Tudorache Alexandru-Theodor

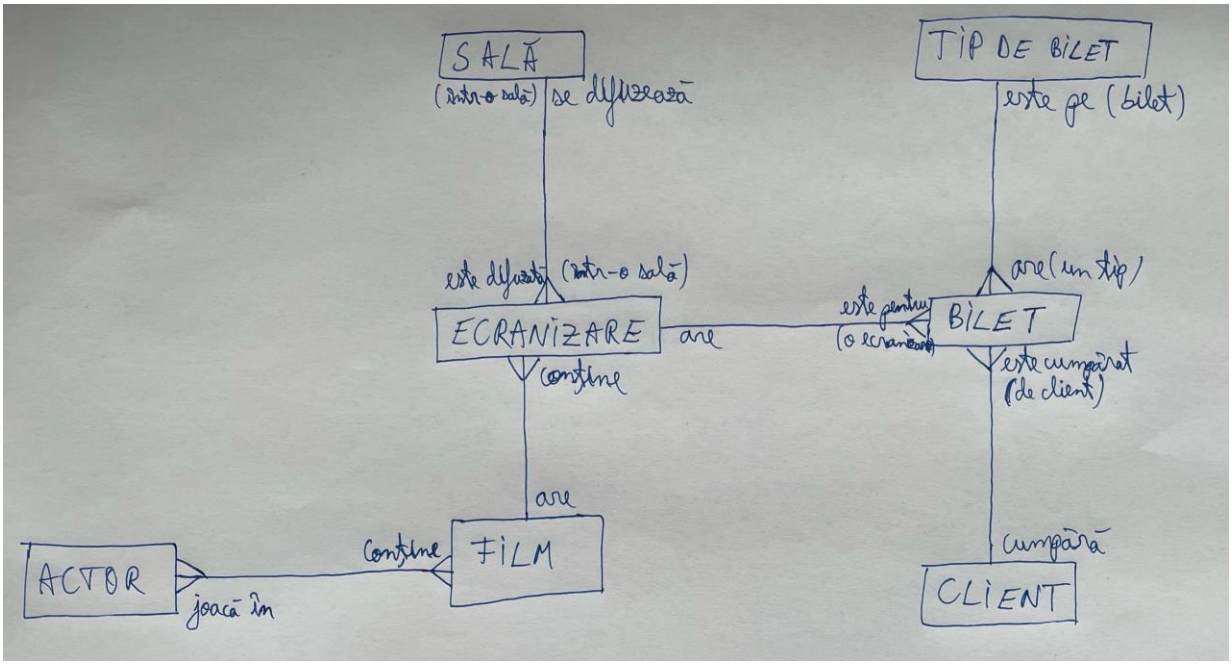
Grupa 242

Proiect SGBD

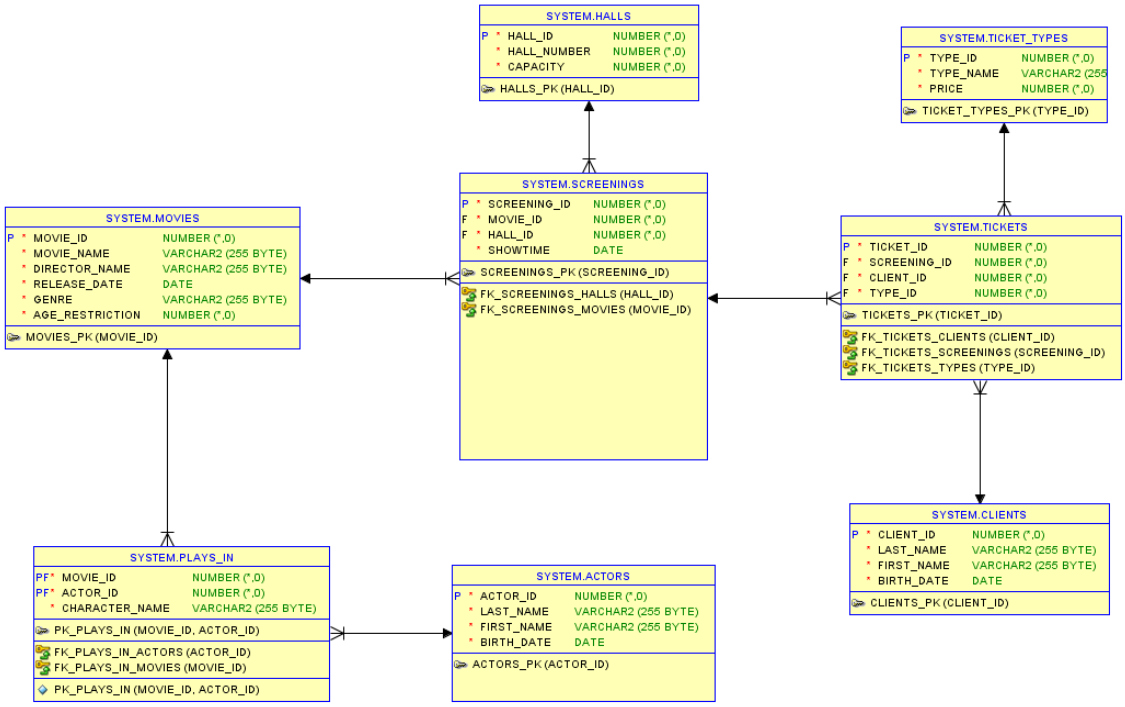
-Cinema Database-

1. Baza de date este a unui cinema cu o singură locație (nu un lanț de cinematografe precum Cinema City), dar cu săli multiple. Cu ajutorul acestei baze de date clienții își pot cumpăra bilete la anumite ecranizări ale filmelor pe care vor să le vizioneze, biletele având diferite tipuri pentru a putea determina prețul acestora. De asemenea, în baza de date se află și actorii care joacă în filmele care sunt ecranizate pentru a putea fi afișați alături de filmul/filmele în care joacă.

2.



3.

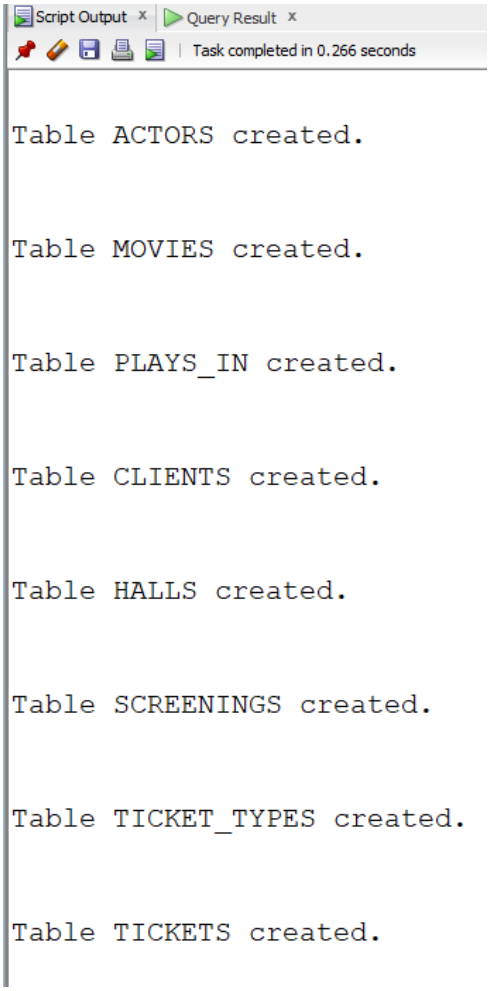


4.

```
CREATE TABLE ACTORS (
    actor_id INT PRIMARY KEY,
    last_name varchar(255) NOT NULL,
    first_name varchar(255) NOT NULL,
    birth_date DATE NOT NULL
);

CREATE TABLE MOVIES (
    movie_id INT PRIMARY KEY,
    movie_name varchar(255) NOT NULL,
    director_name varchar(255) NOT NULL,
    release_date DATE NOT NULL,
    genre varchar(255) NOT NULL,
    age_restriction int NOT NULL
);
```

```
CREATE TABLE PLAYS_IN (
    movie_id INT NOT NULL,
    actor_id INT NOT NULL,
    character_name varchar(255) NOT NULL,
    CONSTRAINT FK_PLAYS_IN_MOVIES FOREIGN KEY (movie_id) REFERENCES MOVIES(movie_id),
    CONSTRAINT FK_PLAYS_IN_ACTORS FOREIGN KEY (actor_id) REFERENCES ACTORS(actor_id),
    CONSTRAINT PK_PLAYS_IN PRIMARY KEY (movie_id, actor_id)
);

CREATE TABLE CLIENTS (
    client_id INT PRIMARY KEY,
    last_name varchar(255) NOT NULL,
    first_name varchar(255) NOT NULL,
    birth_date DATE NOT NULL
);

CREATE TABLE HALLS (
    hall_id INT PRIMARY KEY,
    hall_number INT NOT NULL,
    capacity INT NOT NULL
);

CREATE TABLE SCREENINGS (
    screening_id INT PRIMARY KEY,
    movie_id INT NOT NULL,
    hall_id INT NOT NULL,
    showtime DATE NOT NULL,
    CONSTRAINT FK_SCREENINGS_MOVIES FOREIGN KEY (movie_id) REFERENCES MOVIES(movie_id),
    CONSTRAINT FK_SCREENINGS_HALLS FOREIGN KEY (hall_id) REFERENCES HALLS(hall_id)
);

CREATE TABLE TICKET_TYPES (
```

```
    type_id INT PRIMARY KEY,
    type_name VARCHAR(255) NOT NULL,
    price INT NOT NULL
);

CREATE TABLE TICKETS (
    ticket_id INT PRIMARY KEY,
    screening_id INT NOT NULL,
    client_id INT NOT NULL,
    type_id INT NOT NULL,
    CONSTRAINT FK_TICKETS_SCREENINGS FOREIGN KEY (screening_id) REFERENCES
SCREENINGS(screening_id),
    CONSTRAINT FK_TICKETS_CLIENTS FOREIGN KEY (client_id) REFERENCES CLIENTS(client_id),
    CONSTRAINT FK_TICKETS_TYPES FOREIGN KEY (type_id) REFERENCES TICKET_TYPES(type_id)
);
```



5.

-----ACTORS INSERTS-----

```
INSERT INTO ACTORS
VALUES (1, 'Leonardo', 'DiCaprio', TO_DATE('1974/11/11', 'yyyy/mm/dd'));

INSERT INTO ACTORS
VALUES (2, 'Jamie', 'Foxx', TO_DATE('1967/12/13', 'yyyy/mm/dd'));

INSERT INTO ACTORS
VALUES (3, 'Gary', 'Oldman', TO_DATE('1958/03/21', 'yyyy/mm/dd'));
```

INSERT INTO ACTORS

VALUES (4, 'Robert', 'Pattinson', TO_DATE('1986/05/13', 'yyyy/mm/dd'));

