Osman Berk An 28849

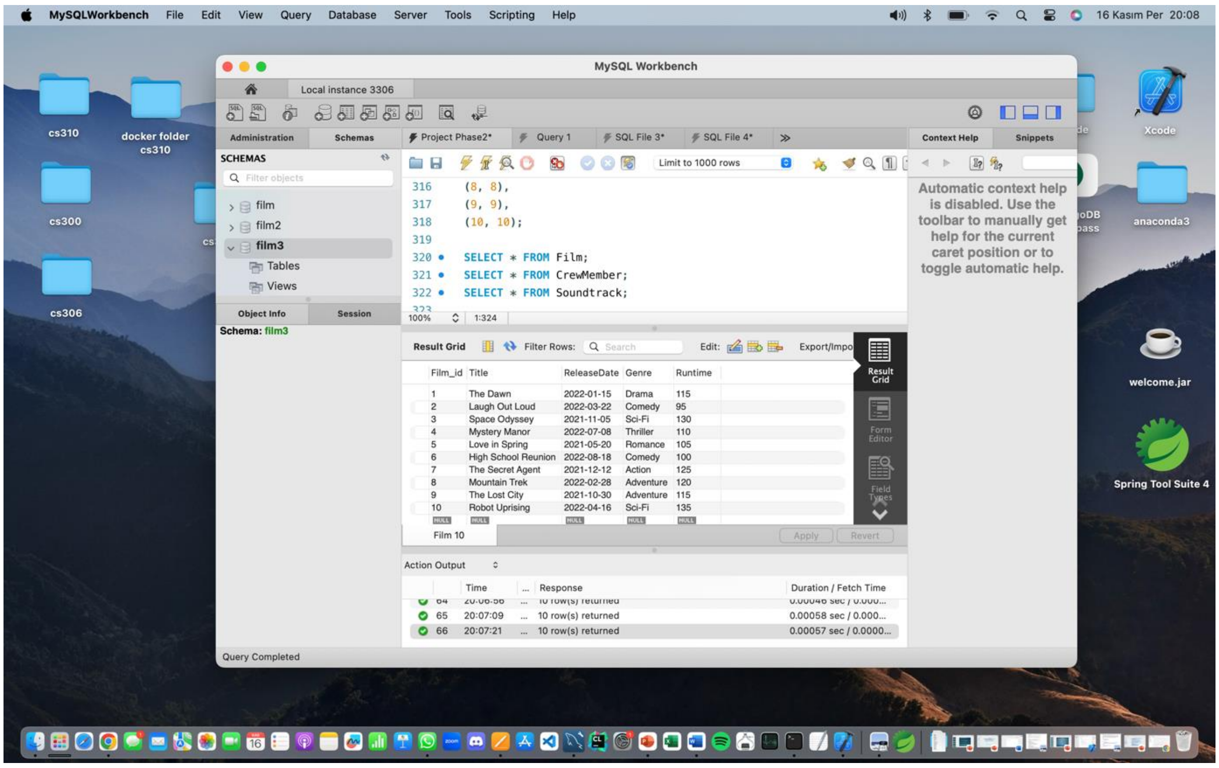
STEP 2: . Choose two tables (relations) from your project that are connected through a primary key and a foreign key, meaning that the primary key of one table should appear as a foreign key in the other table. Copy and paste the create table statements of those tables that you want to work on (from the PDF submitted in Phase I).

```
 CREATE TABLE Film(    //Film table is very important for other tables in our design
   Film_id INTEGER,
   Title VARCHAR(255),
   ReleaseDate DATE,
   Genre VARCHAR(50),
   Runtime INTEGER,
   PRIMARY KEY(Film_id)
);

CREATE TABLE CrewMember (
   Crew_id INTEGER,
   Crew_Member_Name VARCHAR(100),
   Crew_Member_Role VARCHAR(100),
   Film_id integer,
   PRIMARY KEY(Crew_id),
   Foreign key(Film_id) REFERENCES Film(Film_id)
);

CREATE TABLE Soundtrack (
   Soundtrack_id INTEGER,
   SongTitle VARCHAR(255),
   Film_id integer,
   ReleaseDate DATE,
   PRIMARY KEY(Soundtrack_id),
   Foreign key(Film_id) REFERENCES Film(Film_id)
);
```

