Instagram User Analytics

Ami Rai E
aami07@gmail.com

Outline

- Project Description
- Marketing and Investor Metrics
- Approach
- Tech-Stack Used
- Insights for Marketing Team
- Insights for Investors
- Results

Project Description

- User analysis is the process of tracking how users engage and interact with the digital product in an attempt to derive business insights

- These insights are used by teams to track the success of the product and the areas needed for the growth of the business

- The product manager of Instagram asked to provide insights on the questions asked by the management team

- The project focuses on the aspects of marketing and investor metrics

Marketing and Investor Metrics

- **Marketing -** The marketing team wants to launch some campaigns, and they need insights on
    1. Rewarding Most Loyal Users
    2. Remind Inactive Users to Start Posting
    3. Declaring Contest Winner
    4. Hashtag Researching
    5. Launch AD Campaign

- **Investor -** Investors want to know if Instagram is performing well, and they need insights on
    1. User Engagement
    2. Bots & Fake Accounts

Approach

- The database consists of 5 relational schemas
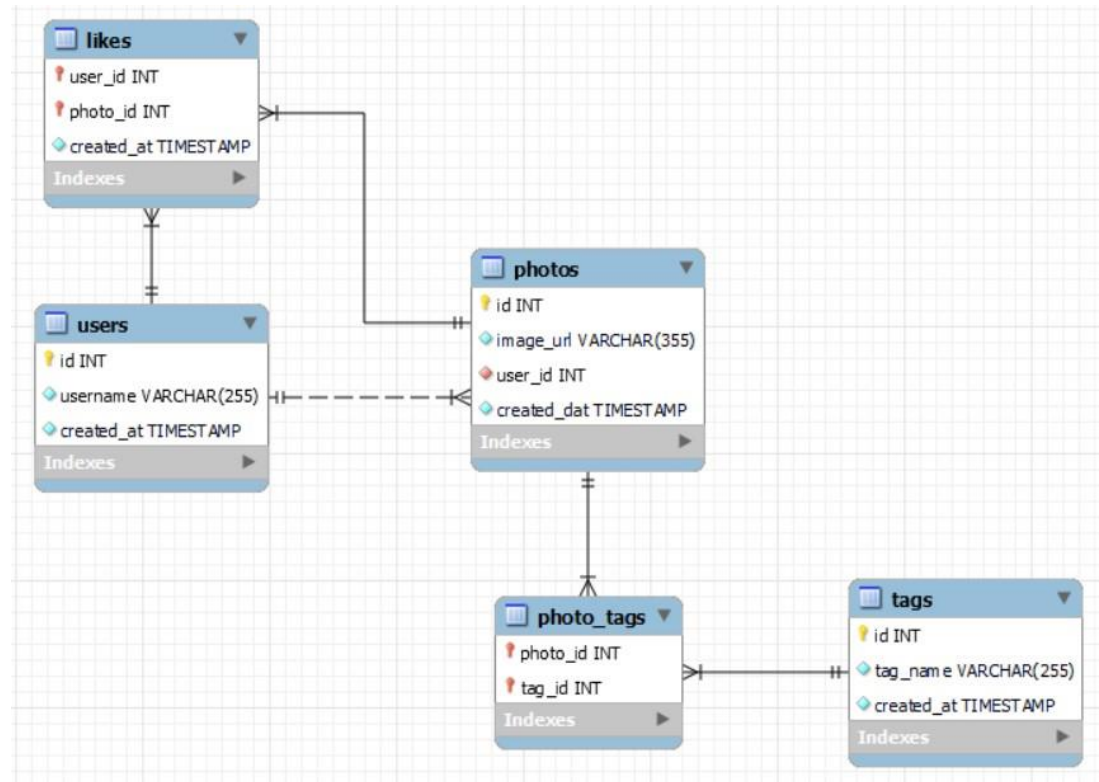
- SQL queries are used to get the appropriate data

Tech-Stack Used

- MySQL
  - to define and manipulate data in the relational database

- MySQL Workbench 8.0 CE
  - to perform data modelling
  - to run SQL queries

Insights Required for Marketing Team

Most Loyal Users

- Find people who have been using the platform for the longest time

- **Task**: Find the 5 oldest users of the Instagram from the database provided

- The 5 users who are using the product for long time (the most loyal users) are
  - Darby, Emilio, Elenor, Nicole, and Jordyn

```
1       -- Most Loyal Users
2  ●    SELECT *
3       FROM users
4       ORDER BY created_at
5       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

Inactive Users

- Send promotional emails to inactive users to post their 1st photo

- **Task**: Find the users who have never posted a single photo on Instagram

- Out of 100 users, there are 26 inactive users who did not post a single photo on Instagram

