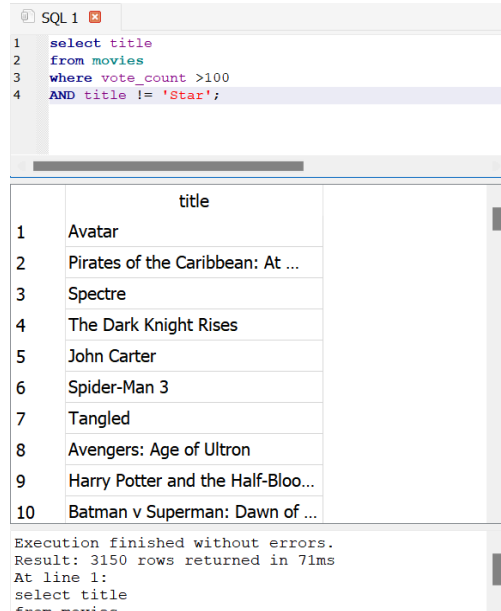Please copy your codes and attach screenshots of your outputs under each question when you submit it on github. Your submission file can be in Word or PDF format. The due The date for this lab assignment is April 19 at 1 PM.

1.Display the movie titles with more than 100 votes that do not have 'Star' in the title.
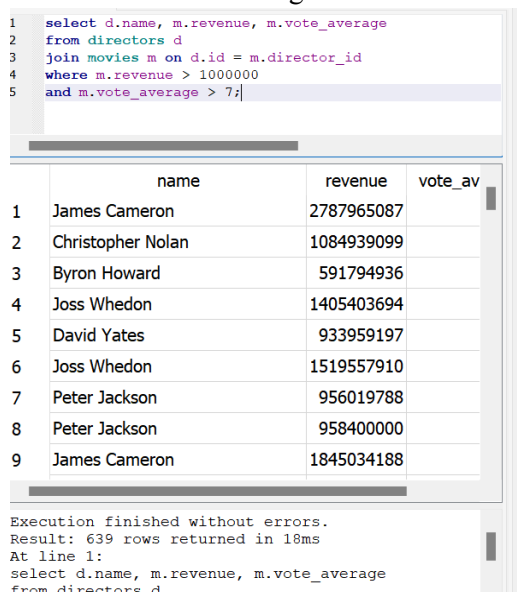
```sql
1  select title
2  from movies
3  where vote_count >100
4  AND title != 'Star';
```

| | title |
|---|---|
| 1 | Avatar |
| 2 | Pirates of the Caribbean: At ... |
| 3 | Spectre |
| 4 | The Dark Knight Rises |
| 5 | John Carter |
| 6 | Spider-Man 3 |
| 7 | Tangled |
| 8 | Avengers: Age of Ultron |
| 9 | Harry Potter and the Half-Bloo... |
| 10 | Batman v Superman: Dawn of ... |

```
Execution finished without errors.
Result: 3150 rows returned in 71ms
At line 1:
select title
from movies
```

2. What are the names of directors who have directed movies with a revenue greater than 1 million and a vote average of more than 7?

```sql
1  select d.name, m.revenue, m.vote_average
2  from directors d
3  join movies m on d.id = m.director_id
4  where m.revenue > 1000000
5  and m.vote_average > 7;
```

| | name | revenue | vote_av |
|---|---|---|---|
| 1 | James Cameron | 2787965087 | |
| 2 | Christopher Nolan | 1084939099 | |
| 3 | Byron Howard | 591794936 | |
| 4 | Joss Whedon | 1405403694 | |
| 5 | David Yates | 933959197 | |
| 6 | Joss Whedon | 1519557910 | |
| 7 | Peter Jackson | 956019788 | |
| 8 | Peter Jackson | 958400000 | |
| 9 | James Cameron | 1845034188 | |

```
Execution finished without errors.
Result: 639 rows returned in 18ms
At line 1:
select d.name, m.revenue, m.vote_average
from directors d
```