STEP 3 : Insert 10 rows to each table you have chosen using "insert into" statements.

```
INSERT INTO Film (Film_id, Title, ReleaseDate, Genre, Runtime) VALUES
(1, 'The Dawn', '2022-01-15', 'Drama', 115),
(2, 'Laugh Out Loud', '2022-03-22', 'Comedy', 95),
(3, 'Space Odyssey', '2021-11-05', 'Sci-Fi', 130),
(4, 'Mystery Manor', '2022-07-08', 'Thriller', 110),
(5, 'Love in Spring', '2021-05-20', 'Romance', 105),
(6, 'High School Reunion', '2022-08-18', 'Comedy', 100),
(7, 'The Secret Agent', '2021-12-12', 'Action', 125),
(8, 'Mountain Trek', '2022-02-28', 'Adventure', 120),
(9, 'The Lost City', '2021-10-30', 'Adventure', 115),
(10, 'Robot Uprising', '2022-04-16', 'Sci-Fi', 135);

INSERT INTO CrewMember (Crew_id, Crew_Member_Name,
Crew_Member_Role, Film_id) VALUES
(1, 'Alex Taylor', 'Cinematographer' ,'1' ),
(2, 'Morgan Bailey', 'Editor' , '2' ),
(3, 'Jordan Casey', 'Screenwriter' , '3'),
(4, 'Casey Lee', 'Composer', '4' ),
(5, 'Jamie Parker', 'Production Designer', '5'),
(6, 'Kimberly Sanchez', 'Costume Designer', '6'),
(7, 'Samuel Green', 'Makeup Artist', '7'),
(8, 'Olivia Brown', 'Sound Engineer', '8'),
(9, 'Ethan Johnson', 'Visual Effects Supervisor', '9'),
(10, 'Madison White', 'Stunt Coordinator', '10');

INSERT INTO Soundtrack (Soundtrack_id, SongTitle, ReleaseDate, Film_id)
VALUES
(1, 'Dawn Chorus', '2022-01-15', '1'),
(2, 'Laughter Melody', '2022-03-22', '2'),
(3, 'Space Symphony', '2021-11-05' , '3'),
(4, 'Mystery Tunes', '2022-07-08', '4'),
(5, 'Spring Love Songs', '2021-05-20', '5'),
(6, 'Reunion Beats', '2022-08-18', '6'),
(7, 'Secret Agent Themes', '2021-12-12', '7'),
(8, 'Mountain Adventures', '2022-02-28', '8'),
(9, 'City of Mysteries', '2021-10-30', '9'),
(10, 'Robotic Waves', '2022-04-16', '10');
```

STEP 4: Display all the rows of the two tables through executing "select * from <table_name> " commands on mysql and include the snapshot of the result in your report.



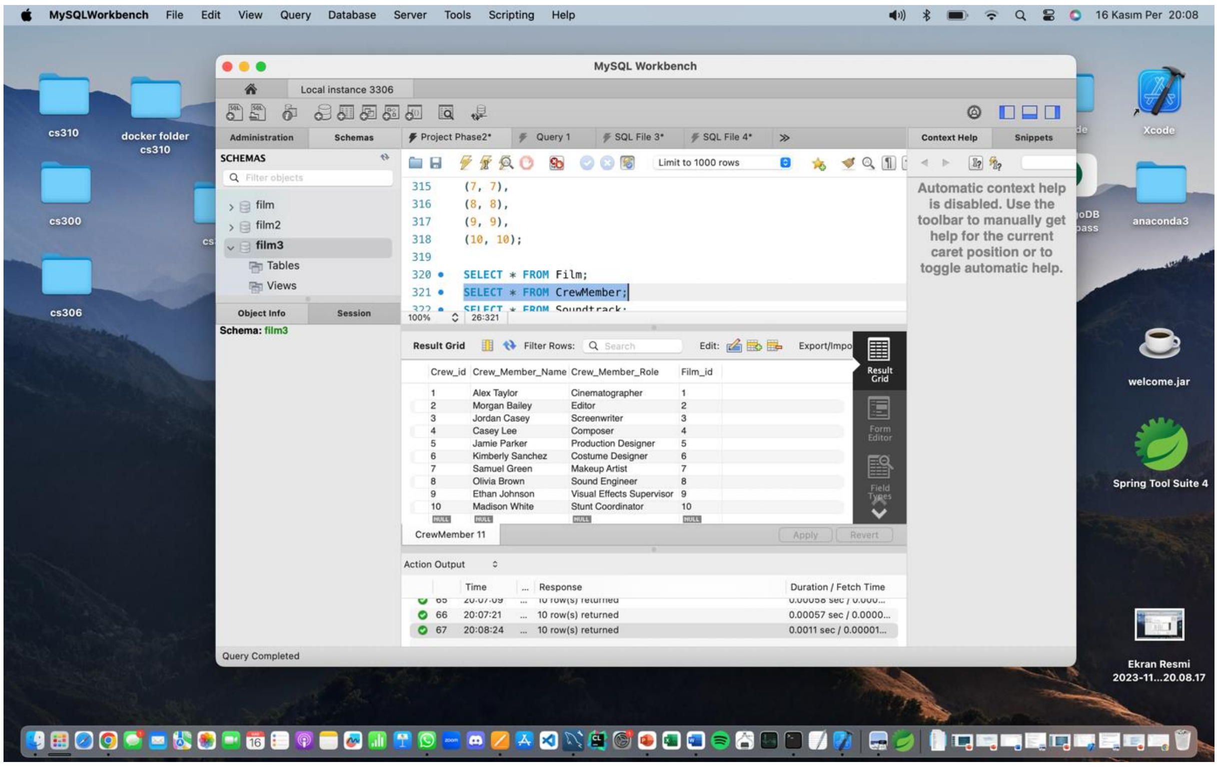
```
    (8, 8),
    (9, 9),
    (10, 10);

SELECT * FROM Film;
SELECT * FROM CrewMember;
SELECT * FROM Soundtrack;
```

Film_id	Title	ReleaseDate	Genre	Runtime
1	The Dawn	2022-01-15	Drama	115
2	Laugh Out Loud	2022-03-22	Comedy	95
3	Space Odyssey	2021-11-05	Sci-Fi	130
4	Mystery Manor	2022-07-08	Thriller	110
5	Love in Spring	2021-05-20	Romance	105
6	High School Reunion	2022-08-18	Comedy	100
7	The Secret Agent	2021-12-12	Action	125
8	Mountain Trek	2022-02-28	Adventure	120
9	The Lost City	2021-10-30	Adventure	115
10	Robot Uprising	2022-04-16	Sci-Fi	135
NULL	NULL	NULL	NULL	NULL