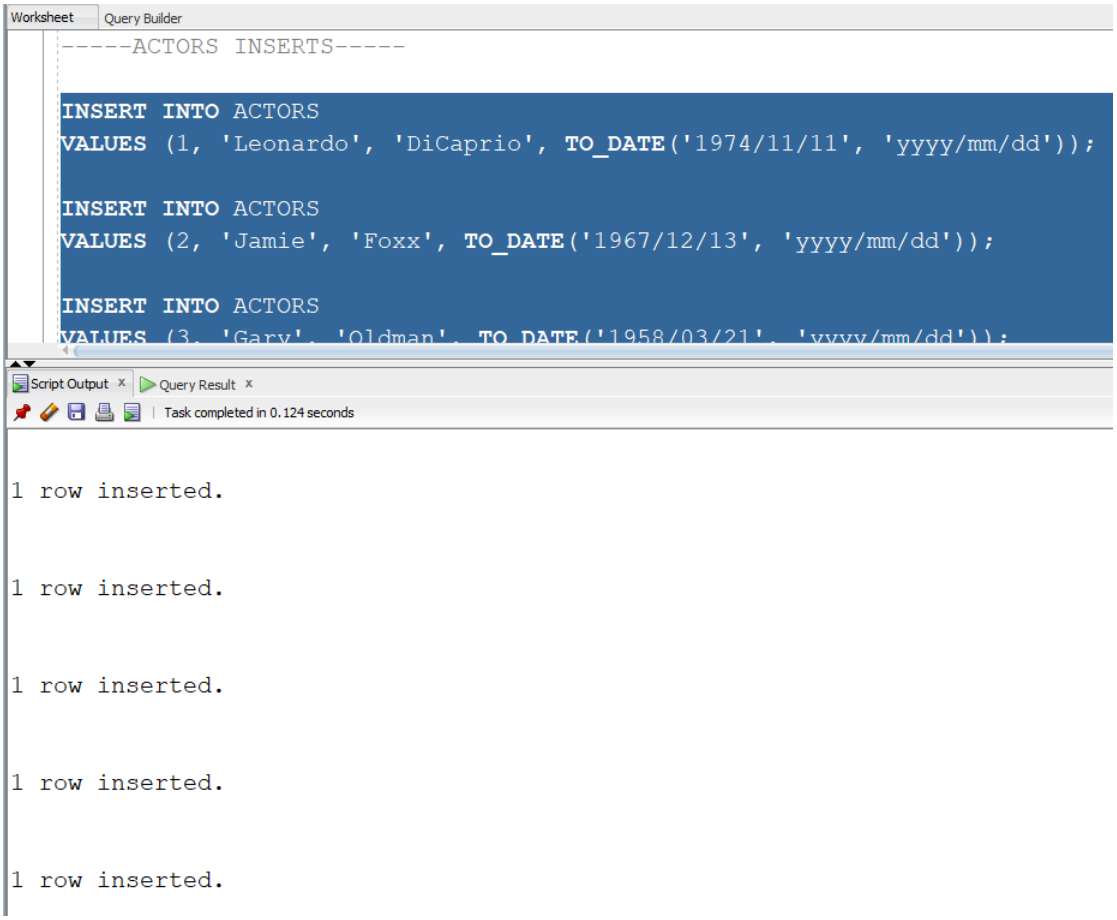
INSERT INTO ACTORS

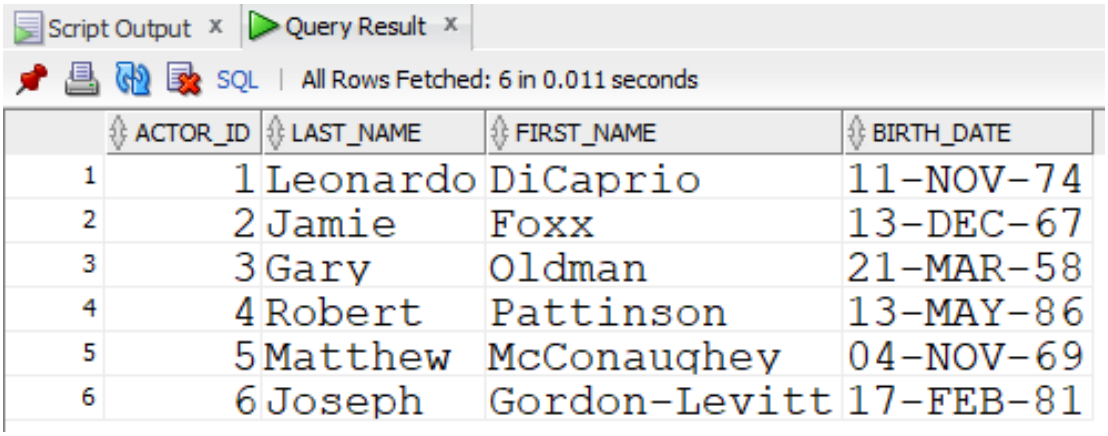
VALUES (5, 'Matthew', 'McConaughey', TO_DATE('1969/11/04', 'yyyy/mm/dd'));

INSERT INTO ACTORS

VALUES (6, 'Joseph', 'Gordon-Levitt', TO_DATE('1981/02/17', 'yyyy/mm/dd'));

select * from actors;





	ACTOR_ID	LAST_NAME	FIRST_NAME	BIRTH_DATE
1	1	Leonardo	DiCaprio	11-NOV-74
2	2	Jamie	Foxx	13-DEC-67
3	3	Gary	Oldman	21-MAR-58
4	4	Robert	Pattinson	13-MAY-86
5	5	Matthew	McConaughey	04-NOV-69
6	6	Joseph	Gordon-Levitt	17-FEB-81

-----MOVIES INSERTS-----

INSERT INTO MOVIES

VALUES (1, 'Soul', 'Docter', TO_DATE('2020/12/25', 'yyyy/mm/dd'), 'Drama', 10);

INSERT INTO MOVIES

VALUES (2, 'Mank', 'Fincher', TO_DATE('2020/11/13', 'yyyy/mm/dd'), 'Drama', 13);

INSERT INTO MOVIES

VALUES (3, 'Borat 2', 'Woliner', TO_DATE('2020/10/23', 'yyyy/mm/dd'), 'Comedy', 15);

INSERT INTO MOVIES

VALUES (4, 'Tenet', 'Nolan', TO_DATE('2020/09/18', 'yyyy/mm/dd'), 'Action', 13);

INSERT INTO MOVIES

VALUES (5, 'Interstellar', 'Nolan', TO_DATE('2014/11/07', 'yyyy/mm/dd'), 'Sci-Fi', 13);

INSERT INTO MOVIES

VALUES (6, 'Dunkirk', 'Nolan', TO_DATE('2017/07/13', 'yyyy/mm/dd'), 'Action', 15);

INSERT INTO MOVIES

VALUES (7, 'Inglorious Basterds', 'Tarantino', TO_DATE('2020/09/04', 'yyyy/mm/dd'), 'Action', 13);

INSERT INTO MOVIES

VALUES (8, '30 Years and 15 Minutes', 'Mandachi', TO_DATE('2020/08/08', 'yyyy/mm/dd'), 'Action', 15);

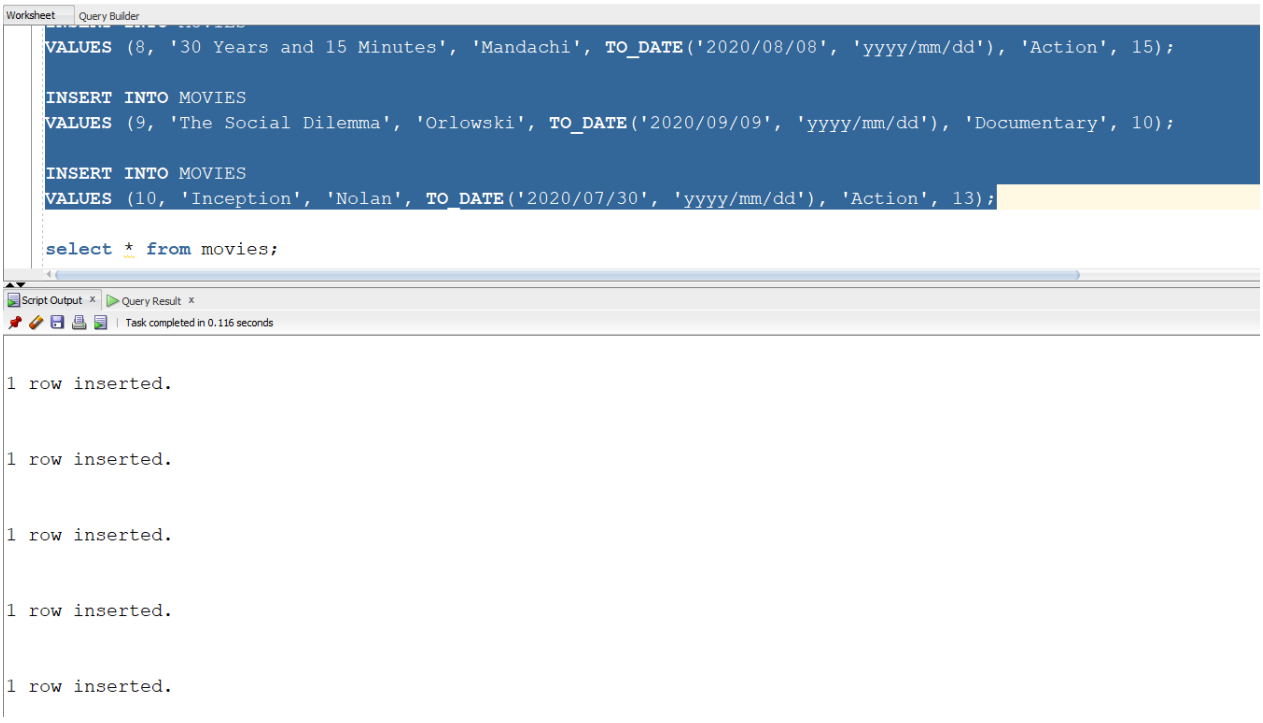
INSERT INTO MOVIES

VALUES (9, 'The Social Dilemma', 'Orlowski', TO_DATE('2020/09/09', 'yyyy/mm/dd'), 'Documentary', 10);

INSERT INTO MOVIES

VALUES (10, 'Inception', 'Nolan', TO_DATE('2020/07/30', 'yyyy/mm/dd'), 'Action', 13);

select * from movies;



Script Output | Query Result

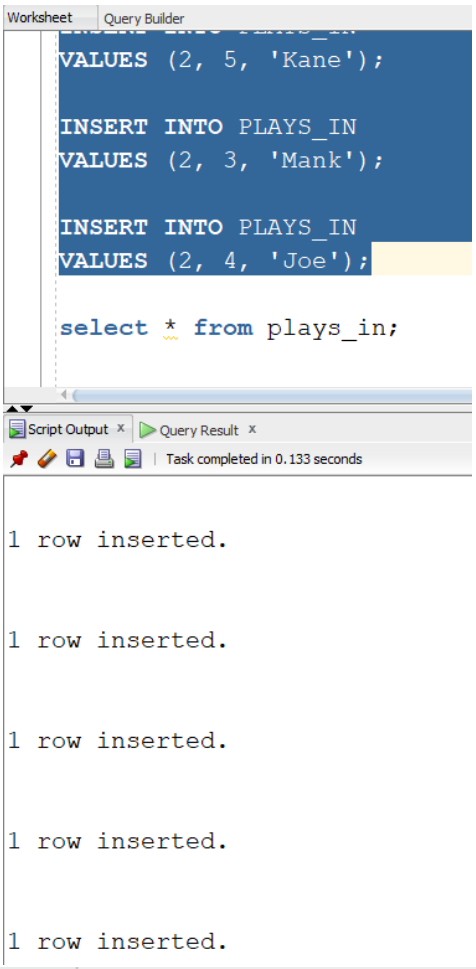
SQL | All Rows Fetched: 10 in 0.002 seconds

	MOVIE_ID	MOVIE_NAME	DIRECTOR_NAME	RELEASE_DATE	GENRE	AGE_RESTRICTION
1	1	Soul	Docter	25-DEC-20	Drama	10
2	2	Mank	Fincher	13-NOV-20	Drama	13
3	3	Borat 2	Woliner	23-OCT-20	Comedy	15
4	4	Tenet	Nolan	18-SEP-20	Action	13
5	5	Interstellar	Nolan	07-NOV-14	Sci-Fi	13
6	6	Dunkirk	Nolan	13-JUL-17	Action	15
7	7	Inglorious Basterds	Tarantino	04-SEP-20	Action	13
8	8	30 Years and 15 ...	Mandachi	08-AUG-20	Action	15
9	9	The Social Dilemma	Orlowski	09-SEP-20	Doc...	10
10	10	Inception	Nolan	30-JUL-20	Action	13

-----PLAYS IN INSERTS-----

```
INSERT INTO PLAYS_IN
VALUES (1, 2, 'Joe');

INSERT INTO PLAYS_IN
VALUES (4, 4, 'Neil');

INSERT INTO PLAYS_IN
VALUES (4, 2, 'Protagonist');

INSERT INTO PLAYS_IN
VALUES (5, 5, 'Cooper');

INSERT INTO PLAYS_IN
VALUES (10, 1, 'Cobb');

INSERT INTO PLAYS_IN
VALUES (10, 6, 'Arthur');

INSERT INTO PLAYS_IN
VALUES (10, 5, 'Eames');

INSERT INTO PLAYS_IN
```

```
VALUES (7, 1, 'Aldo Raine');

INSERT INTO PLAYS_IN
VALUES (7, 6, 'Hans Landa');

INSERT INTO PLAYS_IN
VALUES (2, 5, 'Kane');

INSERT INTO PLAYS_IN
VALUES (2, 3, 'Mank');

INSERT INTO PLAYS_IN
VALUES (2, 4, 'Joe');

select * from plays_in;
```



