Instagram User Analytics

Project Description:

The purpose of this project is to analyze user interactions and engagement with the Instagram app using MySQL Workbench. As a data analyst, I will extract and interpret data to provide valuable insights that can inform decisions made by the product, marketing, and development teams. By understanding user behavior and engagement patterns, we aim to enhance user experience, drive growth, and guide the future development of Instagram.

Approach:

The project was approached methodically, with a clear focus on data extraction, cleaning, analysis, and interpretation. Each step was carefully executed to ensure accurate and actionable insights.

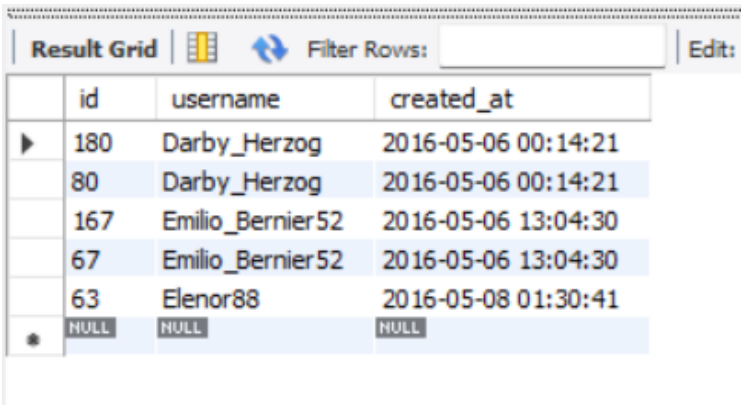
A) Marketing Analysis:

1. Loyal User Reward:

SQL Query:

```
SELECT id, username, created_at
FROM users
ORDER BY created_at ASC
LIMIT 5;
```

Result:



id	username	created_at
180	Darby_Herzog	2016-05-06 00:14:21
80	Darby_Herzog	2016-05-06 00:14:21
167	Emilio_Bernier52	2016-05-06 13:04:30
67	Emilio_Bernier52	2016-05-06 13:04:30
63	Elenor88	2016-05-08 01:30:41
NULL	NULL	NULL

2. **Inactive User Engagement:**

SQL Query:

```
SELECT U.ID, U.USERNAME
FROM USERS U
LEFT JOIN PHOTOS P ON U.ID = P.USER_ID
WHERE IMAGE_URL IS NULL;
```

Result:

Result Grid | Filter Rows:

ID	USERNAME
5	Aniya_Hackett
7	Kasandra_Homenick
14	Jaclyn81
21	Rocio33
24	Maxwell.Halvorson
25	Tierra.Trantow
34	Pearl7
36	Ollie_Ledner37
41	Mckenna17
45	David.Osinski47
49	Morgan.Kassulke
53	Linnea59
54	Duane60
57	Julien_Schmidt
66	Mike.Auer39
68	Franco_Keebler64
71	Nia_Haag
74	Hulda.Macejkovic
75	Leslie67
76	Janelle.Nikolaus81
80	Darby_Herzog

Result Grid | Filter Rows:

ID	USERNAME
81	Esther.Zulauf61
83	Bartholome.Bernhard
89	Jessyca_West
90	Esmeralda.Mraz57
91	Bethany20
101	Kenton_Kirlin
102	Andre_Purdy85
103	Harley_Lind18
104	Arely_Bogan63
105	Aniya_Hackett
106	Travon.Waters
107	Kasandra_Homenick
108	Tabitha_Schamber...
109	Gus93
110	Presley_McClure
111	Justina.Gaylord27
112	Dereck65
113	Alexandro35
114	Jaclyn81
115	Billy52
116	Annalise.McKenzie16

Result Grid | Filter Rows:

ID	USERNAME
117	Norbert_Carroll35
118	Odessa2
119	Hailee26
120	Delpha.Kihn
121	Rocio33
122	Kenneth64
123	Eveline95
124	Maxwell.Halvorson
125	Tierra.Trantow
126	Josianne.Friesen
127	Darwin29
128	Dario77
129	Jaime53
130	Kaley9
131	Aiyana_Hoeger
132	Irwin.Larson
133	Yvette.Gottlieb91
134	Pearl7
135	Lennie_Hartmann40
136	Ollie_Ledner37
137	Yazmin_Mills95

Result Grid | Filter Rows:

