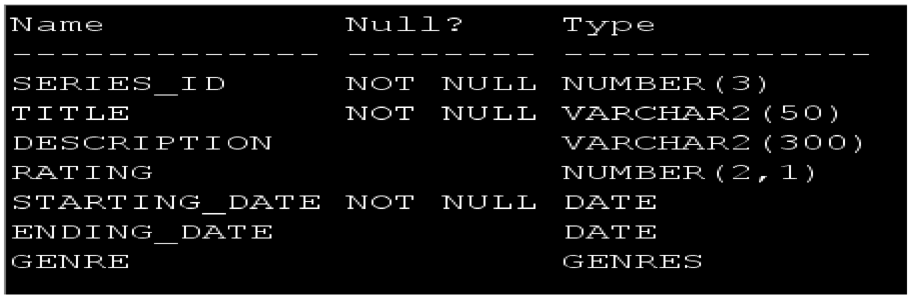
1) Tabela series

Am ales să stochez categoriile unui serial sub forma de tablou imbricat.

```
CREATE OR REPLACE TYPE genres IS TABLE OF VARCHAR2(20);
/

CREATE TABLE series
   (series_id NUMBER(3) PRIMARY KEY,
    title VARCHAR2(50) NOT NULL,
    description VARCHAR(300),
    rating NUMBER(2,1),
    starting_date DATE NOT NULL,
    ending_date DATE,
    genre genres,
    CONSTRAINT date_series CHECK (starting_date <= ending_date))

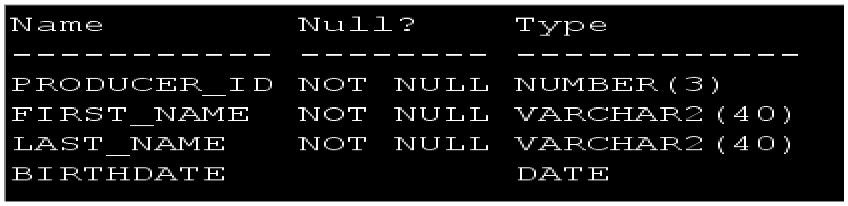
NESTED TABLE genre STORE AS genre;
```



```
Name              Null?     Type
------------- -------- ------------
SERIES_ID     NOT NULL NUMBER(3)
TITLE         NOT NULL VARCHAR2(50)
DESCRIPTION            VARCHAR2(300)
RATING                 NUMBER(2,1)
STARTING_DATE NOT NULL DATE
ENDING_DATE            DATE
GENRE                  GENRES
```

2) Tabela producers

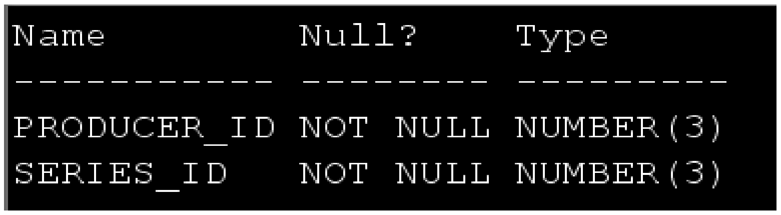
```
CREATE TABLE producers
   (producer_id NUMBER(3) PRIMARY KEY,
    first_name VARCHAR2(40) NOT NULL,
    last_name VARCHAR2(40) NOT NULL,
    birthdate DATE);
```



```
Name             Null?     Type
----------- -------- ------------
PRODUCER_ID NOT NULL NUMBER(3)
FIRST_NAME  NOT NULL VARCHAR2(40)
LAST_NAME   NOT NULL VARCHAR2(40)
BIRTHDATE            DATE
```

3) Tabela produced_by

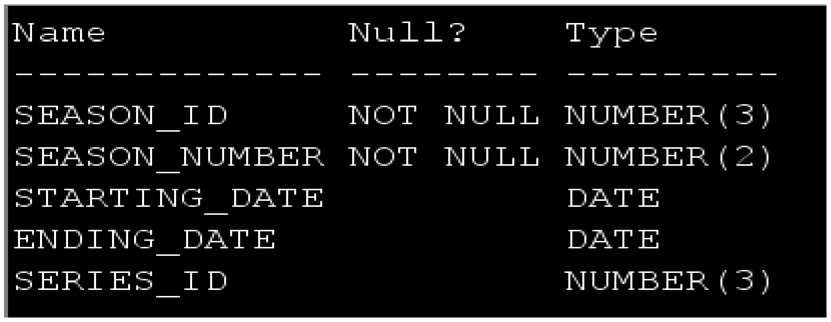
```
CREATE TABLE produced_by
  (producer_id NUMBER(3) REFERENCES producers(producer_id) ON DELETE CASCADE,
   series_id NUMBER(3) REFERENCES series(series_id) ON DELETE CASCADE,
   PRIMARY KEY(producer_id, series_id));
```



```
Name        Null?    Type
----------- -------- ---------
PRODUCER_ID NOT NULL NUMBER(3)
SERIES_ID   NOT NULL NUMBER(3)
```

4) Tabela seasons

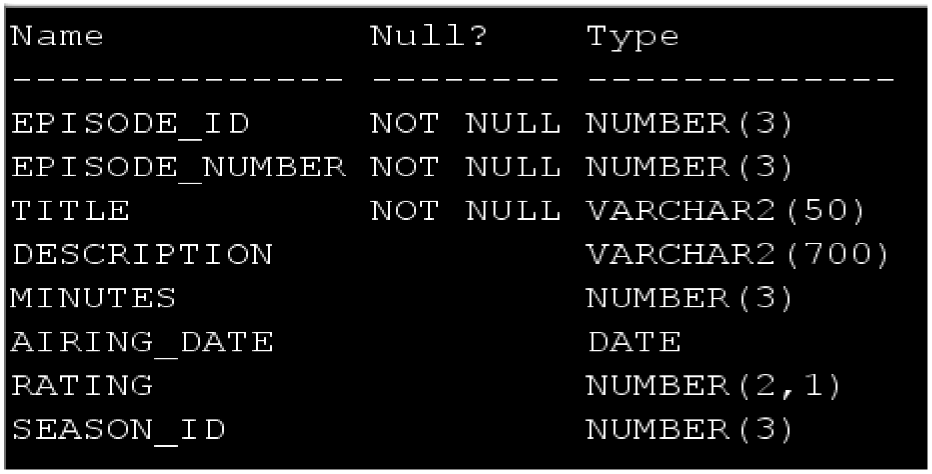
```
CREATE TABLE seasons
  (season_id NUMBER(3) PRIMARY KEY,
   season_number NUMBER(2) NOT NULL,
   starting_date DATE,
   ending_date DATE,
   series_id NUMBER(3) REFERENCES series(series_id) ON DELETE CASCADE);
```



```
Name          Null?    Type
------------- -------- ---------
SEASON_ID     NOT NULL NUMBER(3)
SEASON_NUMBER NOT NULL NUMBER(2)
STARTING_DATE          DATE
ENDING_DATE            DATE
SERIES_ID              NUMBER(3)
```

5) Tabela episodes

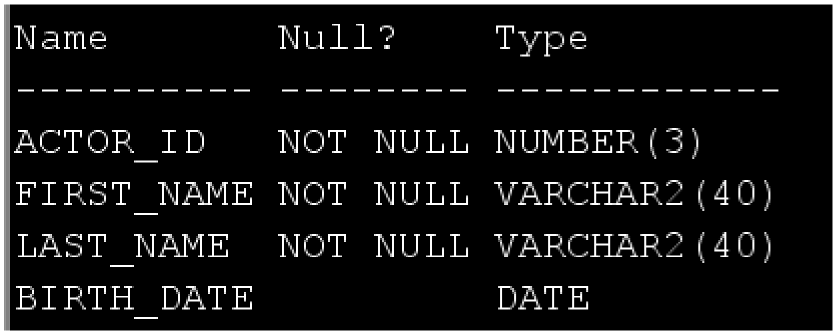
```
CREATE TABLE episodes
   (episode_id NUMBER(3) PRIMARY KEY,
    episode_number NUMBER(3) NOT NULL,
    title VARCHAR2(50) NOT NULL,
    description VARCHAR2 (700),
    minutes NUMBER(3),
    airing_date DATE,
    rating NUMBER(2,1),
    season_id NUMBER(3) REFERENCES seasons(season_id) ON DELETE CASCADE);
```



```
Name              Null?    Type
-------------- -------- -------------
EPISODE_ID     NOT NULL NUMBER(3)
EPISODE_NUMBER NOT NULL NUMBER(3)
TITLE          NOT NULL VARCHAR2(50)
DESCRIPTION             VARCHAR2(700)
MINUTES                 NUMBER(3)
AIRING_DATE             DATE
RATING                  NUMBER(2,1)
SEASON_ID               NUMBER(3)
```

6) Tabela actors

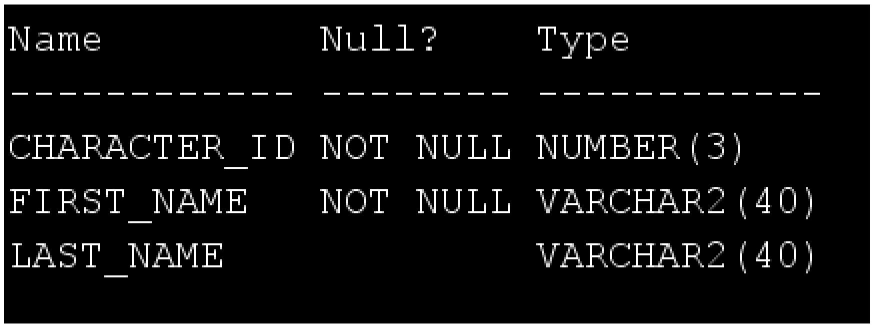
```
CREATE TABLE actors
   (actor_id NUMBER(3) PRIMARY KEY,
    first_name VARCHAR2(40) NOT NULL,
    last_name VARCHAR2(40) NOT NULL,
    birth_date DATE);
```



```
Name       Null?    Type
---------- -------- ------------
ACTOR_ID   NOT NULL NUMBER(3)
FIRST_NAME NOT NULL VARCHAR2(40)
LAST_NAME  NOT NULL VARCHAR2(40)
BIRTH_DATE          DATE
```

7) Tabela characters

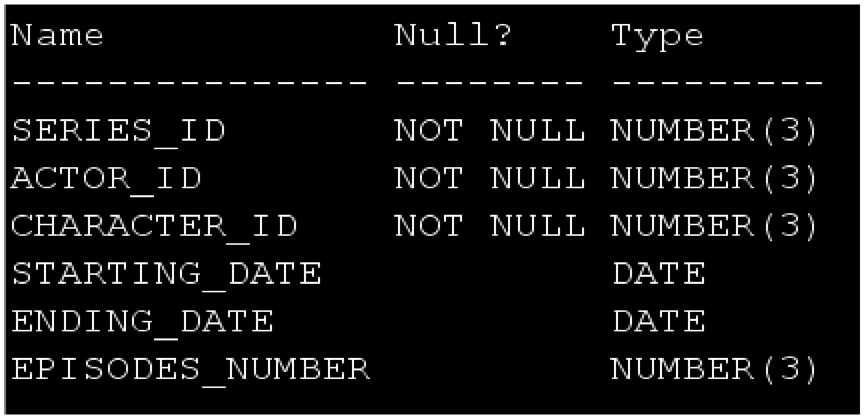
```
CREATE TABLE characters
   (character_id NUMBER(3) PRIMARY KEY,
    first_name VARCHAR2(40) NOT NULL,
    last_name VARCHAR2(40));
```



```
Name          Null?    Type
------------ -------- ------------
CHARACTER_ID NOT NULL NUMBER(3)
FIRST_NAME   NOT NULL VARCHAR2(40)
LAST_NAME             VARCHAR2(40)
```

8) Tabela playing

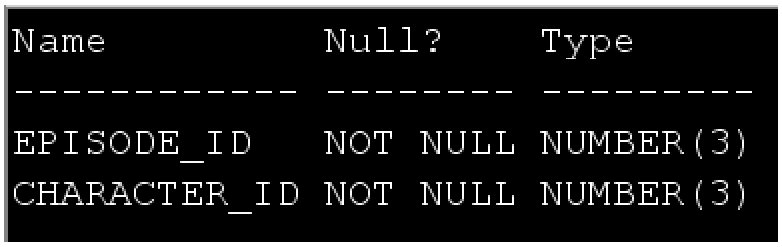
```
CREATE TABLE playing
   (series_id NUMBER(3) REFERENCES series(series_id) ON DELETE CASCADE,
    actor_id NUMBER(3) REFERENCES actors(actor_id) ON DELETE CASCADE,
    character_id NUMBER(3) REFERENCES characters(character_id) ON DELETE
CASCADE,
    starting_date DATE,
    ending_date DATE,
    episodes_number NUMBER(3),
    PRIMARY KEY(series_id, character_id, actor_id),
    CONSTRAINT date_playing CHECK (starting_date <= ending_date));
```



```
Name             Null?    Type
---------------- -------- ---------
SERIES_ID        NOT NULL NUMBER(3)
ACTOR_ID         NOT NULL NUMBER(3)
CHARACTER_ID     NOT NULL NUMBER(3)
STARTING_DATE             DATE
ENDING_DATE               DATE
EPISODES_NUMBER           NUMBER(3)
```

9) Tabela appearing_in

CREATE TABLE appearing_in
(episode_id NUMBER(3) REFERENCES episodes(episode_id) ON DELETE CASCADE,
character_id NUMBER(3) REFERENCES characters(character_id) ON DELETE CASCADE,
PRIMARY KEY(episode_id, character_id));



```
Name         Null?    Type
------------ -------- ---------
EPISODE_ID   NOT NULL NUMBER(3)
CHARACTER_ID NOT NULL NUMBER(3)
```

5. Adăugarea de informații în tabele

1) Tabela series

INSERT INTO series
VALUES (1, 'Supernatural',
'Two brothers follow their father''s footsteps as hunters, fighting evil supernatural beings of many kinds, including monsters, demons and gods that roam the earth.',
8.4, TO_DATE('13-Sep-2005', 'DD MONTH YYYY'), TO_DATE('19-Nov-2020', 'DD MONTH YYYY'), genres('Drama', 'Fantasy', 'Horror'));

INSERT INTO series
VALUES (2, 'Gossip Girl',
'Privileged teens living on the Upper East Side of New York can hide no secret from the ruthless blogger who is always watching.',
7.4, TO_DATE('19-Sep-2007', 'DD MONTH YYYY'), TO_DATE('17-Dec-2012', 'DD MONTH YYYY'), genres('Drama', 'Romance'));

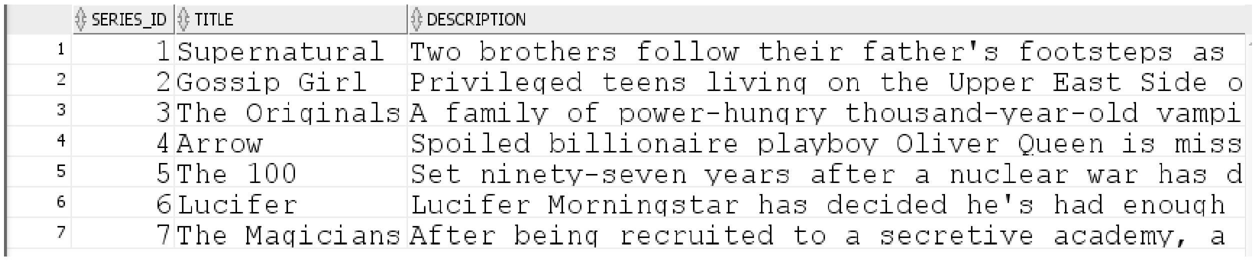
INSERT INTO series
VALUES (3, 'The Originals',
'A family of power-hungry thousand-year-old vampires look to take back the city that they built and dominate all those who have done them wrong.',
8.2, TO_DATE('3-Oct-2013', 'DD MONTH YYYY'), TO_DATE('1-Aug-2018', 'DD MONTH YYYY'), genres('Drama', 'Fantasy', 'Horror'));

```
INSERT INTO series
VALUES (4, 'Arrow',
   'Spoiled billionaire playboy Oliver Queen is missing and presumed dead when his yacht is lost at sea. He returns five years later a changed man, determined to clean up the city as a hooded vigilante armed with a bow.',
   7.5, TO_DATE('10-Oct-2012', 'DD MONTH YYYY'), TO_DATE('28-Jan-2020', 'DD MONTH YYYY'), genres('Action', 'Adventure', 'Crime'));

INSERT INTO series
VALUES (5, 'The 100',
   'Set ninety-seven years after a nuclear war has destroyed civilization, when a spaceship housing humanity''s lone survivors sends one hundred juvenile delinquents back to Earth, in hopes of possibly re-populating the planet.',
   7.6, TO_DATE('19-Mar-2014', 'DD MONTH YYYY'), TO_DATE('30-Sep-2020', 'DD MONTH YYYY'), genres('Drama', 'Mystery', 'Sci-Fi'));

INSERT INTO series
VALUES (6, 'Lucifer',
   'Lucifer Morningstar has decided he''s had enough of being the dutiful servant in Hell and decides to spend some time on Earth to better understand humanity. He settles in Los Angeles - the City of Angels.',
   8.2, TO_DATE('25-Jan-2016', 'DD MONTH YYYY'), NULL, genres('Crime', 'Drama', 'Fantasy'));

INSERT INTO series
VALUES (7, 'The Magicians',
   'After being recruited to a secretive academy, a group of students discover that the magic they read about as children is very real-and more dangerous than they ever imagined.',
   7.6, TO_DATE('26-Dec-2015', 'DD MONTH YYYY'), TO_DATE('1-Apr-2020', 'DD MONTH YYYY'), genres('Drama', 'Fantasy', 'Mystery'));
```



	SERIES_ID	TITLE	DESCRIPTION
1	1	Supernatural	Two brothers follow their father's footsteps as
2	2	Gossip Girl	Privileged teens living on the Upper East Side o
3	3	The Originals	A family of power-hungry thousand-year-old vampi
4	4	Arrow	Spoiled billionaire playboy Oliver Queen is miss
5	5	The 100	Set ninety-seven years after a nuclear war has d
6	6	Lucifer	Lucifer Morningstar has decided he's had enough
7	7	The Magicians	After being recruited to a secretive academy, a

2) Tabela producers

```
INSERT INTO producers
VALUES (1, 'Eric', 'Kripke', '24-APR-1974');

INSERT INTO producers
VALUES (2, 'Stephanie', 'Savage', TO_DATE('1969', 'YYYY'));

INSERT INTO producers
VALUES (3, 'Josh', 'Schwartz', '06-AUG-1976');

INSERT INTO producers
VALUES (4, 'Julie', 'Plec', '26-MAY-1972');

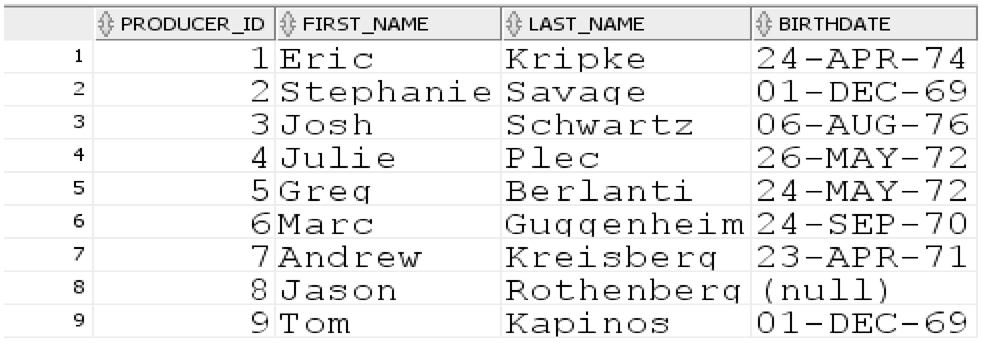
INSERT INTO producers
VALUES (5, 'Greg', 'Berlanti', '24-MAY-1972');

INSERT INTO producers
VALUES (6, 'Marc', 'Guggenheim', '24-SEP-1970');

INSERT INTO producers
VALUES (7, 'Andrew', 'Kreisberg', '23-APR-1971');

INSERT INTO producers
VALUES (8, 'Jason', 'Rothenberg', null);

INSERT INTO producers
VALUES (9, 'Tom', 'Kapinos', TO_DATE('1969', 'YYYY'));
```



	PRODUCER_ID	FIRST_NAME	LAST_NAME	BIRTHDATE
1	1	Eric	Kripke	24-APR-74
2	2	Stephanie	Savage	01-DEC-69
3	3	Josh	Schwartz	06-AUG-76
4	4	Julie	Plec	26-MAY-72
5	5	Greg	Berlanti	24-MAY-72
6	6	Marc	Guggenheim	24-SEP-70
7	7	Andrew	Kreisberg	23-APR-71
8	8	Jason	Rothenberg	(null)
9	9	Tom	Kapinos	01-DEC-69