3. Get the names of directors who have 'Peter' in their name.

```
1   select name
2   from directors
3   where name like '%Peter%';
```

| | name |
|---|---|
| 1 | Peter Jackson |
| 2 | Peter Berg |
| 3 | Peter Sohn |
| 4 | Wolfgang Petersen |
| 5 | Peter Ramsey |
| 6 | Peter Weir |
| 7 | Peter Chelsom |
| 8 | Peter Hyams |
| 9 | Peter Segal |
| 10 | Peter Billingsley |

```
Execution finished without errors.
Result: 36 rows returned in 9ms
At line 1:
select name
from directors
```

## 4. Find all movies released in the year 2000.

```
1   SELECT title
2   FROM movies
3   WHERE release_date LIKE '2000%';
```

| | title |
|---|---|
| 1 | Dinosaur |
| 2 | How the Grinch Stole Christmas |
| 3 | Mission: Impossible II |
| 4 | The Perfect Storm |
| 5 | The Patriot |
| 6 | Gone in Sixty Seconds |
| 7 | Gladiator |
| 8 | The Emperor's New Groove |
| 9 | The Road to El Dorado |
| 10 | What Lies Beneath |

```
Execution finished without errors.
Result: 165 rows returned in 5ms
At line 1:
SELECT title
FROM movies
```

## 5. Find the names of all directors whose uid is between 500 and 5500.

```
1   SELECT d.name
2   FROM directors d
3   JOIN movies m ON d.uid = m.uid
4   WHERE d.uid BETWEEN 500 AND 5500;
```

| | name |
|---|---|
| 1 | Christopher Nolan |
| 2 | Barry Sonnenfeld |
| 3 | Ridley Scott |
| 4 | Tim Burton |
| 5 | Michael Bay |
| 6 | Matthew Vaughn |
| 7 | Guy Ritchie |
| 8 | John McTiernan |
| 9 | Roger Spottiswoode |
| 10 | David Mamet |

```
Execution finished without errors.
Result: 42 rows returned in 36ms
At line 1:
SELECT d.name
FROM directors d
```

6. Show the titles of movies with an average vote greater than 7, with at least 100 votes but not more than 500.

```
1    SELECT title
2    FROM movies
3    WHERE vote_average >7
4    AND vote_count >= 100
5    AND vote_count <=500;
```

| | title |
|---|---|
| 1 | The Flowers of War |
| 2 | Oceans |
| 3 | The Insider |
| 4 | A Very Long Engagement |
| 5 | Lolita |
| 6 | The Life of David Gale |
| 7 | Solaris |
| 8 | Coach Carter |
| 9 | Across the Universe |
| 10 | Ray |

```
Execution finished without errors.
Result: 188 rows returned in 12ms
At line 1:
SELECT title
FROM movies
```

7. Find the directors whose films have garnered a revenue of more than 1 million but have a popularity score of less than 5.

```
1    SELECT DISTINCT d.name
2    FROM directors d
3    JOIN movies m ON d.uid = m.uid
4    WHERE m.revenue > 1000000
5    AND m.popularity < 5;
6
```

| | name |
|---|---|
| 1 | Simon Wincer |
| 2 | Ralph Nelson |

```
Execution finished without errors.
Result: 2 rows returned in 15ms
At line 1:
SELECT DISTINCT d.name
FROM directors d
```

8. Find the total revenue generated by movies directed by 'Christopher Nolan'.

```
1    SELECT SUM(m.revenue) AS TotalRevenue
2    FROM directors d
3    JOIN movies m ON d.uid = m.uid
4    WHERE d.name = 'Christopher Nolan';
5
```

| | TotalRevenue |
|---|---|
| 1 | 115229890 |

```
Execution finished without errors.
Result: 1 rows returned in 34ms
At line 1:
SELECT SUM(m.revenue) AS TotalRevenue
FROM directors d
```

## 9. Retrieve the titles and release dates of movies that have a vote average of 'NULL'.

```
1    SELECT title, release_date
2    FROM movies S
3    WHERE vote_average IS NULL;
```

```
Execution finished without errors.
Result: 0 rows returned in 17ms
At line 1:
SELECT title, release_date
FROM movies
```

