Instagram User Analytics

Case Study Project-2
for Trainity DA training

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Project Description:

Instagram User Analytics:

With given data on user activities on the social media platform, the aim of the project is to find new business insights those can be used across business teams to launch new marketing campaign, track the success of app using current user engagement, promote user engagement and discover new features that can be built to improve user experience.

The in-scope business insights to find are as listed below:

A) Marketing Analysis:

1. Loyal User Reward – Find most loyal users
2. Inactive Users Engagement – Find inactive users
3. Contest Winner Declaration – Find user & photo getting most likes
4. Hashtag Research – Find most commonly used Hashtags
5. Ad Campaign Launch – Find Best time to launch an Ad

B) Investor Metrics:

1. User Engagement: Find stats about platform usage/user activities
2. Bots & Fake Account: Find potential Bots (Fake Users) on the platform

Project Approach:

High level steps for the Project approach are as outlined below:

- **Database creation:** Create the database using provided DDL statements (SQL)
- **Data Loading:** Load the provided data into database using given DML statements (SQL)
- **Analysis:** Analyse each insights requirement in detail and prepare SQL queries. Select optimal and efficient SQL queries/approach.
- **Extract insights:** Run the SQL queries to extract new insights as required
- **Review:** Review and cross check SQL output to verify it matches with the requirements
- **Document:** Document the insights and results to be shared across business teams

Tech-Stack used:

- **Operating System: Microsoft Windows 11** Version 22H2
- **Database: MySQL Community Server** – GPL version 8.0.40. This is free and open source relation database which uses SQL to interact with database
- **Documentation: Microsoft office 365 & Acrobat PDF**