Film 10

```
    Time       ...  Response            Duration / Fetch Time
65  20:07:09   ...  10 row(s) returned  0.00058 sec / 0.000...
66  20:07:21   ...  10 row(s) returned  0.00057 sec / 0.0000...
```

Query Completed



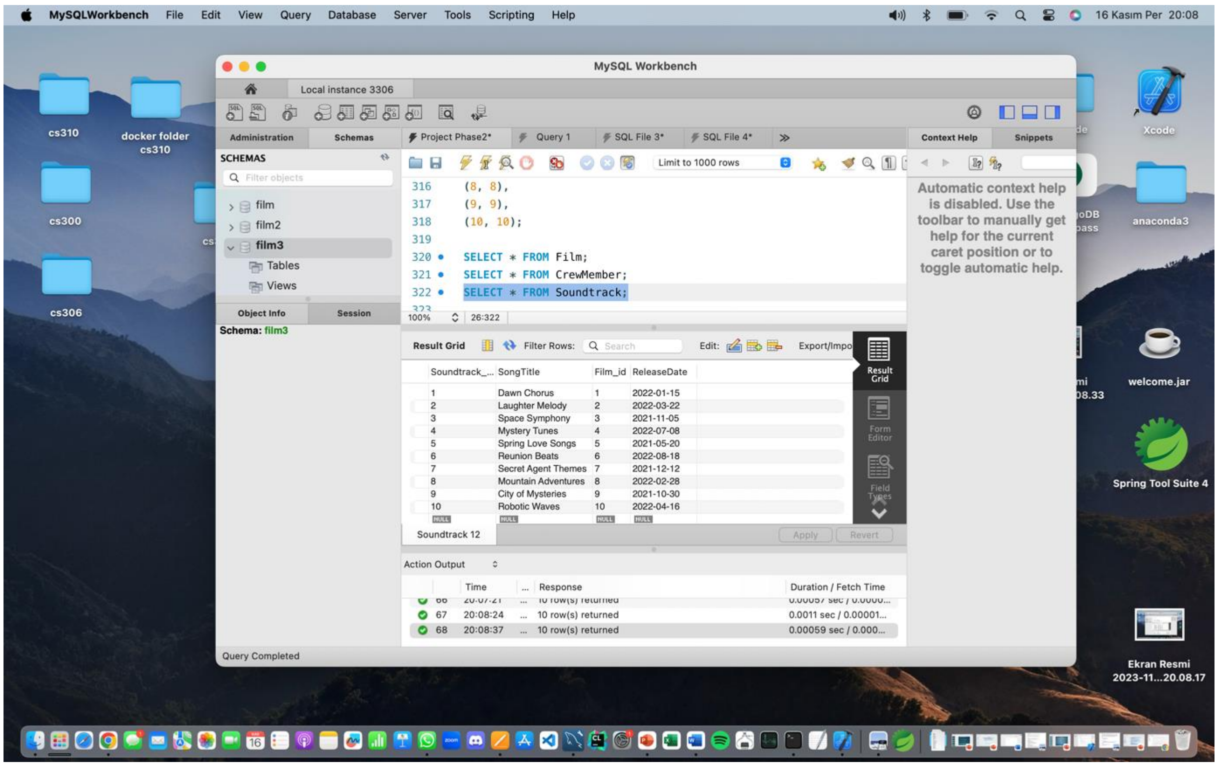
```
    (7, 7),
    (8, 8),
    (9, 9),
    (10, 10);

SELECT * FROM Film;
SELECT * FROM CrewMember;
SELECT * FROM Soundtrack;
```

Crew_id	Crew_Member_Name	Crew_Member_Role	Film_id
1	Alex Taylor	Cinematographer	1
2	Morgan Bailey	Editor	2
3	Jordan Casey	Screenwriter	3
4	Casey Lee	Composer	4
5	Jamie Parker	Production Designer	5
6	Kimberly Sanchez	Costume Designer	6
7	Samuel Green	Makeup Artist	7
8	Olivia Brown	Sound Engineer	8
9	Ethan Johnson	Visual Effects Supervisor	9
10	Madison White	Stunt Coordinator	10
NULL	NULL	NULL	NULL

CrewMember 11

```
    Time       ...  Response            Duration / Fetch Time
66  20:07:21   ...  10 row(s) returned  0.00057 sec / 0.0000...
67  20:08:24   ...  10 row(s) returned  0.0011 sec / 0.00001...
```

Query Completed



```
    (8, 8),
    (9, 9),
    (10, 10);

SELECT * FROM Film;
SELECT * FROM CrewMember;
SELECT * FROM Soundtrack;
```

```
Soundtrack_...  SongTitle             Film_id  ReleaseDate
1               Dawn Chorus           1        2022-01-15
2               Laughter Melody       2        2022-03-22
3               Space Symphony        3        2021-11-05
4               Mystery Tunes         4        2022-07-08
5               Spring Love Songs     5        2021-05-20
6               Reunion Beats         6        2022-08-18
7               Secret Agent Themes   7        2021-12-12
8               Mountain Adventures   8        2022-02-28
9               City of Mysteries     9        2021-10-30
10              Robotic Waves         10       2022-04-16
NULL            NULL                  NULL     NULL
```

```
     Time      ...  Response            Duration / Fetch Time
66   20:07:21  ...  10 row(s) returned  0.00057 sec / 0.0000...
67   20:08:24  ...  10 row(s) returned  0.0011 sec / 0.00001...
68   20:08:37  ...  10 row(s) returned  0.00059 sec / 0.000...
```

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Query Completed

STEP 5: Write down a query in English which will require joining the two of the tables you have selected, then write down its relational algebra equivalent.