```
1    -- Inactive Users to Start Posting
2 •  SELECT *
3    FROM users
4    WHERE
5        id NOT IN (SELECT user_id
6                    FROM photos)
7    ORDER BY id
```

Result Grid | Filter Rows: | Edit:

id	username	created_at
5	Aniya Hackett	2016-12-07 01:04:39
7	Kasandra Homenick	2016-12-12 06:50:08
14	Jaclyn81	2017-02-06 23:29:16
21	Rocio33	2017-01-23 11:51:15
24	Maxwell.Halvorson	2017-04-18 02:32:44
25	Tierra.Trantow	2016-10-03 12:49:21
34	Pearl7	2016-07-08 21:42:01
36	Ollie Ledner37	2016-08-04 15:42:20
41	Mckenna17	2016-07-17 17:25:45
45	David.Osinski47	2017-02-05 21:23:37
49	Morgan.Kassulke	2016-10-30 12:42:31
53	Linnea59	2017-02-07 07:49:34
54	Duane60	2016-12-21 04:43:38
57	Julien Schmidt	2017-02-02 23:12:48
66	Mike.Auer39	2016-07-01 17:36:15
68	Franco Keebler64	2016-11-13 20:09:27
71	Nia Haag	2016-05-14 15:38:50
74	Hulda.Macejkovic	2017-01-25 17:17:28
75	Leslie67	2016-09-21 05:14:01
76	Janelle.Nikolaus81	2016-07-21 09:26:09
80	Darby Herzog	2016-05-06 00:14:21
81	Esther.Zulauf61	2017-01-14 17:02:34
83	Bartholome.Bernhard	2016-11-06 02:31:23
89	Jessyca West	2016-09-14 23:47:05
90	Esmeralda.Mraz57	2017-03-03 11:52:27
91	Bethany20	2016-06-03 23:31:53

Contest Winner

- The team started a contest and the user who gets the most likes on a single photo will win the contest and they wish to declare the winner

- **Task**: Identify the winner of the contest and provide their details to the team

- Zack_Kemmer93 whose id is 52, is the winner

- He got 48 likes on the photo with the id 145

```
1      -- contest winner
2  •   SELECT
3          photos.user_id,
4          users.username,
5          likes.photo_id,
6          COUNT(*) AS total_Likes
7      FROM
8          users
9              INNER JOIN
10         photos ON users.id = photos.user_id
11             INNER JOIN
12         likes ON photos.id = likes.photo_id
13     GROUP BY likes.photo_id
14     ORDER BY Total_Likes DESC
15     LIMIT 1
16
```

Result Grid | Filter Rows: | Export:

user_id	username	photo_id	total_Likes
52	Zack_Kemmer93	145	48

Hashtag Researching

- A partner brand wants to know, which hashtags to use in the post to reach the most people on the platform

- **Task**: Identify and suggest the top 5 most commonly used hashtags on the platform

- To reach the most number of people in the platform, the brand can use the hashtags - #smile, #beach, #party, #fun, and #concert

```
1     -- hashtag researching
2  •  SELECT
3         tags.tag_name, COUNT(*) AS Frequency
4     FROM
5         tags
6             INNER JOIN
7         photo_tags ON tags.id = photo_tags.tag_id
8     GROUP BY photo_tags.tag_id
9     ORDER BY Frequency DESC
10    LIMIT 5
```

tag_name	Frequency
smile	59
beach	42
party	39
fun	38
concert	24

Launch AD Campaign

- The team wants to know, which day would be the best day to launch ADs

- **Task**: What day of the week do most users register on? Provide insights on when to schedule an ad campaign

- Most number of registrations (16) are done on Sunday and Thursday by the users

- It is good to launch ADs on those days

```
1    -- launch Campaign
2  • SELECT
3        DAYNAME(created_at) AS Day,
4        COUNT(*) AS Registrations
5    FROM
6        users
7    GROUP BY Day
8    ORDER BY Registrations DESC, Day;
```

Day	Registrations
Sunday	16
Thursday	16
Friday	15
Monday	14
Tuesday	14
Wednesday	13
Saturday	12

Insights Required for Marketing Team

User Engagement

- Are users still active and post on Instagram or they are making fewer posts

- **Task**: Provide how many times does average user posts on Instagram. Provide the total number of photos on Instagram/ total number of users

- Total photos – 257
- Total users – 100
- On an average, a user posts 2-3 photos in a day

```
1     -- user engagement
2   ⊝ WITH new AS (
3         SELECT
4             users.id AS id, COUNT(photos.id) AS p_id
5         FROM
6             users
7                 LEFT JOIN
8             photos ON users.id = photos.user_id
9         GROUP BY users.id)
10
11    SELECT SUM(p_id) AS photos,
12           COUNT(id) AS users,
13           ROUND((SUM(p_id)/COUNT(id)),2) AS avg_posts
14    FROM new;
15
```

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

photos	users	avg_posts
257	100	2.57

Bots & Fake Accounts

- The investors want to know if the platform is crowded with fake and dummy accounts

- **Task**: Provide data on users (bots) who have liked every single photo on the site

- Total number of photos - 257

- 13 accounts (bots) are found to be fake as they liked all the photos

```
1      -- Bots & Fake Accounts
2  •  SELECT
3          id, username, COUNT(*) AS likes
4      FROM
5          users
6              INNER JOIN
7          likes ON users.id = likes.user_id
8      GROUP BY id
9      HAVING likes = MAX(photo_id)
10
```

Result Grid | Filter Rows: | Export:

id	username	likes
5	Aniya_Hackett	257
14	Jaclyn81	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

Results

- The questions asked by the management team on the basis of marketing and investor metrics were answered

- For the marketing team
  - The most loyal 5 users are identified
  - Promotional mails should be send to 26 inactive users
  - Zack_Kemmer93 is the contest winner
  - Five hashtags are identified to get the maximum reach on the platform
  - Sundays and Thursdays are the recommended days to launch campaigns

- For the investors
  - On an average, users posts 2-3 photos on a day
  - 13 accounts are found to be fake as they liked all the 257 photos

Thank You