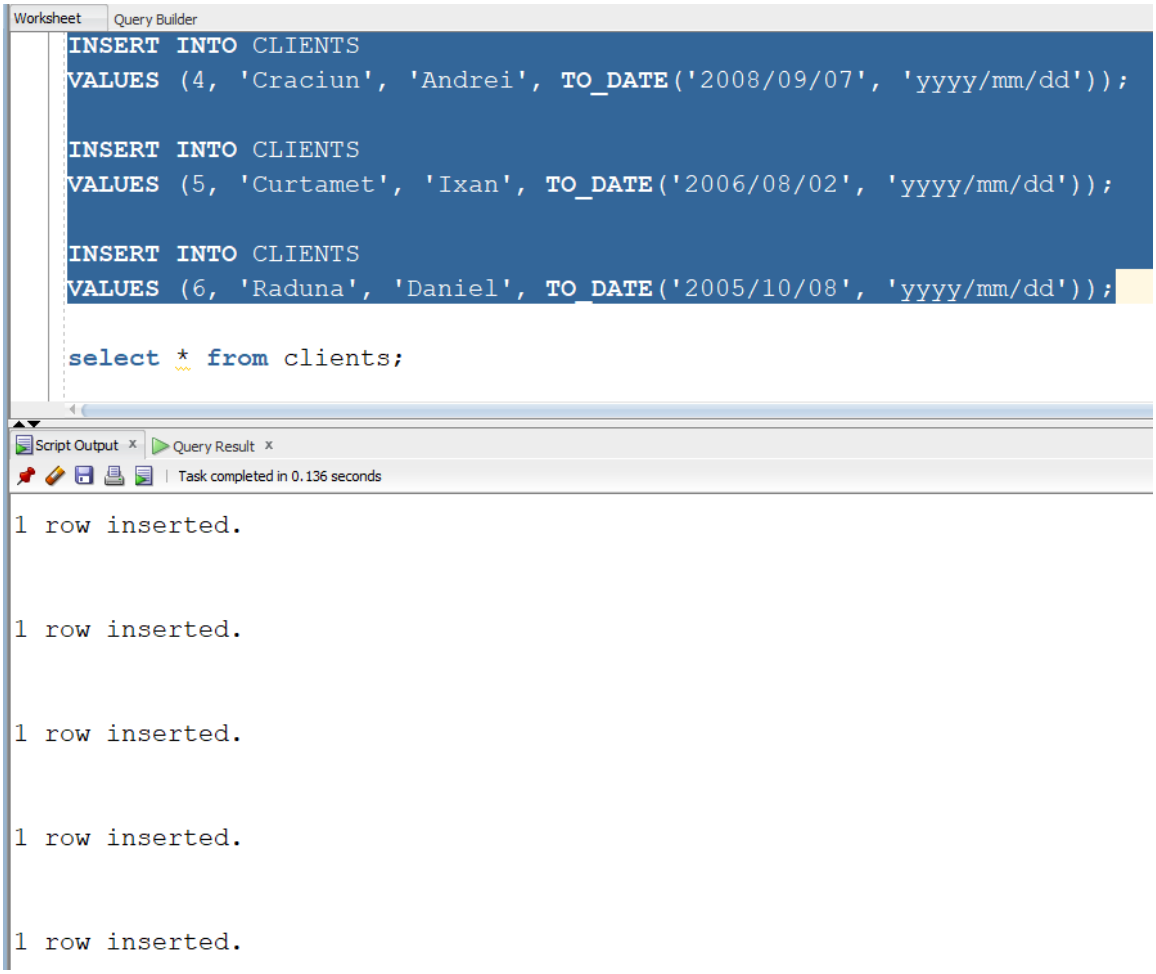
Script Output | Query Result

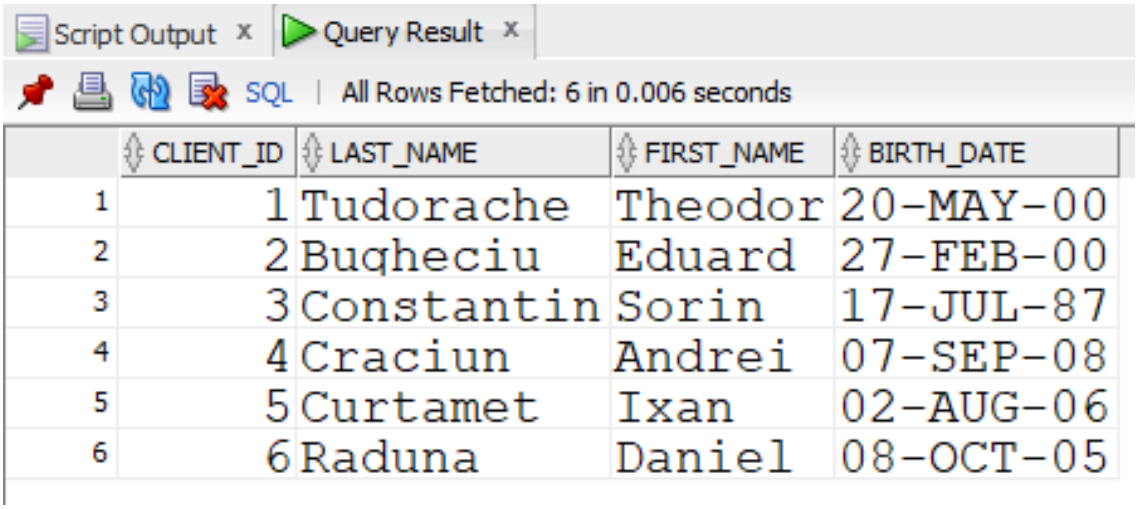
SQL | All Rows Fetched: 12 in 0.006 seconds

	MOVIE_ID	ACTOR_ID	CHARACTER_NAME
1	1	2	Joe
2	4	4	Neil
3	4	2	Protagonist
4	5	5	Cooper
5	10	1	Cobb
6	10	6	Arthur
7	10	5	Eames
8	7	1	Aldo Raine
9	7	6	Hans Landa
10	2	5	Kane
11	2	3	Mank
12	2	4	Joe

-----CLIENTS INSERTS-----

```
INSERT INTO CLIENTS
VALUES (1, 'Tudorache', 'Theodor', TO_DATE('2000/05/20', 'yyyy/mm/dd'));

INSERT INTO CLIENTS
VALUES (2, 'Bugheciu', 'Eduard', TO_DATE('2000/02/27', 'yyyy/mm/dd'));

INSERT INTO CLIENTS
VALUES (3, 'Constantin', 'Sorin', TO_DATE('1987/07/17', 'yyyy/mm/dd'));

INSERT INTO CLIENTS
VALUES (4, 'Craciun', 'Andrei', TO_DATE('2008/09/07', 'yyyy/mm/dd'));

INSERT INTO CLIENTS
VALUES (5, 'Curtamet', 'Ixan', TO_DATE('2006/08/02', 'yyyy/mm/dd'));

INSERT INTO CLIENTS
VALUES (6, 'Raduna', 'Daniel', TO_DATE('2005/10/08', 'yyyy/mm/dd'));

select * from clients;
```





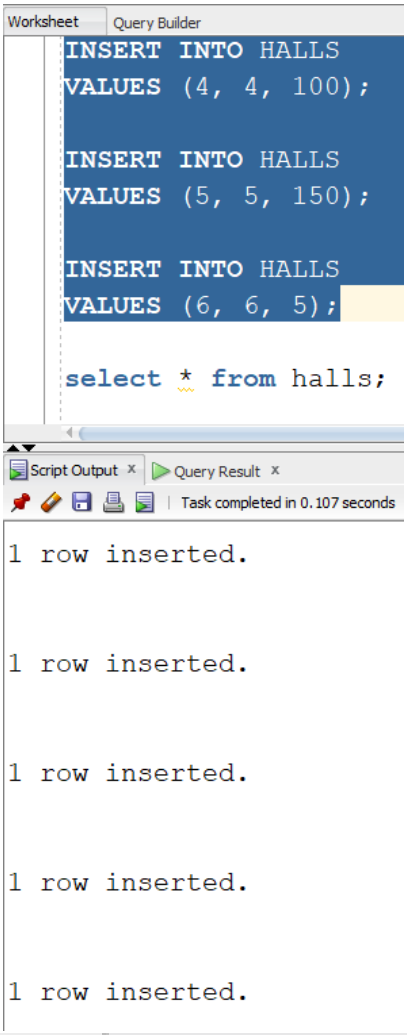
	CLIENT_ID	LAST_NAME	FIRST_NAME	BIRTH_DATE
1	1	Tudorache	Theodor	20-MAY-00
2	2	Bugheciu	Eduard	27-FEB-00
3	3	Constantin	Sorin	17-JUL-87
4	4	Craciun	Andrei	07-SEP-08
5	5	Curtamet	Ixan	02-AUG-06
6	6	Raduna	Daniel	08-OCT-05

-----HALLS INSERTS-----

INSERT INTO HALLS

VALUES (1, 1, 100);

```
INSERT INTO HALLS
VALUES (2, 2, 50);

INSERT INTO HALLS
VALUES (3, 3, 250);

INSERT INTO HALLS
VALUES (4, 4, 100);

INSERT INTO HALLS
VALUES (5, 5, 150);

INSERT INTO HALLS
VALUES (6, 6, 5);

select * from halls;
```



Script Output | Query Result

SQL | All Rows Fetched: 6 in 0.007

	HALL_ID	HALL_NUMBER	CAPACITY
1	1	1	100
2	2	2	50
3	3	3	250
4	4	4	100
5	5	5	150
6	6	6	5

-----SCREENINGS INSERTS-----

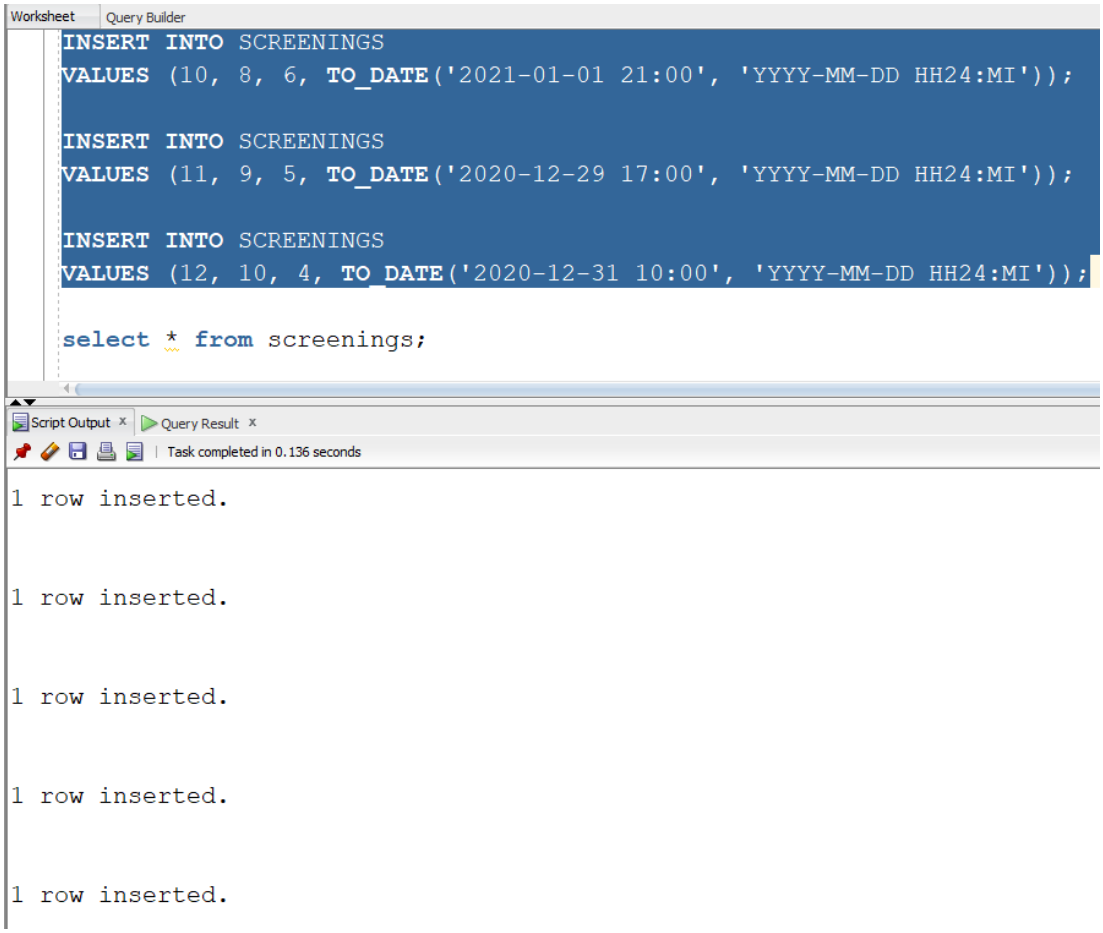
```
INSERT INTO SCREENINGS
VALUES (1, 1, 6, TO_DATE('2020-12-25 13:00', 'YYYY-MM-DD HH24:MI'));

INSERT INTO SCREENINGS
VALUES (2, 3, 6, TO_DATE('2020-12-25 17:00', 'YYYY-MM-DD HH24:MI'));

INSERT INTO SCREENINGS
VALUES (3, 1, 1, TO_DATE('2020-12-30 21:00', 'YYYY-MM-DD HH24:MI'));

INSERT INTO SCREENINGS
VALUES (4, 2, 2, TO_DATE('2021-01-02 20:00', 'YYYY-MM-DD HH24:MI'));

INSERT INTO SCREENINGS
VALUES (5, 4, 3, TO_DATE('2020-01-03 17:00', 'YYYY-MM-DD HH24:MI'));

INSERT INTO SCREENINGS
VALUES (6, 4, 3, TO_DATE('2021-01-03 17:00', 'YYYY-MM-DD HH24:MI'));

INSERT INTO SCREENINGS
VALUES (7, 5, 4, TO_DATE('2021-01-03 13:00', 'YYYY-MM-DD HH24:MI'));

INSERT INTO SCREENINGS
VALUES (8, 6, 5, TO_DATE('2021-01-05 11:00', 'YYYY-MM-DD HH24:MI'));

INSERT INTO SCREENINGS
VALUES (9, 7, 6, TO_DATE('2021-01-05 20:00', 'YYYY-MM-DD HH24:MI'));

INSERT INTO SCREENINGS
VALUES (10, 8, 6, TO_DATE('2021-01-01 21:00', 'YYYY-MM-DD HH24:MI'));

INSERT INTO SCREENINGS
```

