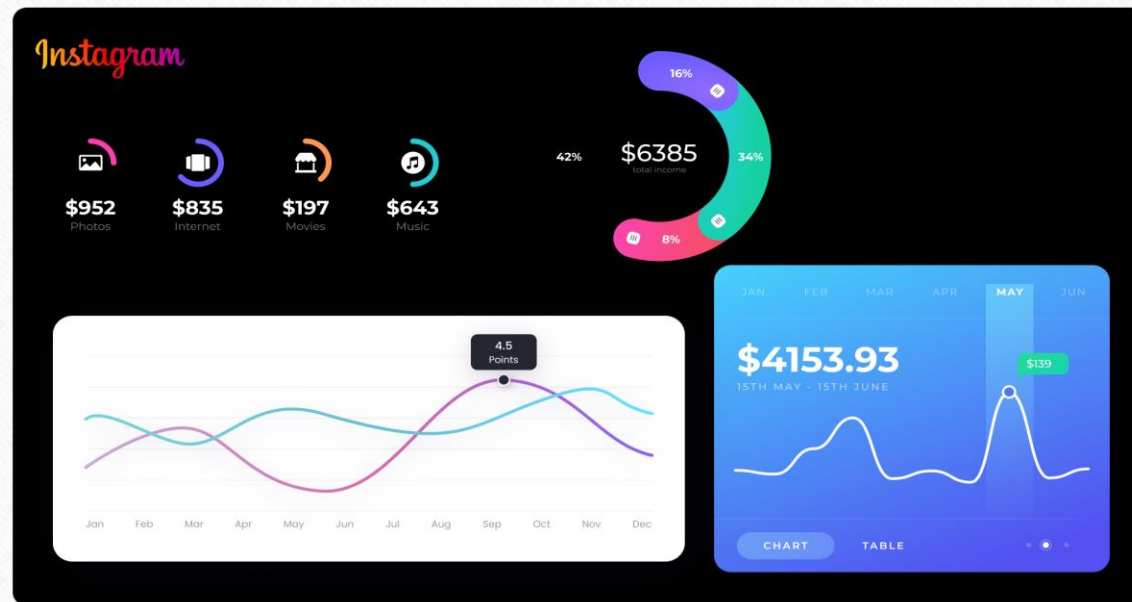


Instagram User Analytics



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Project Agenda:

- **Project Description:** Derived business insights for marketing, product & development teams which can be used by teams across the business to launch a new marketing campaign, decide on features to build for an app, track the success of the app by measuring user engagement and improve the experience altogether while helping the business grow.
- **Approach:**
 1. **Database creation:** Created and inserted data in the database using DDL and DML SQL queries provided by the product manager(as per the project) in the MySQL database using MySQL workbench.
 2. **Extraction of insights:** After creating the database required insights are generated from the database tables by running SQL queries in MySQL workbench.
- **Tech-Stack Used:** Used MySQL workbench 8.0 community server version 8.0.33 which is owned by oracle.

- **Insights:**

- A. Marketing

- 1. Rewarding the loyal users

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

Query:

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

Output:

	username	created_at
▶	Darby_Herzog	2016-05-06 00:14:21
	Emilio_Bernier52	2016-05-06 13:04:30
	Elenor88	2016-05-08 01:30:41
	Nicole71	2016-05-09 17:30:22
	Jordyn.Jacobson2	2016-05-14 07:56:26

2. Remind inactive users to start posting

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

Query:

```
SELECT
    users.username
FROM
    users
    LEFT JOIN
        photos ON users.id = photos.user_id
WHERE
    photos.image_url IS NULL
ORDER BY users.username;
```

Output:

	id	username	no._of_posts
▶	5	Aniya_Hackett	0
	7	Kassandra_Homenick	0
	14	Jadlyn81	0
	21	Rocio33	0
	24	Maxwell.Halvorson	0
	25	Tierra.Trantow	0
	34	Pearl7	0
	36	Ollie_Ledner37	0
	41	Mckenna17	0
	45	David.Osinski47	0
	49	Morgan.Kassulke	0
	53	Linnea59	0
	54	Duane60	0
	57	Julien_Schmidt	0
	66	Mike.Auer39	0
	68	Franco_Keebler64	0
	71	Nia_Haag	0
	74	Hulda.Macejkovic	0
	75	Leslie67	0
	76	Janelle.Nikolaus81	0
	80	Darby_Herzog	0
	81	Esther.Zulauf61	0
	83	Bartholome.Bernhard	0
	89	Jessyca_West	0
	90	Esmeralda.Mraz57	0
	91	Bethany20	0

3. Declaring content winner

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

Query:

```
-- Identify who has the most number of likes count and provide their details to the team --  
SELECT  
    likes.photo_id,  
    users.username,  
    COUNT(likes.user_id) AS no_of_likes  
FROM  
    likes  
    INNER JOIN  
    photos ON likes.photo_id = photos.id  
    INNER JOIN  
    users ON photos.user_id = users.id  
GROUP BY likes.photo_id , users.username  
ORDER BY no_of_likes DESC limit 1;
```

Output:

	photo_id	username	no_of_likes
▶	145	Zack_Kemmer93	48

4. Hashtag researching

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

Query:

```
SELECT
    t.tag_name, COUNT(p.photo_id) AS hashtags
FROM
    photo_tags AS p
    INNER JOIN
    tags AS t ON t.id = p.tag_id
GROUP BY t.tag_name
ORDER BY hashtags DESC
LIMIT 5;
```

Output:

	tag_name	hashtags
▶	smile	59
	beach	42
	party	39
	fun	38
	concert	24

5. Launch AD campaign

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

Query:

```
SELECT dayname(created_at) as day,  
       COUNT(username)  
FROM  
       users  
GROUP BY day order by count(username) desc;
```

Output:

	day	COUNT(username)
▶	Thursday	16
	Sunday	16
	Friday	15
	Tuesday	14
	Monday	14
	Wednesday	13
	Saturday	12

B. Investor metrics

1. User Engagement

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

Query:

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

Output:

	tot_photos	tot_users	photo_per_user
►	257	100	2.5700

2. Bots & fake accounts

Task: Provide data on user(bots) who have liked every single photo on the site (since any normal user would not be able to do this).

Query:

```
with base as(
select u.username, count(l.photo_id) as likess
from likes as l inner join users as 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
	Jadyn81	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

Conclusion from the above insights:

- i. The marketing team,
 - Can reward the most loyal users/ customers of the business
 - Can send promotional emails to the inactive users
 - Use the most popular hashtags for brand promotions
 - Promote the brands on the most active day of the week.
- ii. The investors of the business,
 - Can assess the performance of the business after seeing the user engagement to check if the business is growing or not.
 - The fake accounts or bots can be removed to enhance user experience and check the actual performance of the business.

Result:

- Learnt the fundamentals of data analysis using SQL queries on how to extract insights from the database which can be used to track the user engagement and engagement with the product (both desktop and mobile application) which would be an attempt to derive business insights for marketing, product & development teams.