



Instagram

INSTAGRAM USER ANALYTICS

PROJECT DESCRIPTION

User analysis is the process by which we track how users interact with a digital product and to derive insights for marketing, product & development teams.

These insights are then used by various teams across the business to launch a new campaign, decides on features to build in an app, track the success of the app by measuring user engagement which will improve the experience altogether and helping the business to grow. I'm a data analyst working with the product team at Instagram and my work is to provide insights on the questions asked by the management team.

APPROACH

For this project, I have used MySQL to extract the required data from the given database using the Join function, Subqueries, Aggregation, where condition, Group by, Distinct and other functions required.

Keeping the primary and foreign key in consideration provided all the reports asked by the Marketing and Investor metrics department.

TECH STACK USED

I have used MySQL workbench community version 8.0.40 for this project. MySQL is important because it's a widely-used, open-source relational database that helps businesses organize, analyze, and protect their data. MySQL can handle large data sets and scale well, making it suitable for small blogs and high-traffic sites.

MARKETING ANALYSIS

1. Rewarding Most Loyal Users: Find the 5 oldest users of the Instagram from the database provided.

Output

Darby_Herzog
Emilio_Bernier52
Elenor88
Nicole71
Jordyn.Jacobson2



Navigator:

SCHEMAS

Filter objects

ig_clone

Tables

- comments
- follows
- likes
- photo_tags
- photos
- tags
- users

Views

Stored Procedures

Functions

sys

- Tables
- Views
- Stored Procedures
- Functions

Query 1 x

```

1 • use ig_clone;
2 • describe users;
3 • select * from users;
4 • select username, created_at from users order by created_at limit 5;
```

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

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

SQLAdditions:



Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result Grid

Form Editor

Field Types

Context Help Snippets

Administration Schemas

Result 5 users 6 users 7 x

Read Only

Information:

Output:

Action Output

#	Time	Action	Message	Duration / Fetch
6	22:32:45	select *from users LIMIT 0, 1000	100 row(s) returned	0.000 sec / 0.000 sec
7	22:32:45	select username, created at from users order by created_at limit 5	Error Code: 1054. Unknown column 'created' in 'field list'	0.000 sec
8	22:33:27	use ig_clone	0 row(s) affected	0.000 sec
9	22:33:27	describe users	3 row(s) returned	0.000 sec / 0.000 sec
10	22:33:27	select *from users LIMIT 0, 1000	100 row(s) returned	0.000 sec / 0.000 sec
11	22:33:27	select username, created_at from users order by created_at limit 5	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

MARKETING ANALYSIS

2. Remind inactive users to start posting: Find the users who have never posted a single photo on Instagram.

Output

Aniya_Hackett	Duane60	Jadyn81	Leslie67	Morgan.Kassulke
Bartholome.Bernhard	Esmeralda.Mraz57	Janelle.Nikolaus81	Linnea59	Nia_Haag
Bethany20	Esther.Zulauf61	Jessyca_West	Maxwell.Halvorson	Ollie_Ledner37
Darby_Herzog	Franco_Keebler64	Julien_Schimdt	Mckenna17	Pearl7
David.Osinski47	Hulda.Macejkovic	Kasandra_Homenick	Mike.Auer39	Rocio33

MySQL Workbench

Local instance MySQL91 - W...

File Edit View Query Database Server Tools Scripting Help

Navigator:

SCHEMAS

Filter objects

ig_clone

- Tables
 - comments
 - follows
 - likes
 - photo_tags
 - photos
 - tags
 - users
- Views
- Stored Procedures
- Functions

sys

- Tables
- Views
- Stored Procedures
- Functions

Administration Schemas

Information

Result 43 Result 44 Result 45

Query 1

use ig_clone;
describe users;
select * from photos,users;
select u.username from users u left join photos p on p.user_id=u.id where p.image_url is null order by u.username;

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

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

username
Aniya_Hackett
Bartholome.Bernhard
Bethany20
Darby_Herzog
David.Osinski47
Duane60
Esmeralda.Mraz57
Esther.Zulauf61
Franco_Keebler64
Hulda.Macejkovic

Result Grid Form Editor Field Types

Output

Action Output

#	Time	Action	Message	Duration / Fetch
60	23:23:45	use ig_clone	0 row(s) affected	0.000 sec
61	23:23:45	describe users	3 row(s) returned	0.000 sec / 0.000 sec
62	23:23:45	select * from photos,users LIMIT 0, 1000	1000 row(s) returned	0.000 sec / 0.000 sec
63	23:23:45	select u.username from users u left join photos p on p.user_id=u.id where p.image_url is null order by u.username...	26 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

MySQL Workbench

Local instance MySQL91 - W...