3) Tabela produced_by

```
INSERT INTO produced_by
VALUES (1, 1);

INSERT INTO produced_by
VALUES (2, 2);

INSERT INTO produced_by
VALUES (3, 2);

INSERT INTO produced_by
VALUES (4, 3);

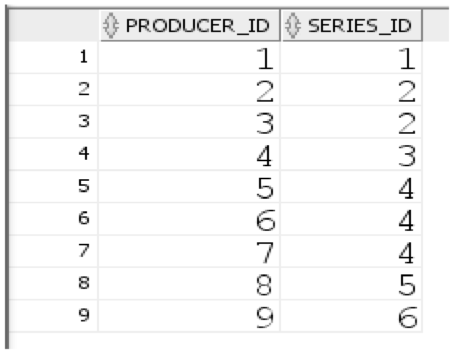
INSERT INTO produced_by
VALUES (5, 4);

INSERT INTO produced_by
VALUES (6, 4);

INSERT INTO produced_by
VALUES (7, 4);

INSERT INTO produced_by
VALUES (8, 5);

INSERT INTO produced_by
VALUES (9, 6);
```



	PRODUCER_ID	SERIES_ID
1	1	1
2	2	2
3	3	2
4	4	3
5	5	4
6	6	4
7	7	4
8	8	5
9	9	6

4) Tabela seasons

```
INSERT INTO seasons
VALUES (1, 5, TO_DATE('10-Sep-2009', 'DD MONTH YYYY'), TO_DATE('13-May-
2010', 'DD MONTH YYYY'), 1);

INSERT INTO seasons
VALUES (2, 15, TO_DATE('10-Oct-2019', 'DD MONTH YYYY'), TO_DATE('19-Nov-
2020', 'DD MONTH YYYY'), 1);

INSERT INTO seasons
VALUES (3, 1, TO_DATE('19-Sep-2007', 'DD MONTH YYYY'), TO_DATE('19-May-
2008', 'DD MONTH YYYY'), 2);

INSERT INTO seasons
VALUES (4, 6, TO_DATE('8-Oct-2011', 'DD MONTH YYYY'), TO_DATE('17-Dec-2012',
'DD MONTH YYYY'), 2);

INSERT INTO seasons
VALUES (5, 1, TO_DATE('3-Oct-2013', 'DD MONTH YYYY'), TO_DATE('13-May-2014',
'DD MONTH YYYY'), 3);

INSERT INTO seasons
VALUES (6, 3, TO_DATE('8-Oct-2015', 'DD MONTH YYYY'), TO_DATE('20-May-2016',
'DD MONTH YYYY'), 3);

INSERT INTO seasons
VALUES (7, 2, TO_DATE('9-Oct-2013', 'DD MONTH YYYY'), TO_DATE('14-May-2014',
'DD MONTH YYYY'), 4);

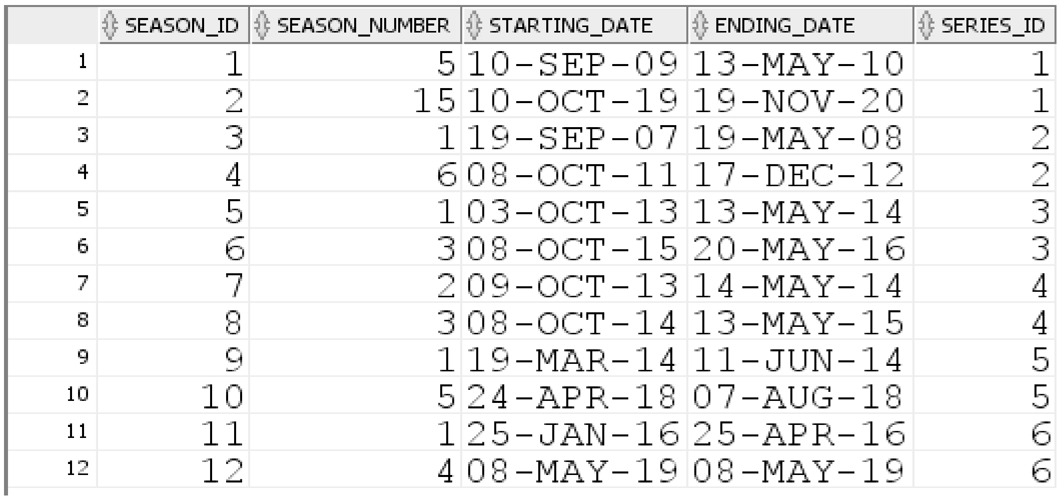
INSERT INTO seasons
VALUES (8, 3, TO_DATE('8-Oct-2014', 'DD MONTH YYYY'), TO_DATE('13-May-2015',
'DD MONTH YYYY'), 4);

INSERT INTO seasons
VALUES (9, 1, TO_DATE('19-Mar-2014', 'DD MONTH YYYY'), TO_DATE('11-Jun-2014',
'DD MONTH YYYY'), 5);

INSERT INTO seasons
VALUES (10, 5, TO_DATE('24-Apr-2018', 'DD MONTH YYYY'), TO_DATE('7-Aug-
2018', 'DD MONTH YYYY'), 5);
```

```
INSERT INTO seasons
VALUES (11, 1, TO_DATE('25-Jan-2016', 'DD MONTH YYYY'), TO_DATE('25-Apr-2016', 'DD MONTH YYYY'), 6);

INSERT INTO seasons
VALUES (12, 4, TO_DATE('8-May-2019', 'DD MONTH YYYY'), TO_DATE('8-May-2019', 'DD MONTH YYYY'), 6);
```



	SEASON_ID	SEASON_NUMBER	STARTING_DATE	ENDING_DATE	SERIES_ID
1	1	5	10-SEP-09	13-MAY-10	1
2	2	15	10-OCT-19	19-NOV-20	1
3	3	1	19-SEP-07	19-MAY-08	2
4	4	6	08-OCT-11	17-DEC-12	2
5	5	1	03-OCT-13	13-MAY-14	3
6	6	3	08-OCT-15	20-MAY-16	3
7	7	2	09-OCT-13	14-MAY-14	4
8	8	3	08-OCT-14	13-MAY-15	4
9	9	1	19-MAR-14	11-JUN-14	5
10	10	5	24-APR-18	07-AUG-18	5
11	11	1	25-JAN-16	25-APR-16	6
12	12	4	08-MAY-19	08-MAY-19	6

5) Tabela episodes

```
INSERT INTO episodes
VALUES (1, 22, 'Swan Song', 'With the Apocalypse looming, Sam and Dean realize they are out of options and make heart-breaking decisions that will change their lives forever.',
   43, TO_DATE('13-May-2010', 'DD MONTH YYYY'), 9.7, 1);

INSERT INTO episodes
VALUES (2, 8, 'Changing Channels', 'Sam and Dean catch up with the Trickster, who sends them through a dizzying montage of TV show parodies, inviting them to play along with their "roles" or be stuck in "TV Land" forever. But once Castiel shows up, the boys get an idea as to what the Trickster might be hiding and eventually come up with a surprising answer.',
   43, TO_DATE('5-Nov-2009', 'DD MONTH YYYY'), 9.7, 1);

INSERT INTO episodes
VALUES (3, 19, 'Inherit the Earth', 'Everything is on the line as the battle against God continues; a familiar face returns to join the fight.',
   43, TO_DATE('12-Nov-2020', 'DD MONTH YYYY'), 8.2, 2);
```

```
INSERT INTO episodes
VALUES (4, 10, 'New York, I Love You XOXO', 'In a fashionable farewell to remember, our favorite Upper East Siders join forces for one last soiree; The identity of Gossip Girl is finally revealed.',
   41, TO_DATE('17-Dec-2012', 'DD MONTH YYYY'), 9.1, 4);

INSERT INTO episodes
VALUES (5, 7, 'Victor/Victrola', 'Serena and Dan finally acknowledge they are crazy about each other; Jenny discovers a secret about her parents; Blair is once again devastated by Nate''s actions.',
   42, TO_DATE('7-Nov-2007', 'DD MONTH YYYY'), 8.2, 3);

INSERT INTO episodes
VALUES (6, 22, 'From a Cradle to a Grave', 'As the baby''s due date draws near, Klaus and Elijah embark on a search for Hayley, while Hayley determines to do whatever it takes to keep her unborn baby safe and away from the witches. Francesca takes a meeting with Oliver and Jackson to determine the future of the werewolves in New Orleans. In the aftermath of a surprising attack on Marcel and his vampires at the compound, Davina and Cami join resources to take down Klaus. Finally, in a desperate move to protect those most important to him, Klaus makes a heartbreaking decision.',
   42, TO_DATE('13-May-2014', 'DD MONTH YYYY'), 9.6, 5);

INSERT INTO episodes
VALUES (7, 22, 'The Bloody Crown', 'After months of thwarting off dangerous threats and deadly attacks, the Mikaelson siblings finally come face to face with the one person that could lead to their ultimate demise. With the stakes higher than ever and the compound overrun by an army of his oldest sworn enemies, Klaus is put on trial for centuries of atrocities he''s committed. Meanwhile, Marcel, who has been spiraling out of control following an act of betrayal by those closest to him, is stunned by the unexpected arrival of someone from his past. Finally, Elijah, Freya and Kol frantically search for a way to save their family before it''s too late. Hayley also appears.',
   42, TO_DATE('20-May-2016', 'DD MONTH YYYY'), 9.6, 6);

INSERT INTO episodes
VALUES (8, 14, 'A Streetcar Named Desire', 'The unexpected arrival of Stefan Salvatore may be the key to helping Freya rescue Klaus and Elijah from a magical trap.',
   42, TO_DATE('26-Feb-2016', 'DD MONTH YYYY'), 9.4, 6);
```

```
INSERT INTO episodes
VALUES (9, 9, 'The Climb', 'The League of Assassins give Oliver 48 hours to find Sara''s killer, or Starling City citizens will die. Oliver then has an epic confrontation with Ra''s al Ghul.',
    42, TO_DATE('10-Dec-2014', 'DD MONTH YYYY'), 9.6, 8);

INSERT INTO episodes
VALUES (10, 23, 'Unthinkable', 'As Oliver''s face off with Slade escalates, his resolve to the no-kill rule is tested. Especially as Slade targets the woman Oliver loves.',
    44, TO_DATE('14-May-2014', 'DD MONTH YYYY'), 9.5, 7);

INSERT INTO episodes
VALUES (11, 18, 'Deathstroke', 'After taking a ride home from Slade, Thea becomes his prisoner. Can Oliver and his friends save her? Also, someone close to Oliver is working for Slade, since his return from the Island after Tommy''s death.',
    42, TO_DATE('2-Apr-2014', 'DD MONTH YYYY'), 9.3, 7);

INSERT INTO episodes
VALUES (12, 13, 'Damocles: Part Two', 'Clarke and her friends must risk everything to fight one last battle for survival, only to glimpse an even darker threat to the last living valley on earth.',
    42, TO_DATE('7-Aug-2018', 'DD MONTH YYYY'), 9.6, 10);

INSERT INTO episodes
VALUES (13, 12, 'Damocles: Part One', 'In part one of the fifth season finale, Octavia leads her people into war. While behind enemy lines, our heroes must overcome their differences to save Wonkru from extinction.',
    42, TO_DATE('31-Jul-2018', 'DD MONTH YYYY'), 9.0, 10);

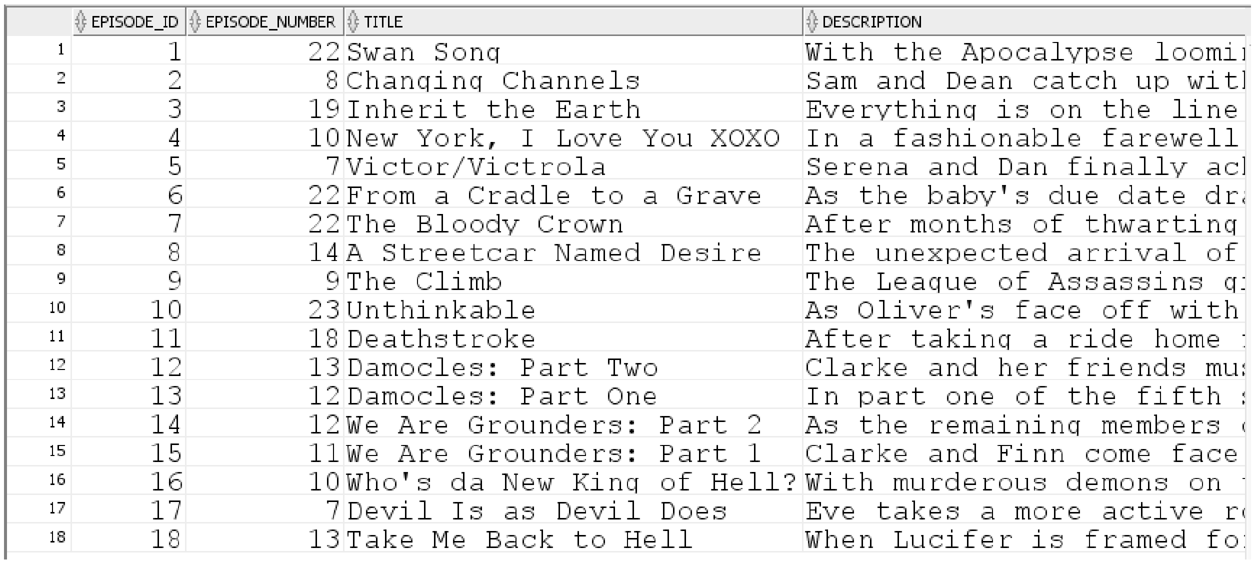
INSERT INTO episodes
VALUES (14, 12, 'We Are Grounders: Part 2', 'As the remaining members of the 100 face off against the Grounders, Jaha makes a noble sacrifice to ensure the Ark makes it to Earth.',
    42, TO_DATE('11-Jul-2018', 'DD MONTH YYYY'), 8.9, 9);

INSERT INTO episodes
VALUES (15, 11, 'We Are Grounders: Part 1', 'Clarke and Finn come face to face with a new enemy after Lincoln rescues them from Anya, while Bellamy, Raven, Octavia and Jasper deal with a vengeful Murphy. On the Ark, Jaha makes a plan to try and get to Earth.',
    43, TO_DATE('4-Jul-2018', 'DD MONTH YYYY'), 8.4, 9);
```

INSERT INTO episodes
VALUES (16, 10, 'Who''s da New King of Hell?', 'With murderous demons on the loose in Los Angeles, it''s up to Lucifer to rein in the chaos and protect the ones he most cares about.',
 55, TO_DATE('8-May-2019', 'DD MONTH YYYY'), 9.7, 12);

INSERT INTO episodes
VALUES (17, 7, 'Devil Is as Devil Does', 'Eve takes a more active role in her main man''s professional life. Meanwhile, Lucifer gets back to basics and Amenadiel fights for his family.',
 47, TO_DATE('8-May-2019', 'DD MONTH YYYY'), 9.3, 12);

INSERT INTO episodes
VALUES (18, 13, 'Take Me Back to Hell', 'When Lucifer is framed for murder, he and Chloe must work together to clear his name and prove the identity of the true killer.',
 43, TO_DATE('25-Apr-2016', 'DD MONTH YYYY'), 9.2, 11);



	EPISODE_ID	EPISODE_NUMBER	TITLE	DESCRIPTION
1	1	22	Swan Song	With the Apocalypse loomi
2	2	8	Changing Channels	Sam and Dean catch up wit
3	3	19	Inherit the Earth	Everything is on the line
4	4	10	New York, I Love You XOXO	In a fashionable farewell
5	5	7	Victor/Victrola	Serena and Dan finally ac
6	6	22	From a Cradle to a Grave	As the baby's due date dr
7	7	22	The Bloody Crown	After months of thwarting
8	8	14	A Streetcar Named Desire	The unexpected arrival of
9	9	9	The Climb	The League of Assassins q
10	10	23	Unthinkable	As Oliver's face off with
11	11	18	Deathstroke	After taking a ride home
12	12	13	Damocles: Part Two	Clarke and her friends mu
13	13	12	Damocles: Part One	In part one of the fifth
14	14	12	We Are Grounders: Part 2	As the remaining members
15	15	11	We Are Grounders: Part 1	Clarke and Finn come face
16	16	10	Who's da New King of Hell?	With murderous demons on
17	17	7	Devil Is as Devil Does	Eve takes a more active r
18	18	13	Take Me Back to Hell	When Lucifer is framed fo

6) Tabela actors

INSERT INTO actors
VALUES (1, 'Jared', 'Padalecki', '19-JUL-1982');

INSERT INTO actors
VALUES (2, 'Jensen', 'Ackles', '01-MAR-1978');

INSERT INTO actors
VALUES (3, 'Misha', 'Collins', '20-AUG-1974');

```
INSERT INTO actors
VALUES (4, 'Mark', 'Sheppard', '30-MAY-1964');

INSERT INTO actors
VALUES (5, 'Alexander', 'Calvert', '15-JUL-1990');

INSERT INTO actors
VALUES (6, 'Rob', 'Benedict', '21-SEP-1970');

INSERT INTO actors
VALUES (7, 'Blake', 'Lively', '25-AUG-1987');

INSERT INTO actors
VALUES (8, 'Leighton', 'Master', '09-APR-1986');

INSERT INTO actors
VALUES (9, 'Penn', 'Badgley', '01-NOV-1986');

INSERT INTO actors
VALUES (10, 'Ed', 'Westwick', '27-JUN-1987');

INSERT INTO actors
VALUES (11, 'Chace', 'Crawford', '18-JUL-1985');

INSERT INTO actors
VALUES (12, 'Joseph', 'Morgan', '16-MAY-1981');

INSERT INTO actors
VALUES (13, 'Daniel', 'Gilles', '14-MAR-1976');

INSERT INTO actors
VALUES (14, 'Claire', 'Holt', '11-JUN-1988');

INSERT INTO actors
VALUES (15, 'Riley', 'Voelkel', '26-APR-1990');

INSERT INTO actors
VALUES (16, 'Nathaniel', 'Buzolic', '04-AUG-1983');

INSERT INTO actors
VALUES (17, 'Danielle Rose', 'Russell', '31-OCT-1999');
```

```
INSERT INTO actors
VALUES (18, 'Phoebe', 'Tonkin', '12-JUL-1989');

INSERT INTO actors
VALUES (19, 'Charles Michael', 'Davis', '01-DEC-1984');

INSERT INTO actors
VALUES (20, 'Stephen', 'Amell', '08-MAY-1981');

INSERT INTO actors
VALUES (21, 'Willa', 'Holland', '18-JUN-1991');

INSERT INTO actors
VALUES (22, 'Emily Bett', 'Rickards', '24-JUL-1991');

INSERT INTO actors
VALUES (23, 'David', 'Ramsey', '17-NOV-1971');

INSERT INTO actors
VALUES (24, 'Katie', 'Cassidy', '25-NOV-1986');

INSERT INTO actors
VALUES (25, 'Manu', 'Bennett', '10-OCT-1969');

INSERT INTO actors
VALUES (26, 'Eliza', 'Taylor', '24-OCT-1989');

INSERT INTO actors
VALUES (27, 'Marie', 'Avgeropoulos', '17-JUN-1986');

INSERT INTO actors
VALUES (28, 'Bob', 'Morley', '20-DEC-1984');

INSERT INTO actors
VALUES (29, 'Lindsey', 'Morgan', '27-FEB-1990');

INSERT INTO actors
VALUES (30, 'Richard', 'Harmon', '18-AUG-1991');

INSERT INTO actors
VALUES (31, 'Cristopher', 'Larkin', '02-OCT-1987');
```