## 10. List the titles of movies that either have a 'NULL' budget or a 'NULL' revenue but have a vote count greater than 10.

```
1    SELECT title
2    FROM movies
3    WHERE (budget IS NULL OR revenue IS NULL)
4    AND vote_count > 10;
5
```

```
Execution finished without errors.
Result: 0 rows returned in 20ms
At line 1:
SELECT title
FROM movies
```

## 11. List the movie titles with a vote average between 6 and 8, inclusive, that were directed by directors whose name starts with 'S'.

```
1    SELECT DISTINCT m.title
2    FROM directors d
3    JOIN movies m ON d.uid = m.uid
4    WHERE d.name LIKE 'S%'
5    AND m.vote_average BETWEEN 6 AND 8;
6
7
```

| title |
| --- |
| 1 Reds |
| 2 My Own Private Idaho |
| 3 Iron Man |

```
Execution finished without errors.
Result: 3 rows returned in 44ms
At line 1:
SELECT DISTINCT m.title
FROM directors d
```

## 12. Retrieve the list of directors who have made movies that earned more than 100,000 in revenue but have a popularity of less than 10. Also, provide the count of such movies for each director.

```
1   SELECT d.name AS DirectorName, COUNT(m.uid) AS
2   FROM directors d
3   JOIN movies m ON d.uid = m.uid
4   WHERE m.revenue > 100000
5   AND m.popularity < 10
6   GROUP BY d.name;
7
```

| | DirectorName | MovieCount |
|---|---|---|
| 1 | Ben Sharpsteen | 1 |
| 2 | Brett Ratner | 1 |
| 3 | Brian Helgeland | 1 |
| 4 | Bruce Campbell | 1 |
| 5 | Colin Higgins | 1 |
| 6 | Ralph Nelson | 1 |
| 7 | Richard LaGravenese | 1 |
| 8 | Ronald Neame | 1 |
| 9 | Simon Wincer | 1 |

```
Execution finished without errors.
Result: 10 rows returned in 35ms
At line 1:
SELECT d.name AS DirectorName, COUNT(m.uid) AS
MovieCount
```

13. Find the directors who have only directed movies with a budget of over 1 million.

```
1   SELECT d.name AS director_name
2   FROM directors d
3   JOIN movies m ON d.id = m.director_id
4   GROUP BY d.name
5   HAVING sum(m.budget) > 1000000;
```

| | director_name |
|---|---|
| 1 | Aaron Schneider |
| 2 | Abel Ferrara |
| 3 | Adam Carolla |
| 4 | Adam Marcus |
| 5 | Adam McKay |
| 6 | Adam Rapp |
| 7 | Adam Rifkin |
| 8 | Adam Shankman |
| 9 | Adrian Lyne |

```
Execution finished without errors.
Result: 1595 rows returned in 29ms
At line 1:
SELECT d.name AS director_name
FROM directors d
```

14. Display the directors and the total number of votes for all their movies, but only for directors who have directed at least 4 movies, sorted by total votes in descending order.

```
1   select d.name, SUM(vote_count) as total_votes
2   FROM directors d
3   JOIN movies m ON d.id = m.director_id
4   group by d.name
5   having COUNT(m.id) >= 4
6   ORDER BY total_votes DESC;
7
```

| | name | total_votes |
|---|---|---|
| 1 | Christopher Nolan | 62653 |
| 2 | Steven Spielberg | 59771 |
| 3 | Peter Jackson | 45533 |
| 4 | Quentin Tarantino | 43339 |
| 5 | David Fincher | 36586 |
| 6 | Ridley Scott | 36243 |
| 7 | Robert Zemeckis | 33331 |
| 8 | Martin Scorsese | 32866 |
| 9 | James Cameron | 32819 |

```
Execution finished without errors.
Result: 339 rows returned in 414ms
At line 1:
select d.name, SUM(vote_count) as total_votes
FROM directors d
```