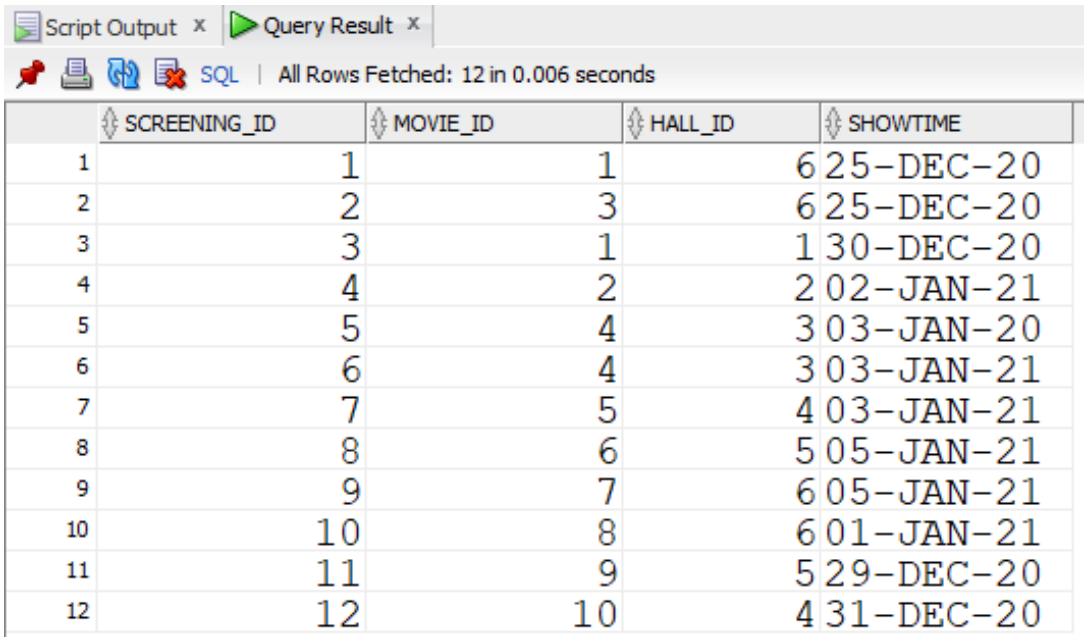
VALUES (11, 9, 5, TO_DATE('2020-12-29 17:00', 'YYYY-MM-DD HH24:MI'));

INSERT INTO SCREENINGS

VALUES (12, 10, 4, TO_DATE('2020-12-31 10:00', 'YYYY-MM-DD HH24:MI'));

select * from screenings;

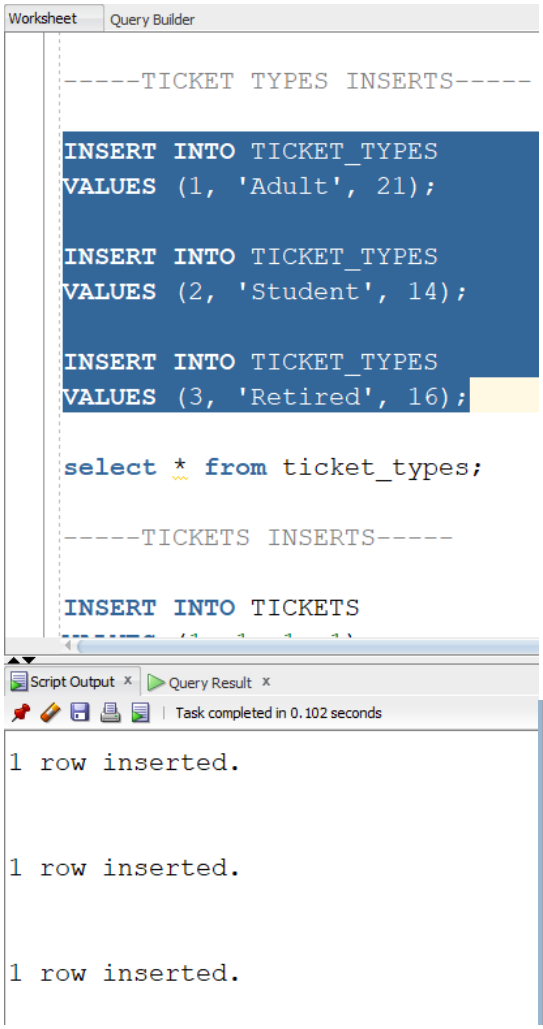


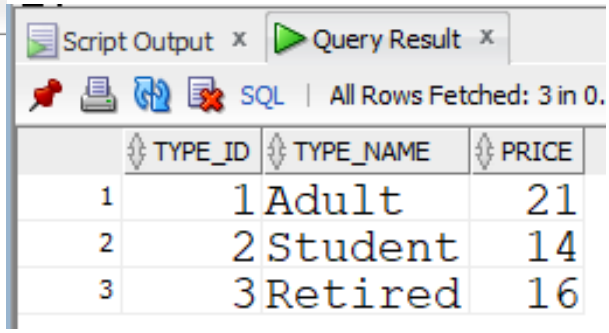


	SCREENING_ID	MOVIE_ID	HALL_ID	SHOWTIME
1	1	1	6	25-DEC-20
2	2	3	6	25-DEC-20
3	3	1	1	30-DEC-20
4	4	2	2	02-JAN-21
5	5	4	3	03-JAN-20
6	6	4	3	03-JAN-21
7	7	5	4	03-JAN-21
8	8	6	5	05-JAN-21
9	9	7	6	05-JAN-21
10	10	8	6	01-JAN-21
11	11	9	5	29-DEC-20
12	12	10	4	31-DEC-20

-----TICKET TYPES INSERTS-----

```
INSERT INTO TICKET_TYPES
VALUES (1, 'Adult', 21);

INSERT INTO TICKET_TYPES
VALUES (2, 'Student', 14);

INSERT INTO TICKET_TYPES
VALUES (3, 'Retired', 16);

select * from ticket_types;
```





-----TICKETS INSERTS-----

INSERT INTO TICKETS

VALUES (1, 1, 1, 1);

INSERT INTO TICKETS

VALUES (2, 1, 2, 2);

INSERT INTO TICKETS

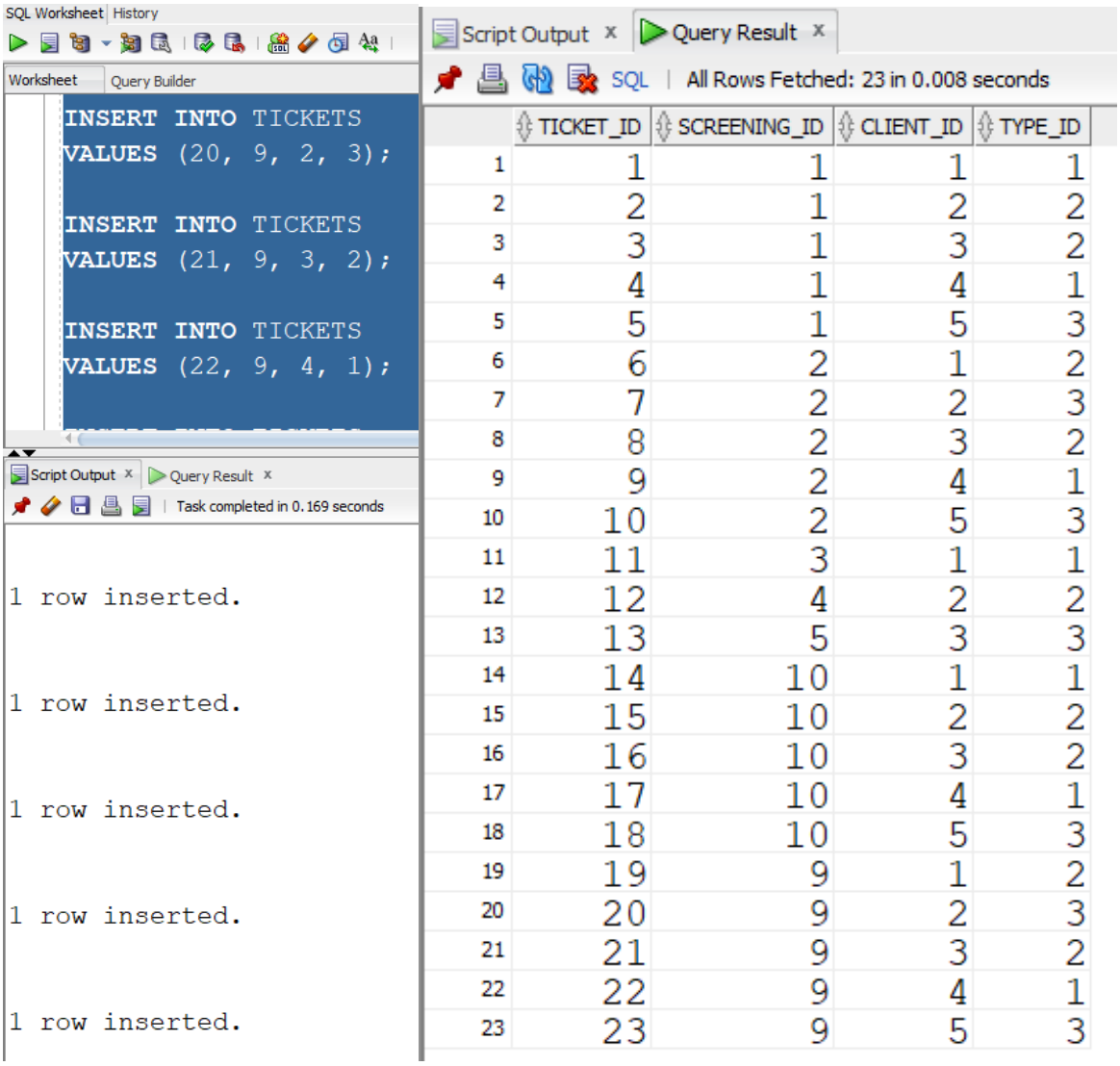
VALUES (3, 1, 3, 2);

INSERT INTO TICKETS

VALUES (4, 1, 4, 1);

```
INSERT INTO TICKETS
VALUES (5, 1, 5, 3);

INSERT INTO TICKETS
VALUES (6, 2, 1, 2);

INSERT INTO TICKETS
VALUES (7, 2, 2, 3);

INSERT INTO TICKETS
VALUES (8, 2, 3, 2);

INSERT INTO TICKETS
VALUES (9, 2, 4, 1);

INSERT INTO TICKETS
VALUES (10, 2, 5, 3);

INSERT INTO TICKETS
VALUES (11, 3, 1, 1);

INSERT INTO TICKETS
VALUES (12, 4, 2, 2);

INSERT INTO TICKETS
VALUES (13, 5, 3, 3);

INSERT INTO TICKETS
VALUES (14, 10, 1, 1);

INSERT INTO TICKETS
```

```
VALUES (15, 10, 2, 2);

INSERT INTO TICKETS
VALUES (16, 10, 3, 2);

INSERT INTO TICKETS
VALUES (17, 10, 4, 1);

INSERT INTO TICKETS
VALUES (18, 10, 5, 3);

INSERT INTO TICKETS
VALUES (19, 9, 1, 2);

INSERT INTO TICKETS
VALUES (20, 9, 2, 3);

INSERT INTO TICKETS
VALUES (21, 9, 3, 2);

INSERT INTO TICKETS
VALUES (22, 9, 4, 1);

INSERT INTO TICKETS
VALUES (23, 9, 5, 3);

select * from tickets;
```

