INSTAGRAM
USER ANALYTICS

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PROJECT DESCRIPTION

-The project is on Instagram clone where I will be assisting the product team of Instagram. I will do the user analysis so that it can be used to launch new product or marketing campaign.

-I will do the analysis of the database through SQL

-I Will find out various information about users and their interaction with the application.

APPROACH

The approach for this project is to first make database of different tables in SQL from the dataset given and then find the answer for the various asked questions by using different SQL queries such as join, count, group by, order by, etc.

TECH-STACK USED

I have used **MYSQL Workbench 8.0 CE** to do the analysis of database.

I have used MYSQL because it is highly scalable database system, it can run on multiple platforms and is freely available to us.

REPORT FOR MARKETING TEAM

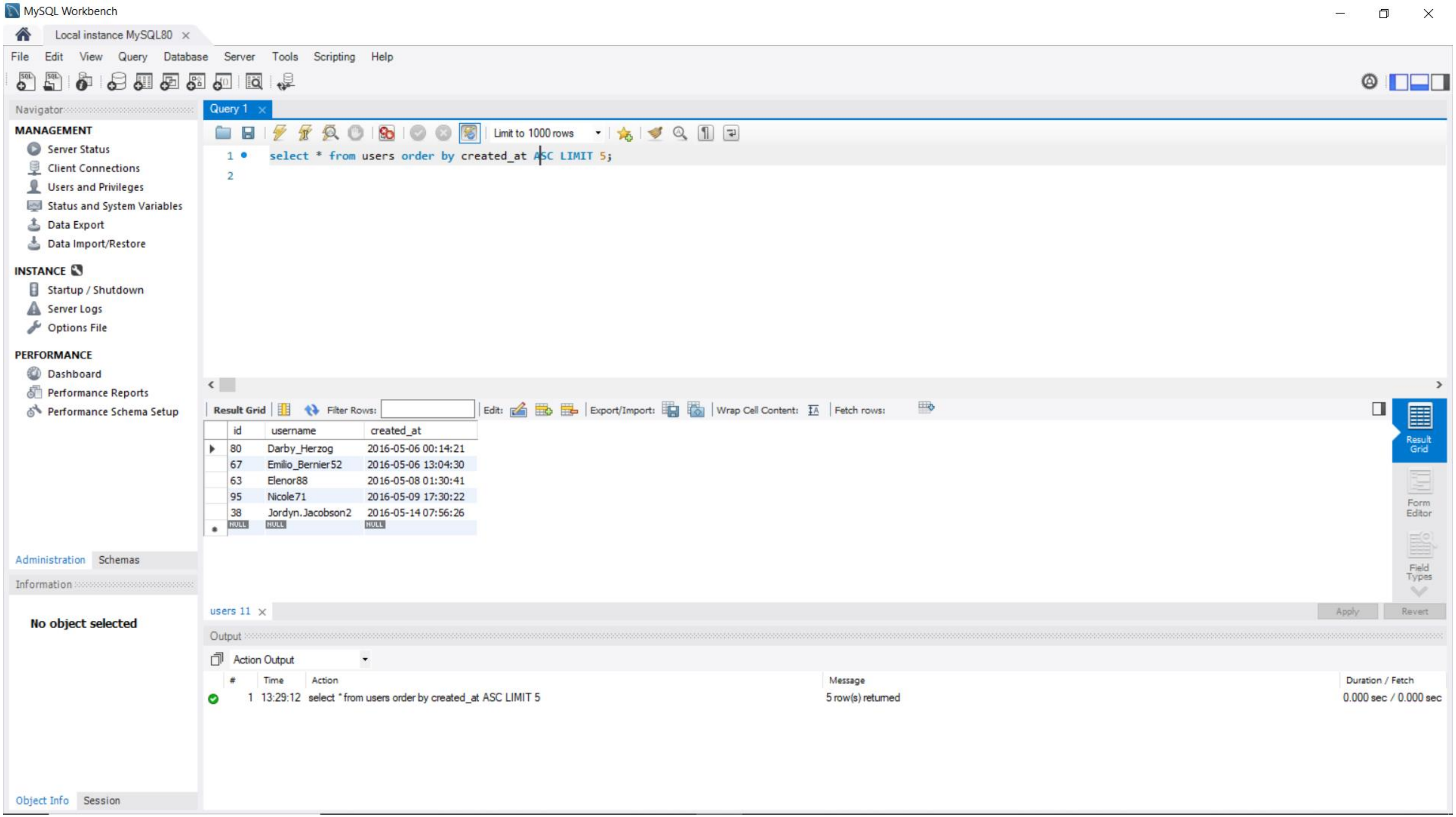
1. Rewarding Most Loyal Users

S.No.	ID	USERNAME	CREATED AT
1	80	Darby_Herzog	06/05/2016 00:14:21
2	67	Emilio_Bernier52	06/05/2016 13:04:30
3	63	Elenor88	08/05/2016 01:30:41
4	96	Nicole71	09/05/2016 17:30:22
5	38	Jordyn.Jacobson2	14/05/2016 07:56:26

These are the oldest users of the Instagram from the database provided.