-- display the information of crew member and film that crew member's film id that he/she participates and film's film ids are same

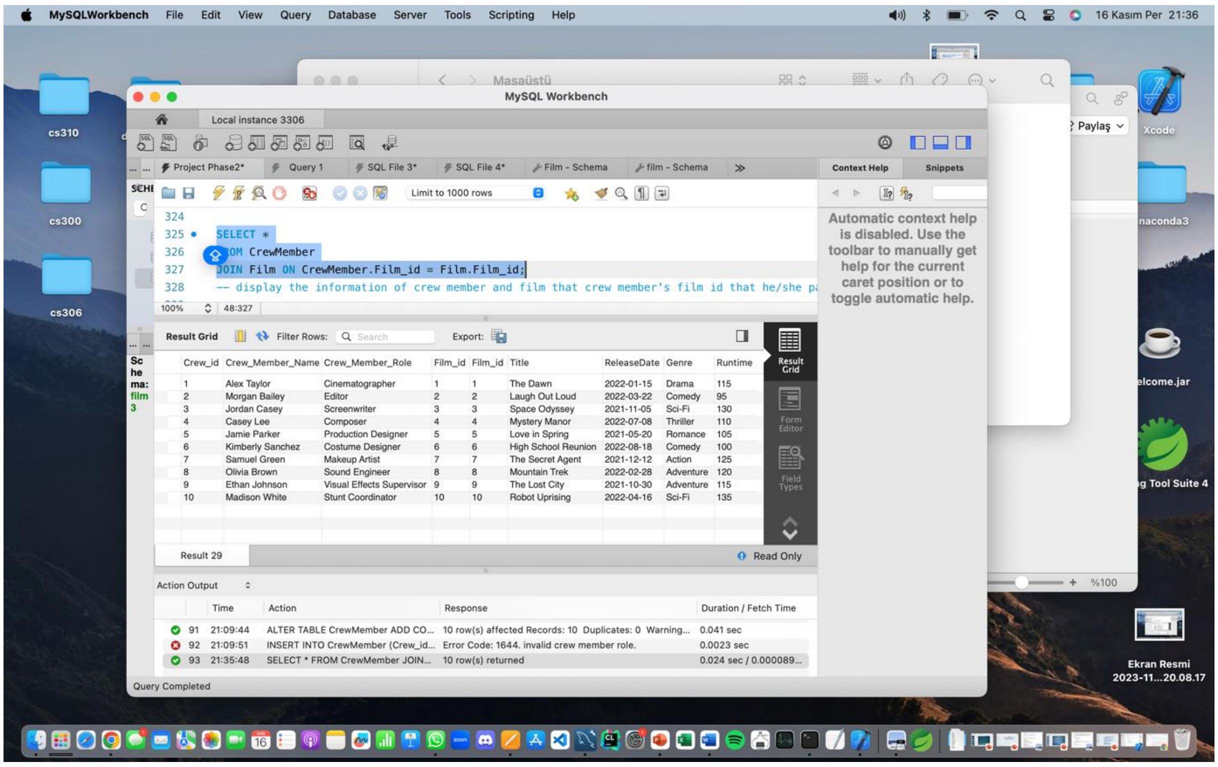
-- display the information of soundtrack and film that soundtrack's film id and film's film ids are same.

$\pi_{\text{CrewMember, Film}}(\sigma_{\text{CrewMember.Film\_id = Film.Film\_id}}(\text{CrewMember} \bowtie \text{Film}))$

$\pi_{\text{Soundtrack, Film}}(\sigma_{\text{Soundtrack.Film\_id = Film.Film\_id}}(\text{Soundtrack} \bowtie \text{Film}))$

STEP 6: Write down the SQL version of the relational algebra query and execute the query in mysql. Include the snapshot of the result in your report.

```sql
SELECT *
FROM CrewMember
JOIN Film ON CrewMember.Film_id = Film.Film_id;
```



```sql
SELECT *
FROM CrewMember
JOIN Film ON CrewMember.Film_id = Film.Film_id;
-- display the information of crew member and film that crew member's film id that he/she pa
```

