Instagram User Analytics

A) Marketing Analysis:

1. **Loyal User Reward:** Identify the five oldest users on Instagram from the provided database.

Code:

```
SELECT * from users
order by created_at
limit 5;
```

Output:

id	username	created_at
80	Darby_Herzog	06-05-2016 00:14
67	Emilio_Bernier52	06-05-2016 13:04
63	Elenor88	08-05-2016 01:30
95	Nicole71	09-05-2016 17:30
38	Jordyn.Jacobson2	14-05-2016 07:56

As we see in the above table the five oldest users are of id.no 80,67,63,95,38. So, we consider them as Loyal Users. Most of them joined instagram in the month of may in 2016.

2. **Inactive User Engagement**: Identify users who have never posted a single photo on Instagram.

Code:

```
select username
from users
left join photos
on users.id=photos.user_id
where photos.id is null;
```

In the below output we have about 27 users who have never posted a single photo on Instagram. Hence, they can be declared as inactive users.

Output:

username
Aniya_Hackett
Kasandra_Homenick

Jaclyn81
Rocio33
Maxwell.Halvorson
Tierra.Trantow
Pearl7
Ollie_Ledner37
Mckenna17
David.Osinski47
Morgan.Kassulke
Linnea59
Duane60
Julien_Schmidt
Mike.Auer39
Franco_Keebler64
Nia_Haag
Hulda.Macejkovic
Leslie67
Janelle.Nikolaus81
Darby_Herzog
Esther.Zulauf61
Bartholome.Bernhard
Jessyca_West
Esmeralda.Mraz57
Bethany20

3. **Contest Winner Declaration:** Determine the winner of the contest and provide their details to the team.

Code:

```
Select
username, photos.id, photos.image_url, count(likes.user_id) as total
from photos
inner join likes
on likes.photo_id=photos.id
inner join users
on photos.user_id = users.id
group by photos.id
order by total desc
limit 1;
```

Output:

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

So from the above output we can conclude that Zack_Kemmer93 of id 145 has won the contest.

4 **Hashtag Research**: Identify and suggest the top five most commonly used hashtags on the platform.

Code:

```
Select
tags.tag_name,
count(*) as total
from photo_tags
join tags
on photo_tags.tag_id=tags.id
group by tags.id
order by total desc
limit 5;
```

Output:

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

In the above table we have the top 5 most used hashtags for the partners brand to use in their posts to reach the most people.

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.

Code:

```
select
dayname(created_at) as day, count(*) as total
from users
group by day
order by total desc
limit 1;
```

Output:

Day	Total
Thursday	16

Even though there were two days Sunday and Thursday with the most users registered, sql has given output for Thursday as it comes first and Sunday comes last.

B) Investor Metrics:

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.

Code:

```
select * from photos,users;
with base as(
select u.id as userid, count(p.id) as photoid from users u left join photos p on
p.user_id=u.id group by u.id)
select sum(photoid) as totalphotos,count(userid) as total_users,
sum(photoid)/count(userid)as photoperuser
from base;
```

Output:

totalphotos	total_users	photoperuser
257	100	2.5700

Since the count from number of photos is 257 and the count from the number of users is 100 we have got the output for photoperuser as 2.5700

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.

Code:

```
select * from users,likes;
with base as(
select u.username,count(l.photo_id) as likess from likes l inner join users u on
u.id=l.user_id
group by u.username)
select username, likess from base where likess=(select count(*) from
photos)order by username;
```

Output:

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

As we can see in the above table we have in total 13 bots and fake accounts