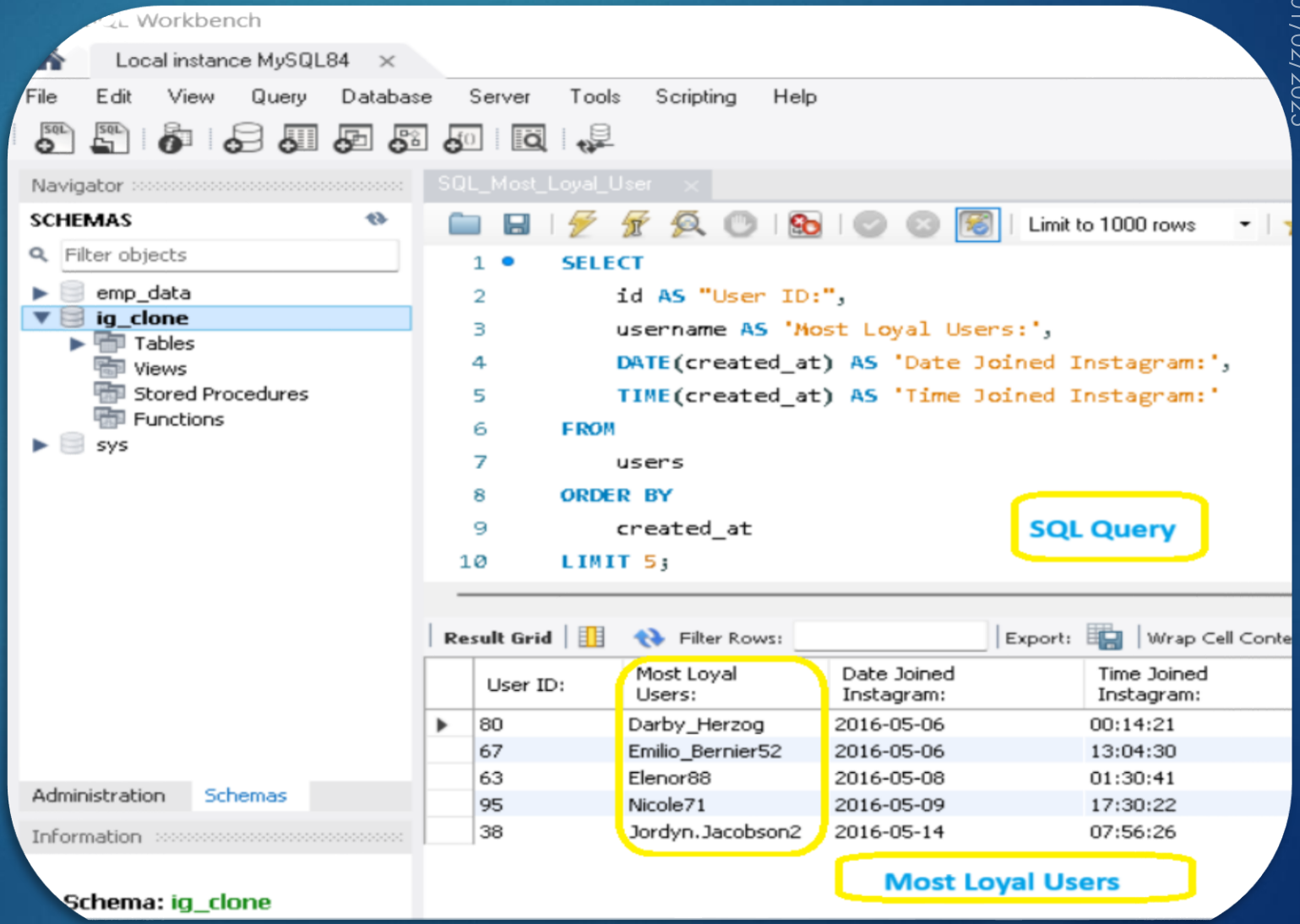
Insights

Insight No.A.1 – **"Loyal User Award"**

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.