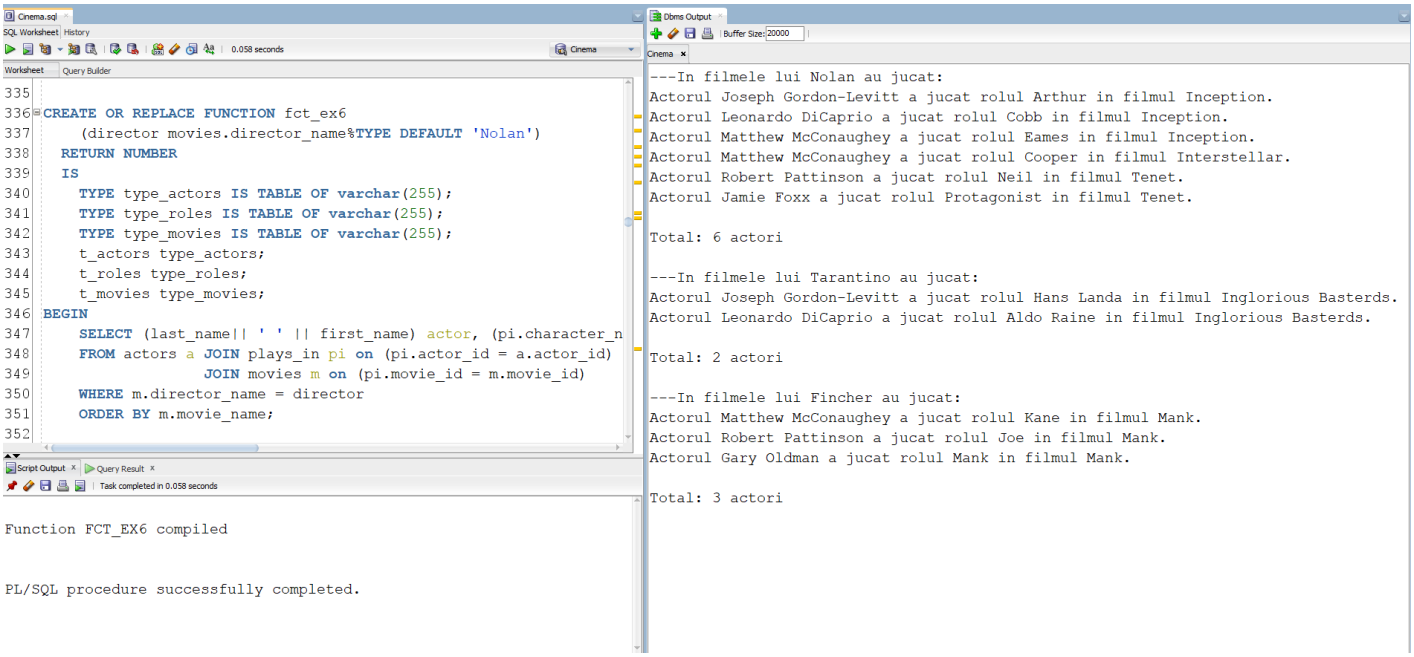


6. Să se definească o funcție care să afișeze numele actorilor, dar și personajul lor, care au jucat în filmele regizate de un regizor cu nume dat că parametru(Parametrul default va fi 'Nolan'). Acest subprogram trebuie să returneze numărul acestor actori.

```
CREATE OR REPLACE FUNCTION fct_ex6
   (director movies.director_name%TYPE DEFAULT 'Nolan')
 RETURN NUMBER
 IS
   TYPE type_actors IS TABLE OF varchar(255);
   TYPE type_roles IS TABLE OF varchar(255);
   TYPE type_movies IS TABLE OF varchar(255);
```

```
    t_actors type_actors;
    t_roles type_roles;
    t_movies type_movies;
BEGIN
    SELECT (last_name|| ' ' || first_name) actor, (pi.character_name) personaj, (m.movie_name)
BULK COLLECT INTO t_actors, t_roles, t_movies
    FROM actors a JOIN plays_in pi on (pi.actor_id = a.actor_id)
                JOIN movies m on (pi.movie_id = m.movie_id)
    WHERE m.director_name = director
    ORDER BY m.movie_name;

    DBMS_OUTPUT.PUT_LINE('---In filmele lui ' || director || ' au jucat:');

    FOR I in t_actors.first..t_actors.last LOOP
       DBMS_OUTPUT.PUT_LINE('Actorul ' || t_actors(i) || ' a jucat rolul ' || t_roles(i) || ' in
filmul ' || t_movies(i) || '.');
    END LOOP;
    DBMS_OUTPUT.NEW_LINE;
    RETURN t_actors.count;
END fct_ex6;
/

APELARE:

BEGIN
    DBMS_OUTPUT.PUT_LINE('Total: ' || fct_ex6() || ' actori');
    DBMS_OUTPUT.NEW_LINE;
    DBMS_OUTPUT.PUT_LINE('Total: ' || fct_ex6('Tarantino') || ' actori');
    DBMS_OUTPUT.NEW_LINE;
```

```
    DBMS_OUTPUT.PUT_LINE('Total: ' || fct_ex6('Fincher') || ' actori');
END;
/
```



```
Function FCT_EX6 compiled


PL/SQL procedure successfully completed.
```

```
---In filmele lui Nolan au jucat:
Actorul Joseph Gordon-Levitt a jucat rolul Arthur in filmul Inception.
Actorul Leonardo DiCaprio a jucat rolul Cobb in filmul Inception.
Actorul Matthew McConaughey a jucat rolul Eames in filmul Inception.
Actorul Matthew McConaughey a jucat rolul Cooper in filmul Interstellar.
Actorul Robert Pattinson a jucat rolul Neil in filmul Tenet.
Actorul Jamie Foxx a jucat rolul Protagonist in filmul Tenet.

Total: 6 actori

---In filmele lui Tarantino au jucat:
Actorul Joseph Gordon-Levitt a jucat rolul Hans Landa in filmul Inglorious Basterds.
Actorul Leonardo DiCaprio a jucat rolul Aldo Raine in filmul Inglorious Basterds.

Total: 2 actori

---In filmele lui Fincher au jucat:
Actorul Matthew McConaughey a jucat rolul Kane in filmul Mank.
Actorul Robert Pattinson a jucat rolul Joe in filmul Mank.
Actorul Gary Oldman a jucat rolul Mank in filmul Mank.

Total: 3 actori
```

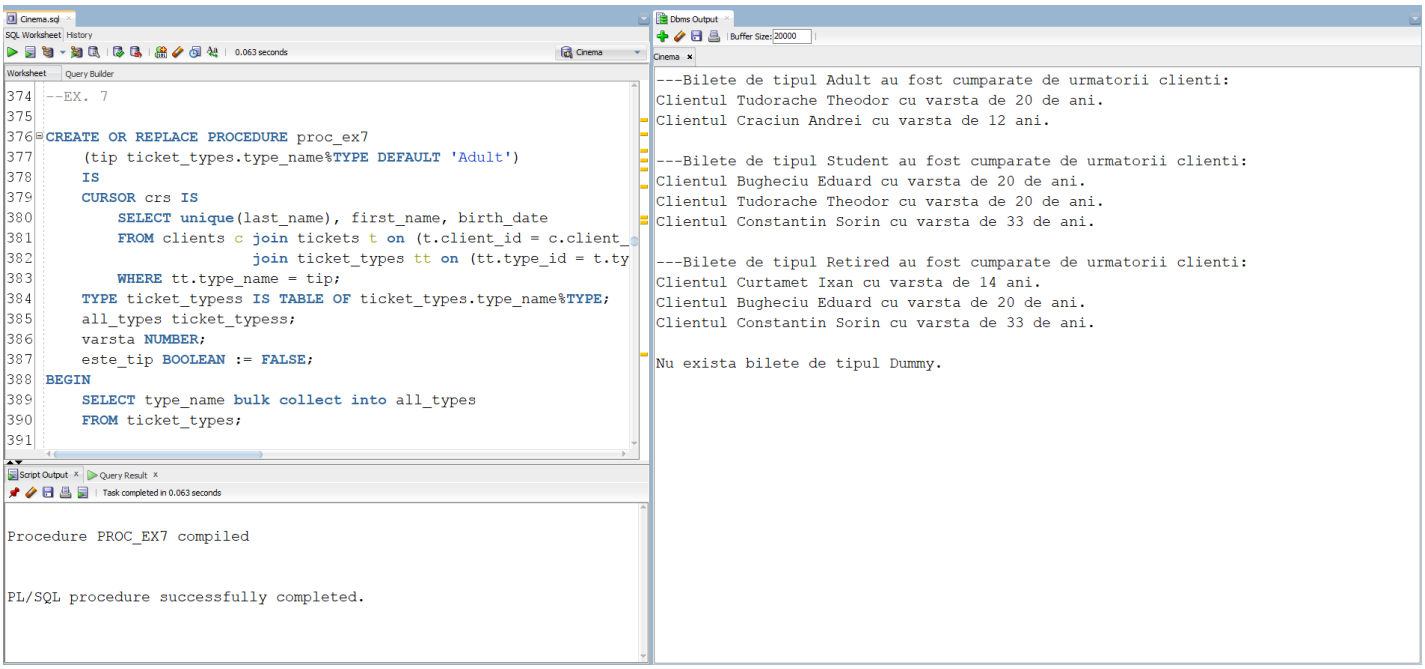
7. Să se definească o procedură care să afișeze(o singură dată) numele și vârstă tuturor clienților care au cumpărat bilete de tipul dat ca parametru(Parametrul default va fi 'Adult').

```
CREATE OR REPLACE PROCEDURE proc_ex7
    (tip ticket_types.type_name%TYPE DEFAULT 'Adult')
    IS
    CURSOR crs IS
        SELECT unique(last_name), first_name, birth_date
        FROM clients c join tickets t on (t.client_id = c.client_id)
                    join ticket_types tt on (tt.type_id = t.type_id)
        WHERE tt.type_name = tip;
    TYPE ticket_typess IS TABLE OF ticket_types.type_name%TYPE;
    all_types ticket_typess;
    varsta NUMBER;
    este_tip BOOLEAN := FALSE;
BEGIN
```

```
    SELECT type_name bulk collect into all_types
    FROM ticket_types;

    FOR i IN all_types.first..all_types.last LOOP
        IF (all_types(i) = tip) THEN
            este_tip := TRUE;
        END IF;
    END LOOP;
    IF (este_tip = TRUE) THEN
        DBMS_OUTPUT.PUT_LINE('---Bilete de tipul ' || tip || ' au fost cumparate de urmatorii
clienti: ');
    ELSE
         DBMS_OUTPUT.PUT_LINE ('Nu exista bilete de tipul ' || tip || '.');
    END IF;
    FOR i in crs LOOP
        varsta := TRUNC(MONTHS_BETWEEN(sysdate, i.birth_date) / 12);
        IF (varsta >= 20) THEN
            DBMS_OUTPUT.PUT_LINE('Clientul ' || i.last_name || ' ' || i.first_name ||  ' cu varsta de '
|| TRUNC(MONTHS_BETWEEN(sysdate, i.birth_date) / 12) || ' de ani.');
        ELSE
            DBMS_OUTPUT.PUT_LINE('Clientul ' || i.last_name || ' ' || i.first_name ||  ' cu varsta de '
|| TRUNC(MONTHS_BETWEEN(sysdate, i.birth_date) / 12) || ' ani.');
        END IF;
    END LOOP;
    DBMS_OUTPUT.NEW_LINE;
END proc_ex7;
/
```

APELARE:

```
BEGIN
    proc_ex7();
    proc_ex7('Student');
    proc_ex7('Retired');
    proc_ex7('Dummy'); -- nu se va afisa nimic
END;
/
```