INSIGHTS- The most loyal users of Instagram are Darby, Emilio, Elenor, Nicole, Jordyn as they are the oldest user and have been using Instagram since then.

Query used- select * from users order by created_at ASC LIMIT 5;



```sql
select * from users order by created_at ASC LIMIT 5;
```

id	username	created_at
80	Darby_Herzog	2016-05-06 00:14:21
67	Emilio_Bernier52	2016-05-06 13:04:30
63	Elenor88	2016-05-08 01:30:41
95	Nicole71	2016-05-09 17:30:22
38	Jordyn.Jacobson2	2016-05-14 07:56:26
NULL	NULL	NULL

#	Time	Action	Message	Duration / Fetch
1	13:29:12	select * from users order by created_at ASC LIMIT 5	5 row(s) returned	0.000 sec / 0.000 sec

INSTAGRAM USER ANALYTICS

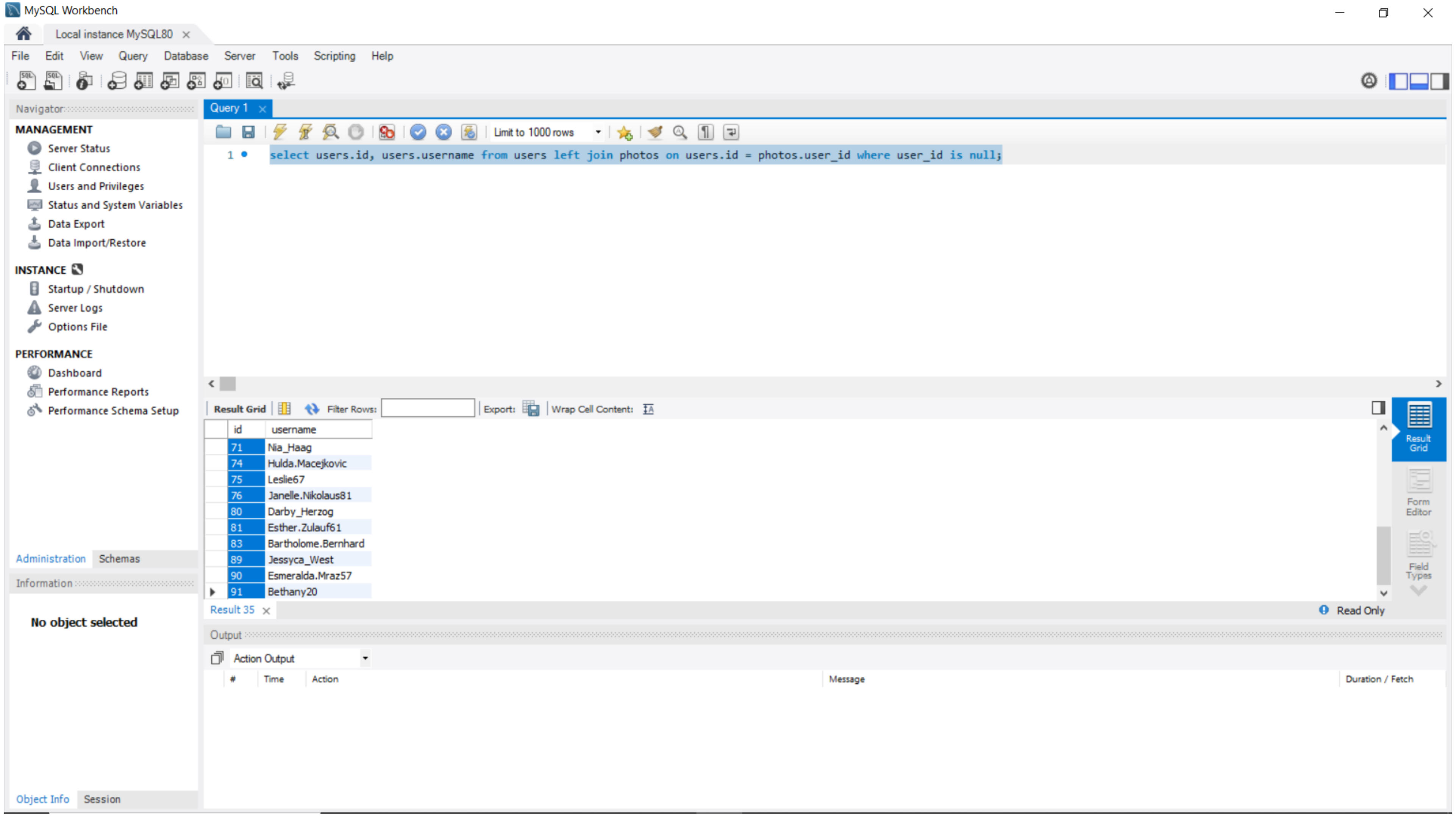
2. Remind Inactive Users to Start Posting

-Here are the list of users with zero (0) post on the app.