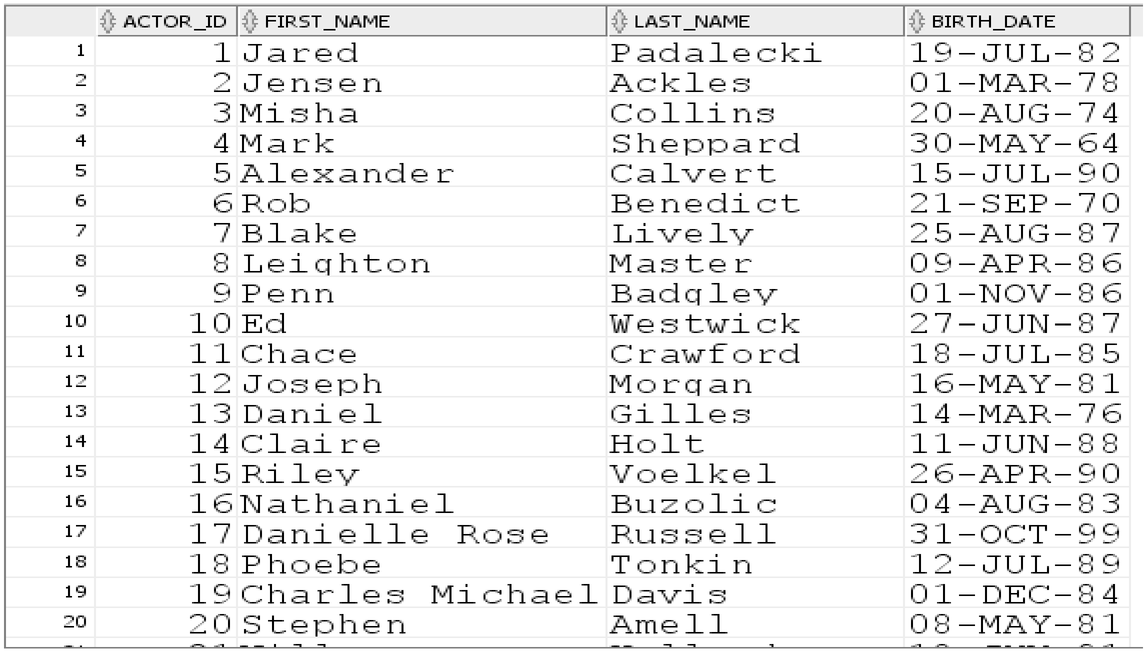
```
INSERT INTO actors
VALUES (32, 'Tom', 'Ellis', '17-NOV-1978');

INSERT INTO actors
VALUES (33, 'Lauren', 'German', '29-NOV-1978');

INSERT INTO actors
VALUES (34, 'David Bryan', 'Woodside', '25-JUL-1969');

INSERT INTO actors
VALUES (35, 'Lesley-Ann', 'Brandt', '02-DEC-1981');

INSERT INTO actors
VALUES (36, 'Rachel', 'Harris', '12-JAN-1968');
```



	ACTOR_ID	FIRST_NAME	LAST_NAME	BIRTH_DATE
1	1	Jared	Padalecki	19-JUL-82
2	2	Jensen	Ackles	01-MAR-78
3	3	Misha	Collins	20-AUG-74
4	4	Mark	Sheppard	30-MAY-64
5	5	Alexander	Calvert	15-JUL-90
6	6	Rob	Benedict	21-SEP-70
7	7	Blake	Lively	25-AUG-87
8	8	Leighton	Master	09-APR-86
9	9	Penn	Badgley	01-NOV-86
10	10	Ed	Westwick	27-JUN-87
11	11	Chace	Crawford	18-JUL-85
12	12	Joseph	Morgan	16-MAY-81
13	13	Daniel	Gilles	14-MAR-76
14	14	Claire	Holt	11-JUN-88
15	15	Riley	Voelkel	26-APR-90
16	16	Nathaniel	Buzolic	04-AUG-83
17	17	Danielle Rose	Russell	31-OCT-99
18	18	Phoebe	Tonkin	12-JUL-89
19	19	Charles Michael	Davis	01-DEC-84
20	20	Stephen	Amell	08-MAY-81

7) Tabela characters

```
INSERT INTO characters
VALUES (1, 'Sam', 'Winchester', 1);

INSERT INTO characters
VALUES (2, 'Dean', 'Winchester', 1);

INSERT INTO characters
```

```
VALUES (3, 'Castiel', null, 1);

INSERT INTO characters
VALUES (4, 'Crowley', null, 1);

INSERT INTO characters
VALUES (5, 'Jack', null, 1);

INSERT INTO characters
VALUES (6, 'God', null, 1);

INSERT INTO characters
VALUES (7, 'Serena', 'van der Woodsen' , 2);

INSERT INTO characters
VALUES (8, 'Blair', 'Waldorf', 2);

INSERT INTO characters
VALUES (9, 'Dan', 'Humphrey', 2);

INSERT INTO characters
VALUES (10, 'Chuck', 'Bass', 2);

INSERT INTO characters
VALUES (11, 'Nate', 'Archibald', 2);

INSERT INTO characters
VALUES (12, 'Klaus', 'Mikaelson', 3);

INSERT INTO characters
VALUES (13, 'Elijah', 'Mikaelson', 3);

INSERT INTO characters
VALUES (14, 'Rebekah', 'Mikaelson', 3);

INSERT INTO characters
VALUES (15, 'Freya', 'Mikaelson', 3);

INSERT INTO characters
VALUES (16, 'Kol', 'Mikaelson', 3);

INSERT INTO characters
```

```
VALUES (17, 'Hope', 'Mikaelson', 3);

INSERT INTO characters
VALUES (18, 'Hayley', 'Marshall', 3);

INSERT INTO characters
VALUES (19, 'Marcel', 'Gerard', 3);

INSERT INTO characters
VALUES (20, 'Oliver', 'Queen', 4);

INSERT INTO characters
VALUES (21, 'Thea', 'Queen', 4);

INSERT INTO characters
VALUES (22, 'Felicity', 'Smoak', 4);

INSERT INTO characters
VALUES (23, 'John', 'Diggle', 4);

INSERT INTO characters
VALUES (24, 'Laurel', 'Lance', 4);

INSERT INTO characters
VALUES (25, 'Slade', 'Wilson', 4);

INSERT INTO characters
VALUES (26, 'Clark', 'Griffin', 5);

INSERT INTO characters
VALUES (27, 'Octavia', 'Blake', 5);

INSERT INTO characters
VALUES (28, 'Bellamy', 'Blake', 5);

INSERT INTO characters
VALUES (29, 'Raven', 'Reyes', 5);

INSERT INTO characters
VALUES (30, 'John', 'Murphy', 5);

INSERT INTO characters
```

```
VALUES (31, 'Monty', 'Green', 5);

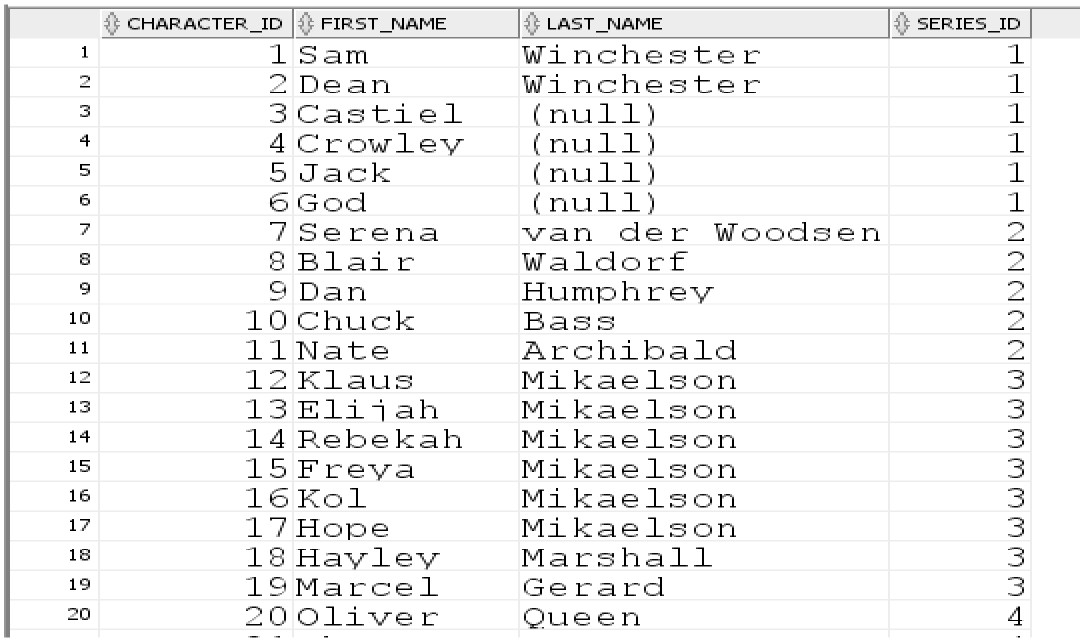
INSERT INTO characters
VALUES (32, 'Lucifer', 'Morningstar', 6);

INSERT INTO characters
VALUES (33, 'Chloe', 'Decker', 6);

INSERT INTO characters
VALUES (34, 'Amenadiel', null, 6);

INSERT INTO characters
VALUES (35, 'Mazikeen',null, 6);

INSERT INTO characters
VALUES (36, 'Linda', 'Martin', 6);
```



	CHARACTER_ID	FIRST_NAME	LAST_NAME	SERIES_ID
1	1	Sam	Winchester	1
2	2	Dean	Winchester	1
3	3	Castiel	(null)	1
4	4	Crowley	(null)	1
5	5	Jack	(null)	1
6	6	God	(null)	1
7	7	Serena	van der Woodsen	2
8	8	Blair	Waldorf	2
9	9	Dan	Humphrey	2
10	10	Chuck	Bass	2
11	11	Nate	Archibald	2
12	12	Klaus	Mikaelson	3
13	13	Elijah	Mikaelson	3
14	14	Rebekah	Mikaelson	3
15	15	Freya	Mikaelson	3
16	16	Kol	Mikaelson	3
17	17	Hope	Mikaelson	3
18	18	Hayley	Marshall	3
19	19	Marcel	Gerard	3
20	20	Oliver	Queen	4

8) Tabela playing

```
INSERT INTO playing
VALUES (1, 1, 1, TO_DATE('2005', 'YYYY'), TO_DATE('2020', 'YYYY'), 327);

INSERT INTO playing
VALUES (1, 2, 2, TO_DATE('2005', 'YYYY'), TO_DATE('2020', 'YYYY'), 327);
```

```
INSERT INTO playing
VALUES (1, 3, 3, TO_DATE('2008', 'YYYY'), TO_DATE('2020', 'YYYY'), 148);

INSERT INTO playing
VALUES (1, 4, 4, TO_DATE('2009', 'YYYY'), TO_DATE('2017', 'YYYY'), 72);

INSERT INTO playing
VALUES (1, 5, 5, TO_DATE('2017', 'YYYY'), TO_DATE('2020', 'YYYY'), 39);

INSERT INTO playing
VALUES (1, 6, 6, TO_DATE('2009', 'YYYY'), TO_DATE('2020', 'YYYY'), 9);

INSERT INTO playing
VALUES (2, 7, 7, TO_DATE('2007', 'YYYY'), TO_DATE('2012', 'YYYY'), 121);

INSERT INTO playing
VALUES (2, 8, 8, TO_DATE('2007', 'YYYY'), TO_DATE('2012', 'YYYY'), 121);

INSERT INTO playing
VALUES (2, 9, 9, TO_DATE('2007', 'YYYY'), TO_DATE('2012', 'YYYY'), 121);

INSERT INTO playing
VALUES (2, 10, 10, TO_DATE('2007', 'YYYY'), TO_DATE('2012', 'YYYY'), 121);

INSERT INTO playing
VALUES (2, 11, 11, TO_DATE('2007', 'YYYY'), TO_DATE('2012', 'YYYY'), 121);

INSERT INTO playing
VALUES (3, 12, 12, TO_DATE('2013', 'YYYY'), TO_DATE('2018', 'YYYY'), 92);

INSERT INTO playing
VALUES (3, 13, 13, TO_DATE('2013', 'YYYY'), TO_DATE('2018', 'YYYY'), 92);

INSERT INTO playing
VALUES (3, 14, 14, TO_DATE('2013', 'YYYY'), TO_DATE('2018', 'YYYY'), 40);

INSERT INTO playing
VALUES (3, 15, 15, TO_DATE('2014', 'YYYY'), TO_DATE('2018', 'YYYY'), 60);

INSERT INTO playing
VALUES (3, 16, 16, TO_DATE('2013', 'YYYY'), TO_DATE('2018', 'YYYY'), 24);
```

```
INSERT INTO playing
VALUES (3, 17, 17, TO_DATE('2018', 'YYYY'), TO_DATE('2018', 'YYYY'), 13);

INSERT INTO playing
VALUES (3, 18, 18, TO_DATE('2013', 'YYYY'), TO_DATE('2018', 'YYYY'), 86);

INSERT INTO playing
VALUES (3, 19, 19, TO_DATE('2013', 'YYYY'), TO_DATE('2018', 'YYYY'), 92);

INSERT INTO playing
VALUES (4, 20, 20, TO_DATE('2012', 'YYYY'), TO_DATE('2020', 'YYYY'), 170);

INSERT INTO playing
VALUES (4, 21, 21, TO_DATE('2012', 'YYYY'), TO_DATE('2020', 'YYYY'), 134);

INSERT INTO playing
VALUES (4, 22, 22, TO_DATE('2012', 'YYYY'), TO_DATE('2020', 'YYYY'), 157);

INSERT INTO playing
VALUES (4, 23, 23, TO_DATE('2012', 'YYYY'), TO_DATE('2020', 'YYYY'), 170);

INSERT INTO playing
VALUES (4, 24, 24, TO_DATE('2012', 'YYYY'), TO_DATE('2020', 'YYYY'), 153);

INSERT INTO playing
VALUES (4, 25, 25, TO_DATE('2013', 'YYYY'), TO_DATE('2017', 'YYYY'), 40);

INSERT INTO playing
VALUES (5, 26, 26, TO_DATE('2014', 'YYYY'), TO_DATE('2020', 'YYYY'), 100);

INSERT INTO playing
VALUES (5, 27, 27, TO_DATE('2014', 'YYYY'), TO_DATE('2020', 'YYYY'), 100);

INSERT INTO playing
VALUES (5, 28, 28, TO_DATE('2014', 'YYYY'), TO_DATE('2020', 'YYYY'), 97);

INSERT INTO playing
VALUES (5, 29, 29, TO_DATE('2014', 'YYYY'), TO_DATE('2020', 'YYYY'), 98);

INSERT INTO playing
VALUES (5, 30, 30, TO_DATE('2014', 'YYYY'), TO_DATE('2020', 'YYYY'), 90);
```

```
INSERT INTO playing
VALUES (5, 31, 31, TO_DATE('2014', 'YYYY'), TO_DATE('2019', 'YYYY'), 73);

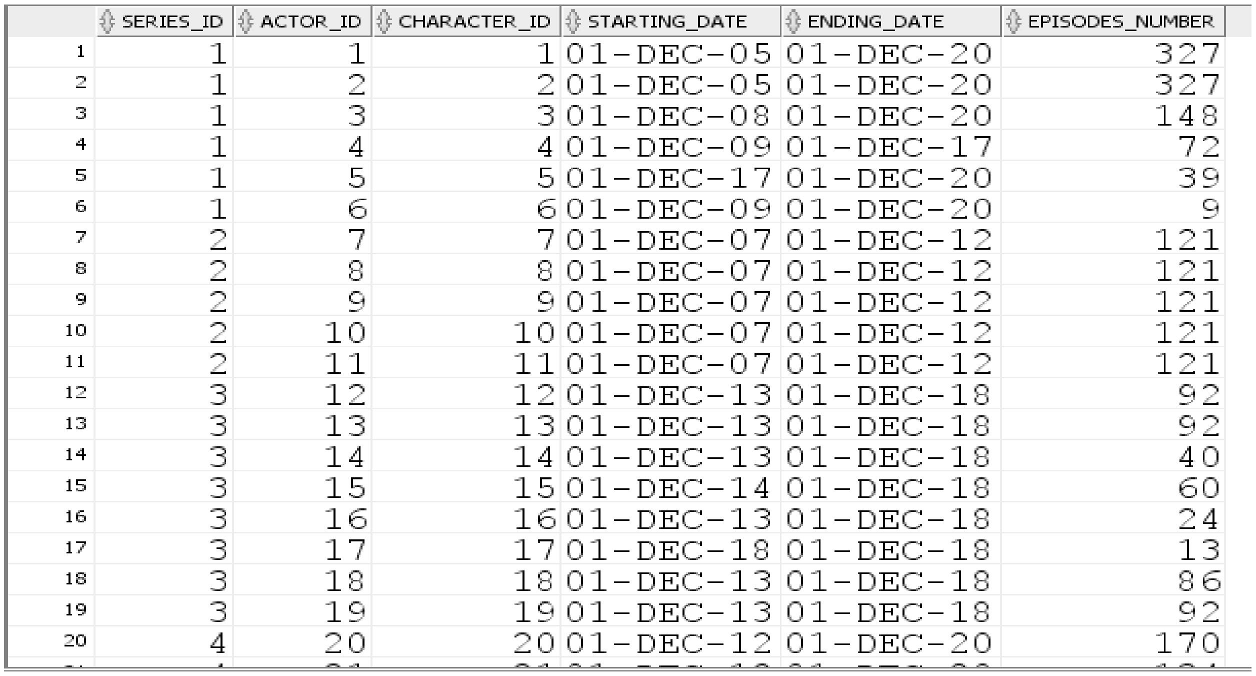
INSERT INTO playing
VALUES (6, 32, 32, TO_DATE('2016', 'YYYY'), null, 78);

INSERT INTO playing
VALUES (6, 33, 33, TO_DATE('2016', 'YYYY'), null, 78);

INSERT INTO playing
VALUES (6, 34, 34, TO_DATE('2016', 'YYYY'), null, 77);

INSERT INTO playing
VALUES (6, 35, 35, TO_DATE('2016', 'YYYY'), null, 77);

INSERT INTO playing
VALUES (6, 36, 36, TO_DATE('2016', 'YYYY'), null, 77);
```



	SERIES_ID	ACTOR_ID	CHARACTER_ID	STARTING_DATE	ENDING_DATE	EPISODES_NUMBER
1	1	1	1	01-DEC-05	01-DEC-20	327
2	1	2	2	01-DEC-05	01-DEC-20	327
3	1	3	3	01-DEC-08	01-DEC-20	148
4	1	4	4	01-DEC-09	01-DEC-17	72
5	1	5	5	01-DEC-17	01-DEC-20	39
6	1	6	6	01-DEC-09	01-DEC-20	9
7	2	7	7	01-DEC-07	01-DEC-12	121
8	2	8	8	01-DEC-07	01-DEC-12	121
9	2	9	9	01-DEC-07	01-DEC-12	121
10	2	10	10	01-DEC-07	01-DEC-12	121
11	2	11	11	01-DEC-07	01-DEC-12	121
12	3	12	12	01-DEC-13	01-DEC-18	92
13	3	13	13	01-DEC-13	01-DEC-18	92
14	3	14	14	01-DEC-13	01-DEC-18	40
15	3	15	15	01-DEC-14	01-DEC-18	60
16	3	16	16	01-DEC-13	01-DEC-18	24
17	3	17	17	01-DEC-18	01-DEC-18	13
18	3	18	18	01-DEC-13	01-DEC-18	86
19	3	19	19	01-DEC-13	01-DEC-18	92
20	4	20	20	01-DEC-12	01-DEC-20	170

9) Tabela appearing_in

```
INSERT INTO appearing_in
VALUES (1, 1);
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```
INSERT INTO appearing_in
VALUES (1, 2);

INSERT INTO appearing_in
VALUES (1, 3);

INSERT INTO appearing_in
VALUES (2, 1);

INSERT INTO appearing_in
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INSERT INTO appearing_in
VALUES (2, 3);

INSERT INTO appearing_in
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INSERT INTO appearing_in
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INSERT INTO appearing_in
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INSERT INTO appearing_in
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VALUES (3, 6);

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INSERT INTO appearing_in
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```

```
INSERT INTO appearing_in
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```

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```
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INSERT INTO appearing_in
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INSERT INTO appearing_in
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INSERT INTO appearing_in
VALUES (16, 36);
```

```
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INSERT INTO appearing_in
VALUES (17, 35);

INSERT INTO appearing_in
VALUES (17, 36);

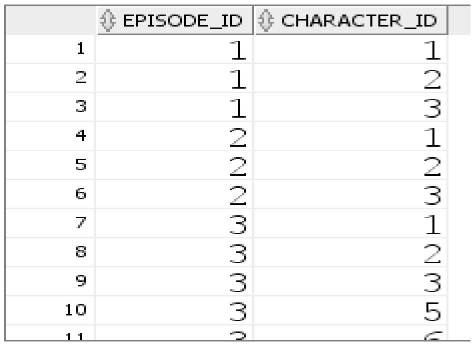
INSERT INTO appearing_in
VALUES (18, 32);

INSERT INTO appearing_in
VALUES (18, 33);

INSERT INTO appearing_in
VALUES (18, 34);

INSERT INTO appearing_in
VALUES (18, 35);

INSERT INTO appearing_in
VALUES (18, 36);
```



	EPISODE_ID	CHARACTER_ID
1	1	1
2	1	2
3	1	3
4	2	1
5	2	2
6	2	3
7	3	1
8	3	2
9	3	3
10	3	5

6. Definirea unui subprogram stocat care să utilizeze un tip de colecție studiat (tablou imbricat)

Sa se modifice lista de categorii a unui serial specificat:
i) adăugarea unei categorii (se da valoarea noii categori plus cuvântul 'INSERTING')
ii) ștergerea unei categorii (se da valoarea categoriei plus cuvântul 'DELETING')
iii) modificarea unei categorii (se da valoarea vechii categorii, noii categori plus cuvântul 'UPDATING')