SQL Query & Output for Top 5 users in order of joining date-time on Instagram

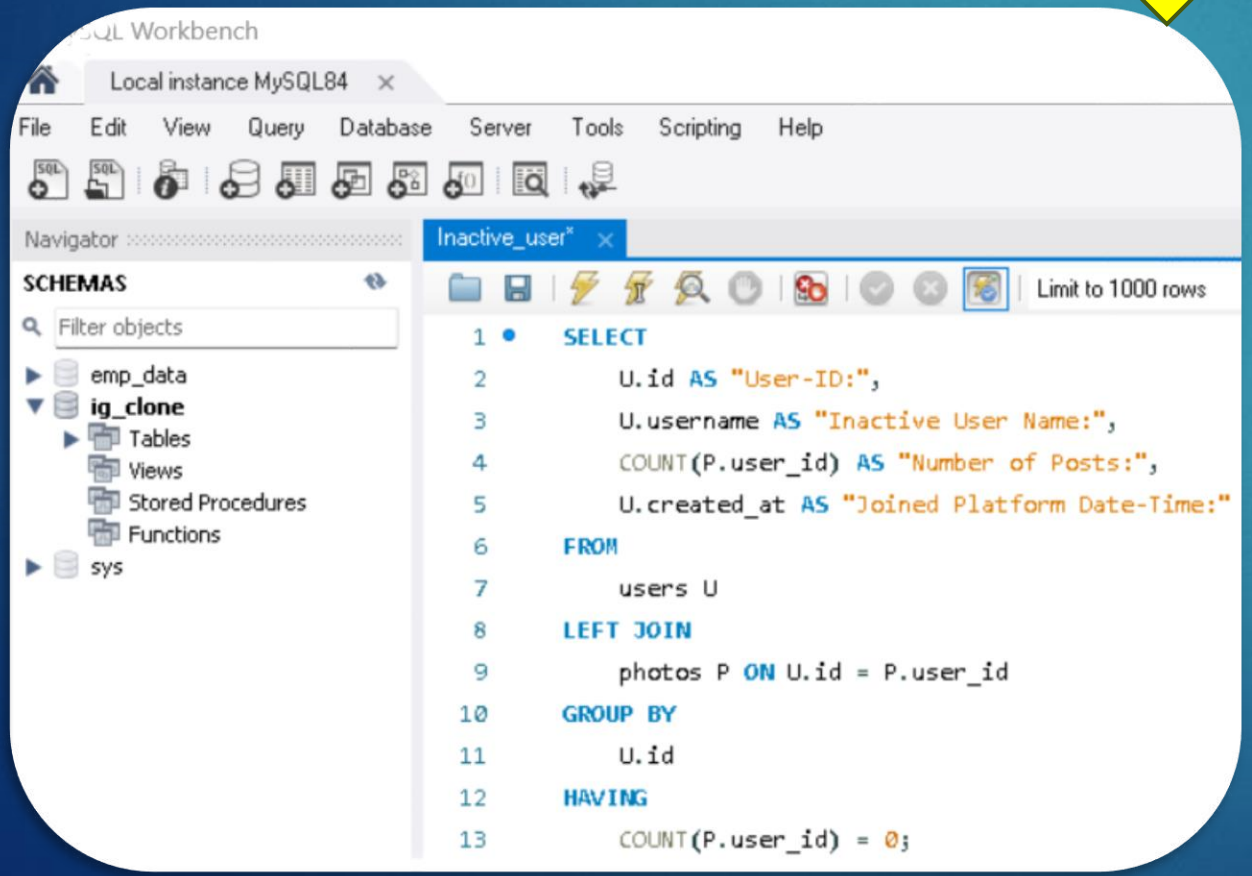


Insight No. A.2 - "Inactive Users Engagement"

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.

SQL Query for finding **"Inactive users"**



List of Inactive Users who have never posted a single photo (Total 26 Inactive users)

Filter Rows: Export:

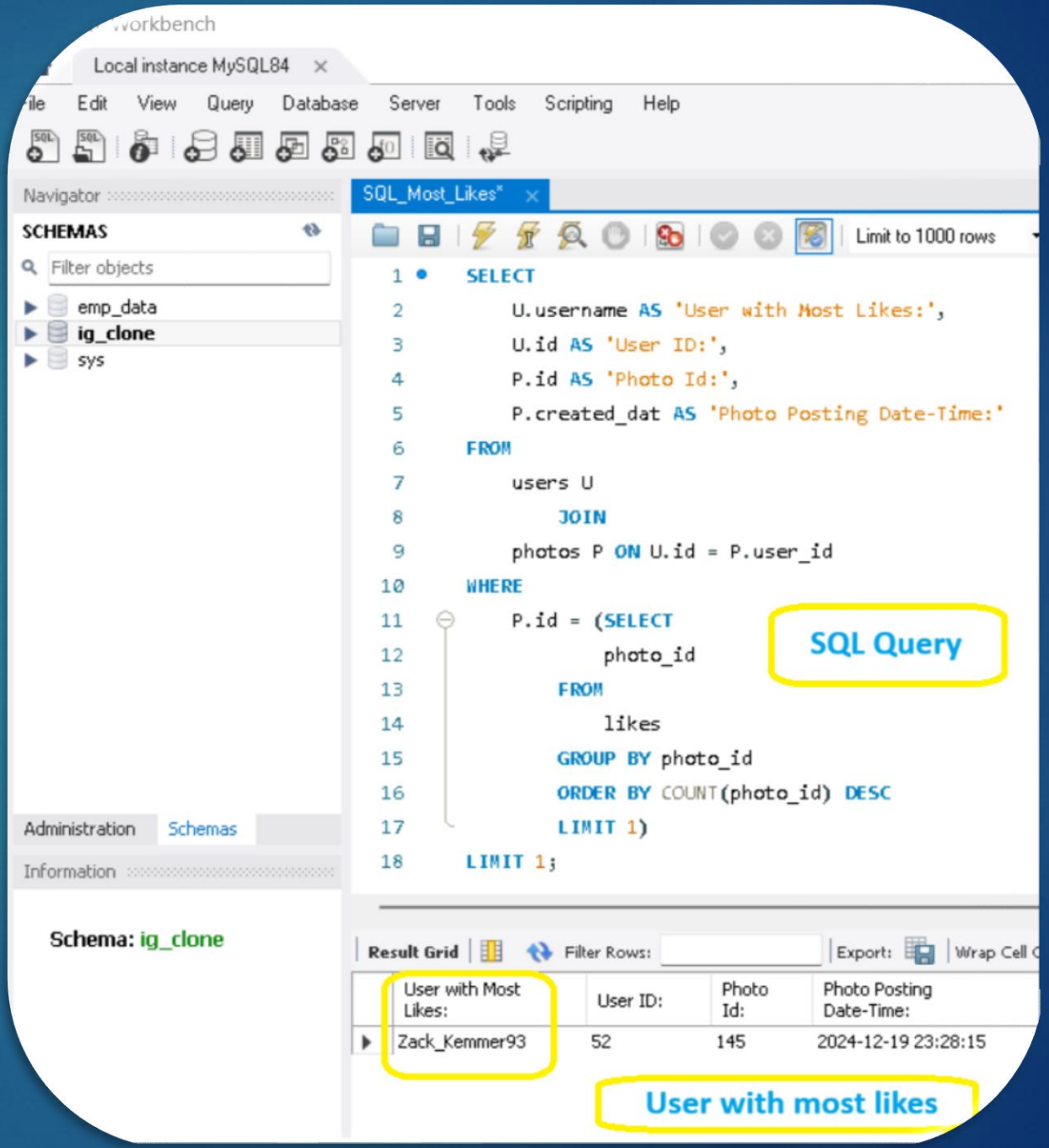
User-ID:	Inactive User Name:	Number of Posts:	Joined Platform Date-Time:
5	Aniya_Hackett	0	2016-12-07 01:04:39
7	Kasandra_Homenick	0	2016-12-12 06:50:08
14	Jaclyn81	0	2017-02-06 23:29:16
21	Rocio33	0	2017-01-23 11:51:15
24	Maxwell.Halvorson	0	2017-04-18 02:32:44
25	Tierra.Trantow	0	2016-10-03 12:49:21
34	Pearl7	0	2016-07-08 21:42:01
36	Ollie_Ledner37	0	2016-08-04 15:42:20
41	Mckenna17	0	2016-07-17 17:25:45
45	David.Osinski47	0	2017-02-05 21:23:37
49	Morgan.Kassulke	0	2016-10-30 12:42:31
53	Linnea59	0	2017-02-07 07:49:34
54	Duane60	0	2016-12-21 04:43:38
57	Julien_Schmidt	0	2017-02-02 23:12:48
66	Mike.Auer39	0	2016-07-01 17:36:15
68	Franco_Keebler64	0	2016-11-13 20:09:27
71	Nia_Haag	0	2016-05-14 15:38:50
74	Hulda.Macejkovic	0	2017-01-25 17:17:28
75	Leslie67	0	2016-09-21 05:14:01
76	Janelle.Nikolaus81	0	2016-07-21 09:26:09
80	Darby_Herzog	0	2016-05-06 00:14:21
81	Esther.Zulauf61	0	2017-01-14 17:02:34
83	Bartholome.Bernhard	0	2016-11-06 02:31:23
89	Jessyca_West	0	2016-09-14 23:47:05
90	Esmeralda.Mraz57	0	2017-03-03 11:52:27
91	Bethany20	0	2016-06-03 23:31:53

