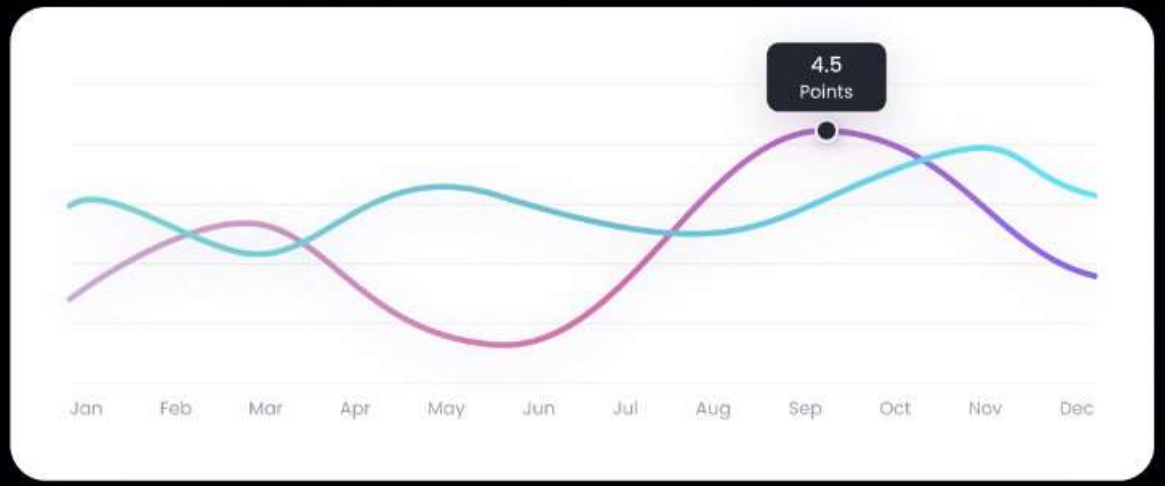
# Instagram User Analytics

Instagram






# PROJECT DESCRIPTION

- This project aims to analyze Instagram user interactions and engagement to provide insights that can guide business decisions. Using SQL queries within MySQL Workbench, the analysis focuses on understanding user behavior, identifying loyal and inactive users, determining popular content and optimal advertising strategies, and assessing the platform's overall engagement levels. The insights derived will aid various teams, including marketing, product development, and investor relations, in making informed decisions to enhance user experience and platform growth.

# Approach

## Data Understanding and Preparation

We started by exploring the database schema to understand the tables and relationships. This included identifying key tables related to users, posts, likes, and hashtags, which were crucial for answering the project questions.

# SQL TASKS

## A) Marketing Analysis

### TASK 1 - Loyal User Reward:

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

```
-- 1.Identify the five oldest users on Instagram from the provided database.
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 |

# SQL TASKS

## A) Marketing Analysis

### TASK 2 - Inactive User Engagement:

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

```sql
-- 2.Identify users who have never posted a single photo on Instagram.
select * from users left join  photos on users.id=photos.user_id
where photos.image_url is null;
```

| id | username | created_at | id | image_url | user_id | created_dat |
|---|---|---|---|---|---|---|
| 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 | Jadyn81 | 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 |

# SQL TASKS

## A) Marketing Analysis

### TASK 3 - Contest Winner Declaration:

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

```
-- 3.Determine the winner of the contest and provide their details to the team.
select p.user_id,p.id,count(l.user_id) as likes_count from photos p
join likes l on p.id=l.photo_id
group by p.id
order by  likes_count desc
limit 1;
```

| user_id | id | likes_count |
|---|---|---|
| 52 | 145 | 48 |

# SQL TASKS

## A) Marketing Analysis

### TASK 4 - Hashtag Research:

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

```sql
-- 4. Identify and suggest the top five most commonly used hashtags on the platform.
select tags.tag_name,count(photo_tags.tag_id) as common_id from photo_tags
inner join tags on photo_tags.tag_id=tags.id
group by  tags.tag_name
order by common_id desc
limit 5;
```

| tag_name | common_id |
|---|---|
| smile | 59 |
| beach | 42 |
| party | 39 |
| fun | 38 |
| concert | 24 |

# SQL TASKS

## A) Marketing Analysis

### TASK 5 - Ad Campaign Launch:

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