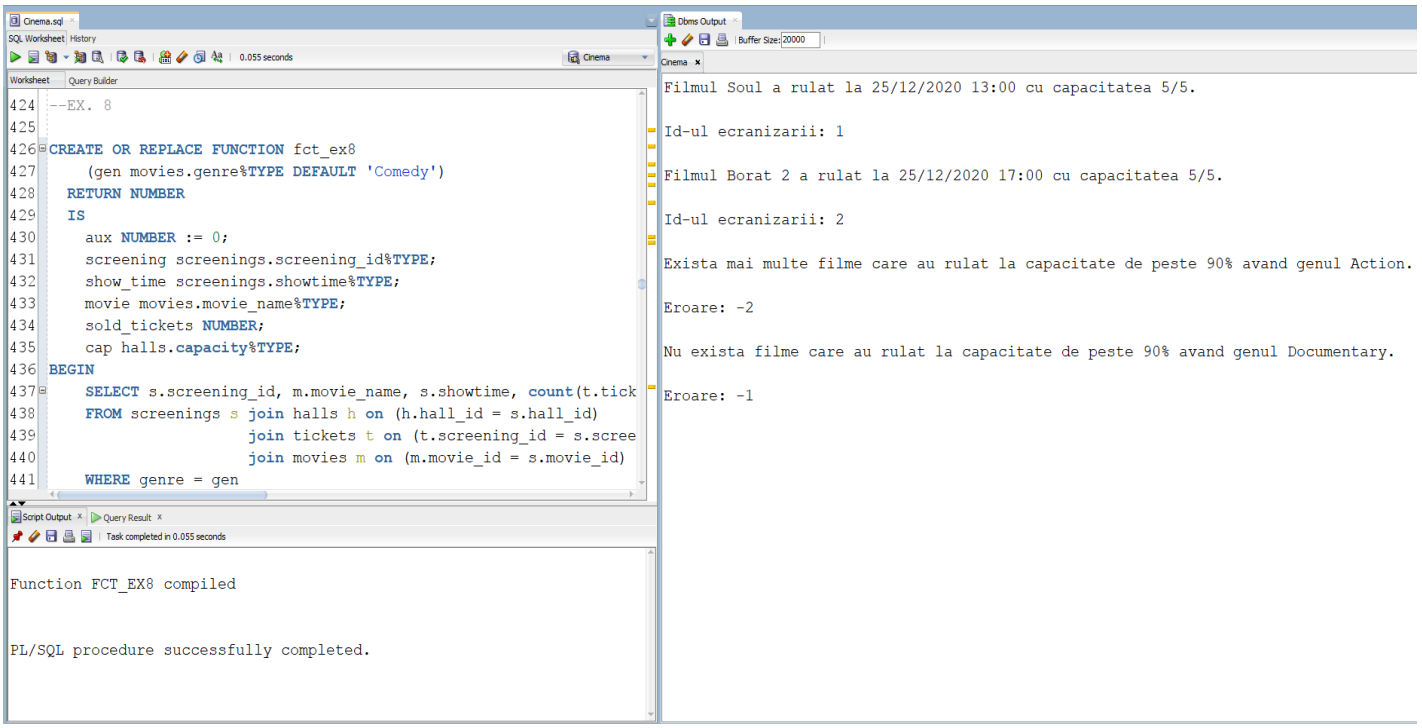


8. Să se definească o funcție care să afișeze următoarele detalii: (numele filmului; dată și ora la care a fost ecranizat) despre filmul care a rulat la o capacitate de peste 90% din sala în care au fost ecranizate, având genul dat ca parametru. Subprogramul trebuie să returneze id-ul ecranizării respective.

```
CREATE OR REPLACE FUNCTION fct_ex8
    (gen movies.genre%TYPE DEFAULT 'Comedy')
  RETURN NUMBER
  IS
    aux NUMBER := 0;
    screening screenings.screening_id%TYPE;
```

```
    show_time screenings.showtime%TYPE;
    movie movies.movie_name%TYPE;
    sold_tickets NUMBER;
    cap halls.capacity%TYPE;
BEGIN
    SELECT s.screening_id, m.movie_name, s.showtime, count(t.ticket_id) , h.capacity INTO screening, movie, show_time,sold_tickets, cap
    FROM screenings s join halls h on (h.hall_id = s.hall_id)
                join tickets t on (t.screening_id = s.screening_id)
                join movies m on (m.movie_id = s.movie_id)
    WHERE genre = gen
    GROUP BY s.screening_id, m.movie_name, s.showtime ,h.capacity
    HAVING COUNT(t.ticket_id) >= h.capacity * (9/10);
    DBMS_OUTPUT.PUT_LINE('Filmul ' || movie || ' a rulat la ' || TO_CHAR(show_time, 'dd/mm/yyyy HH24:MI') || ' cu capacitatea ' || sold_tickets || '/' || cap || '.');
    DBMS_OUTPUT.NEW_LINE;
    RETURN screening;
    EXCEPTION
        WHEN NO_DATA_FOUND THEN
            DBMS_OUTPUT.PUT_LINE('Nu exista filme care au rulat la capacitate de peste 90% avand genul ' || gen || '.');
            DBMS_OUTPUT.NEW_LINE;
            return -1;
        WHEN TOO_MANY_ROWS THEN
            DBMS_OUTPUT.PUT_LINE('Exista mai multe filme care au rulat la capacitate de peste 90% avand genul ' || gen || '.');
            DBMS_OUTPUT.NEW_LINE;
            return -2;
        WHEN OTHERS THEN
            DBMS_OUTPUT.PUT_LINE('Alta eroare!');
```

```
        return -3;
END fct_ex8;
/

APELARE:

BEGIN
   DBMS_OUTPUT.PUT_LINE('Id-ul ecranizarii: ' || fct_ex8('Drama'));
   DBMS_OUTPUT.NEW_LINE;
   DBMS_OUTPUT.PUT_LINE('Id-ul ecranizarii: ' || fct_ex8('Comedy'));
   DBMS_OUTPUT.NEW_LINE;
   DBMS_OUTPUT.PUT_LINE('Eroare: ' || fct_ex8('Action')); -- mai mult de 1 film
   DBMS_OUTPUT.NEW_LINE;
   DBMS_OUTPUT.PUT_LINE('Eroare: ' || fct_ex8('Documentary')); -- niciun film
   DBMS_OUTPUT.NEW_LINE;
END;
/
```

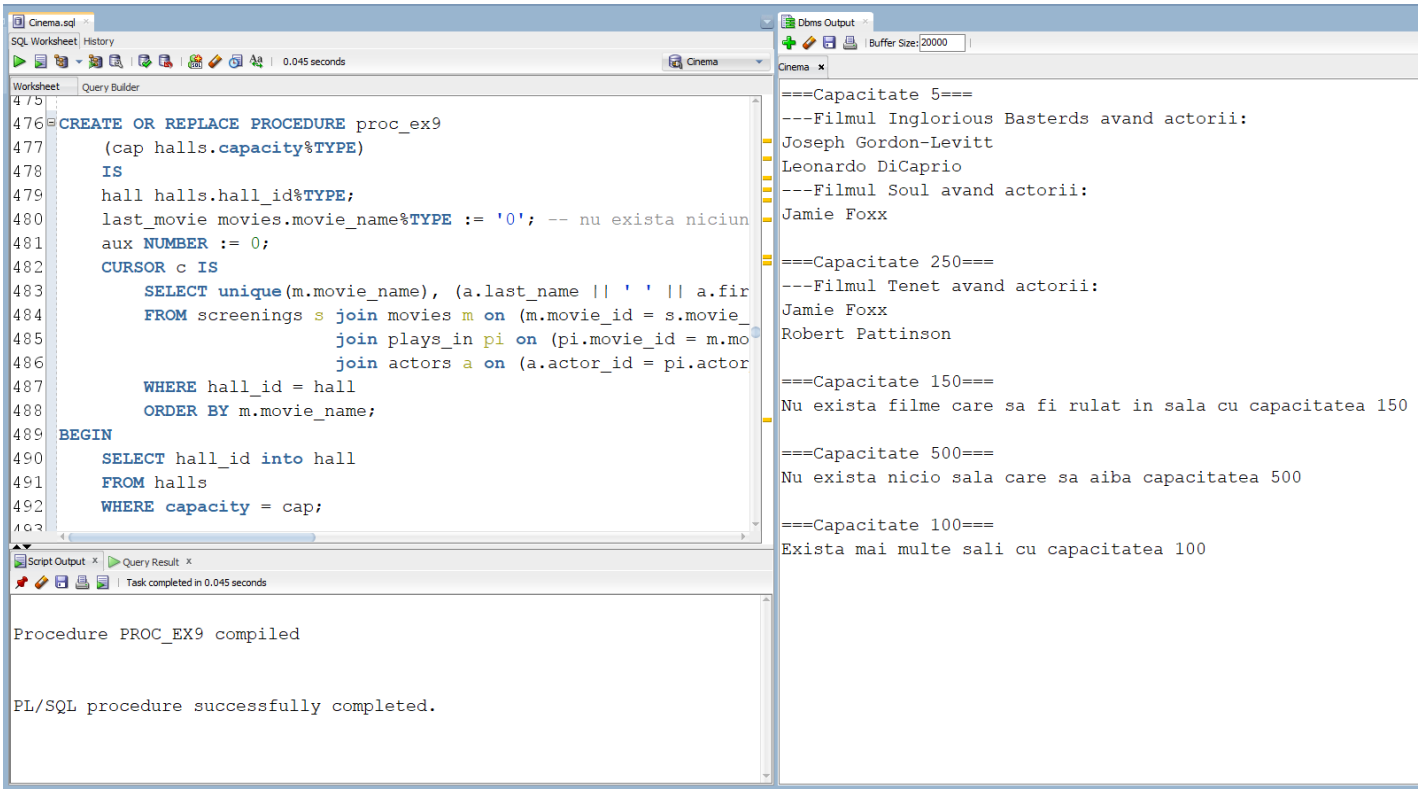


9. Să se definească o procedură care să afișeze numele filmelor(o singură dată) și numele actorilor care au jucat în ele, care au rulat în sala cu capacitate dată ca parametru.

```
CREATE OR REPLACE PROCEDURE proc_ex9
   (cap halls.capacity%TYPE)
   IS
   hall halls.hall_id%TYPE;
   last_movie movies.movie_name%TYPE := '0'; -- nu exista niciun film in baza de date cu numele '0'
   aux NUMBER := 0;
   CURSOR c IS
      SELECT unique(m.movie_name), (a.last_name || ' ' || a.first_name) nume
      FROM screenings s join movies m on (m.movie_id = s.movie_id)
                  join plays_in pi on (pi.movie_id = m.movie_id)
                  join actors a on (a.actor_id = pi.actor_id)
      WHERE hall_id = hall
      ORDER BY m.movie_name;
BEGIN
```

```
    SELECT hall_id into hall
    FROM halls
    WHERE capacity = cap;

    FOR i in c LOOP
        IF (i.movie_name != last_movie) THEN
            DBMS_OUTPUT.PUT_LINE ('---Filmul ' || i.movie_name || ' avand actorii: ');
        END IF;
        DBMS_OUTPUT.PUT_LINE (i.nume);
        last_movie := i.movie_name;
        aux := aux + 1;
    END LOOP;
    IF (aux = 0) THEN
        DBMS_OUTPUT.PUT_LINE('Nu exista filme care sa fi rulat in sala cu capacitatea ' || cap);
    END IF;
    EXCEPTION
        WHEN TOO_MANY_ROWS THEN
            DBMS_OUTPUT.PUT_LINE('Exista mai multe sali cu capacitatea ' || cap);
        WHEN NO_DATA_FOUND THEN
            DBMS_OUTPUT.PUT_LINE('Nu exista nicio sala care sa aiba capacitatea ' || cap);
        WHEN OTHERS THEN
            DBMS_OUTPUT.PUT_LINE('Alta eroare');
END proc_ex9;
/

APELARE:

BEGIN
```

```
    DBMS_OUTPUT.PUT_LINE('===Capacitate 5===');
    proc_ex9(5); -- mai multe filme
    DBMS_OUTPUT.NEW_LINE;
    DBMS_OUTPUT.PUT_LINE('===Capacitate 250===');
    proc_ex9(250); -- un singur film
    DBMS_OUTPUT.NEW_LINE;
    DBMS_OUTPUT.PUT_LINE('===Capacitate 150===');
    proc_ex9(150); -- niciun film
    DBMS_OUTPUT.NEW_LINE;
    DBMS_OUTPUT.PUT_LINE('===Capacitate 500===');
    proc_ex9(500); -- nu exista capacitatea
    DBMS_OUTPUT.NEW_LINE;
    DBMS_OUTPUT.PUT_LINE('===Capacitate 100===');
    proc_ex9(100); -- mai multe sali cu capacitatea respectiva
END;
/
```



10. Să se definească un declanșator care să nu permită nimănui să lucreze în ziua de Crăciun cu comenzile UPDATE, INSERT, DELETE pe tabela filmelor. (Declanșatorul se va testa cu ziua în care ne aflăm, în loc de 25/12.)

```
CREATE OR REPLACE TRIGGER trig_ex10
   BEFORE INSERT OR UPDATE OR DELETE ON movies
BEGIN
   IF (TO_CHAR(SYSDATE,'DD/MM') = '25/12') THEN
      RAISE_APPLICATION_ERROR(-20001,'Ia o pauza! E Craciunul.');
   END IF;
END;
/
```

TESTARE:

```
INSERT INTO MOVIES
VALUES (15, 'Soul', 'Docter', TO_DATE('2020/12/25', 'yyyy/mm/dd'), 'Drama', 10);
```

DELETE FROM MOVIES

WHERE movie_id = 11;

UPDATE MOVIES

SET movie_name = 'Film'

WHERE movie_id = 11;