File Edit View Query Database Server Tools Scripting Help

Schemas

ig_clone

- Comments
- Follows
- Likes
- Photo_tags
- Photos
- Tags
- Users

Views

Stored Procedures

Functions

sys

- Tables
- Views
- Stored Procedures
- Functions

Administration Schemas

Information

Result 43 Result 44 Result 45

Query 1

use ig_clone;
describe users;

select * from photos,users;
select u.username from users u left join photos p on p.user_id=u.id where p.image_url is null order by u.username;

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

username
Hulda.Macejkovic
Jadyn81
Janelle.Nikolaus81
Jessyca_West
Julien_Schmidt
Kassandra_Homenick
Leslie67
Linnea59
Maxwell.Halvorson
Mckenna17

Result Grid Form Editor Field Types

Output

Action Output

#	Time	Action	Message	Duration / Fetch
60	23:23:45	use ig_clone	0 row(s) affected	0.000 sec
61	23:23:45	describe users	3 row(s) returned	0.000 sec / 0.000 sec
62	23:23:45	select * from photos,users LIMIT 0, 1000	1000 row(s) returned	0.000 sec / 0.000 sec
63	23:23:45	select u.username from users u left join photos p on p.user_id=u.id where p.image_url is null order by u.username...	26 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

MySQL Workbench

Local instance MySQL91 - W...

File Edit View Query Database Server Tools Scripting Help

Navigator:

SCHEMAS

Filter objects

ig_clone

- Tables
 - comments
 - follows
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 - photos
 - tags
 - users
- Views
- Stored Procedures
- Functions

sys

- Tables
- Views
- Stored Procedures
- Functions

Administration Schemas

Information

Query 1 x

SQLAdditions

Automatic context help is disabled. Use the toolbar manually get help for the current caret position or toggle automatic help.

Result Grid | Filter Rows: Export: Wrap Cell Content: Result Grid Form Editor Field Types

username
Linnea59
Maxwell.Halvorson
Mckenna17
Mike.Auer39
Morgan.Kassulke
Nia_Haag
Ollie_Ledner37
Pearl7
Rocio33
Tierra.Trantow

Result 43 Result 44 Result 45 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
60	23:23:45	use ig_clone	0 row(s) affected	0.000 sec
61	23:23:45	describe users	3 row(s) returned	0.000 sec / 0.000 sec
62	23:23:45	select * from photos,users LIMIT 0, 1000	1000 row(s) returned	0.000 sec / 0.000 sec
63	23:23:45	select u.username from users u left join photos p on p.user_id=u.id where p.image_url is null order by u.username;	26 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

MARKETING ANALYSIS

3. Declaring Contest Winner: Identify the winner of the contest and provide their details to the team.

Output

Photo_ID:- 145

Username:- Zack_Kemmer93

No. of likes:- 48

MySQL Workbench

Local instance MySQL91 - W...

File Edit View Query Database Server Tools Scripting Help

Navigator: Schemas

Filter objects

ig_clone

- Tables
 - comments
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 - likes
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 - photos
 - tags
 - users
- Views
- Stored Procedures
- Functions

sys

- Tables
- Views
- Stored Procedures
- Functions

Administration Schemas

Information

Column: user_id

Definition: user_id int PK

Object Info Session

Query 1 x

SQL Additions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or toggle automatic help.

```
6
7 • select * from likes,photos,users;
8
9 • select likes.photo_id,users.username, count(likes.user_id) as numberoflikes
10 from likes inner join photos on likes.photo_id=photos.id
11 inner join users on photos.user_id=users.id group by
12 likes.photo_id,users.username order by numberoflikes desc;
13
14
```

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

photo_id	username	numberoflikes
145	Zack_Kemmer93	48
127	Malinda_Streich	43
182	Adelle96	43
123	Seth46	42
30	Presley_McClure	41
52	Annalise.Mckenzie16	41
61	Delpha.Kihn	41
147	Meggie_Doyle	41
174	Elenor88	41
192	Kathryn80	41

Result 50 Result 51 Result 52 Result 53 Result 54 x

Action Output

#	Time	Action	Message	Duration / Fetch
71	23:30:07	select * from photos,users LIMIT 0, 1000	1000 row(s) returned	0.000 sec / 0.000 sec
72	23:30:07	select u.username from users u left join photos p on p.user_id=u.id where p.image_url is null order by u.username	26 row(s) returned	0.000 sec / 0.000 sec
73	23:30:07	select * from likes,photos,users LIMIT 0, 1000	1000 row(s) returned	0.000 sec / 0.000 sec
74	23:30:07	select likes.photo_id,users.username, count(likes.user_id) as numberoflikes from likes inner join photos on likes...	257 row(s) returned	0.000 sec / 0.000 sec

Output

Query Completed

MARKETING ANALYSIS

4. Hashtag Researching:- Identify and suggest the top 5 most commonly used hashtags on the platform.

Output

Smile

Beach

Party

Fun

Concert

MySQL Workbench

Local instance MySQL91 - W...