```
CREATE OR REPLACE PROCEDURE modificare_categorii
   (serial series.title%TYPE,
    categ1 VARCHAR2,
    optiune VARCHAR2,
    categ2 VARCHAR2 := NULL)
AS
   categorii genres;
   i INTEGER;
BEGIN
   -- obtinere lista categorii pentru seraialul dat
   SELECT genre INTO categorii
   FROM series
   WHERE title = INITCAP(serial);

   IF UPPER(optiune) = 'INSERTING' THEN
      IF categ1 IS NULL THEN
         RAISE_APPLICATION_ERROR(-20001, 'Categoria nou introdusa nu poate sa fie
NULL');
      ELSE
         -- adaugarea unei categorii noi
         categorii.extend();
         categorii(categorii.last) := INITCAP(categ1);
      END IF;
   ELSIF UPPER(optiune) = 'DELETING' THEN
      IF categ1 IS NULL THEN
         RAISE_APPLICATION_ERROR(-20001, 'Categoria de sters nu poate sa fie NULL');
      ELSE
         -- determinarea pozitiei categoriei ce trebuie stearsa
         i := categorii.FIRST;
         WHILE i <= categorii.LAST AND categorii(i) <> INITCAP(categ1) LOOP
            i := categorii.NEXT(i);
         END LOOP;

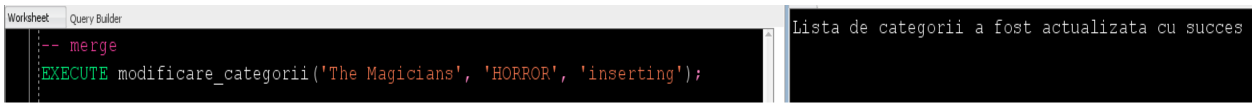
         IF i IS NOT NULL THEN
            -- stergerea categoriei
            categorii.DELETE(i);
         ELSE
            RAISE_APPLICATION_ERROR(-20002, 'Nu exista categoria introdusa');
         END IF;
      END IF;
   ELSIF UPPER(optiune) = 'UPDATING' THEN
      IF categ1 IS NULL THEN
         RAISE_APPLICATION_ERROR(-20001, 'Categoria de actualizat nu poate sa fie
NULL');
      ELSE
         IF categ2 IS NULL THEN
            RAISE_APPLICATION_ERROR(-20001, 'Categoria nou introdusa nu poate sa fie
NULL');
         ELSE
            -- determinarea pozitiei categoriei ce trebuie modificata
            i := categorii.FIRST;
            WHILE i <= categorii.LAST AND categorii(i) <> INITCAP(categ1) LOOP
               i := categorii.NEXT(i);
            END LOOP;

            IF i IS NOT NULL THEN
               -- odificarea categoriei
               categorii(i) := INITCAP(categ2);
            ELSE
               RAISE_APPLICATION_ERROR(-20002, 'Nu exista categoria introdusa');
            END IF;
         END IF;
      END IF;
   ELSE
      RAISE_APPLICATION_ERROR(-20003, 'Optiunea introdusa este gresita');
   END IF;

   -- actualizare lista categorii
   UPDATE series
   SET genre = categorii
   WHERE title = serial;

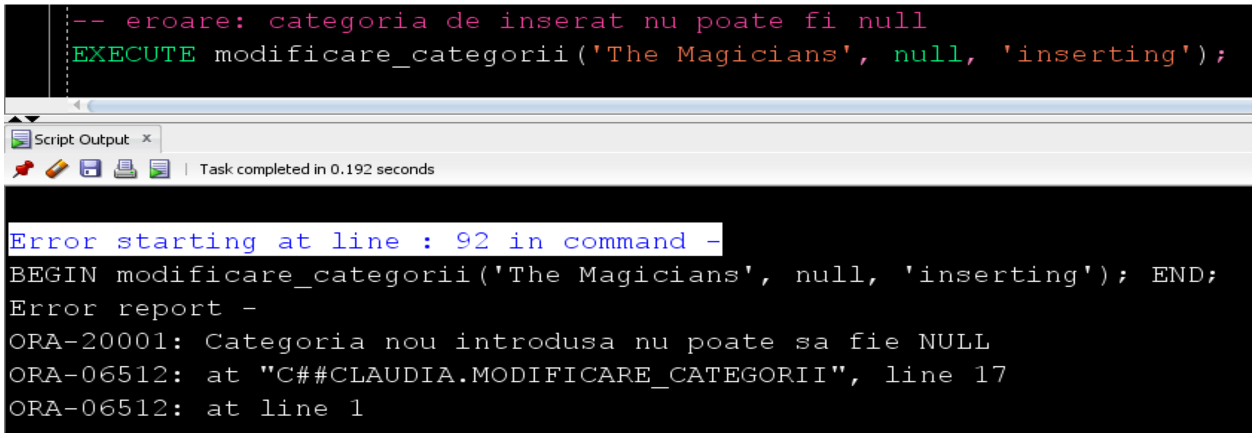
   DBMS_OUTPUT.PUT_LINE('Lista de categorii a fost actualizata cu succes');
```

```
EXCEPTION
   WHEN no_data_found THEN
      RAISE_APPLICATION_ERROR(-20004, 'Nu exista serial cu numele dat');
   WHEN too_many_rows THEN
      RAISE_APPLICATION_ERROR(-20005, 'Exista mai multe seriale cu acest nume');
END;
/
```



```
-- merge
EXECUTE modificare_categorii('The Magicians', 'HORROR', 'inserting');
```

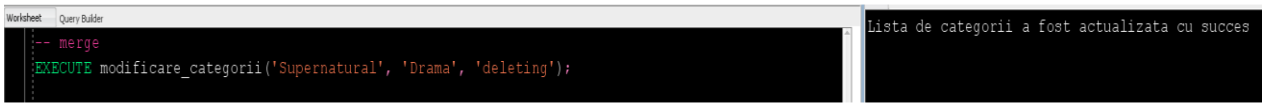
```
Lista de categorii a fost actualizata cu succes
```



```
-- eroare: categoria de inserat nu poate fi null
EXECUTE modificare_categorii('The Magicians', null, 'inserting');
```

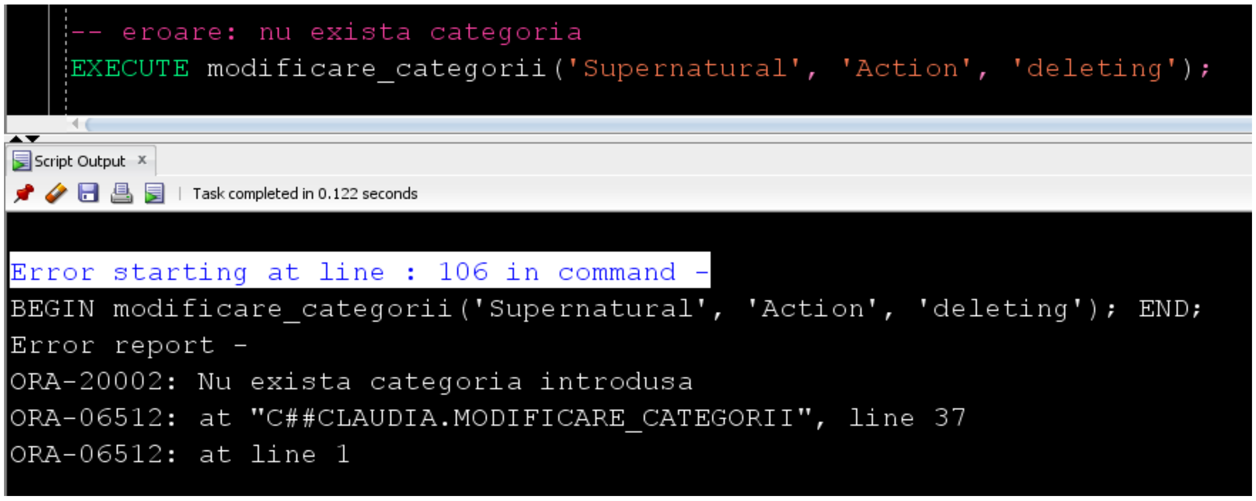
Task completed in 0.192 seconds

```
Error starting at line : 92 in command -
BEGIN modificare_categorii('The Magicians', null, 'inserting'); END;
Error report -
ORA-20001: Categoria nou introdusa nu poate sa fie NULL
ORA-06512: at "C##CLAUDIA.MODIFICARE_CATEGORII", line 17
ORA-06512: at line 1
```



```
-- merge
EXECUTE modificare_categorii('Supernatural', 'Drama', 'deleting');
```

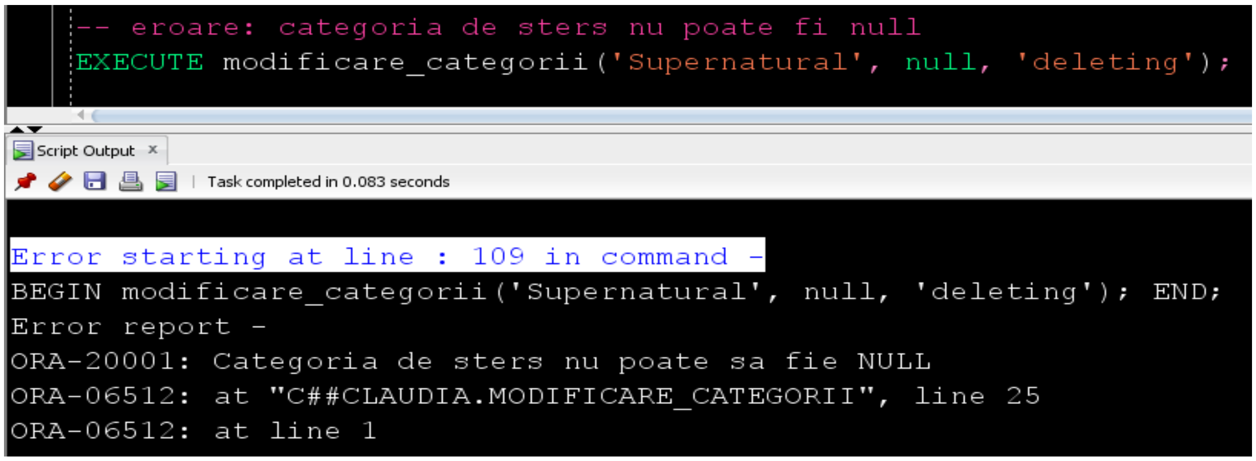
```
Lista de categorii a fost actualizata cu succes
```



```
-- eroare: nu exista categoria
EXECUTE modificare_categorii('Supernatural', 'Action', 'deleting');
```

Task completed in 0.122 seconds

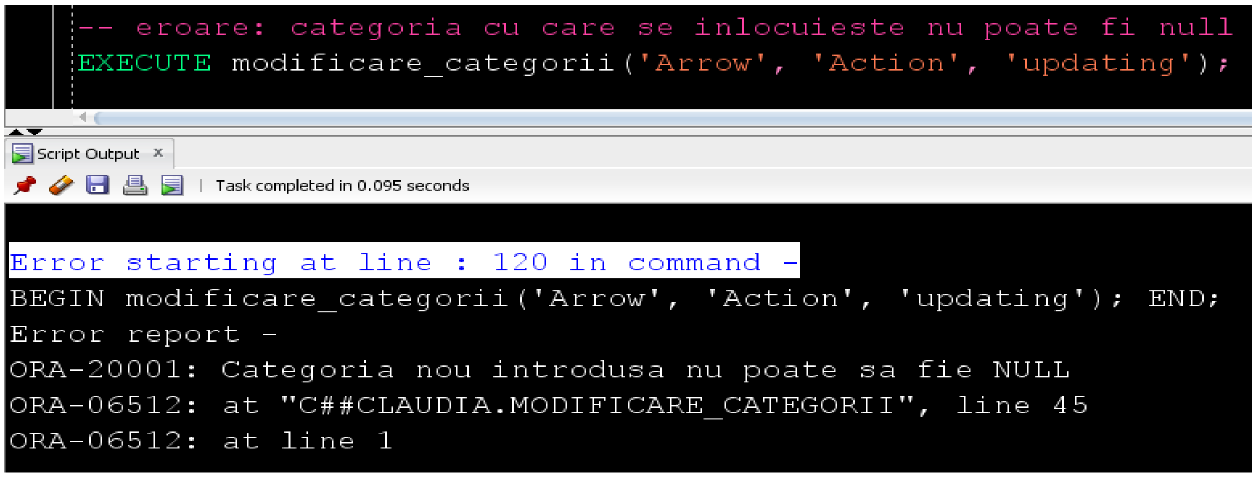
```
Error starting at line : 106 in command -
BEGIN modificare_categorii('Supernatural', 'Action', 'deleting'); END;
Error report -
ORA-20002: Nu exista categoria introdusa
ORA-06512: at "C##CLAUDIA.MODIFICARE_CATEGORII", line 37
ORA-06512: at line 1
```



```
-- eroare: categoria de sters nu poate fi null
EXECUTE modificare_categorii('Supernatural', null, 'deleting');
```

Task completed in 0.083 seconds

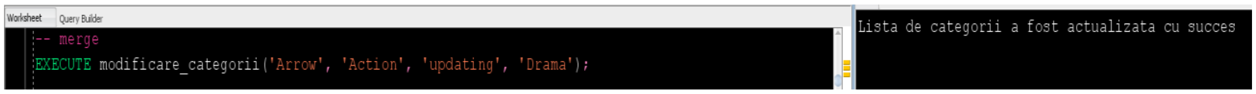
```
Error starting at line : 109 in command -
BEGIN modificare_categorii('Supernatural', null, 'deleting'); END;
Error report -
ORA-20001: Categoria de sters nu poate sa fie NULL
ORA-06512: at "C##CLAUDIA.MODIFICARE_CATEGORII", line 25
ORA-06512: at line 1
```



```
-- eroare: categoria cu care se inlocuieste nu poate fi null
EXECUTE modificare_categorii('Arrow', 'Action', 'updating');
```

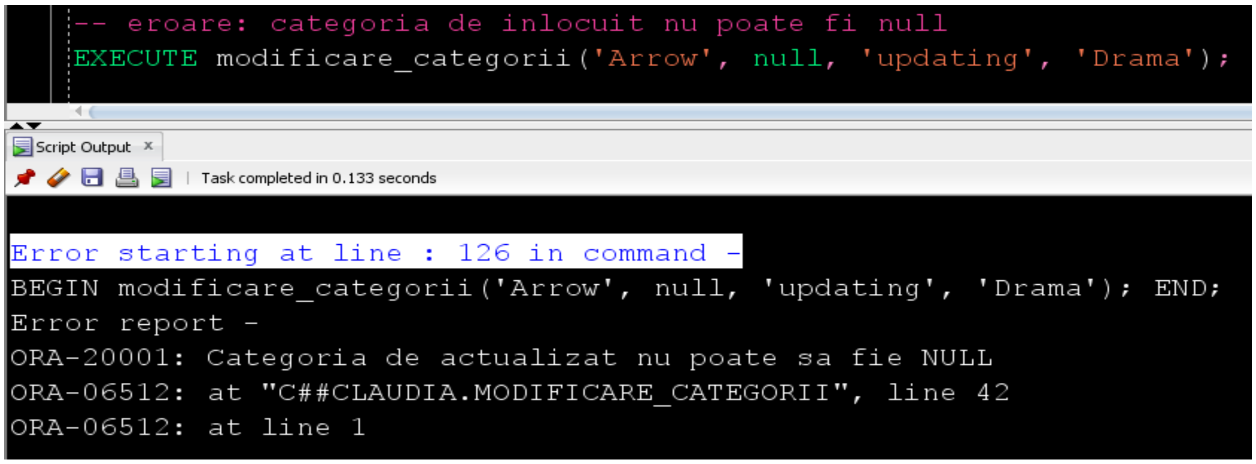
Task completed in 0.095 seconds

```
Error starting at line : 120 in command -
BEGIN modificare_categorii('Arrow', 'Action', 'updating'); END;
Error report -
ORA-20001: Categoria nou introdusa nu poate sa fie NULL
ORA-06512: at "C##CLAUDIA.MODIFICARE_CATEGORII", line 45
ORA-06512: at line 1
```



```
-- merge
EXECUTE modificare_categorii('Arrow', 'Action', 'updating', 'Drama');
```

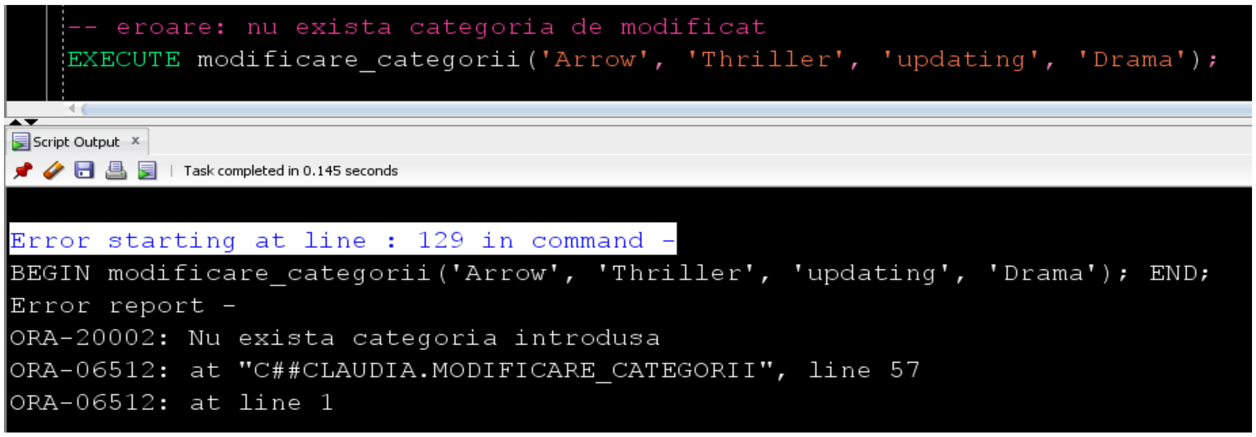
```
Lista de categorii a fost actualizata cu succes
```



```
-- eroare: categoria de inlocuit nu poate fi null
EXECUTE modificare_categorii('Arrow', null, 'updating', 'Drama');
```

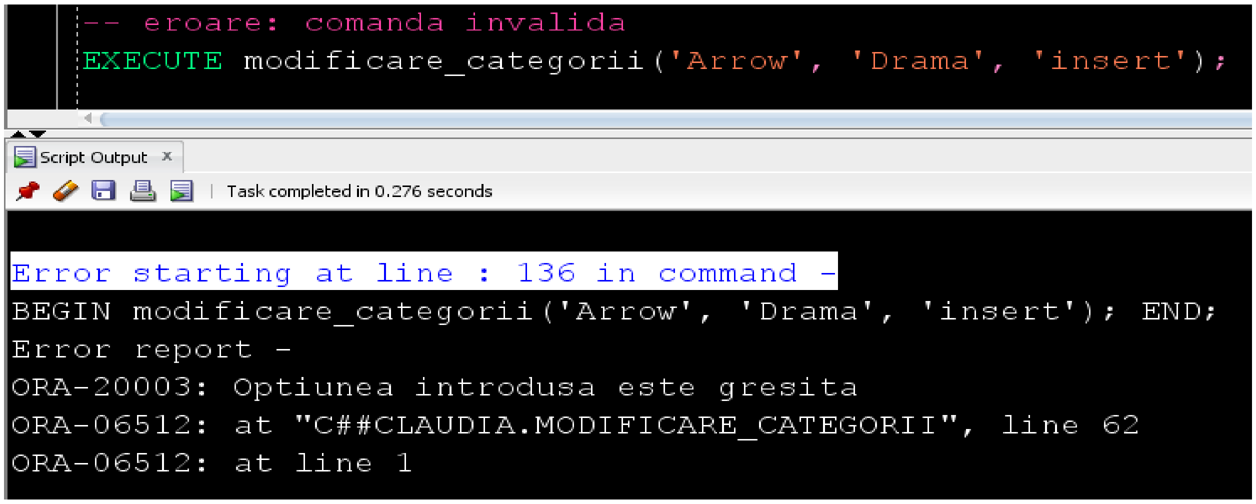
Task completed in 0.133 seconds

```
Error starting at line : 126 in command -
BEGIN modificare_categorii('Arrow', null, 'updating', 'Drama'); END;
Error report -
ORA-20001: Categoria de actualizat nu poate sa fie NULL
ORA-06512: at "C##CLAUDIA.MODIFICARE_CATEGORII", line 42
ORA-06512: at line 1
```



```
-- eroare: nu exista categoria de modificat
EXECUTE modificare_categorii('Arrow', 'Thriller', 'updating', 'Drama');
```

```
Error starting at line : 129 in command -
BEGIN modificare_categorii('Arrow', 'Thriller', 'updating', 'Drama'); END;
Error report -
ORA-20002: Nu exista categoria introdusa
ORA-06512: at "C##CLAUDIA.MODIFICARE_CATEGORII", line 57
ORA-06512: at line 1
```



```
-- eroare: comanda invalida
EXECUTE modificare_categorii('Arrow', 'Drama', 'insert');
```

```
Error starting at line : 136 in command -
BEGIN modificare_categorii('Arrow', 'Drama', 'insert'); END;
Error report -
ORA-20003: Optiunea introdusa este gresita
ORA-06512: at "C##CLAUDIA.MODIFICARE_CATEGORII", line 62
ORA-06512: at line 1
```

7. Definirea unui subprogram stocat care să utilizeze un tip de cursor studiat (expresii cursor)

Sa se afișeze toate sezoanele si episoadele unui serial specificat (sezon: număr, data început, data sfârșit; episod: număr, nume, descriere, rating).