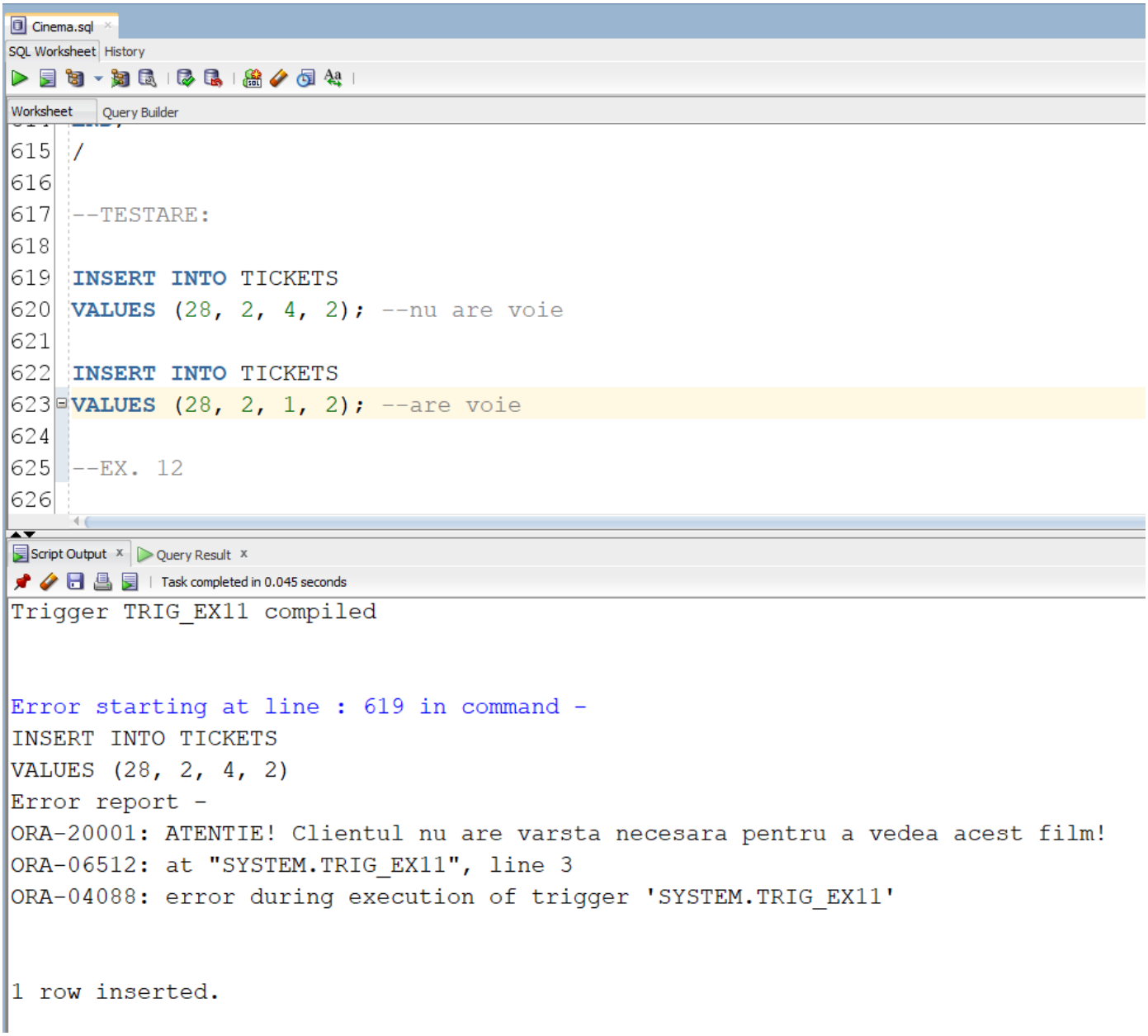
```
Trigger TRIG_EX10 compiled


Error starting at line : 546 in command -
INSERT INTO MOVIES
VALUES (15, 'Soul', 'Docter', TO_DATE('2020/12/25', 'yyyy/mm/dd'), 'Drama', 10)
Error report -
ORA-20001: Ia o pauza! E Craciunul.
ORA-06512: at "SYSTEM.TRIG_EX10", line 3
ORA-04088: error during execution of trigger 'SYSTEM.TRIG_EX10'


Error starting at line : 549 in command -
DELETE FROM MOVIES
WHERE movie_id = 11
Error report -
ORA-20001: Ia o pauza! E Craciunul.
ORA-06512: at "SYSTEM.TRIG_EX10", line 3
ORA-04088: error during execution of trigger 'SYSTEM.TRIG_EX10'
```

```
Error starting at line : 552 in command -
UPDATE MOVIES
SET movie_name = 'Film'
WHERE movie_id = 11
Error report -
ORA-20001: Ia o pauza! E Craciunul.
ORA-06512: at "SYSTEM.TRIG_EX10", line 3
ORA-04088: error during execution of trigger 'SYSTEM.TRIG_EX10'
```

11. Să se definească un declanșator care să nu permită(să afișeze o eroare) inserarea în tabela biletelor a unor valori corespunzătoare unui client care nu are vârsta necesară pentru a putea vedea o anumită ecranizare a unui film.

```
--functie auxiliara pentru declansator
CREATE OR REPLACE FUNCTION are_voie_ex11
   (screening tickets.screening_id%TYPE, id_client clients.client_id%TYPE)
   RETURN BOOLEAN
   IS
   CURSOR crs IS
      SELECT m.age_restriction
      FROM screenings s join movies m on (m.movie_id = s.movie_id)
      WHERE s.screening_id = screening;
   CURSOR crs2 IS
      SELECT TRUNC(MONTHS_BETWEEN(sysdate, birth_date) / 12)
      FROM clients
      WHERE client_id = id_client;
   age number;
   age_r movies.age_restriction%TYPE;
BEGIN
   OPEN crs;
      FETCH crs INTO age_r;
   CLOSE crs;
   OPEN crs2;
      FETCH crs2 INTO age;
   CLOSE crs2;
   IF (age_r <= age) THEN
      RETURN TRUE;
   ELSE
      RETURN FALSE;
```

```
    END IF;
END are_voie_ex11;
/
CREATE OR REPLACE TRIGGER trig_ex11
    BEFORE INSERT ON tickets
    FOR EACH ROW
BEGIN
    IF (are_voie_ex11(:NEW.screening_id, :NEW.client_id) = FALSE) THEN
        RAISE_APPLICATION_ERROR(-20001,'ATENTIE! Clientul nu are varsta necesara pentru a vedea acest film!');
    END IF;
END;
/


--TESTARE:


INSERT INTO TICKETS
VALUES (28, 2, 4, 2); -- nu are voie


INSERT INTO TICKETS
VALUES (28, 2, 1, 2); -- are voie
```



12. Să se definească un declanșator care să introducă date într-un tabel de tip audit după ce utilizatorul a folosit o comandă LDD.

CREATE TABLE audit_ex12 (

user_name VARCHAR2(30),

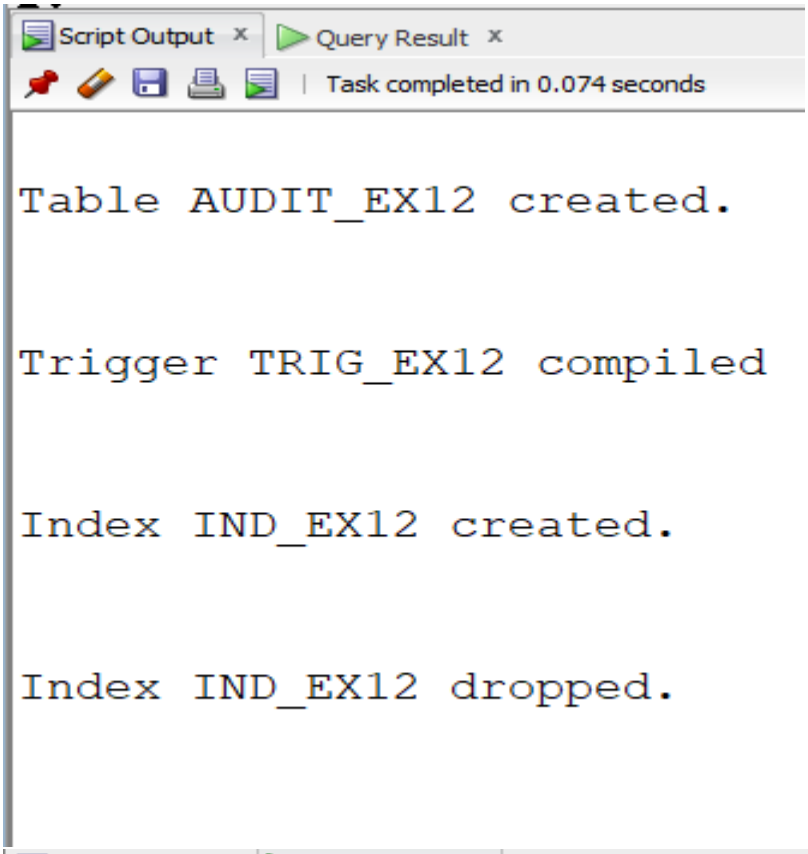
database_name VARCHAR2(50),

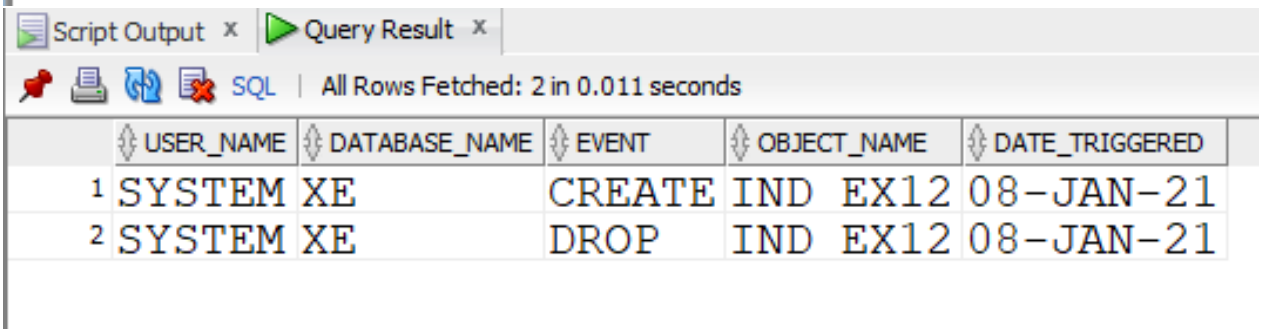
event VARCHAR2(20),

object_name VARCHAR2(30),

date_triggered DATE

```
);

CREATE OR REPLACE TRIGGER trig_ex12
   AFTER CREATE OR DROP OR ALTER ON SCHEMA
BEGIN
   INSERT INTO audit_ex12
   VALUES (SYS.LOGIN_USER,
         SYS.DATABASE_NAME,
         SYS.SYSEVENT,
         SYS.DICTIONARY_OBJ_NAME,
         SYSDATE);
END;
/

TESTARE:

CREATE INDEX ind_ex12
ON movies(movie_name);

DROP INDEX ind_ex12;

SELECT * FROM audit_ex12;
```





	USER_NAME	DATABASE_NAME	EVENT	OBJECT_NAME	DATE_TRIGGERED
1	SYSTEM	XE	CREATE	IND EX12	08-JAN-21
2	SYSTEM	XE	DROP	IND EX12	08-JAN-21

13.

```
CREATE OR REPLACE PACKAGE package_ex13 AS
   FUNCTION pack_fct_ex6(director movies.director_name%TYPE DEFAULT 'Nolan')
      RETURN NUMBER;
   PROCEDURE pack_proc_ex7(tip ticket_types.type_name%TYPE DEFAULT 'Adult');
   FUNCTION pack_fct_ex8(gen movies.genre%TYPE DEFAULT 'Comedy')
      RETURN NUMBER;
   PROCEDURE pack_proc_ex9(cap halls.capacity%TYPE);
```

```
   FUNCTION pack_are_voie_ex11(screening tickets.screening_id%TYPE, id_client
clients.client_id%TYPE)
      RETURN BOOLEAN;
END package_ex13;
/

CREATE OR REPLACE PACKAGE BODY package_ex13 AS
   FUNCTION pack_fct_ex6
   (director movies.director_name%TYPE DEFAULT 'Nolan')
     RETURN NUMBER
     IS
       TYPE type_actors IS TABLE OF varchar(255);
       TYPE type_roles IS TABLE OF varchar(255);
       TYPE type_movies IS TABLE OF varchar(255);
       t_actors type_actors;
       t_roles type_roles;
       t_movies type_movies;
   BEGIN
      SELECT (last_name|| ' ' || first_name) actor, (pi.character_name) personaj,
(m.movie_name) BULK COLLECT INTO t_actors, t_roles, t_movies
      FROM actors a JOIN plays_in pi on (pi.actor_id = a.actor_id)
                JOIN movies m on (pi.movie_id = m.movie_id)
      WHERE m.director_name = director
      ORDER BY m.movie_name;

      DBMS_OUTPUT.PUT_LINE('---In filmele lui ' || director || ' au jucat:');

      FOR I in t_actors.first..t_actors.last LOOP
```

```
        DBMS_OUTPUT.PUT_LINE('Actorul ' || t_actors(i) || ' a jucat rolul ' || t_roles(i) || ' in
filmul ' || t_movies(i) || '.');
    END LOOP;
    DBMS_OUTPUT.NEW_LINE;
    RETURN t_actors.count;
  END pack_fct_ex6;



  PROCEDURE pack_proc_ex7
  (tip ticket_types.type_name%TYPE DEFAULT 'Adult')
    IS
    CURSOR crs IS
      SELECT unique(last_name), first_name, birth_date
      FROM clients c join tickets t on (t.client_id = c.client_id)
                join ticket_types tt on (tt.type_id = t.type_id)
      WHERE tt.type_name = tip;
    TYPE ticket_typess IS TABLE OF ticket_types.type_name%TYPE;
    all_types ticket_typess;
    varsta NUMBER;
    este_tip BOOLEAN := FALSE;
  BEGIN
    SELECT type_name bulk collect into all_types
    FROM ticket_types;

    FOR i IN all_types.first..all_types.last LOOP
      IF (all_types(i) = tip) THEN
        este_tip := TRUE;
```

```
        END IF;
    END LOOP;
    IF (este_tip = TRUE) THEN
        DBMS_OUTPUT.PUT_LINE('---Bilete de tipul ' || tip || ' au fost cumparate de urmatorii clienti: ');
    ELSE
        DBMS_OUTPUT.PUT_LINE ('Nu exista bilete de tipul ' || tip || '.');
    END IF;
    FOR i in crs LOOP
        varsta := TRUNC(MONTHS_BETWEEN(sysdate, i.birth_date) / 12);
        IF (varsta >= 20) THEN
            DBMS_OUTPUT.PUT_LINE('Clientul ' || i.last_name || ' ' || i.first_name ||  ' cu varsta de ' || TRUNC(MONTHS_BETWEEN(sysdate, i.birth_date) / 12) || ' de ani.');
        ELSE
            DBMS_OUTPUT.PUT_LINE('Clientul ' || i.last_name || ' ' || i.first_name ||  ' cu varsta de ' || TRUNC(MONTHS_BETWEEN(sysdate, i.birth_date) / 12) || ' ani.');
        END IF;
    END LOOP;
    DBMS_OUTPUT.NEW_LINE;
END pack_proc_ex7;


FUNCTION pack_fct_ex8
(gen movies.genre%TYPE DEFAULT 'Comedy')
  RETURN NUMBER
  IS
    aux NUMBER := 0;
    screening screenings.screening_id%TYPE;
```

```
    show_time screenings.showtime%TYPE;
    movie movies.movie_name%TYPE;
    sold_tickets NUMBER;
    cap halls.capacity%TYPE;
  BEGIN
    SELECT s.screening_id, m.movie_name, s.showtime, count(t.ticket_id) , h.capacity INTO
screening, movie, show_time,sold_tickets, cap
    FROM screenings s join halls h on (h.hall_id = s.hall_id)
                join tickets t on (t.screening_id = s.screening_id)
                join movies m on (m.movie_id = s.movie_id)
    WHERE genre = gen
    GROUP BY s.screening_id, m.movie_name, s.showtime ,h.capacity
    HAVING COUNT(t.ticket_id) >= h.capacity * (9/10);
    DBMS_OUTPUT.PUT_LINE('Filmul ' || movie || ' a rulat la ' || TO_CHAR(show_time,
'dd/mm/yyyy HH24:MI') || ' cu capacitatea ' || sold_tickets || '/' || cap || '.');
    DBMS_OUTPUT.NEW_LINE;
    RETURN screening;
    EXCEPTION
      WHEN NO_DATA_FOUND THEN
        DBMS_OUTPUT.PUT_LINE('Nu exista filme care au rulat la capacitate de peste 90%
avand genul ' || gen);
        DBMS_OUTPUT.NEW_LINE;
        return -1;
      WHEN TOO_MANY_ROWS THEN
        DBMS_OUTPUT.PUT_LINE('Exista mai multe filme care au rulat la capacitate de peste
90% avand genul ' || gen);
        DBMS_OUTPUT.NEW_LINE;
        return -2;
```