S.No.	ID	USERNAME
1	5	Aniya_Hackett
2	7	Kasandra_Homenick
3	14	Jaclyn81
4	21	Rocio33
5	24	Maxwell.Halvorson
6	25	Tierra.Trantow
7	34	Pearl7
8	36	Ollie_Ledner37
9	41	Mckenna17
10	45	David.Osinski47
11	49	Morgan.Kassulke
12	53	Linnea59
13	54	Duane60
14	57	Julien_Schmidt
15	66	Mike.Auer39
16	68	Franco_Keebler64
17	71	Nia_Haag
18	74	Hulda.Macejkovic
19	75	Leslie67
20	76	Janelle.Nikolaus81
21	80	Darby_Herzog
22	81	Esther.Zulauf61
23	83	Bartholome.Bernhard
24	89	Jessyca_West
25	90	Esmeralda.Mraz57
26	91	Bethany20

INSIGHTS- The number of inactive users are 26 which means that approximately ¼ of Instagram users are inactive. Campaign should be launched to encourage people to post.

Query- select users.id, users.username from users left join photos on users.id = photos.user_id where user_id is null;



```
select users.id, users.username from users left join photos on users.id = photos.user_id where user_id is null;
```

id	username
71	Nia_Haag
74	Hulda.Macejkovic
75	Leslie67
76	Janelle.Nikolaus81
80	Darby_Herzog
81	Esther.Zulauf61
83	Bartholome.Bernhard
89	Jessyca_West
90	Esmeralda.Mraz57
91	Bethany20

INSTAGRAM USER ANALYTICS

3. Declaring Contest Winner

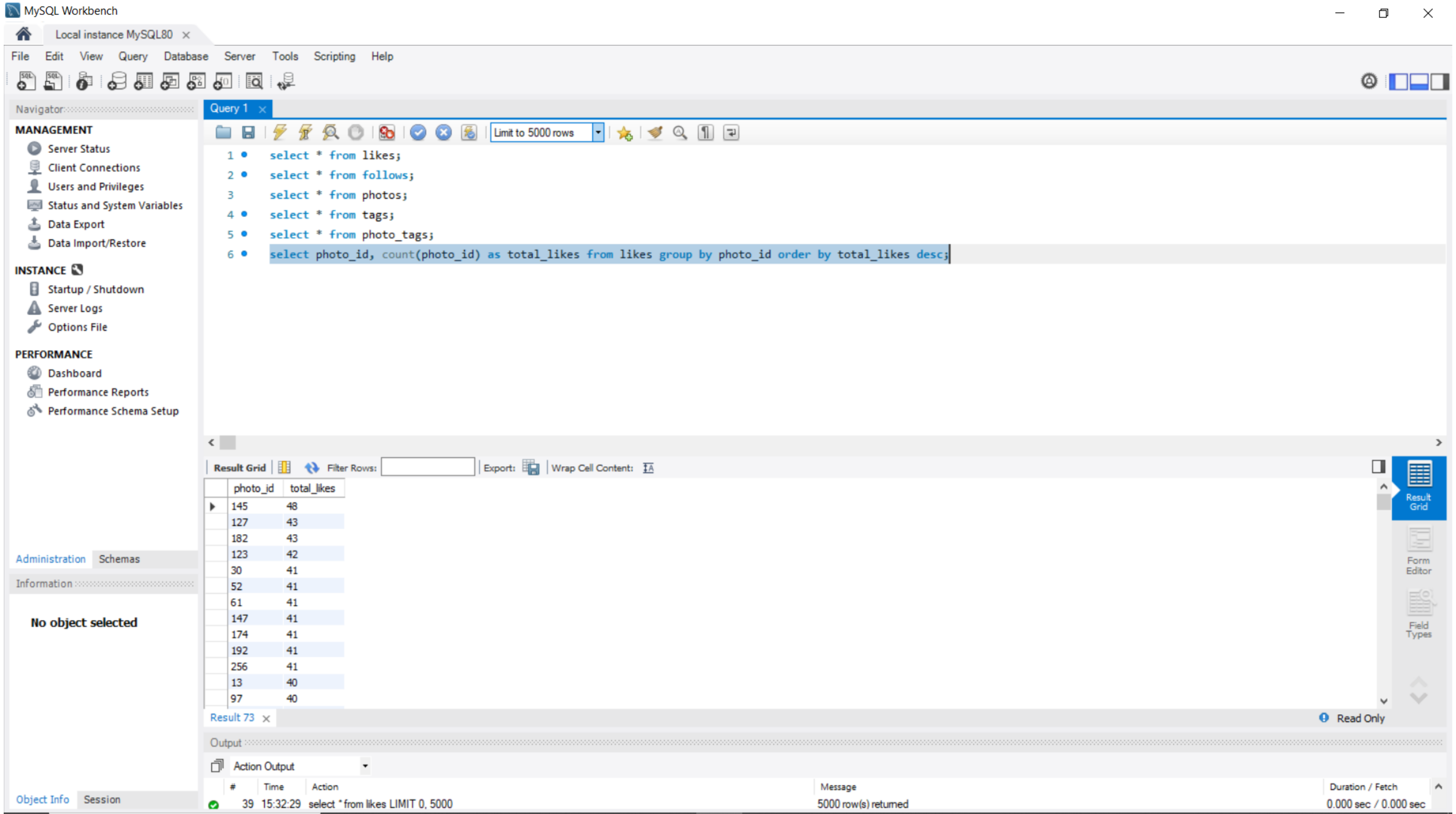
The user who got the most likes on a single photo.