```
CREATE OR REPLACE PROCEDURE afisare_episoade
   (serial series.title%TYPE)
AS
   TYPE ref_cursor IS REF CURSOR;
   CURSOR sezoane (id_serial NUMBER) IS
      SELECT season_number, starting_date, ending_date,
         CURSOR (SELECT episode_number, title, description, rating
               FROM episodes e
```

```
                WHERE e.season_id = s.season_id)
      FROM seasons s
      WHERE series_id = id_serial;
   episoade ref_cursor;
   id_serial series.series_id%TYPE;
   numar_sez seasons.season_number%TYPE;
   inceput_sez seasons.starting_date%TYPE;
   sfarsit_sez seasons.ending_date%TYPE;
   TYPE ep IS RECORD (numar episodes.episode_number%TYPE,
                  titlu episodes.title%TYPE,
                  descriere episodes.description%TYPE,
                  rating episodes.rating%TYPE);
   episod ep;
   exista_sezoane BOOLEAN := FALSE;
   exista_episoade BOOLEAN;
BEGIN
   -- determinare id serial
   SELECT series_id INTO id_serial
   FROM series
   WHERE title = serial;

   OPEN sezoane(id_serial);
   LOOP
      FETCH sezoane INTO numar_sez, inceput_sez, sfarsit_sez, episoade;
      EXIT WHEN sezoane%NOTFOUND;
      exista_sezoane := TRUE;

      -- afisare sezon
      DBMS_OUTPUT.PUT_LINE('------------------------------------------');
      DBMS_OUTPUT.PUT('SEZONUL ' || numar_sez || ': ' || inceput_sez || ' - ');

      IF sfarsit_sez IS NULL THEN
         -- sezonul se afla in derulare
         DBMS_OUTPUT.PUT_LINE('prezent');
      ELSE
         DBMS_OUTPUT.PUT_LINE(sfarsit_sez);
      END IF;

      -- afisare episoade
      exista_episoade := FALSE;

      LOOP
```

```
            FETCH episoade INTO episod;
            EXIT WHEN episoade%NOTFOUND;

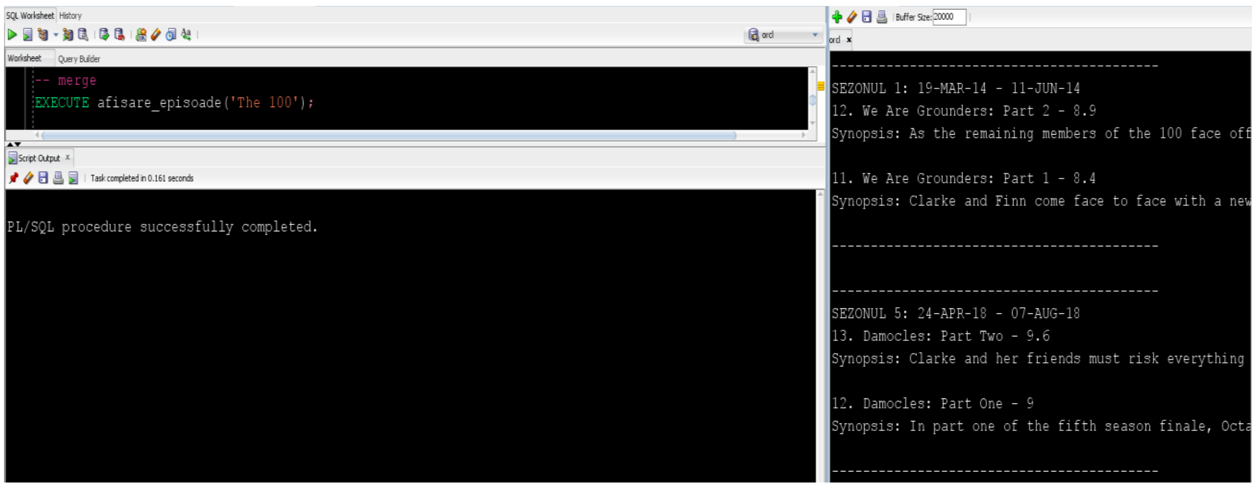
            exista_episoade := TRUE;

            DBMS_OUTPUT.PUT_LINE(episod.numar || '. ' || episod.titlu || ' - ' || episod.rating);
            DBMS_OUTPUT.PUT_LINE('Synopsis: ' || episod.descriere);
            DBMS_OUTPUT.PUT_LINE('');
        END LOOP;

        IF NOT exista_episoade THEN
            DBMS_OUTPUT.PUT_LINE('Nu exista episoade pentru acest sezon');
        END IF;

        DBMS_OUTPUT.PUT_LINE('------------------------------------------');
        DBMS_OUTPUT.PUT_LINE('');
    END LOOP;
    CLOSE sezoane;

    IF NOT exista_sezoane THEN
        DBMS_OUTPUT.PUT_LINE('Nu exista sezoane pentru acest serial');
    END IF;
EXCEPTION
    WHEN no_data_found THEN
        RAISE_APPLICATION_ERROR(-20004, 'Nu exista serial cu numele dat');
    WHEN too_many_rows THEN
        RAISE_APPLICATION_ERROR(-20005, 'Exista mai multe seriale cu acest nume');
END;
/
```



```
-- merge
EXECUTE afisare_episoade('The 100');
```

```
PL/SQL procedure successfully completed.
```

```
-----------------------------------------
SEZONUL 1: 19-MAR-14 - 11-JUN-14
12. We Are Grounders: Part 2 - 8.9
Synopsis: As the remaining members of the 100 face off

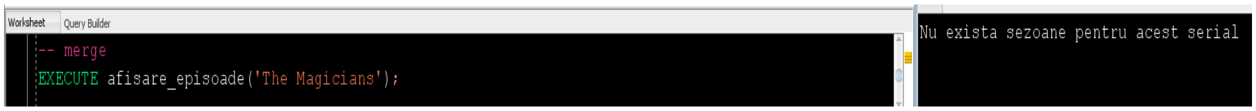
11. We Are Grounders: Part 1 - 8.4
Synopsis: Clarke and Finn come face to face with a new

-----------------------------------------

-----------------------------------------
SEZONUL 5: 24-APR-18 - 07-AUG-18
13. Damocles: Part Two - 9.6
Synopsis: Clarke and her friends must risk everything

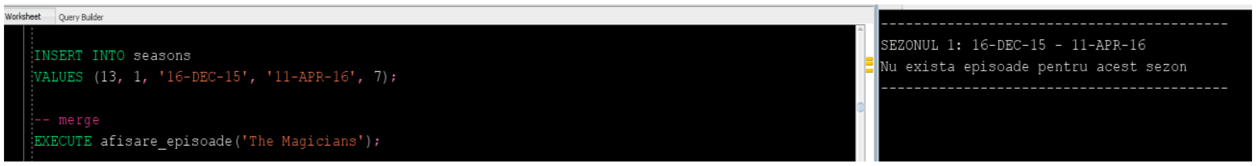
12. Damocles: Part One - 9
Synopsis: In part one of the fifth season finale, Octa

-----------------------------------------
```



```
-- merge
EXECUTE afisare_episoade('The Magicians');
```

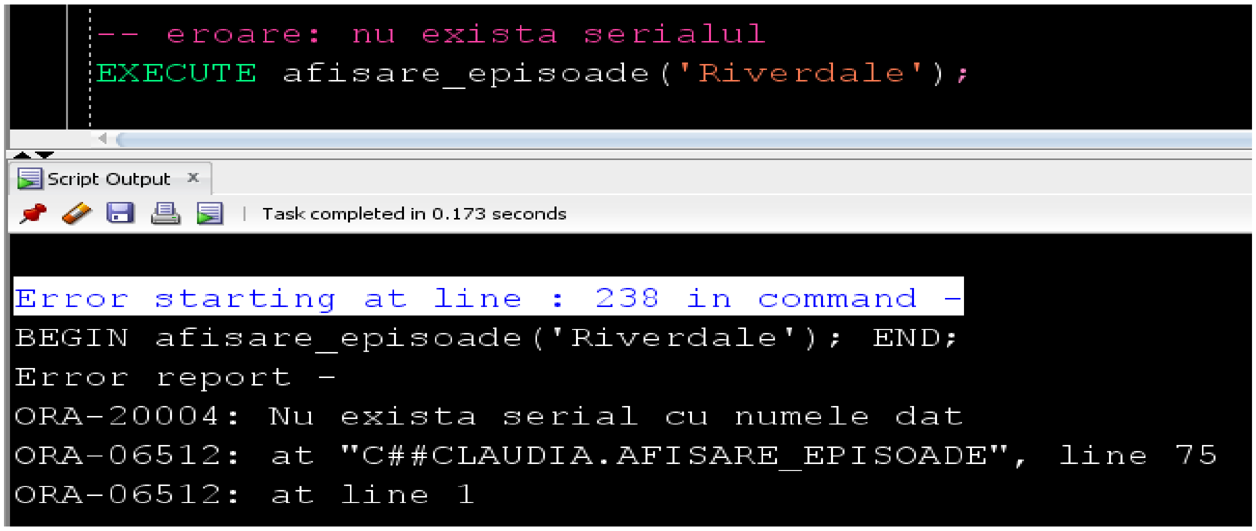
```
Nu exista sezoane pentru acest serial
```



```
INSERT INTO seasons
VALUES (13, 1, '16-DEC-15', '11-APR-16', 7);

-- merge
EXECUTE afisare_episoade('The Magicians');
```

```
-------------------------------------------
SEZONUL 1: 16-DEC-15 - 11-APR-16
Nu exista episoade pentru acest sezon
-------------------------------------------
```



```
-- eroare: nu exista serialul
EXECUTE afisare_episoade('Riverdale');
```

Script Output

Task completed in 0.173 seconds

```
Error starting at line : 238 in command -
BEGIN afisare_episoade('Riverdale'); END;
Error report -
ORA-20004: Nu exista serial cu numele dat
ORA-06512: at "C##CLAUDIA.AFISARE_EPISOADE", line 75
ORA-06512: at line 1
```

8. Definirea unei funcții care să utilizeze trei tabele diferite

Sa se determine numărul de episoade in care joaca un anumit actor într-o anumita perioada de timp.

```
CREATE OR REPLACE FUNCTION nr_episoade
   (prenume actors.first_name%TYPE := NULL,
    nume actors.last_name%TYPE := NULL,
    inceput DATE,
    sfarsit DATE)
RETURN NUMBER IS
   nr_ep NUMBER(3);
   id_actor actors.actor_id%TYPE;
BEGIN
   IF inceput > sfarsit THEN
      RAISE_APPLICATION_ERROR(-20006, 'Data de inceput trebuie sa fie mai mica decat data
de sfarsit');
```

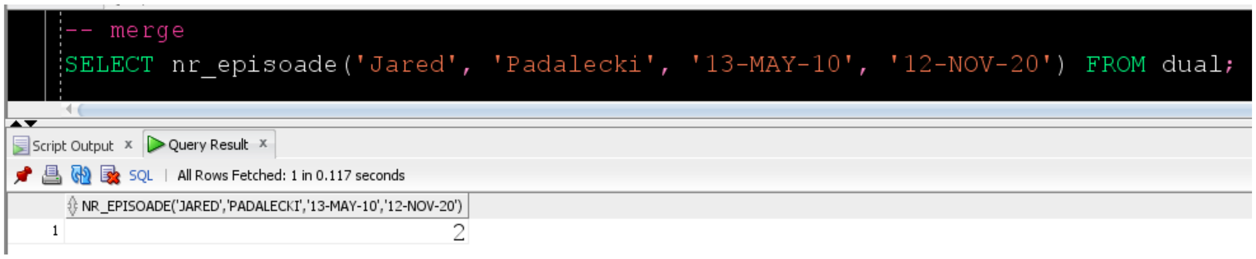
```
        RETURN -1;
    END IF;

    IF prenume IS NULL AND nume IS NULL THEN
        RAISE_APPLICATION_ERROR(-20007, 'Nu poate sa fie si numele si prenumele NULL');
        RETURN -1;
    END IF;

    -- determinarea id-ului actorului dat
    -- (acest pas se face separat ca sa se poata arunca exceptie in cazul in care
    -- nu exista actorulul sau exista mai multi acotri cu acest nume)
    IF nume IS NOT NULL AND prenume IS NOT NULL THEN
        -- numele si prenumele nusunt NULL
        SELECT actor_id INTO id_actor
        FROM actors
        WHERE first_name = prenume
          AND last_name = nume;
    ELSIF nume IS NULL AND prenume IS NOT NULL THEN
        -- prenumele nu este NULL
        SELECT actor_id INTO id_actor
        FROM actors
        WHERE first_name = prenume;
    ELSE
        -- numele nu este NULL
        SELECT actor_id INTO id_actor
        FROM actors
        WHERE last_name = nume;
    END IF;


    SELECT COUNT(*) INTO nr_ep
    FROM playing p JOIN characters ch ON (p.character_id = ch.character_id)
                JOIN appearing_in ap ON (ch.character_id = ap.character_id)
                JOIN episodes e ON (ap.episode_id = e.episode_id)
    WHERE p.actor_id = id_actor
      AND (p.starting_date <= sfarsit AND p.ending_date >= inceput)
      AND e.airing_date BETWEEN inceput AND sfarsit;

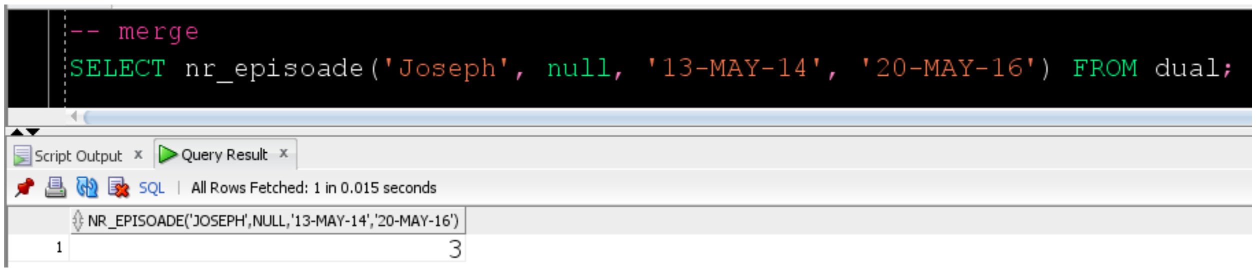
    RETURN nr_ep;
EXCEPTION
    WHEN no_data_found THEN
        RAISE_APPLICATION_ERROR(-20004, 'Nu exista actor cu numele dat');
        RETURN -1;
    WHEN too_many_rows THEN
        RAISE_APPLICATION_ERROR(-20005, 'Exista mai multi actori cu acest nume');
        RETURN -1;
END;
/
```



```
-- merge
SELECT nr_episoade('Jared', 'Padalecki', '13-MAY-10', '12-NOV-20') FROM dual;
```

All Rows Fetched: 1 in 0.117 seconds

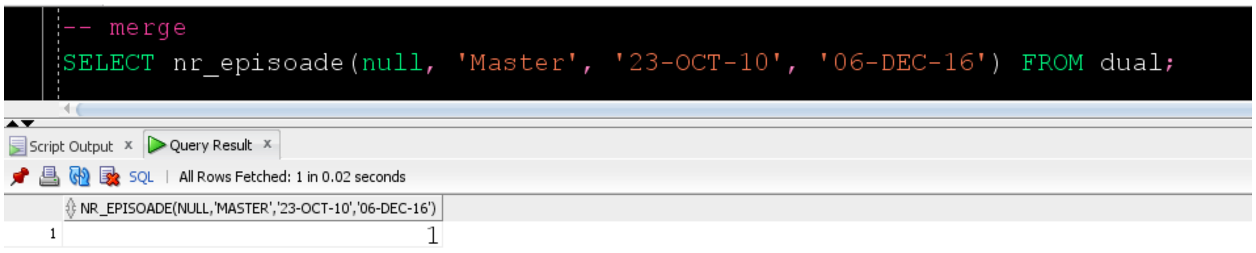
	NR_EPISOADE('JARED','PADALECKI','13-MAY-10','12-NOV-20')
1	2



```
-- merge
SELECT nr_episoade('Joseph', null, '13-MAY-14', '20-MAY-16') FROM dual;
```

All Rows Fetched: 1 in 0.015 seconds

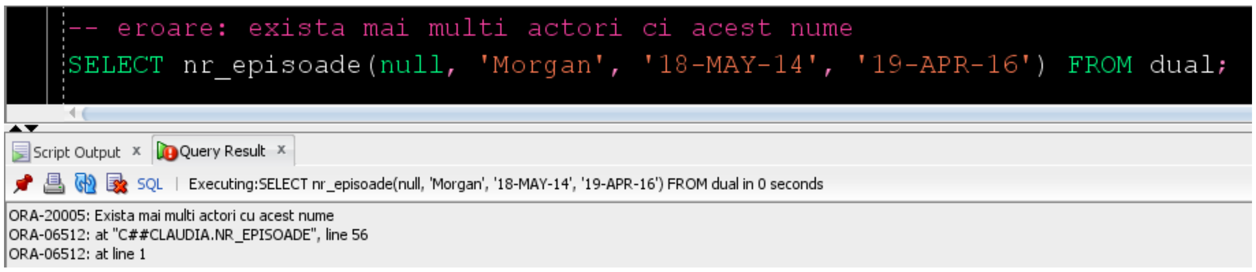
	NR_EPISOADE('JOSEPH',NULL,'13-MAY-14','20-MAY-16')
1	3



```
-- merge
SELECT nr_episoade(null, 'Master', '23-OCT-10', '06-DEC-16') FROM dual;
```

All Rows Fetched: 1 in 0.02 seconds

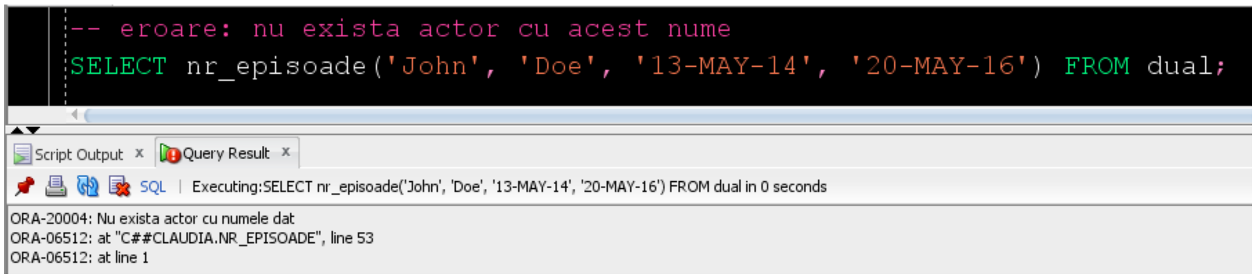
	NR_EPISOADE(NULL,'MASTER','23-OCT-10','06-DEC-16')
1	1



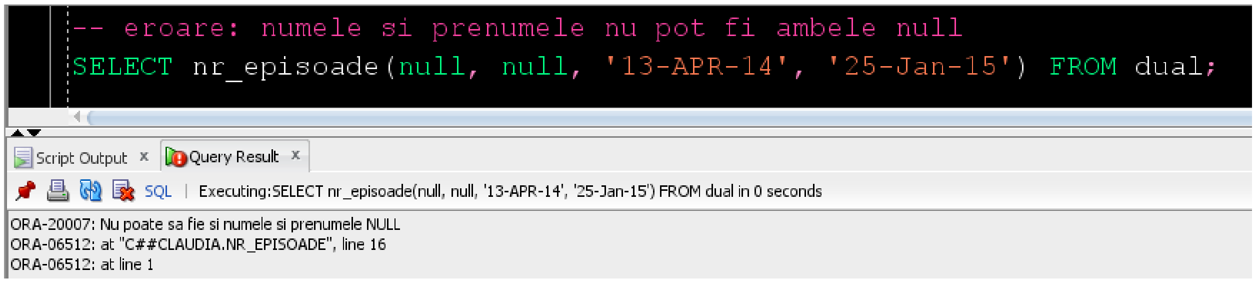
```
-- eroare: exista mai multi actori ci acest nume
SELECT nr_episoade(null, 'Morgan', '18-MAY-14', '19-APR-16') FROM dual;
```

Executing:SELECT nr_episoade(null, 'Morgan', '18-MAY-14', '19-APR-16') FROM dual in 0 seconds

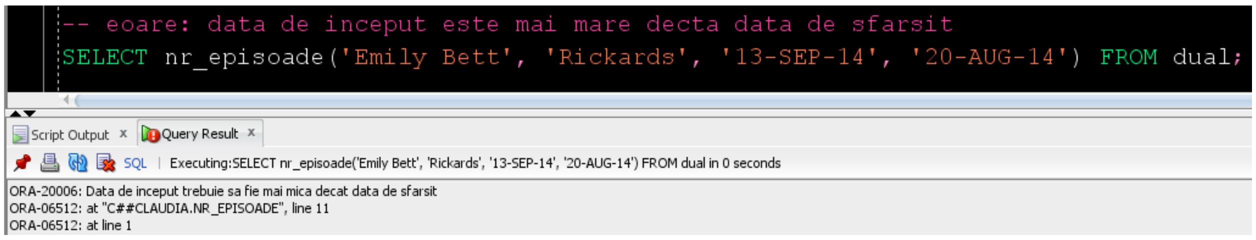
```
ORA-20005: Exista mai multi actori cu acest nume
ORA-06512: at "C##CLAUDIA.NR_EPISOADE", line 56
ORA-06512: at line 1
```