```sql
-- 5. Determine the day of the week when most users register on Instagram. Provide insights on when to schedule an ad campaign
SELECT dayname(created_at)AS day_of_week,count(username) as count_users FROM users
group by dayname(created_at)
order by count_users desc
limit 1;
```

| day_of_week | count_users |
|---|---|
| Thursday | 16 |

# SQL TASKS

## B) Investor Metrics:

### TASK 1 - User Engagement:

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.

```
-- 1.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.

with ct as (select users.id as userid,count(photos.id) as no_of_photos from users
left join photos on photos.user_id=users.id group by  users.id)
select sum(no_of_photos) as total_no_of_photos,count(userid) as total_no_of_users,sum(no_of_photos)/count(userid) as
average_no_of_post  from ct;
```

| total_no_of_photos | total_no_of_users | average_no_of_post |
|---|---|---|
| 257 | 100 | 2.5700 |

# SQL TASKS

## B) Investor Metrics:

### TASK 2 - Bots & Fake Accounts:

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

```
with ct as (select users.username ,count(likes.photo_id) as lks  from likes inner join
users on likes.user_id=users.id group by users.username)
select username,lks as total_likes from ct where lks =(select count(*) from photos) ;
```

| username | total_likes |
|---|---|
| Aniya_Hackett | 257 |
| Jaclyn81 | 257 |
| Rocio33 | 257 |
| Maxwell.Halvorson | 257 |
| Ollie_Ledner37 | 257 |
| Mckenna17 | 257 |
| Duane60 | 257 |
| Julien_Schmidt | 257 |
| Mike.Auer39 | 257 |
| Nia_Haag | 257 |
| Leslie67 | 257 |
| Janelle.Nikolaus81 | 257 |
| Bethany20 | 257 |

# Tech-Stack Used

## MySQL Workbench:

Chosen for its powerful interface, easy-to-use SQL editor, and advanced data modeling features, making it ideal for large-scale data analysis and visualization of SQL queries.

# Insights

•**Oldest Users:** Identifying loyal users provides valuable information for retention strategies and personalized rewards programs.

•**Inactive Users:** Recognizing inactive users allows targeted re-engagement campaigns to boost overall platform activity.

•**Contest Insights:** The contest winner data highlights popular content and user preferences, helping shape future marketing strategies.

•**Popular Hashtags:** Knowing the top hashtags aids partner brands in optimizing their content for better reach and engagement.

•**Best Ad Launch Day:** Understanding user registration patterns helps in planning effective ad campaigns to maximize visibility.

•**Engagement Metrics:** Average posts per user and bot detection provide insights into user behavior and platform integrity, crucial for investor confidence.

# RESULT

This project helped uncover critical user engagement patterns, identified opportunities for marketing and product enhancements, and provided insights into user behavior that can be directly applied to improve Instagram's overall user experience. These findings equip stakeholders with actionable data to make informed decisions, ultimately driving the platform’s growth and user satisfaction.

# DRIVE LINK

## Achievements and Benefits

1. **Improved SQL Skills**: Enhanced my ability to use SQL for extracting valuable insights from data.
2. **Understanding User Behavior**: Identified patterns like loyal users, inactive users, and popular hashtags, helping guide marketing and product decisions.
3. **Strategic Insights**: Provided actionable recommendations for ad scheduling and bot detection that can improve platform strategy.
4. **Real-World Experience**: Gained hands-on experience with tasks similar to those faced by data analysts in a business setting.
5. **Clear Communication**: Learned how to effectively present technical findings to non-technical stakeholders.

# DRIVE LINK

## Impact of the Analysis

- **Guides Business Decisions**: Insights can directly influence marketing, product development, and user engagement strategies.
- **Enhances User Experience**: Identifying trends helps improve platform features and engagement.
- **Supports Investor Confidence**: Shows data on user activity and platform integrity, helping maintain investor trust.