ID	USERNAME	LIKES
52	Zack_Kemmer93	145

INSIGHTS- Zack Kemmer got the most likes i.e. 145 and won the contest.

More such contest should be held which would encourage the users to be more creative to get the maximum likes.

- **Querry-** select photo_id, count(photo_id) as total_likes from likes group by photo_id order by total_likes desc;
- select users.id, username from users join photos on users.id = photos.user_id where photos.id = 145;



```
select * from likes;
select * from follows;
select * from photos;
select * from tags;
select * from photo_tags;
select photo_id, count(photo_id) as total_likes from likes group by photo_id order by total_likes desc;
```

photo_id	total_likes
145	48
127	43
182	43
123	42
30	41
52	41
61	41
147	41
174	41
192	41
256	41
13	40
97	40

```
#   Time      Action                              Message                 Duration / Fetch
39  15:32:29  select * from likes LIMIT 0, 5000  5000 row(s) returned    0.000 sec / 0.000 sec
```

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4. Hashtag Researching

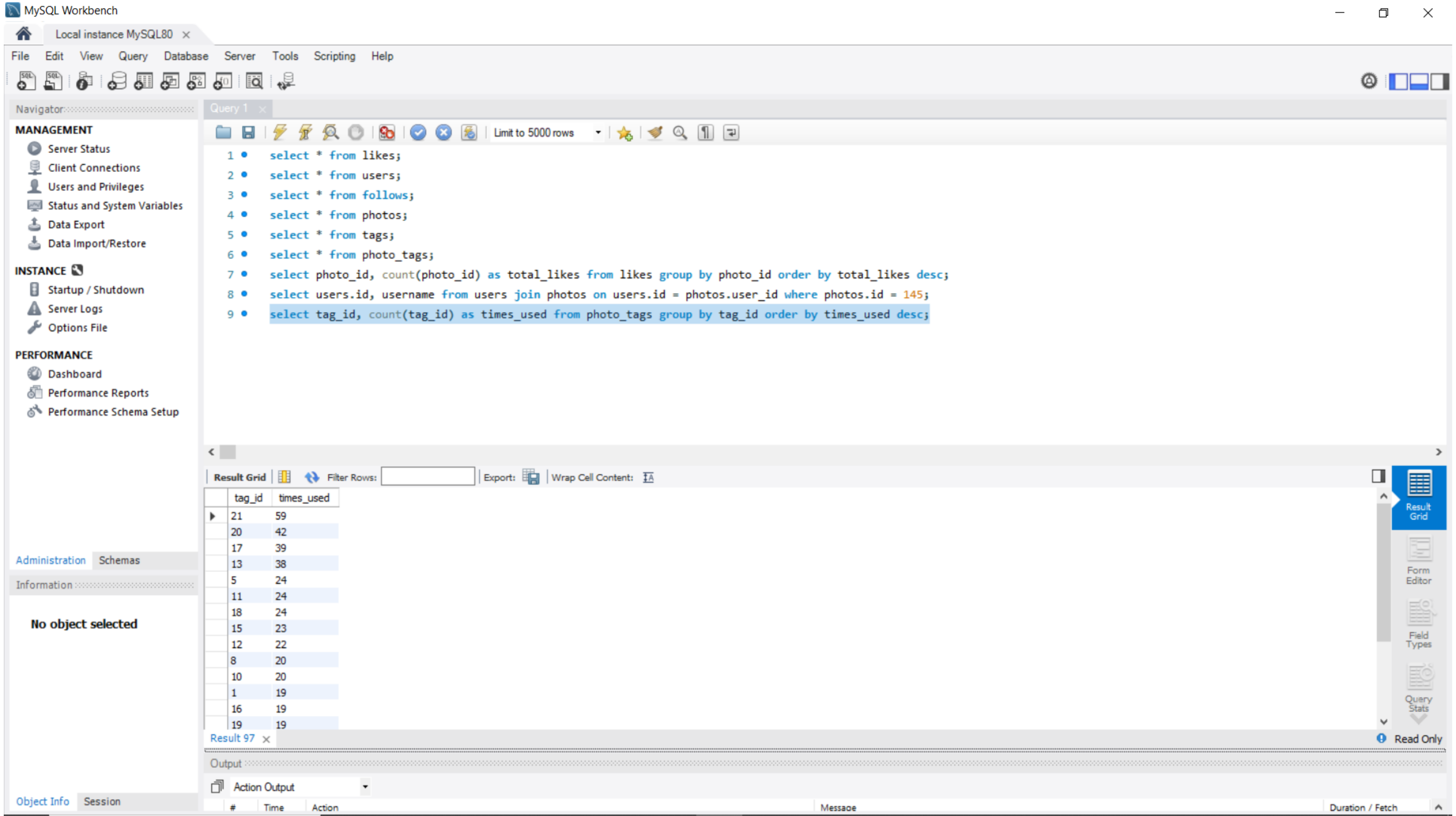
The top 5 most commonly used hashtags on the platform