```
-- eroare: nu exista actor cu acest nume
SELECT nr_episoade('John', 'Doe', '13-MAY-14', '20-MAY-16') FROM dual;
```

```
Executing:SELECT nr_episoade('John', 'Doe', '13-MAY-14', '20-MAY-16') FROM dual in 0 seconds
ORA-20004: Nu exista actor cu numele dat
ORA-06512: at "C##CLAUDIA.NR_EPISOADE", line 53
ORA-06512: at line 1
```


```
-- eroare: numele si prenumele nu pot fi ambele null
SELECT nr_episoade(null, null, '13-APR-14', '25-Jan-15') FROM dual;
```

```
Executing:SELECT nr_episoade(null, null, '13-APR-14', '25-Jan-15') FROM dual in 0 seconds
ORA-20007: Nu poate sa fie si numele si prenumele NULL
ORA-06512: at "C##CLAUDIA.NR_EPISOADE", line 16
ORA-06512: at line 1
```


```
-- eoare: data de inceput este mai mare decta data de sfarsit
SELECT nr_episoade('Emily Bett', 'Rickards', '13-SEP-14', '20-AUG-14') FROM dual;
```

```
Executing:SELECT nr_episoade('Emily Bett', 'Rickards', '13-SEP-14', '20-AUG-14') FROM dual in 0 seconds
ORA-20006: Data de inceput trebuie sa fie mai mica decat data de sfarsit
ORA-06512: at "C##CLAUDIA.NR_EPISOADE", line 11
ORA-06512: at line 1
```

9. Definirea unei proceduri care să utilizeze cinci tabele diferite

Sa se afișeze pentru fiecare serial numele serialului, producătorii si lista actorilor împreuna cu personajele pe care le interpretează.

```
CREATE OR REPLACE PROCEDURE afisare_seriale AS
   TYPE pers IS RECORD (prenume producers.first_name%TYPE,
                    nume producers.last_name%TYPE);
   TYPE prod IS TABLE OF pers;
   v_producatori prod;
   CURSOR actori (id_serial NUMBER) IS
      SELECT a.actor_id, a.first_name, a.last_name
      FROM actors a JOIN playing p ON(a.actor_id = p.actor_id)
      WHERE series_id = id_serial;
   personaj pers;
```

```
  i INTEGER;
  exista_actori BOOLEAN;
BEGIN
  FOR serial IN (SELECT series_id, title
             FROM series)
          LOOP
    -- afisare serial
    DBMS_OUTPUT.PUT_LINE('----------------------------------------------------------');
    DBMS_OUTPUT.PUT_LINE('--- ' || UPPER(serial.title) || ' ---');

    -- afisare producatori
    DBMS_OUTPUT.PUT('--- Producatori: ');

    SELECT p.first_name, p.last_name BULK COLLECT INTO v_producatori
    FROM producers p JOIN produced_by ps ON (p.producer_id = ps.producer_id)
    WHERE series_id = serial.series_id;

    IF v_producatori.count() = 0 THEN
      -- nu exista producatori
      DBMS_OUTPUT.PUT('nu exista producatori');
    ELSE
      i := v_producatori.FIRST;
      WHILE i<= v_producatori.LAST LOOP
        DBMS_OUTPUT.PUT(v_producatori(i).prenume || ' ' || v_producatori(i).nume);
        IF i <> v_producatori.LAST THEN
          DBMS_OUTPUT.PUT(', ');
        END IF;

        i := v_producatori.NEXT(i);
      END LOOP;
    END IF;

    DBMS_OUTPUT.PUT(' ---');
    DBMS_OUTPUT.PUT_LINE('');
    DBMS_OUTPUT.PUT_LINE('----------------------------------------------------------');

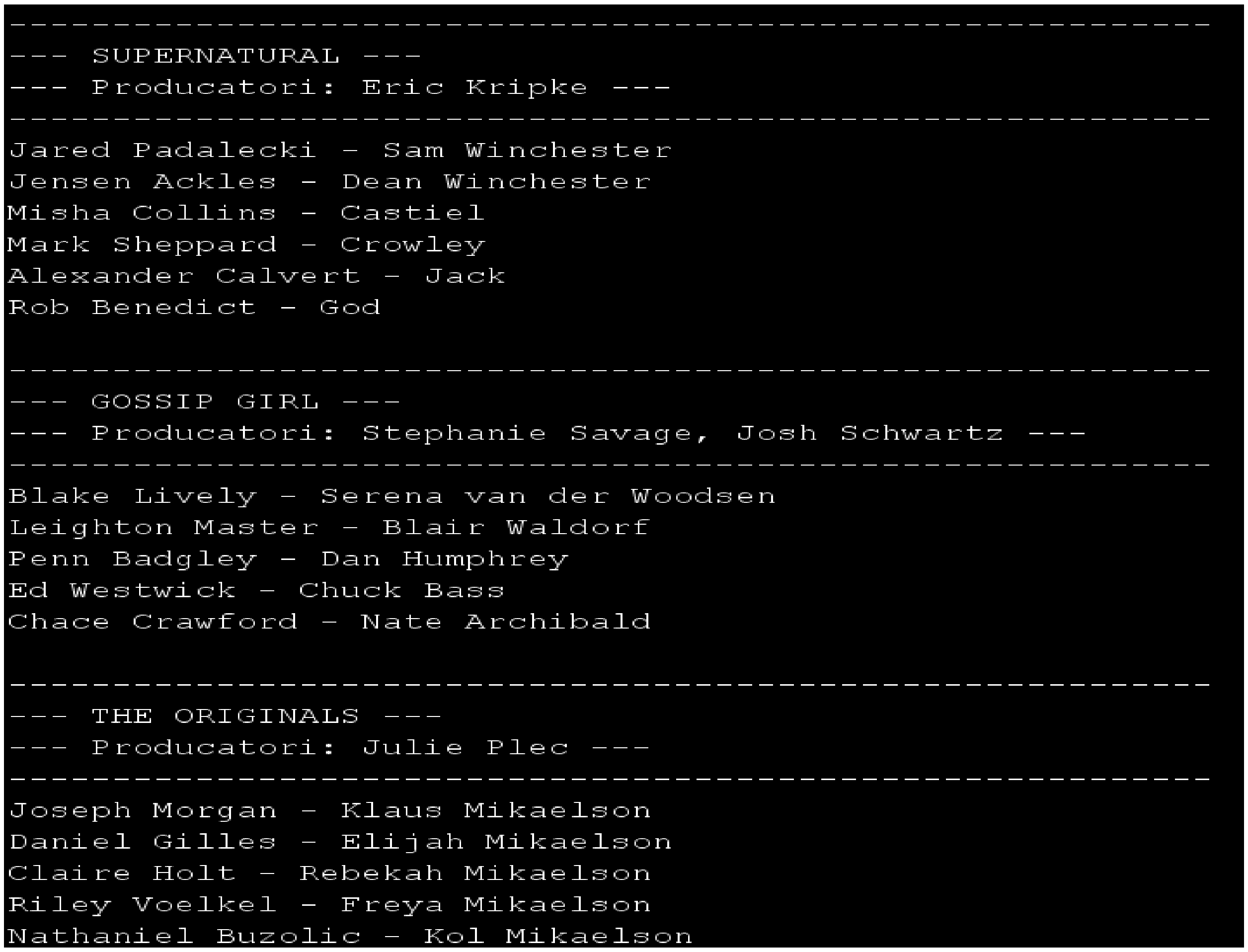
    -- afisare actori
    exista_actori := FALSE;
    FOR actor in actori(serial.series_id) LOOP
      exista_actori := TRUE;
      DBMS_OUTPUT.PUT(actor.first_name || ' ' || actor.last_name || ' - ');
```

```
            -- afisare personajul jucat de actor
            SELECT c.first_name, c.last_name INTO personaj
            FROM characters c JOIN playing p USING(character_id)
            WHERE actor_id = actor.actor_id;

            DBMS_OUTPUT.PUT(personaj.prenume || ' ' || personaj.nume);
            DBMS_OUTPUT.PUT_LINE('');
        END LOOP;

        IF NOT exista_actori THEN
            -- nu exista actori
            DBMS_OUTPUT.PUT_LINE('Nu exista actori');
        END IF;

        DBMS_OUTPUT.PUT_LINE('');
    END LOOP;
END;
/
```



```
-------------------------------------------------------------
--- SUPERNATURAL ---
--- Producatori: Eric Kripke ---
-------------------------------------------------------------
Jared Padalecki - Sam Winchester
Jensen Ackles - Dean Winchester
Misha Collins - Castiel
Mark Sheppard - Crowley
Alexander Calvert - Jack
Rob Benedict - God

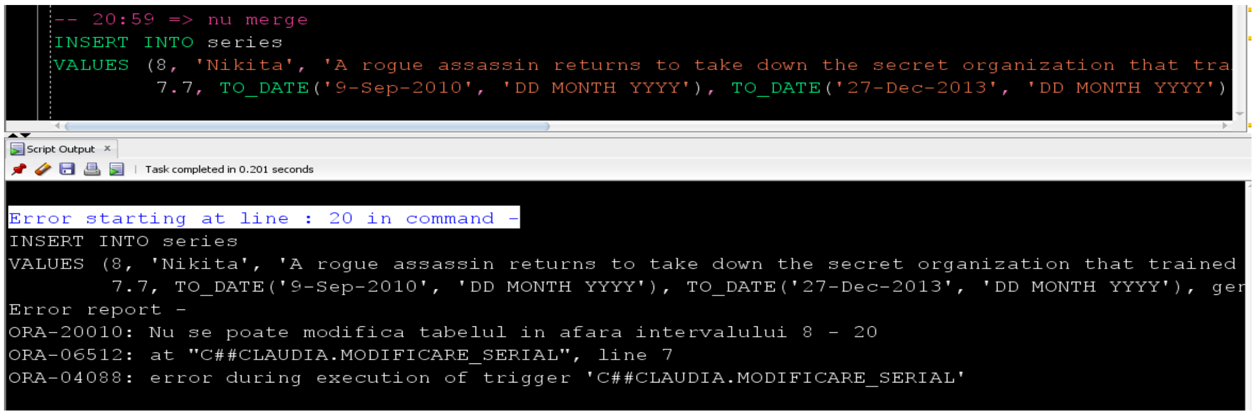
-------------------------------------------------------------
--- GOSSIP GIRL ---
--- Producatori: Stephanie Savage, Josh Schwartz ---
-------------------------------------------------------------
Blake Lively - Serena van der Woodsen
Leighton Master - Blair Waldorf
Penn Badgley - Dan Humphrey
Ed Westwick - Chuck Bass
Chace Crawford - Nate Archibald

-------------------------------------------------------------
--- THE ORIGINALS ---
--- Producatori: Julie Plec ---
-------------------------------------------------------------
Joseph Morgan - Klaus Mikaelson
Daniel Gilles - Elijah Mikaelson
Claire Holt - Rebekah Mikaelson
Riley Voelkel - Freya Mikaelson
Nathaniel Buzolic - Kol Mikaelson
```

10. Definirea unui trigger LMD la nivel de comanda

Modificarea tabelei series nu se poate fi realizata decât de userul c##claudia, în intervalul Luni - Vineri intre orele 8 - 20.

```
CREATE OR REPLACE TRIGGER modificare_serial
   BEFORE INSERT OR UPDATE OR DELETE ON series
BEGIN
   IF UPPER(SYS.LOGIN_USER) <> 'C##CLAUDIA' THEN
      RAISE_APPLICATION_ERROR(-20008, 'Nu aveti dreptul de a modifica acest tabel');
   ELSIF TO_CHAR(SYSTIMESTAMP, 'D') IN (1, 7) THEN
      RAISE_APPLICATION_ERROR(-20009, 'Nu se poate modifica tabelul in zilele de
weekend');
   ELSIF TO_CHAR(SYSTIMESTAMP,'HH24') NOT BETWEEN 8 AND 20 THEN
      RAISE_APPLICATION_ERROR(-20010, 'Nu se poate modifica tabelul in afara intervalului
8 - 20');
   END IF;
END;
/
```

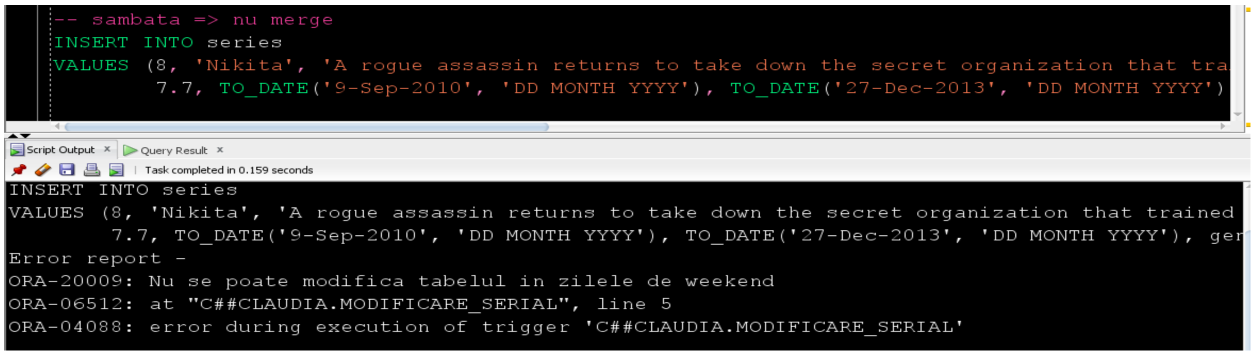


```
-- 20:59 => nu merge
INSERT INTO series
VALUES (8, 'Nikita', 'A rogue assassin returns to take down the secret organization that tra
        7.7, TO_DATE('9-Sep-2010', 'DD MONTH YYYY'), TO_DATE('27-Dec-2013', 'DD MONTH YYYY')
```

Script Output ×

Task completed in 0.201 seconds

```
Error starting at line : 20 in command -
INSERT INTO series
VALUES (8, 'Nikita', 'A rogue assassin returns to take down the secret organization that trained
        7.7, TO_DATE('9-Sep-2010', 'DD MONTH YYYY'), TO_DATE('27-Dec-2013', 'DD MONTH YYYY'), ger
Error report -
ORA-20010: Nu se poate modifica tabelul in afara intervalului 8 - 20
ORA-06512: at "C##CLAUDIA.MODIFICARE_SERIAL", line 7
ORA-04088: error during execution of trigger 'C##CLAUDIA.MODIFICARE_SERIAL'
```



```
-- sambata => nu merge
INSERT INTO series
VALUES (8, 'Nikita', 'A rogue assassin returns to take down the secret organization that tra
        7.7, TO_DATE('9-Sep-2010', 'DD MONTH YYYY'), TO_DATE('27-Dec-2013', 'DD MONTH YYYY')
```

Script Output × Query Result ×

Task completed in 0.159 seconds

```
INSERT INTO series
VALUES (8, 'Nikita', 'A rogue assassin returns to take down the secret organization that trained
        7.7, TO_DATE('9-Sep-2010', 'DD MONTH YYYY'), TO_DATE('27-Dec-2013', 'DD MONTH YYYY'), ger
Error report -
ORA-20009: Nu se poate modifica tabelul in zilele de weekend
ORA-06512: at "C##CLAUDIA.MODIFICARE_SERIAL", line 5
ORA-04088: error during execution of trigger 'C##CLAUDIA.MODIFICARE_SERIAL'
```

11. Definirea unui trigger LMD la nivel de linie

Un serial nu poate sa aibă mai mult de 4 episoade.

```
-- creare copie a tabelului episodes
CREATE TABLE episodes_cpy
AS SELECT * FROM episodes;

-- functie care returneaza nr de episoade ale unui sezon
CREATE OR REPLACE FUNCTION nr_episoade_serial
   (id_sez seasons.season_id%TYPE)
RETURN NUMBER IS
   nr_ep NUMBER(1);
BEGIN
   SELECT COUNT(*) INTO nr_ep
   FROM episodes_cpy JOIN seasons USING(season_id)
                 JOIN series USING(series_id)
   WHERE series_id = (SELECT series_id
                  FROM seasons
                  WHERE season_id = id_sez);

   RETURN nr_ep;
END;
/

-- creare trigger
CREATE OR REPLACE TRIGGER modificare_episodes
   BEFORE INSERT OR UPDATE on episodes
   FOR EACH ROW
BEGIN
   IF nr_episoade_serial(:NEW.season_id) = 4 THEN
      RAISE_APPLICATION_ERROR(-20011, 'Un serial nu poate avea mai mult de 4
episoade');
   END IF;
END;
/

-- trigger care actualizeaza tabela episodes_cpy
CREATE OR REPLACE TRIGGER actualizare_episodes_cpy
   AFTER INSERT OR UPDATE OR DELETE ON episodes
   FOR EACH ROW
```

```
BEGIN
   IF INSERTING THEN
      INSERT INTO episodes_cpy
      VALUES (:NEW.episode_id, :NEW.episode_number, :NEW.title, :NEW.description,
            :NEW.minutes, :NEW.airing_date, :NEW.rating, :NEW.season_id);
   ELSIF UPDATING THEN
      UPDATE episodes_cpy
      SET episode_number = :NEW.episode_number,
         title = :NEW.title,
         description = :NEW.description,
         minutes = :NEW.minutes,
         airing_date = :NEW.airing_date,
         rating = :NEW.rating,
         season_id = :NEW.season_id
      WHERE episode_id = :OLD.episode_id;
   ELSE
      DELETE FROM episodes_cpy
      WHERE episode_id = :OLD.episode_id;
   END IF;
END;
/

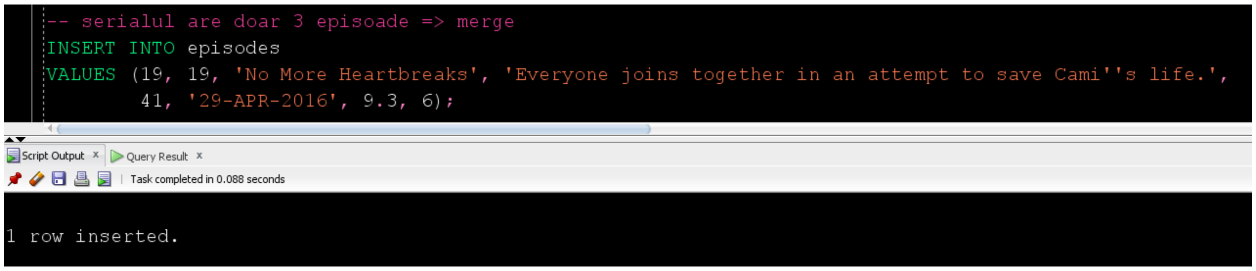
-- serialul are doar 3 episoade => merge
INSERT INTO episodes
VALUES (19, 19, 'No More Heartbreaks', 'Everyone joins together in an attempt to save Cami''s
life.',
      41, '29-APR-2016', 9.3, 6);