Insight No. A.3 – "Contest Winner Declaration "

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.

SQL Query & Output for finding User and Photo details with Most Likes

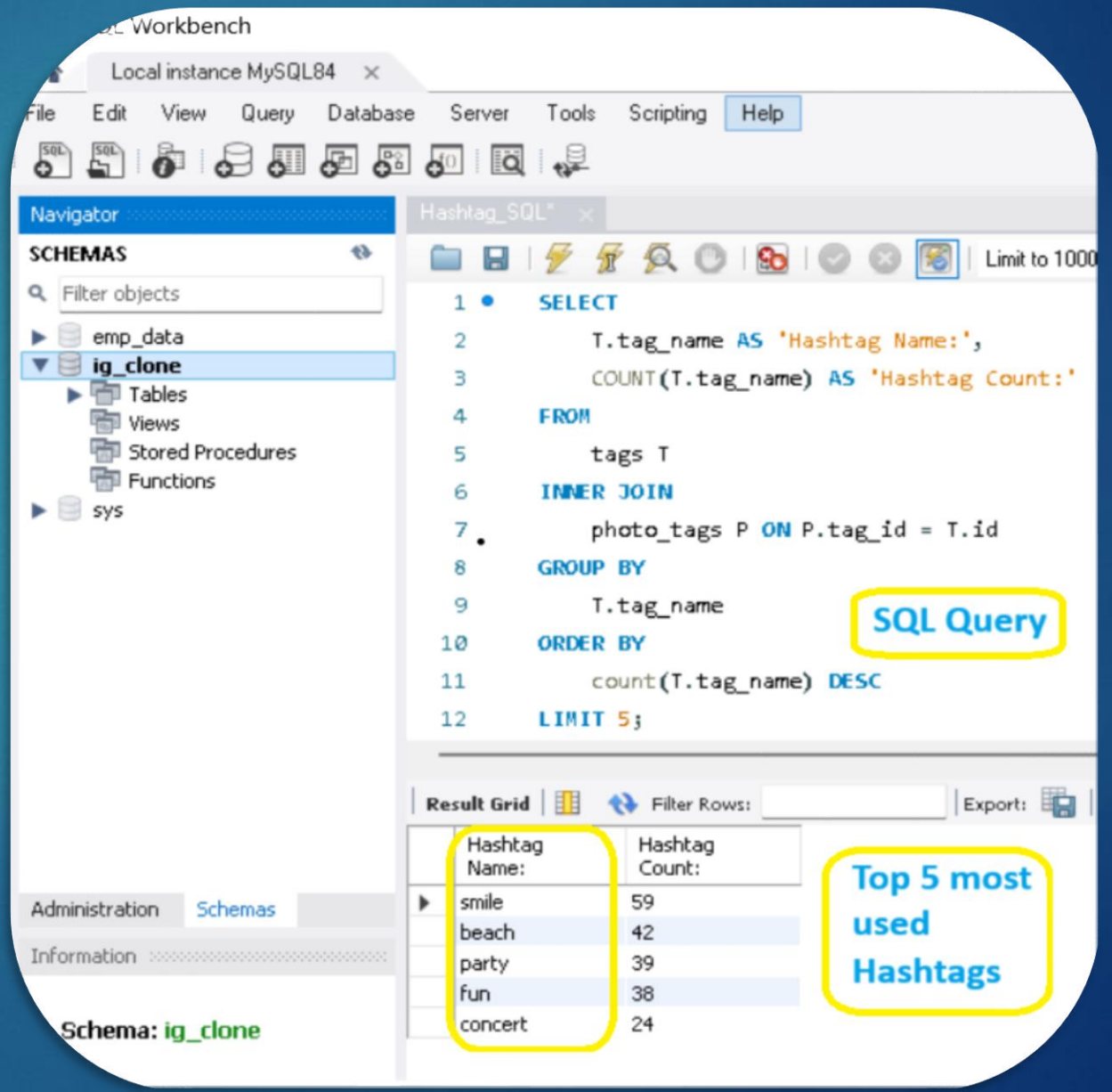


Insight No. A.4 – **"Hashtag Research"**

SQL query & the output containing the top five most commonly used hashtags

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.