Crew_id	Crew_Member_Name	Crew_Member_Role	Film_id	Film_id	Title	ReleaseDate	Genre	Runtime
1	Alex Taylor	Cinematographer	1	1	The Dawn	2022-01-15	Drama	115
2	Morgan Bailey	Editor	2	2	Laugh Out Loud	2022-03-22	Comedy	95
3	Jordan Casey	Screenwriter	3	3	Space Odyssey	2021-11-05	Sci-Fi	130
4	Casey Lee	Composer	4	4	Mystery Manor	2022-07-08	Thriller	110
5	Jamie Parker	Production Designer	5	5	Love in Spring	2021-05-20	Romance	105
6	Kimberly Sanchez	Costume Designer	6	6	High School Reunion	2022-08-18	Comedy	100
7	Samuel Green	Makeup Artist	7	7	The Secret Agent	2021-12-12	Action	125
8	Olivia Brown	Sound Engineer	8	8	Mountain Trek	2022-02-28	Adventure	120
9	Ethan Johnson	Visual Effects Supervisor	9	9	The Lost City	2021-10-30	Adventure	115
10	Madison White	Stunt Coordinator	10	10	Robot Uprising	2022-04-16	Sci-Fi	135

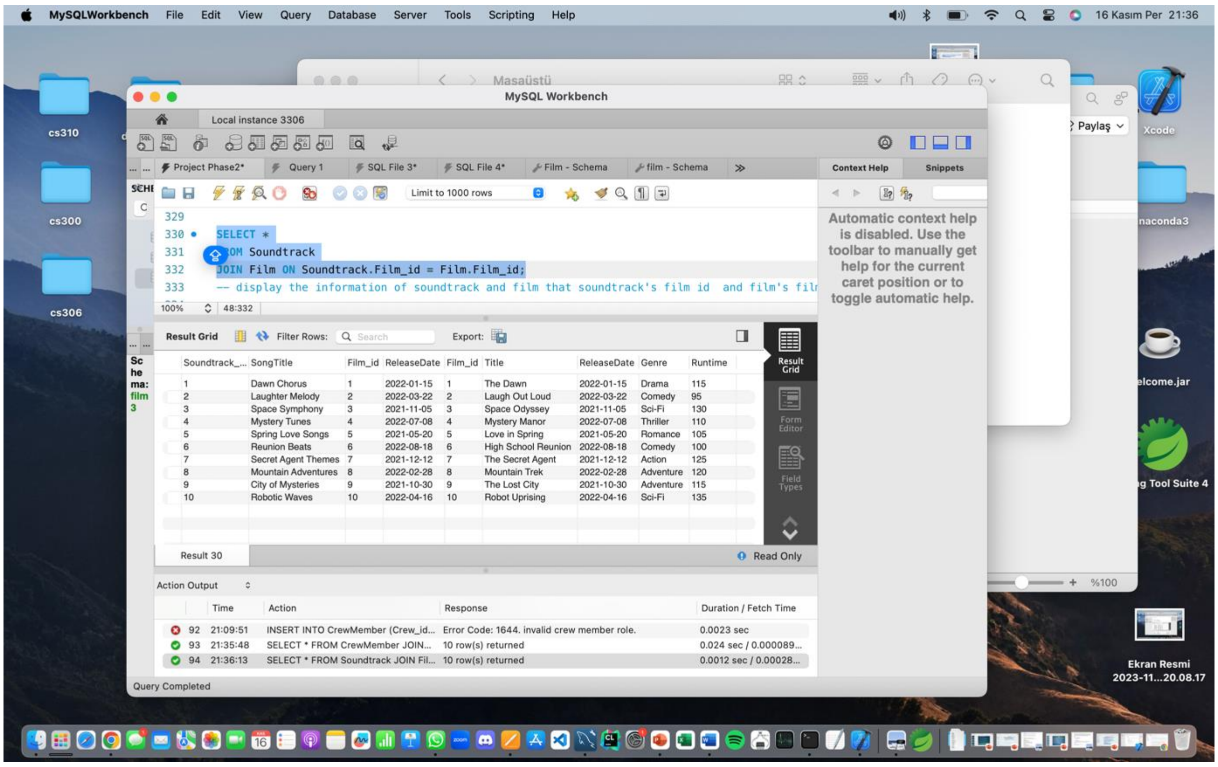
Result 29 Read Only

Action Output

		Time	Action	Response	Duration / Fetch Time
✓	91	21:09:44	ALTER TABLE CrewMember ADD CO...	10 row(s) affected Records: 10 Duplicates: 0 Warning...	0.041 sec
✗	92	21:09:51	INSERT INTO CrewMember (Crew_id...	Error Code: 1644. invalid crew member role.	0.0023 sec
✓	93	21:35:48	SELECT * FROM CrewMember JOIN...	10 row(s) returned	0.024 sec / 0.000089...

Query Completed

```sql
SELECT *
FROM Soundtrack
JOIN Film ON Soundtrack.Film_id = Film.Film_id;
```



```
SELECT *
FROM Soundtrack
JOIN Film ON Soundtrack.Film_id = Film.Film_id;
-- display the information of soundtrack and film that soundtrack's film id  and film's fil
```

Soundtrack_...	SongTitle	Film_id	ReleaseDate	Film_id	Title	ReleaseDate	Genre	Runtime
1	Dawn Chorus	1	2022-01-15	1	The Dawn	2022-01-15	Drama	115
2	Laughter Melody	2	2022-03-22	2	Laugh Out Loud	2022-03-22	Comedy	95
3	Space Symphony	3	2021-11-05	3	Space Odyssey	2021-11-05	Sci-Fi	130
4	Mystery Tunes	4	2022-07-08	4	Mystery Manor	2022-07-08	Thriller	110
5	Spring Love Songs	5	2021-05-20	5	Love in Spring	2021-05-20	Romance	105
6	Reunion Beats	6	2022-08-18	6	High School Reunion	2022-08-18	Comedy	100
7	Secret Agent Themes	7	2021-12-12	7	The Secret Agent	2021-12-12	Action	125
8	Mountain Adventures	8	2022-02-28	8	Mountain Trek	2022-02-28	Adventure	120
9	City of Mysteries	9	2021-10-30	9	The Lost City	2021-10-30	Adventure	115
10	Robotic Waves	10	2022-04-16	10	Robot Uprising	2022-04-16	Sci-Fi	135