15. List directors and the number of movies with a vote average greater than 7.0 they have directed, including only directors with more than 2 such movies.

```
1   select d.name, count(*) as movie_count
2   FROM directors d
3   JOIN movies m ON d.id = m.director_id
4   where m.vote_average > 7
5   group by d.name
5   having count(*) > 2;
```

| | name | movie_count |
|---|---|---|
| 1 | Alejandro González Iñárritu | 4 |
| 2 | Alfonso Cuarón | 4 |
| 3 | Alfred Hitchcock | 4 |
| 4 | Ang Lee | 4 |
| 5 | Antoine Fuqua | 3 |
| 6 | Barry Levinson | 3 |
| 7 | Billy Wilder | 3 |
| 8 | Brian De Palma | 3 |
| 9 | Chris Columbus | 3 |

```
Execution finished without errors.
Result: 67 rows returned in 24ms
At line 1:
select d.name, count(*) as movie_count
FROM directors d
```

16. Display the top 3 directors who have directed movies with the highest average revenue, considering only directors with more than 2 movies.

```
2   FROM directors d
3   JOIN movies m ON d.id = m.director_id
4   GROUP BY d.name
5   HAVING COUNT(m.id) > 2
5   ORDER BY AvgRevenue DESC
7   LIMIT 3;
8
```

| | DirectorName | AvgRevenue |
|---|---|---|
| 1 | Joss Whedon | 987943689.333333 |
| 2 | James Cameron | 840509919.857143 |
| 3 | David Yates | 742971665.333333 |

```
Execution finished without errors.
Result: 3 rows returned in 36ms
At line 1:
SELECT d.name AS DirectorName, AVG(m.revenue) AS
AvgRevenue
```

17. Find all movies with 'War' in the title that were released in the 2000s and have a minimum vote count of 100. Order the results by vote average in descending order.

```
1   SELECT title, release_date, vote_count, vote_ave
2   FROM movies
3   WHERE title LIKE '%War%'
4   AND release_date BETWEEN '2000-01-01' AND '2009-1
5   AND vote_count >= 100
6   ORDER BY vote_average DESC;
7   |
```

| | title | release_date | vote_c |
|---|---|---|---|
| 1 | Tae Guk Gi: The Brotherhood ... | 2004-02-05 | |
| 2 | Star Wars: Episode III - Reven... | 2005-05-17 | |
| 3 | Lord of War | 2005-09-16 | |
| 4 | Pay It Forward | 2000-10-12 | |
| 5 | The Assassination of Jesse ... | 2007-09-02 | |
| 6 | The Chronicles of Narnia: The ... | 2005-12-07 | |
| 7 | Charlie Wilson's War | 2007-12-19 | |
| 8 | Star Wars: Episode II - Attack ... | 2002-05-15 | |
| 9 | War of the Worlds | 2005-06-28 | |

```
Execution finished without errors.
Result: 16 rows returned in 16ms
At line 1:
SELECT title, release_date, vote_count,
vote_average
```

18. Display the top 5 most prolific directors who have the highest average vote_average for their movies since the year 2000.

```
1   SELECT d.name AS DirectorName, COUNT(m.uid) AS NumMovies, AVG(m.vote_average) AS AvgVoteAverage
2   FROM directors d
3   JOIN movies m ON d.uid = m.uid
4   WHERE m.release_date >= '2000-01-01'
5   GROUP BY d.name
6   HAVING COUNT(m.uid) >= 1
7   ORDER BY AvgVoteAverage DESC
8   LIMIT 5;
9
```

| | DirectorName | NumMovies | AvgVoteAverage |
|---|---|---|---|
| 1 | Robert Zemeckis | 1 | 7.7 |
| 2 | Rob Schmidt | 1 | 7.7 |
| 3 | Chris Kentis | 1 | 7.7 |
| 4 | Steven E. de Souza | 1 | 7.4 |
| 5 | Charles Stone III | 1 | 7.4 |

```
Execution finished without errors.
Result: 5 rows returned in 34ms
At line 1:
SELECT d.name AS DirectorName, COUNT(m.uid) AS NumMovies, AVG(m.vote_average) AS AvgVoteAverage
FROM directors d
```