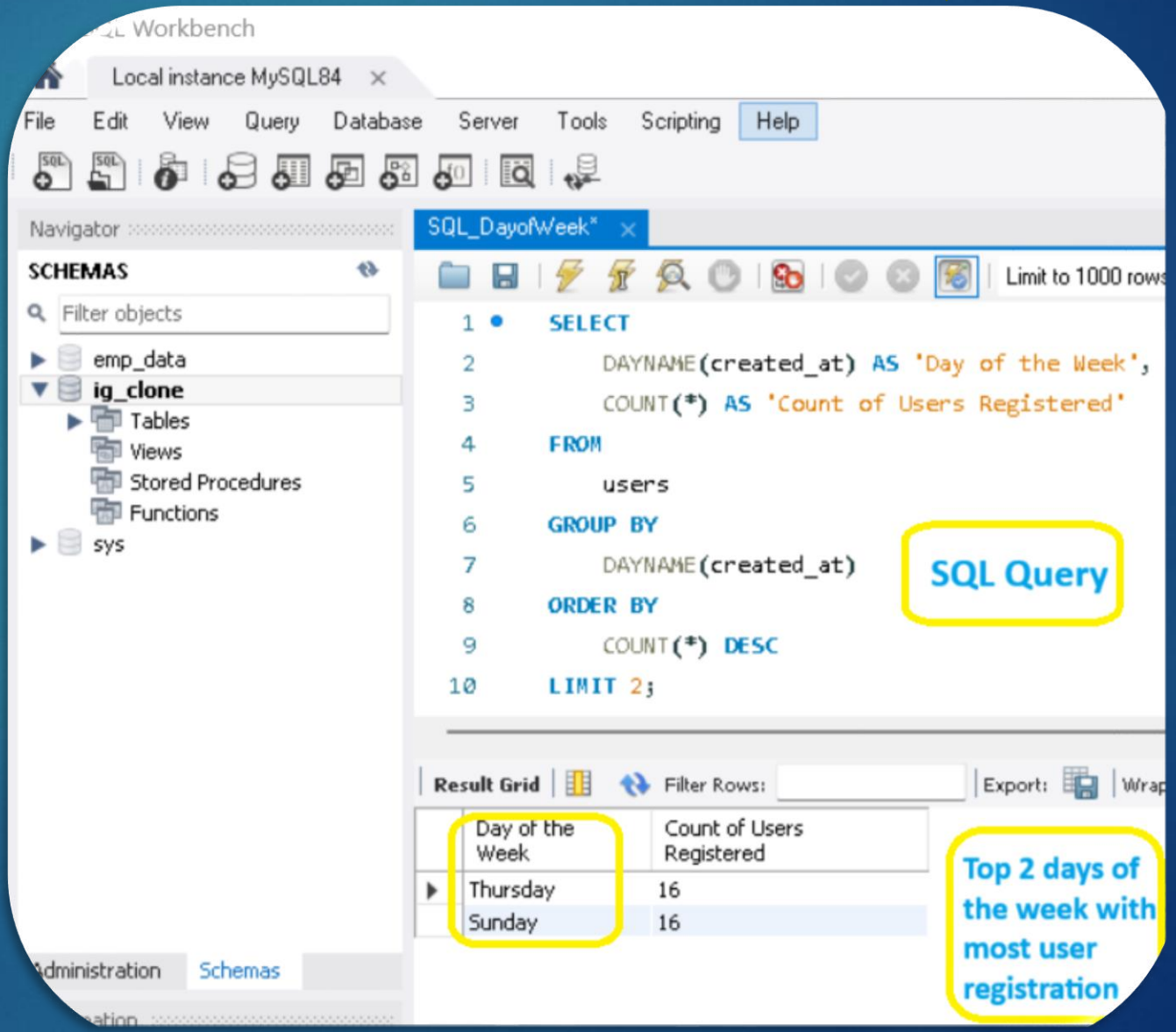


Insight No. A.5 – "Ad Campaign Launch"

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.

SQL Query & output shown for top 2 days of the week when most users are registered