Result 30 Read Only

Action Output

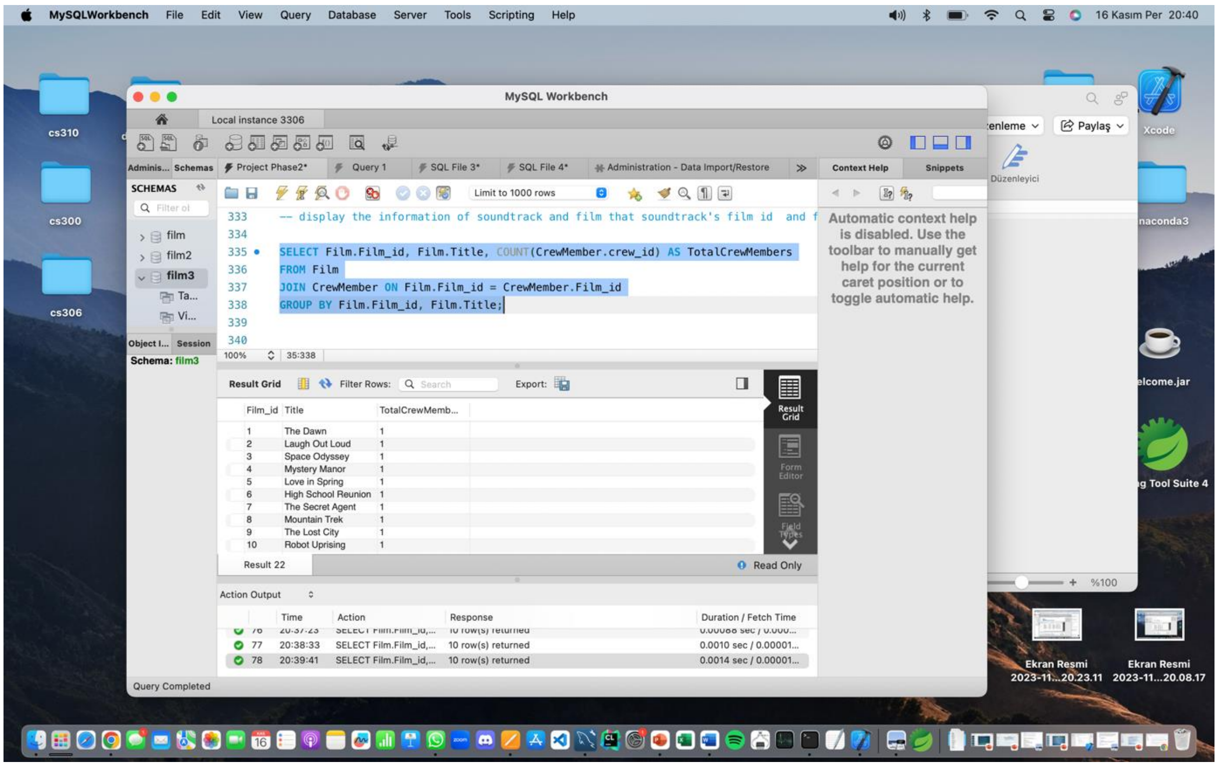
```
    Time      Action                              Response                                  Duration / Fetch Time
92  21:09:51  INSERT INTO CrewMember (Crew_id...  Error Code: 1644. invalid crew member role.  0.0023 sec
93  21:35:48  SELECT * FROM CrewMember JOIN...    10 row(s) returned                        0.024 sec / 0.000089...
94  21:36:13  SELECT * FROM Soundtrack JOIN Fil... 10 row(s) returned                       0.0012 sec / 0.00028...
```

Query Completed

STEP 7: Write down a query in English which will require "group by" operation, a statistical operator (SUM, AVG, MIN, MX etc), and will also require joining the two tables. Then write down the SQL version, execute it on mysql and include the snapshot of the result in your report.

--Display the total number of crew member for each film

```
SELECT Film.Film_id, Film.Title, COUNT(CrewMember.crew_id) AS
TotalCrewMembers
FROM Film
JOIN CrewMember ON Film.Film_id = CrewMember.Film_id
GROUP BY Film.Film_id, Film.Title;
```