S.No.	HASHTAG ID	HASHTAG
1	21	smile
2	20	beach
3	17	party
4	13	fun
5	18	concert

INSIGHTS- The most used hashtags on Instagram are smile, beach, party, fun and concert. By using these hashtags the partner company can improve its engagement.

Querry- select tag_id, count(tag_id) as times_used from photo_tags group by tag_id order by times_used desc limit 5;

select tags.id, tags.tag_name from tags join photo_tags on tags.id = photo_tags.tag_id where tag_id in (21,20,17,13,18) group by tag_id;



```
select * from likes;
select * from users;
select * from follows;
select * from photos;
select * from tags;
select * from photo_tags;
select photo_id, count(photo_id) as total_likes from likes group by photo_id order by total_likes desc;
select users.id, username from users join photos on users.id = photos.user_id where photos.id = 145;
select tag_id, count(tag_id) as times_used from photo_tags group by tag_id order by times_used desc;
```

tag_id	times_used
21	59
20	42
17	39
13	38
5	24
11	24
18	24
15	23
12	22
8	20
10	20
1	19
16	19
19	19

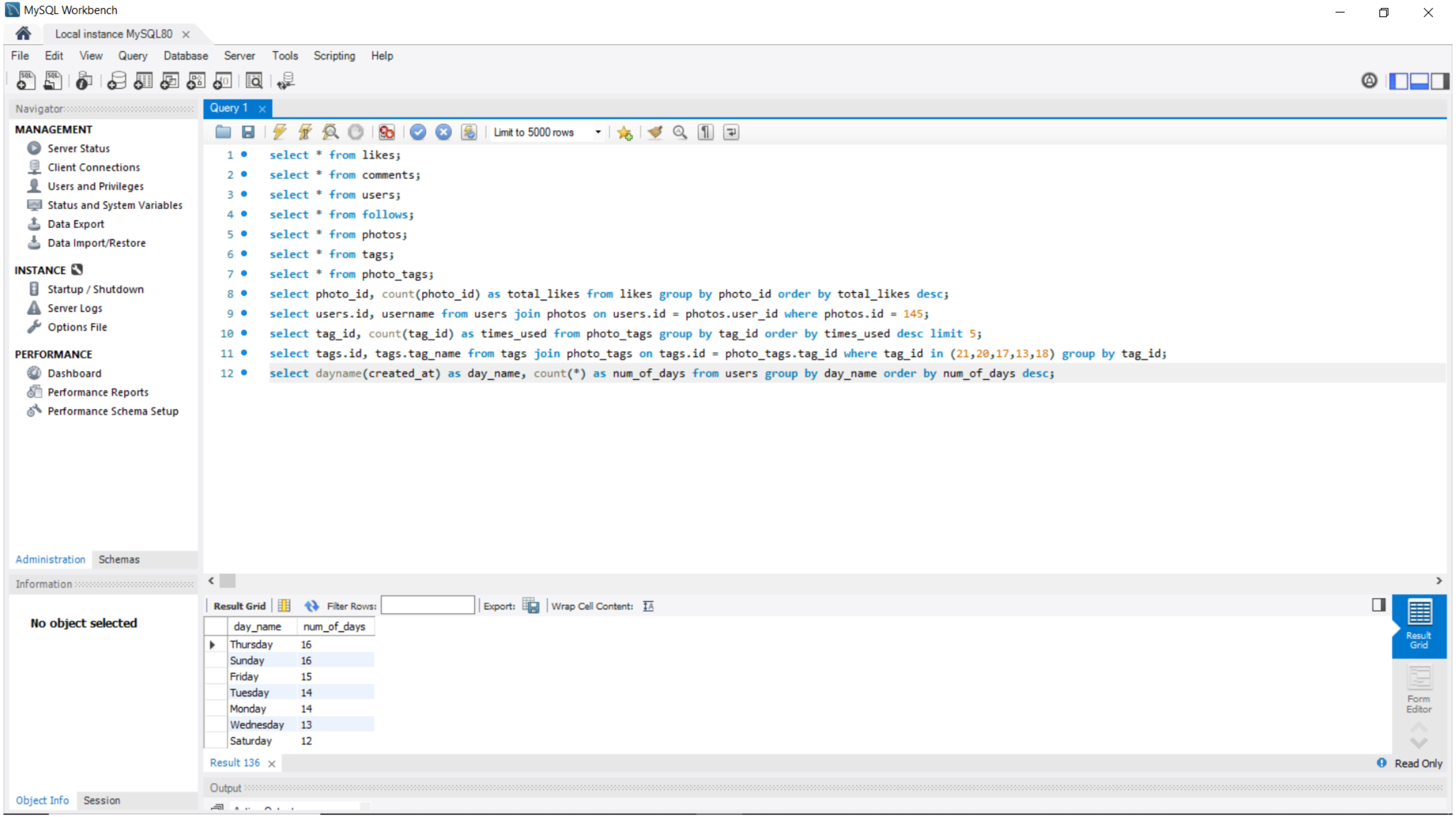
5. Launch AD Campaign

Table of days in which most users registered.

S.No.	DAY	NO. OF USERS REGISTERED
1	Thursday	16
2	Sunday	16
3	Friday	15
4	Tuesday	14
5	Monday	14
6	Wednesday	13
7	Saturday	12

INSIGHTS- The AD Campaigns should be launched on Thursday or Sunday

Querry- select dayname(created_at) as day_name, count(*) as num_of_days from users group by day_name order by num_of_days desc;



```sql
select * from likes;
select * from comments;
select * from users;
select * from follows;
select * from photos;
select * from tags;
select * from photo_tags;
select photo_id, count(photo_id) as total_likes from likes group by photo_id order by total_likes desc;
select users.id, username from users join photos on users.id = photos.user_id where photos.id = 145;
select tag_id, count(tag_id) as times_used from photo_tags group by tag_id order by times_used desc limit 5;
select tags.id, tags.tag_name from tags join photo_tags on tags.id = photo_tags.tag_id where tag_id in (21,20,17,13,18) group by tag_id;
select dayname(created_at) as day_name, count(*) as num_of_days from users group by day_name order by num_of_days desc;
```

day_name	num_of_days
Thursday	16
Sunday	16
Friday	15
Tuesday	14
Monday	14
Wednesday	13
Saturday	12