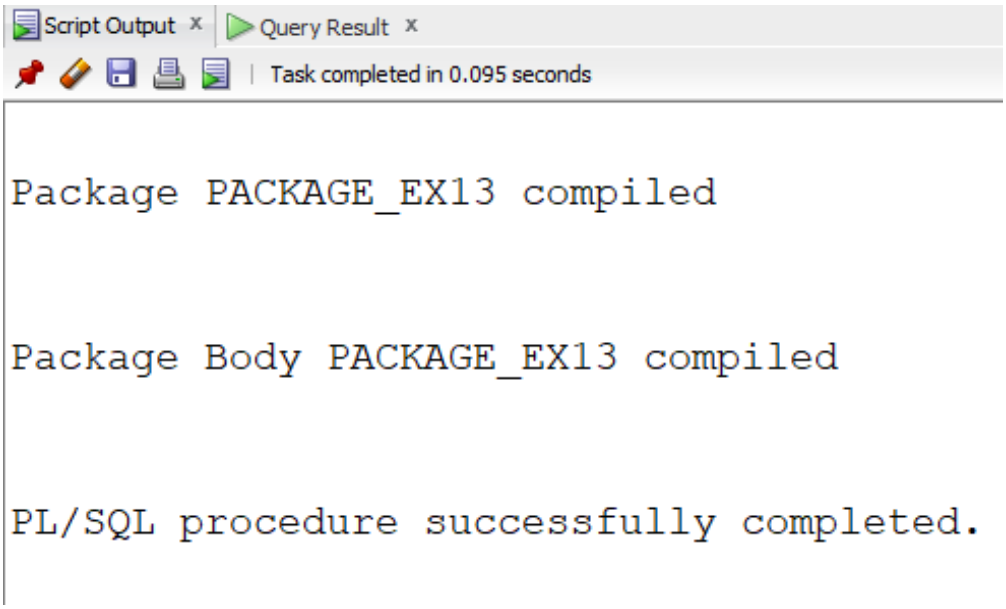
```
        WHEN OTHERS THEN
            DBMS_OUTPUT.PUT_LINE('Alta eroare!');
            return -3;
    END pack_fct_ex8;

    PROCEDURE pack_proc_ex9
    (cap halls.capacity%TYPE)
        IS
        hall halls.hall_id%TYPE;
        last_movie movies.movie_name%TYPE := '0'; -- nu exista niciun film in baza de date cu
numele '0'
        aux NUMBER := 0;
        CURSOR c IS
            SELECT unique(m.movie_name), (a.last_name || ' ' || a.first_name) nume
            FROM screenings s join movies m on (m.movie_id = s.movie_id)
                        join plays_in pi on (pi.movie_id = m.movie_id)
                        join actors a on (a.actor_id = pi.actor_id)
            WHERE hall_id = hall
            ORDER BY m.movie_name;
    BEGIN
        SELECT hall_id into hall
        FROM halls
        WHERE capacity = cap;

        FOR i in c LOOP
            IF (i.movie_name != last_movie) THEN
                DBMS_OUTPUT.PUT_LINE ('---Filmul ' || i.movie_name || ' avand actorii: ');
```

```
      END IF;
      DBMS_OUTPUT.PUT_LINE (i.nume);
      last_movie := i.movie_name;
      aux := aux + 1;
   END LOOP;
   IF (aux = 0) THEN
      DBMS_OUTPUT.PUT_LINE('Nu exista filme care sa fi rulat in sala cu capacitatea ' || cap);
   END IF;
   EXCEPTION
      WHEN TOO_MANY_ROWS THEN
         DBMS_OUTPUT.PUT_LINE('Exista mai multe sali cu capacitatea ' || cap);
      WHEN NO_DATA_FOUND THEN
         DBMS_OUTPUT.PUT_LINE('Nu exista nicio sala care sa aiba capacitatea ' || cap);
      WHEN OTHERS THEN
         DBMS_OUTPUT.PUT_LINE('Alta eroare');
END pack_proc_ex9;



FUNCTION pack_are_voie_ex11
   (screening tickets.screening_id%TYPE, id_client clients.client_id%TYPE)
   RETURN BOOLEAN
   IS
   CURSOR crs IS
      SELECT m.age_restriction
      FROM screenings s join movies m on (m.movie_id = s.movie_id)
      WHERE s.screening_id = screening;
   CURSOR crs2 IS
```

```
        SELECT TRUNC(MONTHS_BETWEEN(sysdate, birth_date) / 12)
        FROM clients
        WHERE client_id = id_client;
    age number;
    age_r movies.age_restriction%TYPE;
  BEGIN
    OPEN crs;
      FETCH crs INTO age_r;
    CLOSE crs;
    OPEN crs2;
      FETCH crs2 INTO age;
    CLOSE crs2;
    IF (age_r <= age) THEN
      RETURN TRUE;
    ELSE
      RETURN FALSE;
    END IF;
  END pack_are_voie_ex11;
END package_ex13;
/

APELARE:

BEGIN
  DBMS_OUTPUT.PUT_LINE('===6===');
  DBMS_OUTPUT.NEW_LINE;
  DBMS_OUTPUT.PUT_LINE('Total: ' || package_ex13.pack_fct_ex6() || ' actori');
```

```
DBMS_OUTPUT.NEW_LINE;
DBMS_OUTPUT.PUT_LINE('Total: ' || package_ex13.pack_fct_ex6('Tarantino') || ' actori');
DBMS_OUTPUT.NEW_LINE;
DBMS_OUTPUT.PUT_LINE('Total: ' || package_ex13.pack_fct_ex6('Fincher') || ' actori');
DBMS_OUTPUT.NEW_LINE;

DBMS_OUTPUT.PUT_LINE('===7===');
DBMS_OUTPUT.NEW_LINE;
package_ex13.pack_proc_ex7();
package_ex13.pack_proc_ex7('Student');
package_ex13.pack_proc_ex7('Retired');
package_ex13.pack_proc_ex7('Dummy');

DBMS_OUTPUT.PUT_LINE('===8===');
DBMS_OUTPUT.NEW_LINE;
DBMS_OUTPUT.PUT_LINE(package_ex13.pack_fct_ex8('Drama'));
DBMS_OUTPUT.NEW_LINE;
DBMS_OUTPUT.PUT_LINE(package_ex13.pack_fct_ex8('Comedy'));
DBMS_OUTPUT.NEW_LINE;
DBMS_OUTPUT.PUT_LINE(package_ex13.pack_fct_ex8('Action')); -- mai mult de 1 film
DBMS_OUTPUT.NEW_LINE;
DBMS_OUTPUT.PUT_LINE(package_ex13.pack_fct_ex8('Documentary')); -- niciun film
DBMS_OUTPUT.NEW_LINE;

DBMS_OUTPUT.PUT_LINE('===9===');
DBMS_OUTPUT.NEW_LINE;
package_ex13.pack_proc_ex9(5); -- mai multe filme
```

```
   DBMS_OUTPUT.NEW_LINE;
   package_ex13.pack_proc_ex9(250); -- un singur film
   DBMS_OUTPUT.NEW_LINE;
   package_ex13.pack_proc_ex9(150); -- niciun film
   DBMS_OUTPUT.NEW_LINE;
   package_ex13.pack_proc_ex9(500); -- nu exista capacitatea
   DBMS_OUTPUT.NEW_LINE;
   package_ex13.pack_proc_ex9(100); -- mai multe sali cu capacitatea respectiva
   DBMS_OUTPUT.NEW_LINE;

   DBMS_OUTPUT.PUT_LINE('===11===');
   DBMS_OUTPUT.NEW_LINE;
   IF (package_ex13.pack_are_voie_ex11(2, 4) = TRUE) THEN --client cu varsta 12 vrea sa
mearga la film cu restrictie de 15
      DBMS_OUTPUT.PUT_LINE('Allowed');
   ELSE
      DBMS_OUTPUT.PUT_LINE('Not allowed');
   END IF;
   IF (package_ex13.pack_are_voie_ex11(2, 1) = TRUE) THEN --client cu varsta 20 vrea sa
mearga la film cu restrictie de 15
      DBMS_OUTPUT.PUT_LINE('Allowed');
   ELSE
      DBMS_OUTPUT.PUT_LINE('Not allowed');
   END IF;
END;
/
```


Script Output
Query Result
Task completed in 0.095 seconds
Package PACKAGE_EX13 compiled
Package Body PACKAGE_EX13 compiled
PL/SQL procedure successfully completed.

```
===6===

---In filmele lui Nolan au jucat:
Actorul Joseph Gordon-Levitt a jucat rolul Arthur in filmul Inception.
Actorul Leonardo DiCaprio a jucat rolul Cobb in filmul Inception.
Actorul Matthew McConaughey a jucat rolul Eames in filmul Inception.
Actorul Matthew McConaughey a jucat rolul Cooper in filmul Interstellar.
Actorul Robert Pattinson a jucat rolul Neil in filmul Tenet.
Actorul Jamie Foxx a jucat rolul Protagonist in filmul Tenet.

Total: 6 actori

---In filmele lui Tarantino au jucat:
Actorul Joseph Gordon-Levitt a jucat rolul Hans Landa in filmul Inglorious Basterds.
Actorul Leonardo DiCaprio a jucat rolul Aldo Raine in filmul Inglorious Basterds.

Total: 2 actori

---In filmele lui Fincher au jucat:
Actorul Matthew McConaughey a jucat rolul Kane in filmul Mank.
Actorul Robert Pattinson a jucat rolul Joe in filmul Mank.
Actorul Gary Oldman a jucat rolul Mank in filmul Mank.

Total: 3 actori

===7===

---Bilete de tipul Adult au fost cumparate de urmatorii clienti:
Clientul Tudorache Theodor cu varsta de 20 de ani.
```

Cinema ×

```
===7===

---Bilete de tipul Adult au fost cumparate de urmatorii clienti:
Clientul Tudorache Theodor cu varsta de 20 de ani.
Clientul Craciun Andrei cu varsta de 12 ani.

---Bilete de tipul Student au fost cumparate de urmatorii clienti:
Clientul Bugheciu Eduard cu varsta de 20 de ani.
Clientul Tudorache Theodor cu varsta de 20 de ani.
Clientul Constantin Sorin cu varsta de 33 de ani.

---Bilete de tipul Retired au fost cumparate de urmatorii clienti:
Clientul Curtamet Ixan cu varsta de 14 ani.
Clientul Bugheciu Eduard cu varsta de 20 de ani.
Clientul Constantin Sorin cu varsta de 33 de ani.

Nu exista bilete de tipul Dummy.

===8===

Filmul Soul a rulat la 25/12/2020 13:00 cu capacitatea 5/5.

1

Filmul Borat 2 a rulat la 25/12/2020 17:00 cu capacitatea 6/5.

2

Exista mai multe filme care au rulat la capacitate de peste 90% avand genul Action
```

Cinema ×

-2

Nu exista filme care au rulat la capacitate de peste 90% avand genul Documentary

-1

===9===

---Filmul Inglorious Basterds avand actorii:
Joseph Gordon-Levitt
Leonardo DiCaprio
---Filmul Soul avand actorii:
Jamie Foxx

---Filmul Tenet avand actorii:
Jamie Foxx
Robert Pattinson

Nu exista filme care sa fi rulat in sala cu capacitatea 150

Nu exista nicio sala care sa aiba capacitatea 500

Exista mai multe sali cu capacitatea 100

===11===

Not allowed
Allowed