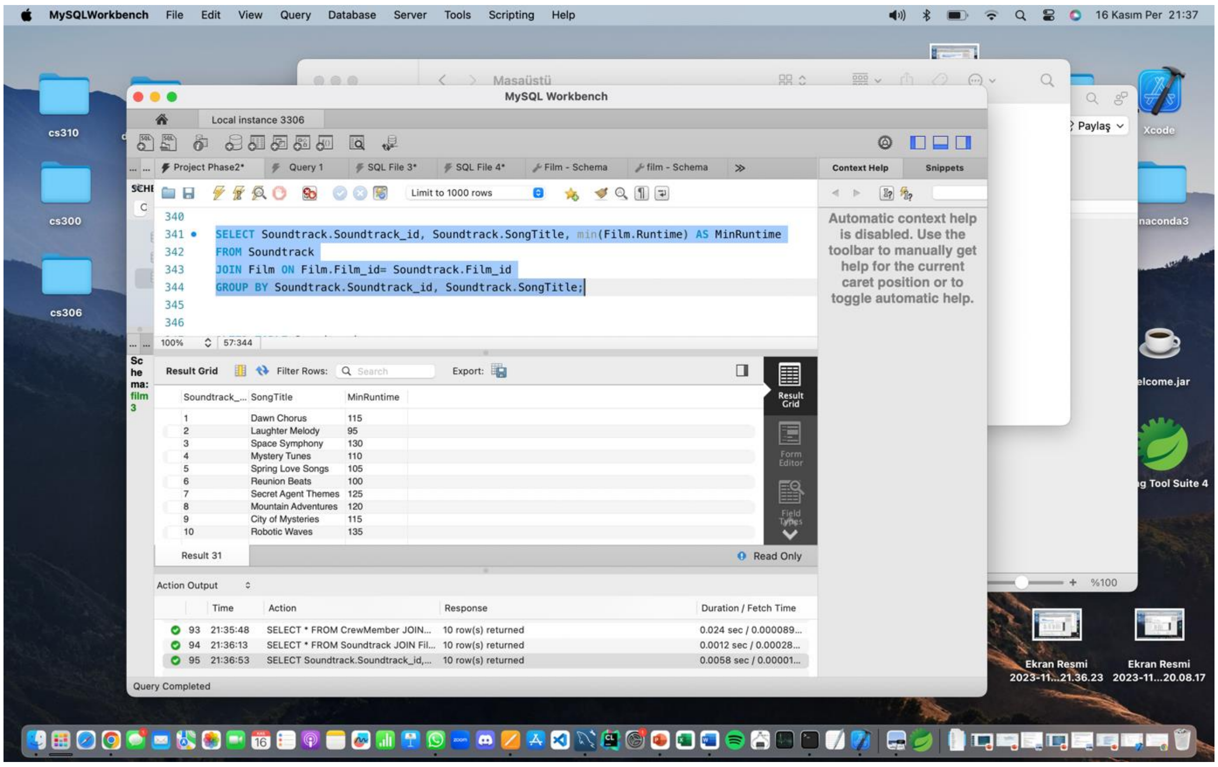
```
-- display the information of soundtrack and film that soundtrack's film id  and f

SELECT Film.Film_id, Film.Title, COUNT(CrewMember.crew_id) AS TotalCrewMembers
FROM Film
JOIN CrewMember ON Film.Film_id = CrewMember.Film_id
GROUP BY Film.Film_id, Film.Title;
```

Film_id	Title	TotalCrewMemb...
1	The Dawn	1
2	Laugh Out Loud	1
3	Space Odyssey	1
4	Mystery Manor	1
5	Love in Spring	1
6	High School Reunion	1
7	The Secret Agent	1
8	Mountain Trek	1
9	The Lost City	1
10	Robot Uprising	1

```
   Time      Action                 Response            Duration / Fetch Time
76 20:37:23  SELECT Film.Film_id,... 10 row(s) returned 0.00088 sec / 0.000...
77 20:38:33  SELECT Film.Film_id,... 10 row(s) returned 0.0010 sec / 0.00001...
78 20:39:41  SELECT Film.Film_id,... 10 row(s) returned 0.0014 sec / 0.00001...
```

--Display the minimum film runtime for each soundtrack

```
SELECT Soundtrack.Soundtrack_id, Soundtrack.SongTitle, min(Film.Runtime) AS
MinRuntime
FROM Soundtrack
JOIN Film ON Film.Film_id= Soundtrack.Film_id
GROUP BY Soundtrack.Soundtrack_id, Soundtrack.SongTitle;
```



```
SELECT Soundtrack.Soundtrack_id, Soundtrack.SongTitle, min(Film.Runtime) AS MinRuntime
FROM Soundtrack
JOIN Film ON Film.Film_id= Soundtrack.Film_id
GROUP BY Soundtrack.Soundtrack_id, Soundtrack.SongTitle;
```