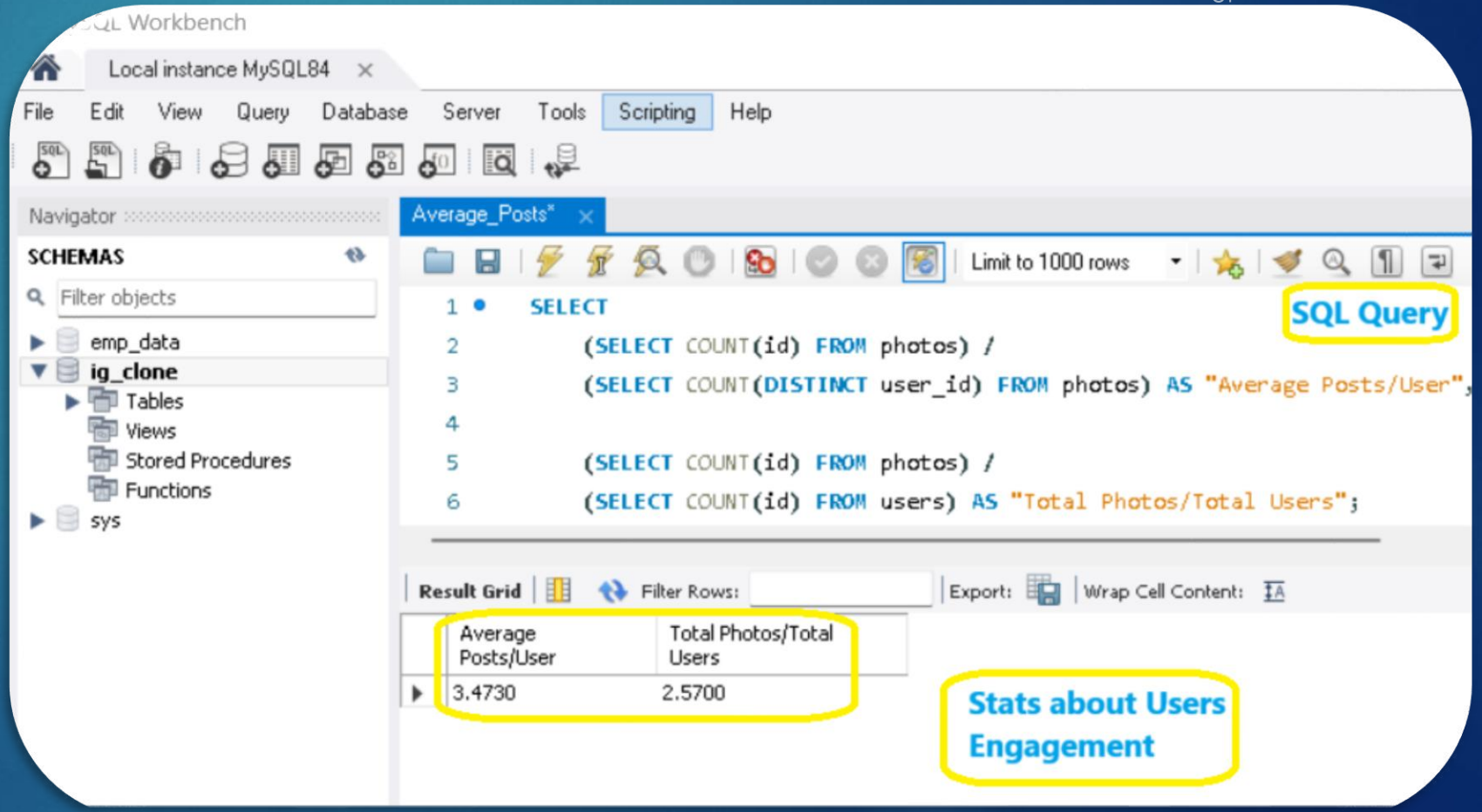


Insight No. B.1 - "**User Engagement**"

SQL query and output showing user engagement stats

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.