REPORT FOR INVESTOR METRICS

1. User Engagement

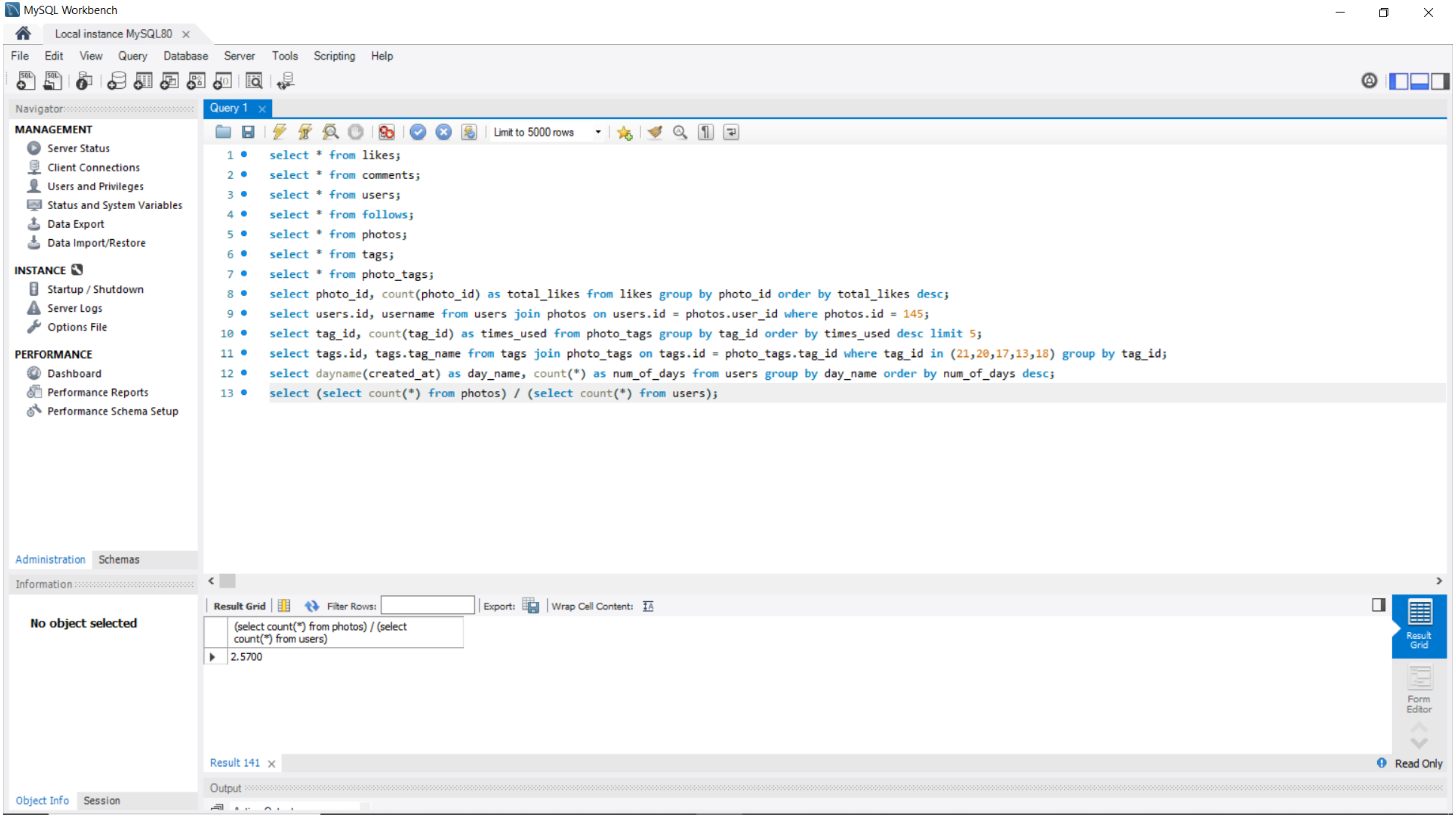
Total number of photos on Instagram = 257

Total number of users = 100

INSIGHTS- The total number of photos on Instagram/total number of users = 2.57

Hence an average user posts 2.57 times on Instagram

Querry- select (select count(*) from photos) / (select count(*) from users);



```
select * from likes;
select * from comments;
select * from users;
select * from follows;
select * from photos;
select * from tags;
select * from photo_tags;
select photo_id, count(photo_id) as total_likes from likes group by photo_id order by total_likes desc;
select users.id, username from users join photos on users.id = photos.user_id where photos.id = 145;
select tag_id, count(tag_id) as times_used from photo_tags group by tag_id order by times_used desc limit 5;
select tags.id, tags.tag_name from tags join photo_tags on tags.id = photo_tags.tag_id where tag_id in (21,20,17,13,18) group by tag_id;
select dayname(created_at) as day_name, count(*) as num_of_days from users group by day_name order by num_of_days desc;
select (select count(*) from photos) / (select count(*) from users);
```

(select count(*) from photos) / (select count(*) from users)
2.5700

2. Bots & Fake Accounts

S.No.	ID	USERNAME	NO. OF LIKES
1	5	Aniya_Hackett	257
2	14	Jaclyn81	257
3	21	Rocio33	257
4	24	Maxwell.Halvorson	257
5	36	Ollie_Ledner37	257
6	41	Mckenna17	257
7	54	Duane60	257
8	57	Julien_Schmidt	257
9	66	Mike.Auer39	257
10	71	Nia_Haag	257
11	75	Leslie67	257
12	76	Janelle.Nikolaus81	257
13	91	Bethany20	257

INSIGHTS- The list of bots are given in the table as it is impossible for human to like every photos. The number of bots should be decreased by banning those accounts.