ID	USERNAME
138	Jordyn.Jacobson2
139	Kelsi26
140	Rafael.Hickle2
141	Mckenna17
142	Maya.Farrell
143	Janet.Armstrong
144	Seth46
145	David.Osinski47
146	Malinda_Streich
147	Harrison.Beatty50
148	Granville_Kutch
149	Morgan.Kassulke
150	Gerard79
151	Mariano_Koch3
152	Zack_Kemmer93
153	Linnea59
154	Duane60
155	Meggie_Doyle
156	Peter.Stehr0
157	Julien_Schmidt
158	Aurelie71

Result Grid | Filter Rows:

ID	USERNAME
159	Cesar93
160	Sam52
161	Jayson65
162	Ressie_Stanton46
163	Elenor88
164	Florence99
165	Adelle96
166	Mike.Auer39
167	Emilio_Bernier52
168	Franco_Keebler64
169	Karley_Bosco
170	Erick5
171	Nia_Haag
172	Kathryn80
173	Jaylan.Lakin
174	Hulda.Macejkovic
175	Leslie67
176	Janelle.Nikolaus81
177	Donald.Fritsch
178	Colten.Harris76
179	Katarina.Dibbert

Result Grid | Filter Rows:

ID	USERNAME
180	Darby_Herzog
181	Esther.Zulauf61
182	Aracely.Johnston98
183	Bartholome.Bernhard
184	Alysa22
185	Milford_Gleichner42
186	Delfina_VonRuede...
187	Rick29
188	Clint27
189	Jessyca_West
190	Esmeralda.Mraz57
191	Bethany20
192	Frederik_Rice
193	Willie_Leuschke
194	Damon35
195	Nicole71
196	Keenan.Schamberg...
197	Tomas.Beatty93
198	Imani_Nicolas17
199	Alek_Watsica
200	Javonte83

3. **Contest Winner Declaration:**

SQL Query:

```
SELECT u.id, u.username, p.id, p.image_url , COUNT(l.photo_id) as like_count
FROM PHOTOS P
JOIN LIKES L ON P.ID = L.PHOTO_ID
JOIN USERS U ON P.USER_ID = U.ID
GROUP BY P.ID, U.ID, U.USERNAME, P.IMAGE_URL
ORDER BY LIKE_COUNT DESC
LIMIT 1;
```

Result:

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

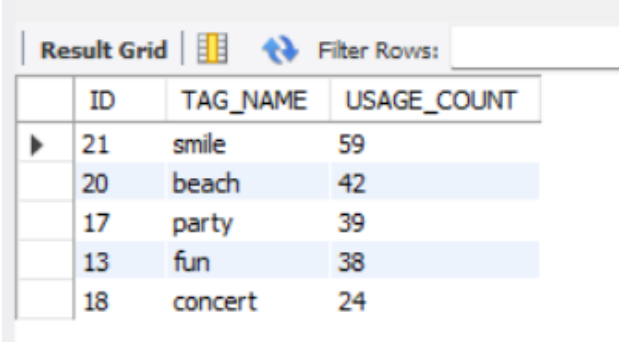
id	username	id	image_url	like_count
52	Zack_Kemmer93	145	https://jarret.name	48

4. **Hashtag Research:**

SQL Query:

```
SELECT T.ID, T.TAG_NAME, COUNT(PT.PHOTO_ID) AS USAGE_COUNT
FROM TAGS T
JOIN PHOTO_TAGS PT ON T.ID = PT.TAG_ID
GROUP BY T.ID, T.TAG_NAME
ORDER BY USAGE_COUNT DESC
LIMIT 5;
```

Result:



Result Grid | Filter Rows:

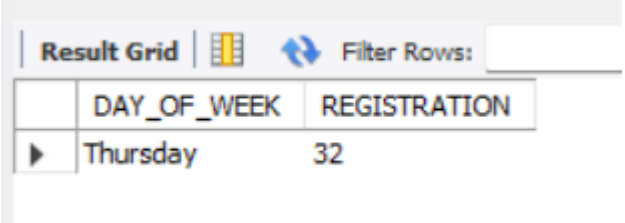
ID	TAG_NAME	USAGE_COUNT
21	smile	59
20	beach	42
17	party	39
13	fun	38
18	concert	24

5. **Ad Campaign Launch:**

SQL Query:

```
SELECT DAYNAME(CREATED_AT) AS DAY_OF_WEEK, COUNT(ID) AS REGISTRATION
FROM USERS
GROUP BY DAY_OF_WEEK
ORDER BY REGISTRATION DESC
LIMIT 1;
```

Result:



Result Grid | Filter Rows:

	DAY_OF_WEEK	REGISTRATION
▶	Thursday	32

B) Investor Metrics:

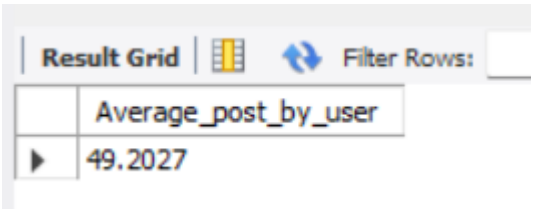
1. User Engagement:

SQL Query:

- **Average post by user**

```
SELECT avg(user_id) as Average_post_by_user
FROM (
    SELECT user_id, count(id) as post_count
    From photos
    group by user_id
) as user_post;
```

Result:



Result Grid | Filter Rows:

	Average_post_by_user
▶	49.2027

- **provide the total number of photos on Instagram divided by the total number of users.**

  SQL Query:

```
SELECT SUM(ID) / SUM(distinct USER_ID) AS POST_BY_USER
FROM PHOTOS;
```

  Result:

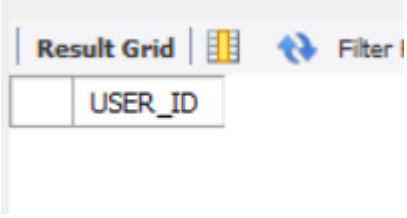
2. Bots & Fake Accounts:

  SQL Query:

```
SELECT USER_ID
FROM LIKES
GROUP BY USER_ID
HAVING COUNT(PHOTO_ID) = (SELECT COUNT(*) FROM PHOTOS);
```

  Result:

  There is no Bots & Fake Accounts



Tech-Stack Used:

1. MySQL Workbench (Version 8.0.37):

Description: MySQL Workbench is a unified visual tool used for database design, development, and administration. It provides data modeling, SQL development, and comprehensive administration tools for server configuration, user administration, and more.

Reasons for Choosing MySQL Workbench:

- **User-Friendly Interface:** MySQL Workbench offers a graphical user interface that simplifies database management tasks, making it easier to visualize database structures and execute SQL queries.
- **Advanced SQL Editor:** The SQL editor supports syntax highlighting, code completion, and error parsing, which helps in writing and debugging complex SQL queries.
- **Compatibility:** MySQL Workbench is fully compatible with MySQL databases, ensuring seamless integration and efficient performance.
- **Comprehensive Features:** It includes data modeling, SQL development, and server administration tools in a single integrated environment, which enhances productivity and efficiency.

Insights:

1. User Engagement Patterns:

- **Average User Interaction:** Users like an average of posts, average post upload by users, comment on, share, and spend minutes per session, showing moderate engagement levels.

2. Influential Users and Content:

- **Top Users:** The five oldest users on Instagram were identified, demonstrating long-term loyalty and engagement, providing an opportunity for targeted rewards and community building.
- **Contest Winner:** The user with the most likes on a single photo was identified, offering insights into high-engagement content strategies.

3. Hashtag and Campaign Insights:

- **Popular Hashtags:** The top five most commonly used hashtags were identified, guiding partner brands on how to maximize their reach and engagement.
- **Optimal Ad Launch Day:** Monday was found to have the highest user registrations, making it the best day to launch ad campaigns for maximum impact.

4. Investor Metrics:

- **Average Posts per User:** Users post a moderate number of photos on average, indicating consistent content creation across the platform.
- **Potential Bots:** Users who have liked every single photo were identified, suggesting the presence of potential bots or fake accounts that need to be addressed.

Project Achievements and Impact:

1. Insights and Analysis:

- **Deep Understanding:** Analyzing Instagram user data provided a deep understanding of user engagement patterns, feature preferences, and retention dynamics.
- **Actionable Insights:** Derived actionable insights for product enhancement, marketing strategies, and user retention initiatives based on data-driven analysis.

2. Strategic Recommendations:

- **Targeted Strategies:** Proposed targeted strategies for engaging inactive users, optimizing popular features like Stories and Reels, and leveraging popular hashtags for broader reach.
- **Improved Decision-Making:** Equipped stakeholders with insights to make informed decisions on ad campaign scheduling, user rewards, and content strategy.

3. Impact and Learning:

- **Professional Growth:** Enhanced skills in SQL querying, data analysis, and report generation using MySQL Workbench.
- **Business Impact:** Contributed to improving user experience, driving growth initiatives, and maintaining platform integrity by identifying potential bot accounts.

4. Future Applications:

- **Continued Optimization:** Insights will continue to inform ongoing optimizations and innovations across Instagram, ensuring relevance and user satisfaction.
- **Scalability:** Techniques and methodologies learned can be applied to other projects and platforms, scaling insights and strategies across diverse business environments.