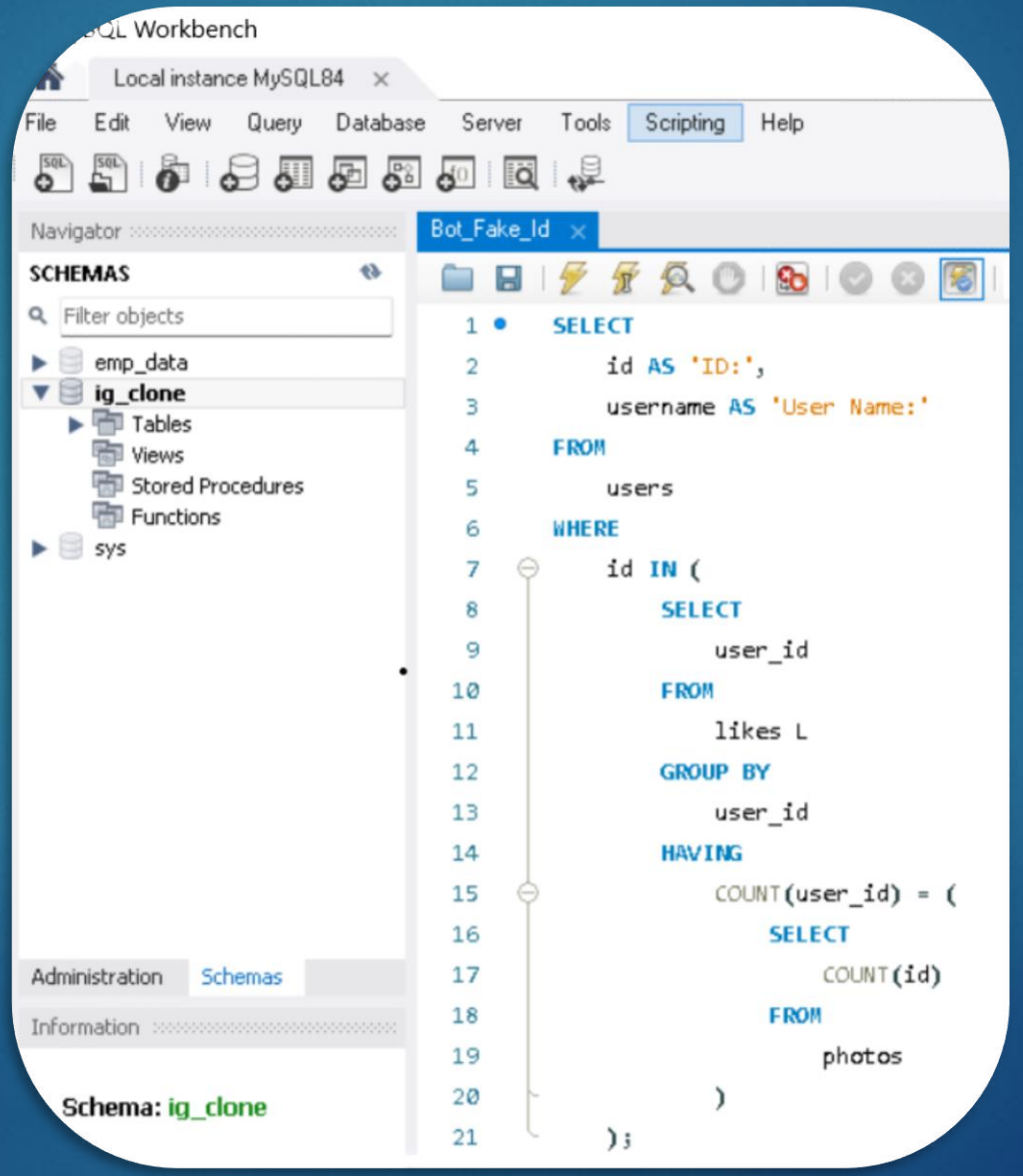


Insight No. B.2 – "Bots & Fake Accounts"

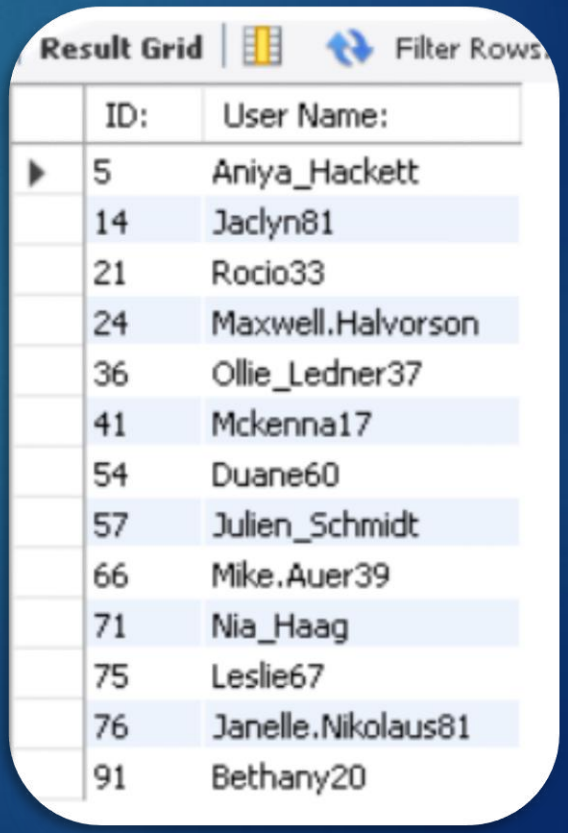
Bots & Fake Accounts: Investors want to know if the platform is crowded with fake and dummy accounts

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

SQL query



SQL Output showing potential bots



ID:	User Name:
5	Aniya_Hackett
14	Jaclyn81
21	Rocio33
24	Maxwell.Halvorson
36	Ollie_Ledner37
41	Mckenna17
54	Duane60
57	Julien_Schmidt
66	Mike.Auer39
71	Nia_Haag
75	Leslie67
76	Janelle.Nikolaus81
91	Bethany20

Results:

Conclusion for the Analysis – Business Value-Add

- Business/Marketing team can use provided insights for
  - Reward most loyal users & Reach out to inactive users – promoting user engagement
  - Use most popular Hashtags – to collaborate with partner brands
  - Effective Brand promotions – using most active days on platform
  - Track app success – using provided user/post/photo stats
- Business can work on removing or tracking further the users reported as potential Bots to enhance end user experience and optimize app/resource usage
- Overall, the insights would add significant value to business teams

Personal Achievement/Upskilling

- Developed skills of data analysis using SQL queries (specifically with MySQL database)
- Learnt extracting useful business insights like user engagement, track app success, stats on user activities etc using efficient SQL queries
- Understood intricacies of useful business insights and how data analytics can help business with spot on insights

Thank You!

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