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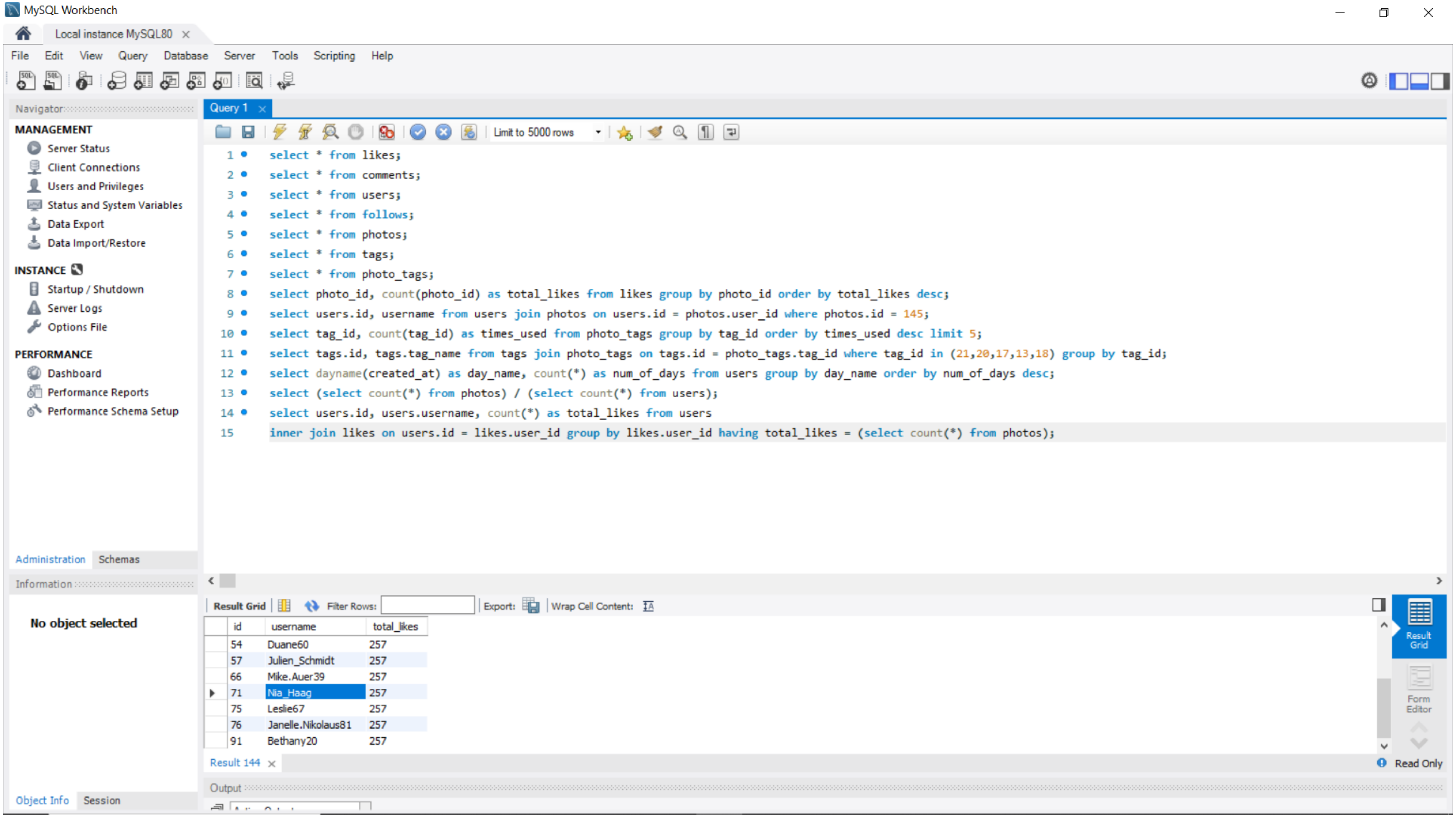
Querry- select users.id, users.username, count(*) as total_likes from users inner join likes on users.id = likes.user_id group by likes.user_id having total_likes = (select count(*) from photos);



```
select * from likes;
select * from comments;
select * from users;
select * from follows;
select * from photos;
select * from tags;
select * from photo_tags;
select photo_id, count(photo_id) as total_likes from likes group by photo_id order by total_likes desc;
select users.id, username from users join photos on users.id = photos.user_id where photos.id = 145;
select tag_id, count(tag_id) as times_used from photo_tags group by tag_id order by times_used desc limit 5;
select tags.id, tags.tag_name from tags join photo_tags on tags.id = photo_tags.tag_id where tag_id in (21,20,17,13,18) group by tag_id;
select dayname(created_at) as day_name, count(*) as num_of_days from users group by day_name order by num_of_days desc;
select (select count(*) from photos) / (select count(*) from users);
select users.id, users.username, count(*) as total_likes from users
inner join likes on users.id = likes.user_id group by likes.user_id having total_likes = (select count(*) from photos);
```

id	username	total_likes
54	Duane60	257
57	Julien_Schmidt	257
66	Mike.Auer39	257
71	Nia_Haag	257
75	Leslie67	257
76	Janelle.Nikolaus81	257
91	Bethany20	257

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RESULT

I got to understand and learn how the desired data is derived from a large databse which would help the App.

I also understood the kind of insights which is asked or needed by the management team to work upon and how it would help further.

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THANK YOU

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