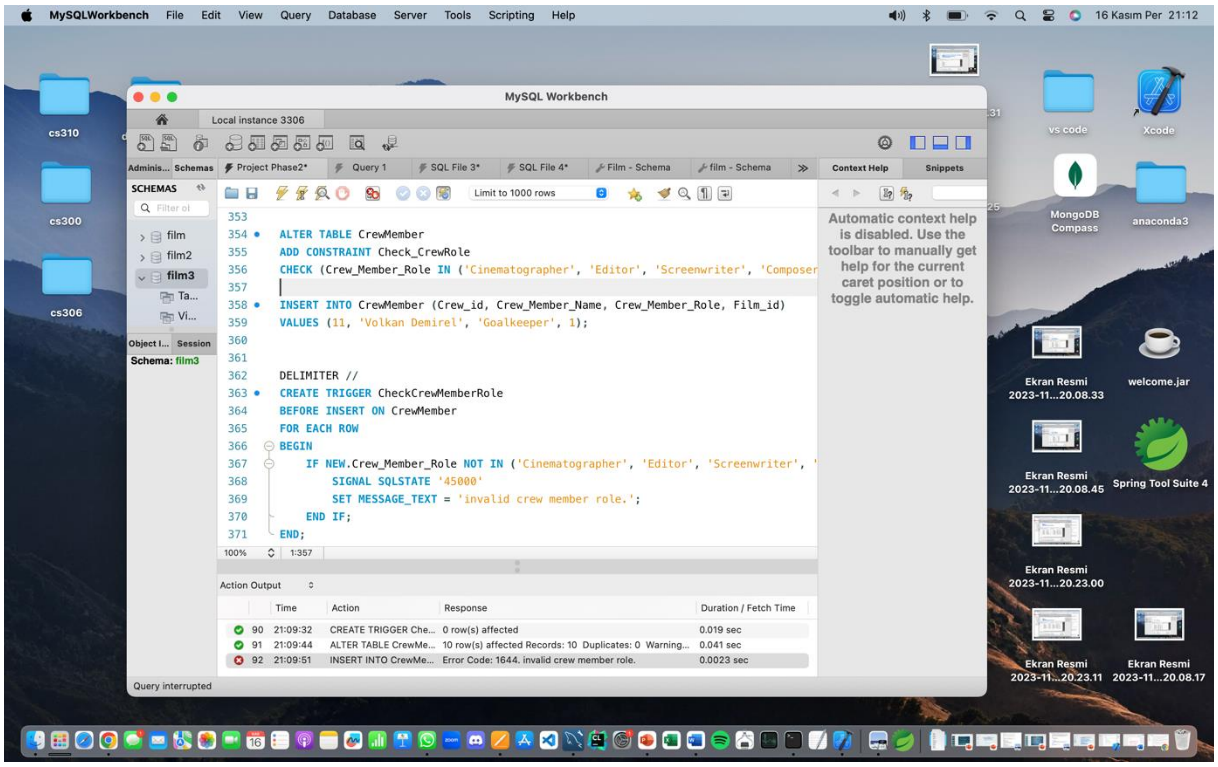
```
Soundtrack_... SongTitle            MinRuntime
1              Dawn Chorus          115
2              Laughter Melody      95
3              Space Symphony       130
4              Mystery Tunes        110
5              Spring Love Songs    105
6              Reunion Beats        100
7              Secret Agent Themes  125
8              Mountain Adventures  120
9              City of Mysteries    115
10             Robotic Waves        135
```

```
    Time      Action                              Response            Duration / Fetch Time
93  21:35:48  SELECT * FROM CrewMember JOIN...    10 row(s) returned  0.024 sec / 0.000089...
94  21:36:13  SELECT * FROM Soundtrack JOIN Fil...  10 row(s) returned  0.0012 sec / 0.00028...
95  21:36:53  SELECT Soundtrack.Soundtrack_id,...  10 row(s) returned  0.0058 sec / 0.00001...
```

Query Completed

STEP 8: Add a "check" constraint to a table in your project by updating the create table statement Your constraint should involve a SQL query. Each student should write a different constraint. Adding a constraint to an existing table is done through the command "ALTER TABLE <table_name> ADD CONSTRAINT CHECK (condition)"
Execute the alter table command on mysql and try to insert a row which does not satisfy the constraint using insert into statement. Include the snapshot of your work in the report which shows that you have added the constraint and tried to insert a row violating that constraint.

```
ALTER TABLE CrewMember
ADD CONSTRAINT Check_CrewRole
CHECK (Crew_Member_Role IN ('Cinematographer', 'Editor',
'Screenwriter', 'Composer', 'Production Designer', 'Costume
Designer', 'Makeup Artist', 'Sound Engineer', 'Visual Effects
Supervisor', 'Stunt Coordinator'));

INSERT INTO CrewMember (Crew_id, Crew_Member_Name,
Crew_Member_Role, Film_id)
VALUES (11, 'Volkan Demirel', 'Goalkeeper', 1);
```



```sql
ALTER TABLE CrewMember
ADD CONSTRAINT Check_CrewRole
CHECK (Crew_Member_Role IN ('Cinematographer', 'Editor', 'Screenwriter', 'Composer

INSERT INTO CrewMember (Crew_id, Crew_Member_Name, Crew_Member_Role, Film_id)
VALUES (11, 'Volkan Demirel', 'Goalkeeper', 1);


DELIMITER //
CREATE TRIGGER CheckCrewMemberRole
BEFORE INSERT ON CrewMember
FOR EACH ROW
BEGIN
    IF NEW.Crew_Member_Role NOT IN ('Cinematographer', 'Editor', 'Screenwriter', '
        SIGNAL SQLSTATE '45000'
        SET MESSAGE_TEXT = 'invalid crew member role.';
    END IF;
END;
```

```
Action Output
    Time      Action                Response                                                  Duration / Fetch Time
90  21:09:32  CREATE TRIGGER Che... 0 row(s) affected                                         0.019 sec
91  21:09:44  ALTER TABLE CrewMe... 10 row(s) affected Records: 10  Duplicates: 0  Warning... 0.041 sec
92  21:09:51  INSERT INTO CrewMe... Error Code: 1644. invalid crew member role.               0.0023 sec
Query interrupted
```

Also, I created a trigger for the check constraint and it said invalid crew member role when I tried to add invalid crew member role.