-- serialul are deja 4 episoade => nu merge
INSERT INTO episodes
VALUES (20, 11, 'Wild at Heart', 'Elijah learns that Aya might have knowlege about an elusive
weapon that can take down Original Vampire for good. Davina receives a tempting offer which
brings closer to reuniting Kol.',
      42, '05-FEB-2016', 8.6, 6);

-- serialul are deja 4 episoade => nu merge
UPDATE episodes
SET season_id = 6
WHERE episode_id = 7;
```

```
-- serialul are doar 3 episoade, deci nu merg inserate alte 3 => nu merge
CREATE SEQUENCE sec_episodes
START WITH 20
INCREMENT BY 1;

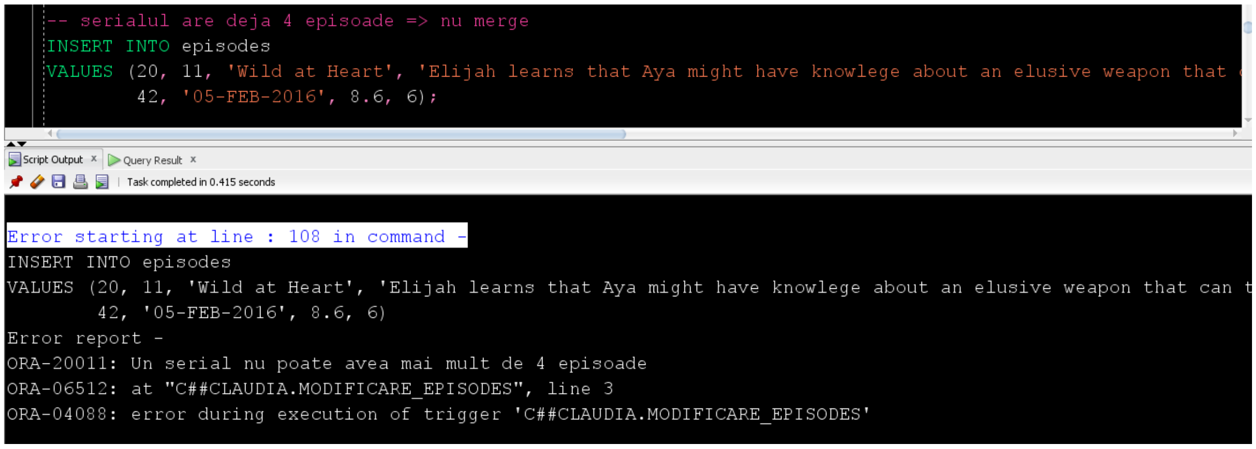
BEGIN
   FOR i IN 1..5 LOOP
      INSERT INTO episodes
      VALUES (sec_episodes.NEXTVAL, 2, 'Sara', 'Team Arrow is in pursuit of a new villain who poses a threat to Starling City. Meanwhile, Oliver is worried about not having heard from Thea.',
            42, '15-OCT-2014', 8.5, 8);
   END LOOP;
END;
/
```



```
-- serialul are doar 3 episoade => merge
INSERT INTO episodes
VALUES (19, 19, 'No More Heartbreaks', 'Everyone joins together in an attempt to save Cami''s life.',
        41, '29-APR-2016', 9.3, 6);
```

```
Task completed in 0.088 seconds

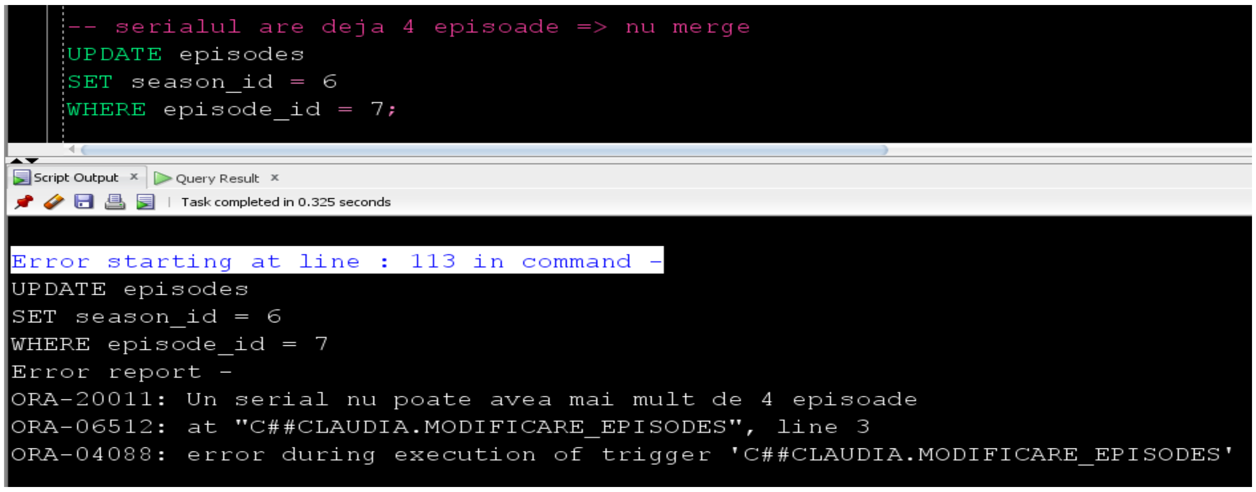
1 row inserted.
```



```
-- serialul are deja 4 episoade => nu merge
INSERT INTO episodes
VALUES (20, 11, 'Wild at Heart', 'Elijah learns that Aya might have knowlege about an elusive weapon that
        42, '05-FEB-2016', 8.6, 6);
```

```
Task completed in 0.415 seconds

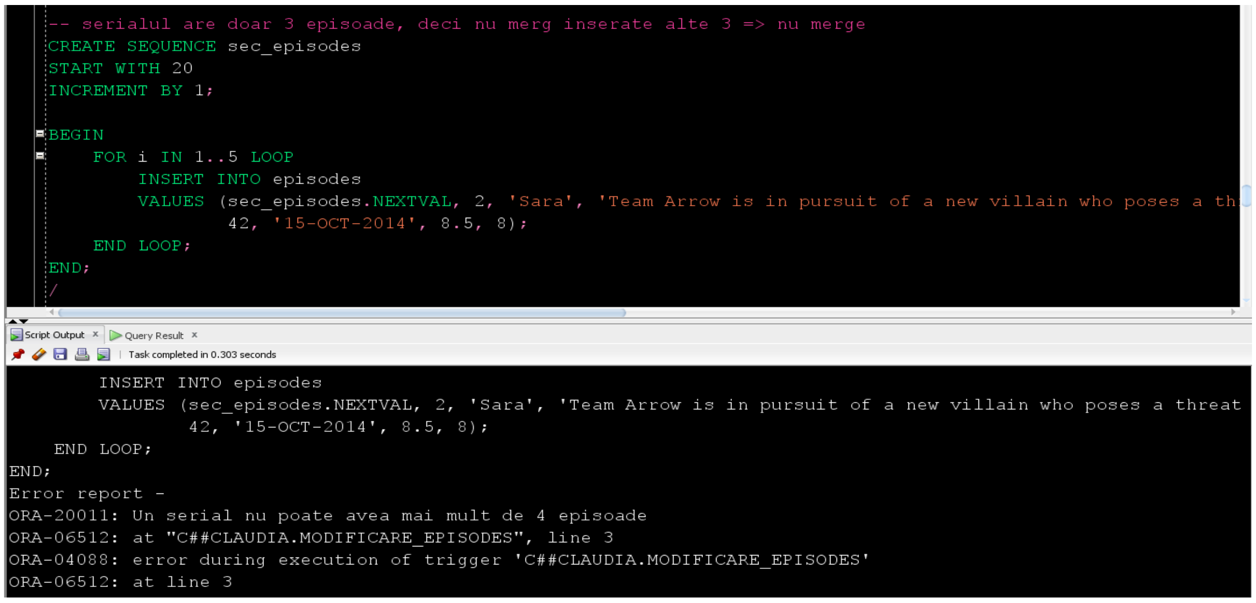
Error starting at line : 108 in command -
INSERT INTO episodes
VALUES (20, 11, 'Wild at Heart', 'Elijah learns that Aya might have knowlege about an elusive weapon that can t
        42, '05-FEB-2016', 8.6, 6)
Error report -
ORA-20011: Un serial nu poate avea mai mult de 4 episoade
ORA-06512: at "C##CLAUDIA.MODIFICARE_EPISODES", line 3
ORA-04088: error during execution of trigger 'C##CLAUDIA.MODIFICARE_EPISODES'
```



```
-- serialul are deja 4 episoade => nu merge
UPDATE episodes
SET season_id = 6
WHERE episode_id = 7;
```

Script Output × Query Result ×
Task completed in 0.325 seconds

```
Error starting at line : 113 in command -
UPDATE episodes
SET season_id = 6
WHERE episode_id = 7
Error report -
ORA-20011: Un serial nu poate avea mai mult de 4 episoade
ORA-06512: at "C##CLAUDIA.MODIFICARE_EPISODES", line 3
ORA-04088: error during execution of trigger 'C##CLAUDIA.MODIFICARE_EPISODES'
```



```
-- serialul are doar 3 episoade, deci nu merg inserate alte 3 => nu merge
CREATE SEQUENCE sec_episodes
START WITH 20
INCREMENT BY 1;

BEGIN
    FOR i IN 1..5 LOOP
        INSERT INTO episodes
        VALUES (sec_episodes.NEXTVAL, 2, 'Sara', 'Team Arrow is in pursuit of a new villain who poses a th
                42, '15-OCT-2014', 8.5, 8);
    END LOOP;
END;
/
```

Script Output × Query Result ×
Task completed in 0.303 seconds

```
        INSERT INTO episodes
        VALUES (sec_episodes.NEXTVAL, 2, 'Sara', 'Team Arrow is in pursuit of a new villain who poses a threat
                42, '15-OCT-2014', 8.5, 8);
    END LOOP;
END;
Error report -
ORA-20011: Un serial nu poate avea mai mult de 4 episoade
ORA-06512: at "C##CLAUDIA.MODIFICARE_EPISODES", line 3
ORA-04088: error during execution of trigger 'C##CLAUDIA.MODIFICARE_EPISODES'
ORA-06512: at line 3
```

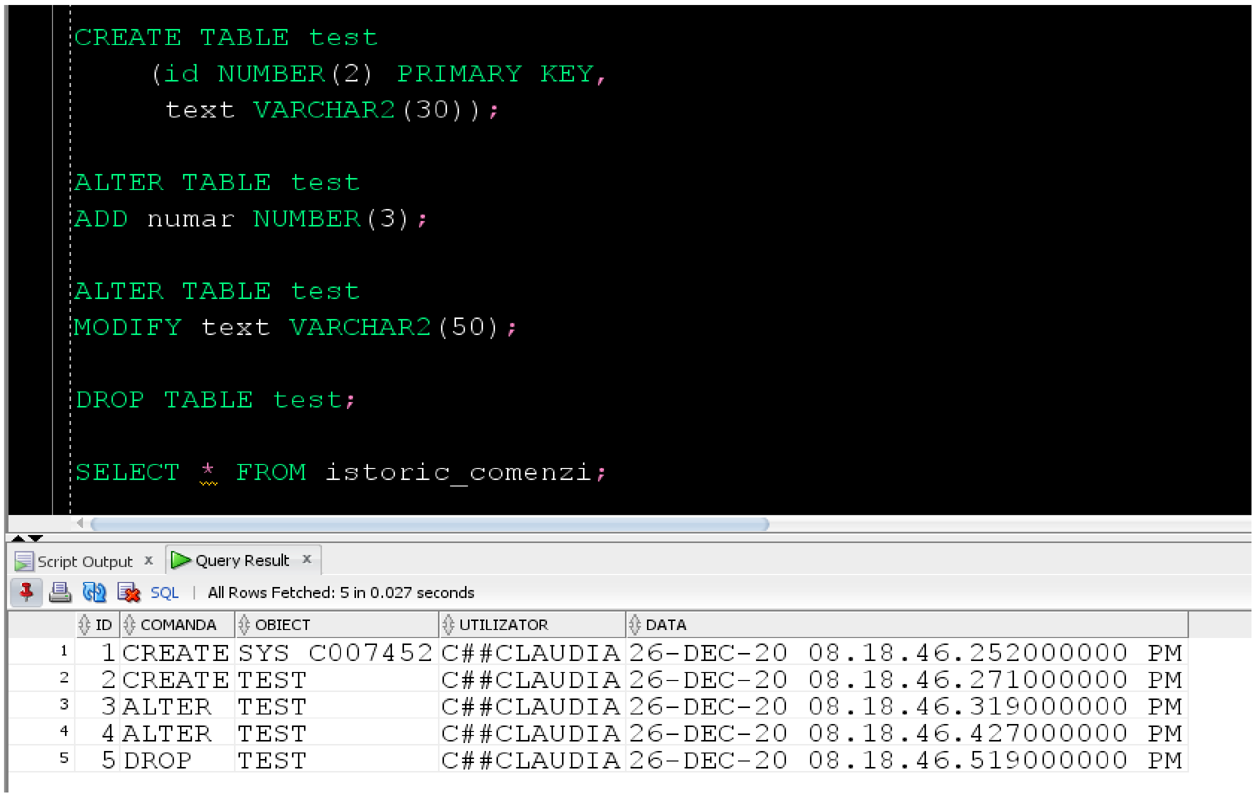
12. Definirea unui trigger LDD

Pentru fiecare comanda LDD efectuata sa se insereze in tabela istoric_comenzi numele comenzii, obiectul asupra căreia a fost efectuată, data efectuării și utilizatorul ce a efectuat comanda.

```
-- creare tabel istoric_comenzi
CREATE TABLE istoric_comenzi
   (id NUMBER(3) PRIMARY KEY,
    comanda VARCHAR2(20),
    obiect VARCHAR2(30),
    utilizator VARCHAR2(30),
    data TIMESTAMP);
```

```
-- creare secventa
CREATE SEQUENCE sec_istoric_comenzi
START WITH 1
INCREMENT BY 1;

-- creare trigger
CREATE OR REPLACE TRIGGER comenzi_ldd
   AFTER CREATE OR ALTER OR DROP ON SCHEMA
BEGIN
   INSERT INTO istoric_comenzi
   VALUES (sec_istoric_comenzi.NEXTVAL, SYS.SYSEVENT,
SYS.DICTIONARY_OBJ_NAME, SYS.LOGIN_USER, SYSTIMESTAMP);
END;
/
```



```
CREATE TABLE test
     (id NUMBER(2) PRIMARY KEY,
      text VARCHAR2(30));

ALTER TABLE test
ADD numar NUMBER(3);

ALTER TABLE test
MODIFY text VARCHAR2(50);

DROP TABLE test;

SELECT * FROM istoric_comenzi;
```

```
   ID COMANDA OBIECT       UTILIZATOR DATA
1   1 CREATE  SYS C007452  C##CLAUDIA 26-DEC-20 08.18.46.252000000 PM
2   2 CREATE  TEST         C##CLAUDIA 26-DEC-20 08.18.46.271000000 PM
3   3 ALTER   TEST         C##CLAUDIA 26-DEC-20 08.18.46.319000000 PM
4   4 ALTER   TEST         C##CLAUDIA 26-DEC-20 08.18.46.427000000 PM
5   5 DROP    TEST         C##CLAUDIA 26-DEC-20 08.18.46.519000000 PM
```

13. Definirea unui pachet care sa conțină toate obiectele definite în cadrul proiectului

```
CREATE OR REPLACE PACKAGE pachet_1 IS
   PROCEDURE modificare_categorii
      (serial series.title%TYPE,
       categ1 VARCHAR2,
       optiune VARCHAR2,
       categ2 VARCHAR2 := NULL);

   PROCEDURE afisare_episoade
      (serial series.title%TYPE);

   FUNCTION nr_episoade
      (prenume actors.first_name%TYPE := NULL,
       nume actors.last_name%TYPE := NULL,
       inceput DATE,
       sfarsit DATE)
   RETURN NUMBER;

   PROCEDURE afisare_seriale;
END pachet_1;
/

CREATE OR REPLACE PACKAGE BODY pachet_1 IS
   PROCEDURE modificare_categorii
      (serial series.title%TYPE,
       categ1 VARCHAR2,
       optiune VARCHAR2,
       categ2 VARCHAR2 := NULL)
   AS
      categorii genres;
      i INTEGER;
   BEGIN
      -- obtinere lista categorii pentru seraialul dat
      SELECT genre INTO categorii
      FROM series
      WHERE title = INITCAP(serial);

      IF UPPER(optiune) = 'INSERTING' THEN
         IF categ1 IS NULL THEN
```

```
            RAISE_APPLICATION_ERROR(-20001, 'Categoria nou introdusa nu poate sa fie
NULL');
        ELSE
            -- adaugarea unei categorii noi
            categorii.extend();
            categorii(categorii.last) := INITCAP(categ1);
        END IF;
    ELSIF UPPER(optiune) = 'DELETING' THEN
        IF categ1 IS NULL THEN
            RAISE_APPLICATION_ERROR(-20001, 'Categoria de sters nu poate sa fie NULL');
        ELSE
            -- determinarea pozitiei categoriei ce trebuie stearsa
            i := categorii.FIRST;
            WHILE i <= categorii.LAST AND categorii(i) <> INITCAP(categ1) LOOP
                i := categorii.NEXT(i);
            END LOOP;

            IF i IS NOT NULL THEN
                -- stergerea categoriei
                categorii.DELETE(i);
            ELSE
                RAISE_APPLICATION_ERROR(-20002, 'Nu exista categoria introdusa');
            END IF;
        END IF;
    ELSIF UPPER(optiune) = 'UPDATING' THEN
        IF categ1 IS NULL THEN
            RAISE_APPLICATION_ERROR(-20001, 'Categoria de actualizat nu poate sa fie
NULL');
        ELSE
            IF categ2 IS NULL THEN
                RAISE_APPLICATION_ERROR(-20001, 'Categoria nou introdusa nu poate sa fie
NULL');
            ELSE
                -- determinarea pozitiei categoriei ce trebuie modificata
                i := categorii.FIRST;
                WHILE i <= categorii.LAST AND categorii(i) <> INITCAP(categ1) LOOP
                    i := categorii.NEXT(i);
                END LOOP;

                IF i IS NOT NULL THEN
                    -- odificarea categoriei
                    categorii(i) := INITCAP(categ2);
            ELSE
               RAISE_APPLICATION_ERROR(-20002, 'Nu exista categoria introdusa');
            END IF;
         END IF;
      END IF;
   ELSE
      RAISE_APPLICATION_ERROR(-20003, 'Optiunea introdusa este gresita');
   END IF;

   -- actualizare lista categorii
   UPDATE series
   SET genre = categorii
   WHERE title = serial;

   DBMS_OUTPUT.PUT_LINE('Lista de categorii a fost actualizata cu succes');
EXCEPTION
   WHEN no_data_found THEN
      RAISE_APPLICATION_ERROR(-20004, 'Nu exista serial cu numele dat');
   WHEN too_many_rows THEN
      RAISE_APPLICATION_ERROR(-20005, 'Exista mai multe seriale cu acest nume');
END;


PROCEDURE afisare_episoade
   (serial series.title%TYPE)
AS
   TYPE ref_cursor IS REF CURSOR;
   CURSOR sezoane (id_serial NUMBER) IS
      SELECT season_number, starting_date, ending_date,
         CURSOR (SELECT episode_number, title, description, rating
               FROM episodes e
               WHERE e.season_id = s.season_id)
      FROM seasons s
      WHERE series_id = id_serial;
   episoade ref_cursor;
   id_serial series.series_id%TYPE;
   numar_sez seasons.season_number%TYPE;
   inceput_sez seasons.starting_date%TYPE;
   sfarsit_sez seasons.ending_date%TYPE;
   TYPE ep IS RECORD (numar episodes.episode_number%TYPE,
                  titlu episodes.title%TYPE,
                  descriere episodes.description%TYPE,
                  rating episodes.rating%TYPE);
   episod ep;
   exista_sezoane BOOLEAN := FALSE;
   exista_episoade BOOLEAN;
BEGIN
   -- determinare id serial
   SELECT series_id INTO id_serial
   FROM series
   WHERE title = serial;

   OPEN sezoane(id_serial);
   LOOP
      FETCH sezoane INTO numar_sez, inceput_sez, sfarsit_sez, episoade;
      EXIT WHEN sezoane%NOTFOUND;
      exista_sezoane := TRUE;

      -- afisare sezon
      DBMS_OUTPUT.PUT_LINE('------------------------------------------');
      DBMS_OUTPUT.PUT('SEZONUL ' || numar_sez || ': ' || inceput_sez || ' - ');

