SQL Queries: Instagram User Analytics

Marketing Analysis

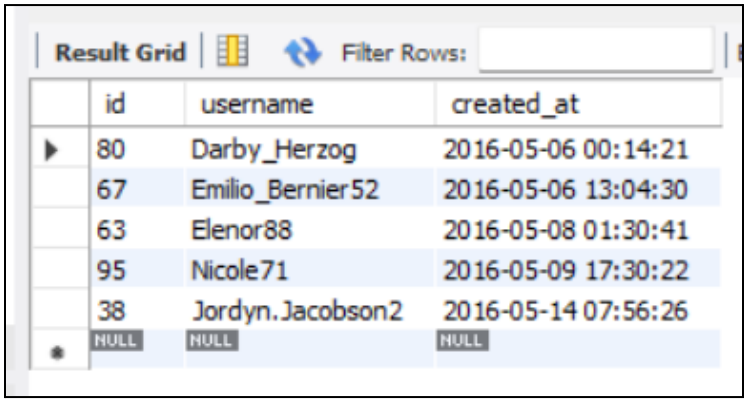
Query 1: Loyal User Reward: The marketing team wants to reward the most loyal users, i.e., those who have been using the platform for the longest time.

Task: Identify the five oldest users on Instagram from the provided database.

Query:

```
SELECT
    *
FROM
    users
ORDER BY created_at
LIMIT 5;
```

Output:



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

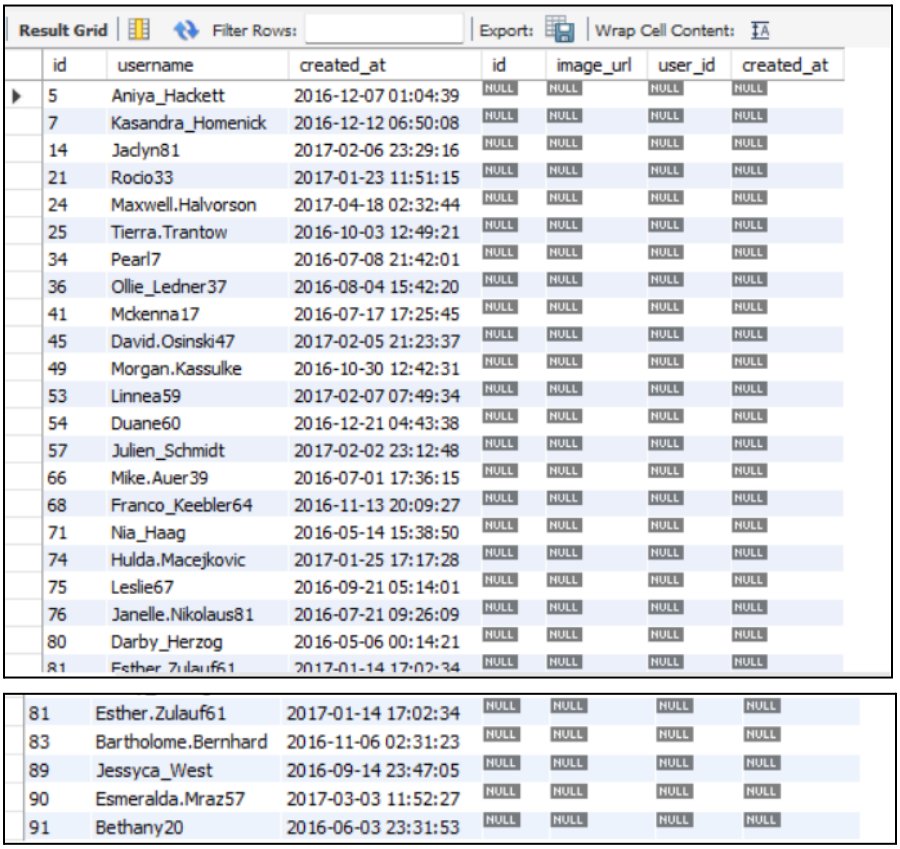
Query 2: Inactive User Engagement: The team wants to encourage inactive users to start posting by sending them promotional emails.

Task: Identify users who have never posted a single photo on Instagram.

Query:

```
SELECT
    *
FROM
    users
        LEFT JOIN
    photos ON users.id = photos.user_id
WHERE
    photos.image_url IS NULL;
```

Output:



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

id	username	created_at	id	image_url	user_id	created_at
5	Aniya_Hackett	2016-12-07 01:04:39	NULL	NULL	NULL	NULL
7	Kasandra_Homenick	2016-12-12 06:50:08	NULL	NULL	NULL	NULL
14	Jaclyn81	2017-02-06 23:29:16	NULL	NULL	NULL	NULL
21	Rocio33	2017-01-23 11:51:15	NULL	NULL	NULL	NULL
24	Maxwell.Halvorson	2017-04-18 02:32:44	NULL	NULL	NULL	NULL
25	Tierra.Trantow	2016-10-03 12:49:21	NULL	NULL	NULL	NULL
34	Pearl7	2016-07-08 21:42:01	NULL	NULL	NULL	NULL
36	Ollie_Ledner37	2016-08-04 15:42:20	NULL	NULL	NULL	NULL
41	Mckenna17	2016-07-17 17:25:45	NULL	NULL	NULL	NULL
45	David.Osinski47	2017-02-05 21:23:37	NULL	NULL	NULL	NULL
49	Morgan.Kassulke	2016-10-30 12:42:31	NULL	NULL	NULL	NULL
53	Linnea59	2017-02-07 07:49:34	NULL	NULL	NULL	NULL
54	Duane60	2016-12-21 04:43:38	NULL	NULL	NULL	NULL
57	Julien_Schmidt	2017-02-02 23:12:48	NULL	NULL	NULL	NULL
66	Mike.Auer39	2016-07-01 17:36:15	NULL	NULL	NULL	NULL
68	Franco_Keebler64	2016-11-13 20:09:27	NULL	NULL	NULL	NULL
71	Nia_Haag	2016-05-14 15:38:50	NULL	NULL	NULL	NULL
74	Hulda.Macejkovic	2017-01-25 17:17:28	NULL	NULL	NULL	NULL
75	Leslie67	2016-09-21 05:14:01	NULL	NULL	NULL	NULL
76	Janelle.Nikolaus81	2016-07-21 09:26:09	NULL	NULL	NULL	NULL
80	Darby_Herzog	2016-05-06 00:14:21	NULL	NULL	NULL	NULL
81	Esther.Zulauf61	2017-01-14 17:02:34	NULL	NULL	NULL	NULL
83	Bartholome.Bernhard	2016-11-06 02:31:23	NULL	NULL	NULL	NULL
89	Jessyca_West	2016-09-14 23:47:05	NULL	NULL	NULL	NULL
90	Esmeralda.Mraz57	2017-03-03 11:52:27	NULL	NULL	NULL	NULL
91	Bethany20	2016-06-03 23:31:53	NULL	NULL	NULL	NULL

Query 3: Contest Winner Declaration: The team has organized a contest where the user with the most likes on a single photo wins

Task: Determine the winner of the contest and provide their details to the team.

Query:

```
SELECT
    likes.user_id,
    users.username,
    COUNT(likes.photo_id) AS photo_like_count,
    MIN(photos.image_url) AS first_image_url
FROM
    likes
        JOIN
    photos ON likes.user_id = photos.user_id
        JOIN
    users ON likes.user_id = users.id
GROUP BY likes.user_id
ORDER BY photo_like_count DESC
LIMIT 1;
```

Output:

user_id	username	photo_like_count	first_image_url
65	Adelle96	480	http://hettie.net

Query 4: Hashtag Research: A partner brand wants to know the most popular hashtags to use in their posts to reach the most people.

Task: Identify and suggest the top five most commonly used hashtags on the platform.

Query:

```
SELECT
    t.tag_name, COUNT(pt.tag_id) AS tag_count
FROM
    photo_tags pt
        JOIN
    tags t ON pt.tag_id = t.id
GROUP BY t.tag_name
ORDER BY tag_count DESC
LIMIT 5
;
```

Output:

	tag_name	tag_count
▶	smile	59
	beach	42
	party	39
	fun	38
	concert	24

Query 5: Ad Campaign Launch: The team wants to know the best day of the week to launch ads.

Task: Determine the day of the week when most users register on Instagram. Provide insights on when to schedule an ad campaign.

Query:

```
SELECT
    DAYNAME(created_at) AS day_of_week,
    COUNT(id) AS registration_count
FROM
    users
GROUP BY day_of_week
ORDER BY registration_count DESC;
```

Output:

day_of_week	registration_count
Thursday	16
Sunday	16
Friday	15
Tuesday	14
Monday	14
Wednesday	13
Saturday	12

Investor Metrics

Query 1: User Engagement: Investors want to know if users are still active and posting on Instagram or if they are making fewer posts.

Task: Calculate the average number of posts per user on Instagram. Also, provide the total number of photos on Instagram divided by the total number of users.

Query:

```
SELECT
    COUNT(p.id) / COUNT(DISTINCT u.id) AS avg_posts_per_user,
    COUNT(p.id) AS total_photos,
    COUNT(DISTINCT u.id) AS total_users,
    COUNT(p.id) * 1.0 / COUNT(DISTINCT u.id) AS photos_per_user_ratio
FROM
    users u
        LEFT JOIN
    photos p ON u.id = p.user_id;
```

Output:

	avg_posts_per_user	total_photos	total_users	photos_per_user_ratio
▶	2.5700	257	100	2.57000

Query 2: Bots & Fake Accounts: Investors want to know if the platform is crowded with fake and dummy accounts.

Task: Identify users (potential bots) who have liked every single photo on the site, as this is not typically possible for a normal user.

Query:

```
SELECT
    l.user_id AS bot_user_id,
    u.username AS bot_username,
    COUNT(l.photo_id) AS like_count
FROM
    likes l
        JOIN
    photos p ON l.photo_id = p.id
        JOIN
    users u ON u.id = l.user_id
GROUP BY l.user_id
HAVING like_count = 257
ORDER BY like_count DESC;
```

Output:

bot_user_id	bot_username	like_count
5	Aniya_Hackett	257
14	Jadyn81	257
21	Rocio33	257
24	Maxwell.Halvorson	257
36	Ollie_Ledner37	257
41	Mckenna17	257
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