      IF sfarsit_sez IS NULL THEN
         -- sezonul se afla in derulare
         DBMS_OUTPUT.PUT_LINE('prezent');
      ELSE
         DBMS_OUTPUT.PUT_LINE(sfarsit_sez);
      END IF;

      -- afisare episoade
      exista_episoade := FALSE;

      LOOP
         FETCH episoade INTO episod;
         EXIT WHEN episoade%NOTFOUND;

         exista_episoade := TRUE;

         DBMS_OUTPUT.PUT_LINE(episod.numar || '. ' || episod.titlu || ' - ' || episod.rating);
         DBMS_OUTPUT.PUT_LINE('Synopsis: ' || episod.descriere);
         DBMS_OUTPUT.PUT_LINE('');
      END LOOP;

      IF NOT exista_episoade THEN
```

```
            DBMS_OUTPUT.PUT_LINE('Nu exista episoade pentru acest sezon');
         END IF;

         DBMS_OUTPUT.PUT_LINE('----------------------------------------');
         DBMS_OUTPUT.PUT_LINE('');
      END LOOP;
      CLOSE sezoane;

      IF NOT exista_sezoane THEN
         DBMS_OUTPUT.PUT_LINE('Nu exista sezoane pentru acest serial');
      END IF;
   EXCEPTION
      WHEN no_data_found THEN
         RAISE_APPLICATION_ERROR(-20004, 'Nu exista serial cu numele dat');
      WHEN too_many_rows THEN
         RAISE_APPLICATION_ERROR(-20005, 'Exista mai multe seriale cu acest nume');
   END;


   FUNCTION nr_episoade
      (prenume actors.first_name%TYPE := NULL,
       nume actors.last_name%TYPE := NULL,
       inceput DATE,
       sfarsit DATE)
   RETURN NUMBER IS
      nr_ep NUMBER(3);
      id_actor actors.actor_id%TYPE;
   BEGIN
      IF inceput > sfarsit THEN
         RAISE_APPLICATION_ERROR(-20006, 'Data de inceput trebuie sa fie mai mica decat
data de sfarsit');
         RETURN -1;
      END IF;

      IF prenume IS NULL AND nume IS NULL THEN
         RAISE_APPLICATION_ERROR(-20007, 'Nu poate sa fie si numele si prenumele
NULL');
         RETURN -1;
      END IF;

      -- determinarea id-ului actorului dat
      -- (acest pas se face separat ca sa se poata arunca exceptie in cazul in care
      -- nu exista actorulul sau exista mai multi acotri cu acest nume)
      IF nume IS NOT NULL AND prenume IS NOT NULL THEN
         -- numele si prenumele nusunt NULL
         SELECT actor_id INTO id_actor
         FROM actors
         WHERE first_name = prenume
           AND last_name = nume;
      ELSIF nume IS NULL AND prenume IS NOT NULL THEN
         -- prenumele nu este NULL
         SELECT actor_id INTO id_actor
         FROM actors
         WHERE first_name = prenume;
      ELSE
         -- numele nu este NULL
         SELECT actor_id INTO id_actor
         FROM actors
         WHERE last_name = nume;
      END IF;


      SELECT COUNT(*) INTO nr_ep
      FROM playing p JOIN characters ch ON (p.character_id = ch.character_id)
                  JOIN appearing_in ap ON (ch.character_id = ap.character_id)
                  JOIN episodes e ON (ap.episode_id = e.episode_id)
      WHERE p.actor_id = id_actor
        AND (p.starting_date <= sfarsit AND p.ending_date >= inceput)
        AND e.airing_date BETWEEN inceput AND sfarsit;

      RETURN nr_ep;
   EXCEPTION
      WHEN no_data_found THEN
         RAISE_APPLICATION_ERROR(-20004, 'Nu exista actor cu numele dat');
         RETURN -1;
      WHEN too_many_rows THEN
         RAISE_APPLICATION_ERROR(-20005, 'Exista mai multi actori cu acest nume');
         RETURN -1;
   END;


   PROCEDURE afisare_seriale AS
      TYPE pers IS RECORD (prenume producers.first_name%TYPE,
                      nume producers.last_name%TYPE);
      TYPE prod IS TABLE OF pers;
      v_producatori prod;
      CURSOR actori (id_serial NUMBER) IS
         SELECT a.actor_id, a.first_name, a.last_name
         FROM actors a JOIN playing p ON(a.actor_id = p.actor_id)
         WHERE series_id = id_serial;
      personaj pers;
      i INTEGER;
      exista_actori BOOLEAN;
   BEGIN
      FOR serial IN (SELECT series_id, title
                  FROM series)
              LOOP
         -- afisare serial
         DBMS_OUTPUT.PUT_LINE('---------------------------------------------------------');
         DBMS_OUTPUT.PUT_LINE('--- ' || UPPER(serial.title) || ' ---');

         -- afisare producatori
         DBMS_OUTPUT.PUT('--- Producatori: ');

         SELECT p.first_name, p.last_name BULK COLLECT INTO v_producatori
         FROM producers p JOIN produced_by ps ON (p.producer_id = ps.producer_id)
         WHERE series_id = serial.series_id;

         IF v_producatori.count() = 0 THEN
           -- nu exista producatori
           DBMS_OUTPUT.PUT('nu exista producatori');
         ELSE
           i := v_producatori.FIRST;
           WHILE i<= v_producatori.LAST LOOP
             DBMS_OUTPUT.PUT(v_producatori(i).prenume || ' ' || v_producatori(i).nume);
             IF i <> v_producatori.LAST THEN
              DBMS_OUTPUT.PUT(', ');
             END IF;

             i := v_producatori.NEXT(i);
           END LOOP;
         END IF;

         DBMS_OUTPUT.PUT(' ---');
         DBMS_OUTPUT.PUT_LINE('');
         DBMS_OUTPUT.PUT_LINE('---------------------------------------------------------');
```

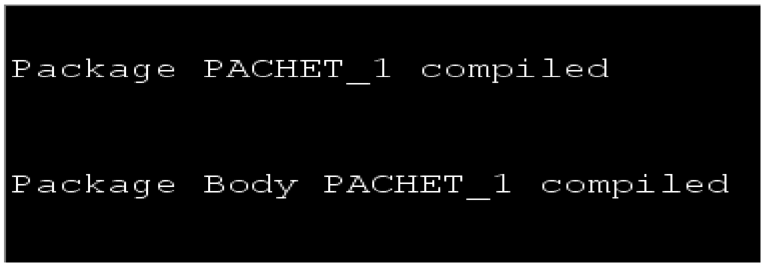
```
            -- afisare actori
            exista_actori := FALSE;
            FOR actor in actori(serial.series_id) LOOP
                exista_actori := TRUE;
                DBMS_OUTPUT.PUT(actor.first_name || ' ' || actor.last_name || ' - ');

                -- afisare personajul jucat de actor
                SELECT c.first_name, c.last_name INTO personaj
                FROM characters c JOIN playing p USING(character_id)
                WHERE actor_id = actor.actor_id;

                DBMS_OUTPUT.PUT(personaj.prenume || ' ' || personaj.nume);
                DBMS_OUTPUT.PUT_LINE('');
            END LOOP;

            IF NOT exista_actori THEN
                -- nu exista actori
                DBMS_OUTPUT.PUT_LINE('Nu exista actori');
            END IF;

            DBMS_OUTPUT.PUT_LINE('');
        END LOOP;
    END;
END pachet_1;
/
```



```
Package PACHET_1 compiled


Package Body PACHET_1 compiled
```

14. Definirea unui pachet care să includă tipuri de date complexe și obiecte necesare pentru acțiuni integrate.

Sa se afișeze informații despre actorii principali ai unui serial (actori care joaca pe durata a cel puțin 75% din durata întregului serial): nume, prenume, data nașterii, numele personajului pe care îl joaca, lista episoadelor în care apare.

```
CREATE OR REPLACE PACKAGE inf_actori IS
   -- tipuri de date
   TYPE rec_pers IS RECORD (prenume characters.first_name%TYPE,
                            nume characters.last_name%TYPE);
   TYPE tab_pers IS TABLE OF rec_pers;
   TYPE eps IS TABLE OF episodes.title%TYPE;
   TYPE rec_actori IS RECORD (prenume actors.first_name%TYPE,
                              nume actors.last_name%TYPE,
                              data_nastere actors.birth_date%TYPE,
                              personaje tab_pers,
                              episoade eps);
   TYPE tab_actori IS TABLE OF rec_actori;

   -- Obtinere durata in care un actor joaca intr-un serial
   FUNCTION screen_time_serial
      (prenume actors.first_name%TYPE,
       nume actors.last_name%TYPE,
       nume_serial series.title%TYPE)
   RETURN NUMBER;

   -- Obtinere despre actorii principali ai unui serial
   FUNCTION actori_principali
      (nume_serial series.title%TYPE,
       actori OUT tab_actori)
   RETURN NUMBER;

   -- Afisare actorii principali ai unui serial
   PROCEDURE afis_actori_principali
      (nume_serial series.title%TYPE);

END inf_actori;
/
```

```
CREATE OR REPLACE PACKAGE BODY inf_actori IS
   -- PRIVATE
   -- Functie ce determina durata totala a unui serial
   FUNCTION durata_serial
      (nume_serial series.title%TYPE)
   RETURN NUMBER IS
      durata NUMBER(5);
   BEGIN
      SELECT SUM(minutes) INTO durata
      FROM episodes JOIN seasons USING (season_id)
                 JOIN series s USING (series_id)
      WHERE s.title = INITCAP(nume_serial);

      RETURN durata;
   END;

   -- Functie ce determina durata in care un actor joaca intr-un sezon
   FUNCTION screen_time_sez
      (prenume actors.first_name%TYPE,
       nume actors.last_name%TYPE,
       nume_serial series.title%TYPE,
       nr_sez seasons.season_number%TYPE)
   RETURN NUMBER IS
      screen_time NUMBER(5);
   BEGIN
      SELECT SUM(minutes) INTO screen_time
      FROM episodes JOIN seasons USING(season_id)
                 JOIN series s USING(series_id)
                 JOIN appearing_in USING (episode_id)
                 JOIN characters USING (character_id)
                 JOIN playing USING (character_id)
                 JOIN actors a USING (actor_id)
      WHERE s.title = INITCAP(nume_serial)
        AND season_number = nr_sez
        AND a.first_name = INITCAP(prenume)
        AND a.last_name = INITCAP(nume);

      RETURN screen_time;
   END;
   -- PUBLIC
   FUNCTION screen_time_serial
      (prenume actors.first_name%TYPE,
       nume actors.last_name%TYPE,
       nume_serial series.title%TYPE)
   RETURN NUMBER IS
      screen_time NUMBER(5) := 0;
   BEGIN
      -- determinare screen_time_sez pt actorul pt fiecare sezon al serialului
      FOR sez IN (SELECT season_number
                  FROM seasons JOIN series s USING (series_id)
                  WHERE s.title = INITCAP(nume_serial))
                 LOOP

         screen_time    :=    screen_time    +    screen_time_sez    (prenume,    nume,    nume_serial,
sez.season_number);
      END LOOP;

      RETURN screen_time;
   END;

   FUNCTION actori_principali
      (nume_serial series.title%TYPE,
       actori OUT tab_actori)
   RETURN NUMBER IS
      TYPE rec_act IS RECORD (prenume actors.first_name%TYPE,
                         nume actors.last_name%TYPE,
                         data_nastere actors.birth_date%TYPE);
      TYPE tab_act IS TABLE OF rec_act;
      v_actori tab_act;
      v_pers tab_pers;
      v_eps eps;
      nr_act NUMBER(2) := 0;
   BEGIN
      actori := tab_actori();

      -- obtinere actorii ce joaca in serialul dat
      SELECT a.first_name, a.last_name, a.birth_date BULK COLLECT INTO v_actori
      FROM actors a JOIN playing USING (actor_id)
                 JOIN series USING (series_id)
      WHERE title = INITCAP(nume_serial);
```

```
    IF v_actori.COUNT = 0 THEN
      RAISE_APPLICATION_ERROR(-20009, 'Numele serialului dat nu este bun');
      RETURN -1;
    END IF;

    FOR i IN v_actori.FIRST..v_actori.LAST LOOP
      IF  screen_time_serial(v_actori(i).prenume,  v_actori(i).nume,  nume_serial)  >=  0.75  *
durata_serial(nume_serial) THEN
        nr_act := nr_act + 1;

        -- obtinere personajele jucate de actor
        SELECT first_name, last_name BULK COLLECT INTO v_pers
        FROM characters JOIN playing USING(character_id)
        WHERE actor_id = (SELECT actor_id
                          FROM actors
                          WHERE first_name = v_actori(i).prenume
                            AND last_name = v_actori(i).nume)
          AND series_id = (SELECT series_id
                           FROM series
                           WHERE title = INITCAP(nume_serial));

         -- obtinere lista episoade in care joaca actorul
         SELECT e.title BULK COLLECT INTO v_eps
         FROM episodes e JOIN seasons USING(season_id)
                        JOIN series s USING(series_id)
                        JOIN appearing_in USING (episode_id)
                        JOIN characters USING (character_id)
                        JOIN playing USING (character_id)
                        JOIN actors a USING (actor_id)
        WHERE s.title = INITCAP(nume_serial)
          AND a.first_name = v_actori(i).prenume
          AND a.last_name = v_actori(i).nume;

        actori.EXTEND;
        actori(actori.LAST).prenume := v_actori(i).prenume;
        actori(actori.LAST).nume := v_actori(i).nume;
        actori(actori.LAST).data_nastere := v_actori(i).data_nastere;
        actori(actori.LAST).personaje := v_pers;
        actori(actori.LAST).episoade := v_eps;
      END IF;
    END LOOP;
```

```
      RETURN nr_act;
   END;

   PROCEDURE afis_actori_principali
      (nume_serial series.title%TYPE)
   IS
      actori tab_actori;
      nr_act NUMBER(2);
   BEGIN
      nr_act := actori_principali(nume_serial, actori);

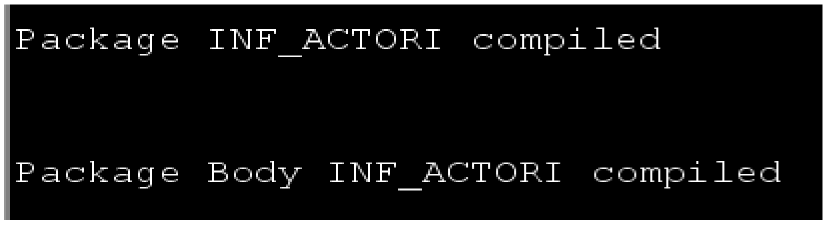
      DBMS_OUTPUT.PUT_LINE('Serialul ' || INITCAP(nume_serial) || ' are ' || nr_act || ' actori
principali');
      FOR i IN 1..nr_act LOOP
         DBMS_OUTPUT.PUT_LINE(i || '. ' || actori(i). prenume || ' ' || actori(i).nume || ' - ' ||
actori(i).data_nastere);

         DBMS_OUTPUT.PUT_LINE('-- Personaje jucate: ');
         FOR j IN actori(i).personaje.FIRST..actori(i).personaje.LAST LOOP
            DBMS_OUTPUT.PUT_LINE(actori(i).personaje(j).prenume || ' ' ||
actori(i).personaje(j).nume);
         END LOOP;

         DBMS_OUTPUT.PUT_LINE('-- Episoade in care apare: ');
         FOR j IN actori(i).episoade.FIRST..actori(i).episoade.LAST LOOP
            DBMS_OUTPUT.PUT_LINE(actori(i).episoade(j));
         END LOOP;

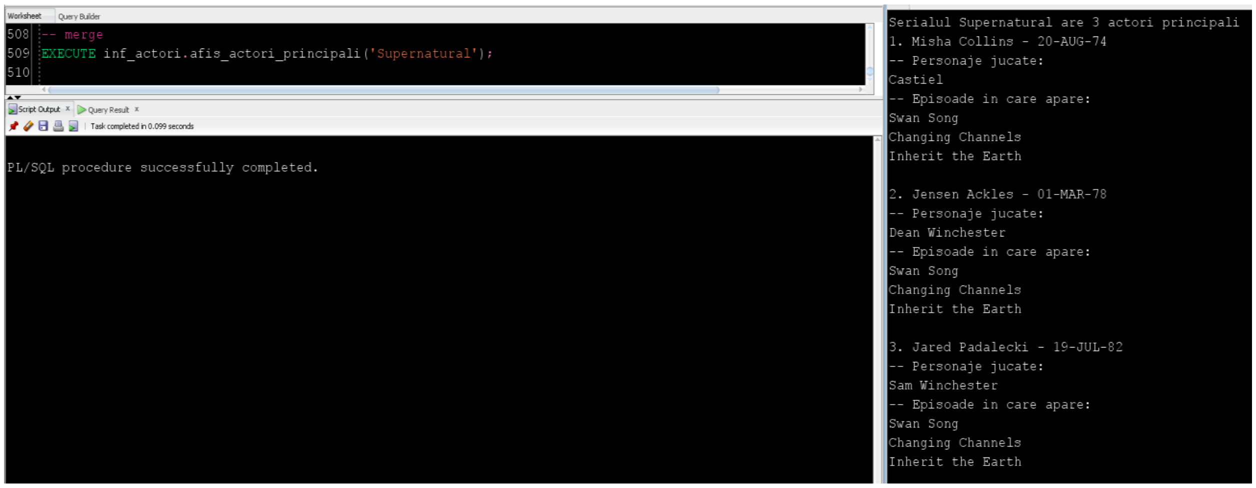
         DBMS_OUTPUT.PUT_LINE('');
      END LOOP;
   END;

END inf_actori;
/
```



```
Package INF_ACTORI compiled


Package Body INF_ACTORI compiled
```



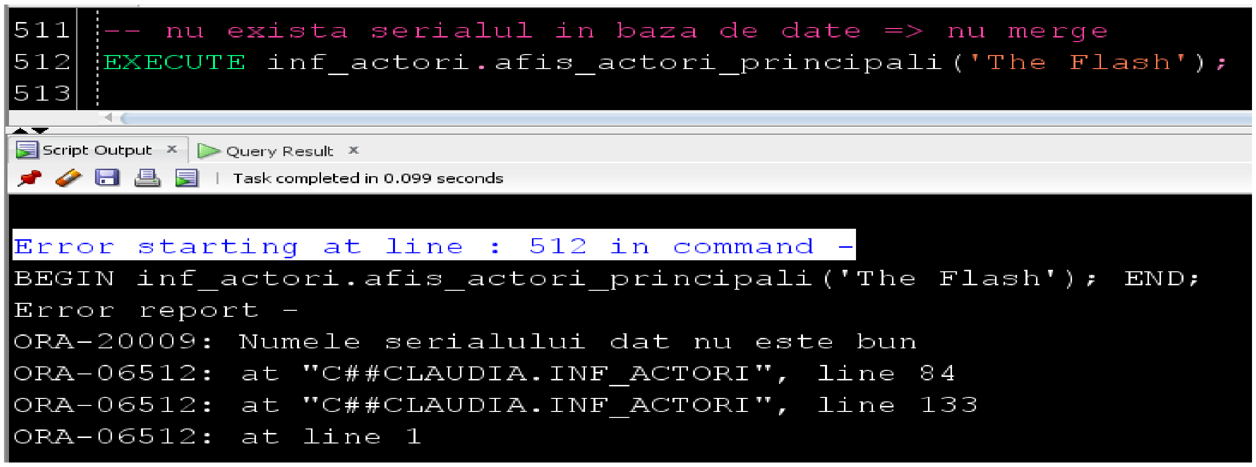
```
-- merge
EXECUTE inf_actori.afis_actori_principali('Supernatural');
```

```
PL/SQL procedure successfully completed.
```

```
Serialul Supernatural are 3 actori principali
1. Misha Collins - 20-AUG-74
-- Personaje jucate:
Castiel
-- Episoade in care apare:
Swan Song
Changing Channels
Inherit the Earth

2. Jensen Ackles - 01-MAR-78
-- Personaje jucate:
Dean Winchester
-- Episoade in care apare:
Swan Song
Changing Channels
Inherit the Earth

3. Jared Padalecki - 19-JUL-82
-- Personaje jucate:
Sam Winchester
-- Episoade in care apare:
Swan Song
Changing Channels
Inherit the Earth
```



```
-- nu exista serialul in baza de date => nu merge
EXECUTE inf_actori.afis_actori_principali('The Flash');
```

Task completed in 0.099 seconds

```
Error starting at line : 512 in command -
BEGIN inf_actori.afis_actori_principali('The Flash'); END;
Error report -
ORA-20009: Numele serialului dat nu este bun
ORA-06512: at "C##CLAUDIA.INF_ACTORI", line 84
ORA-06512: at "C##CLAUDIA.INF_ACTORI", line 133
ORA-06512: at line 1
```