File Edit View Query Database Server Tools Scripting Help

Schemas

ig_clone

- Comments
- Follows
- Likes
- Photo_tags
- Photos
- Tags
- Users

Views

Stored Procedures

Functions

sys

- Tables
- Views
- Stored Procedures
- Functions

Administration Schemas

Information Result 66 Result 67 Result 68 x

Column: user_id

Definition: user_id int PK

Action Output

#	Time	Action	Message	Duration / Fetch
94	23:39:52	use ig_clone	0 row(s) affected	0.000 sec
95	23:39:52	describe users	3 row(s) returned	0.000 sec / 0.000 sec
96	23:39:52	select * from photo_tags,tags LIMIT 0, 1000	1000 row(s) returned	0.000 sec / 0.000 sec
97	23:39:52	select t.tag_name,count(p.photo_id) as ht from photo_tags p inner join tags t on t.id=p.tag_id group by t.tag_na...	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

Navigator

Query 1 x

SQL Additions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result Grid

Form Editor

Field Types

Read Only Context Help Snippets

Limit to 1000 rows

Filter Rows: Export: Wrap Cell Content: Fetch rows:

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

INVESTOR METRICS

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

Output

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

Total no. of photos on Instagram/total number
of users= 257/100

MySQL Workbench

Local instance MySQL91 - W...

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

ig_clone

- Tables
 - comments
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 - photos
 - tags
 - users
- Views
- Stored Procedures
- Functions

sys

- Tables
- Views
- Stored Procedures
- Functions

Administration Schemas

Information

Column: user_id

Definition: user_id int PK

Object Info Session

Query 1

use ig_clone;
describe users;
select * from users;
select DATE_FORMAT((created_at), '%W') as day, count(username) from users group by 1 order by 2 desc;

Result Grid

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

Form Editor

Field Types

Result 74 users 75 Result 76

Output

Action Output

#	Time	Action	Message	Duration / Fetch
105	23:42:34	use ig_clone	0 row(s) affected	0.000 sec
106	23:42:34	describe users	3 row(s) returned	0.000 sec / 0.000 sec
107	23:42:34	select * from users LIMIT 0, 1000	100 row(s) returned	0.000 sec / 0.000 sec
108	23:42:34	select DATE_FORMAT((created_at), "%W") as day, count(username) from users group by 1 order by 2 desc LI...	7 row(s) returned	0.000 sec / 0.000 sec

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Read Only Context Help Snippets

Query Completed



Navigator:

SCHEMAS

Filter objects

ig_clone

Tables

- ▶ comments
- ▶ follows
- ▶ likes
- ▶ photo_tags
- ▶ photos
- ▶ tags
- ▶ users

Views

Stored Procedures

Functions

sys

- ▶ Tables
- ▶ Views
- ▶ Stored Procedures
- ▶ Functions

Administration Schemas

Information:

Column: user_id

Definition:
user_id int PK

Query 1 x

```

1 •  use ig_clone;
2 •  describe users;
3
4 •  select * from photos,users;
5 •  with base as(
6      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)
7      select sum(photoid) as totalphotos,count(userid) as total_users, sum(photoid)/count(userid) as photoperuser
8  from base;
9

```

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

totalphotos	total_users	photoperuser
257	100	2.5700

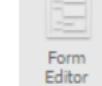
SQLAdditions:



Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.



Result Grid



Form Editor



Field Types

Result 83 x

Read Only Context Help Snippets

Output:

Action Output

#	Time	Action	Message	Duration / Fetch
115	23:44:53	use ig_clone	0 row(s) affected	0.000 sec
116	23:44:53	describe users	3 row(s) returned	0.000 sec / 0.000 sec
117	23:44:53	select * from photos,users LIMIT 0, 1000	1000 row(s) returned	0.000 sec / 0.000 sec
118	23:51:34	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 ...	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Query Completed

INVESTOR METRICS

2.Bots & Fake Accounts:- Provide data on users(bots) who have liked every single photo on the site(since any normal user would not be able to do this)

Output

Aniya_Hackett	Julien_Schmidt	Nia_Haag
Bethany20	Leslie67	Ollie_Ledner37
Duane60	Maxwell.Halvorso n	Rocio33
Jadyn81	Mckenna17	
Janelle.Nikolaus81	Mike.Auer39	

MySQL Workbench

Local instance MySQL91 - W...

File Edit View Query Database Server Tools Scripting Help

Schemas

ig_clone

- Comments
- Follows
- Likes
- Photo_tags
- Photos
- Tags
- Users

Views

Stored Procedures

Functions

sys

- Tables
- Views
- Stored Procedures
- Functions

Administration Schemas

Information

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Result Grid | Form Editor | Field Types | Read Only | Context Help | Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
157	00:08:11	describe users	3 row(s) returned	0.000 sec / 0.000 sec
158	00:08:11	select * from users,likes LIMIT 0, 1000	1000 row(s) returned	0.000 sec / 0.016 sec
159	00:08:11	with base as(select u.username,count(l.photo_id) as numberoflikes from likes l inner join users u on u.id=l.user_id group by u.username)	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL se...	0.000 sec
160	00:08:47	with base as(select u.username,count(l.photo_id) as numberoflikes from likes l inner join users u on u.id=l.user_...	13 row(s) returned	0.016 sec / 0.000 sec

Object Info Session

Query Completed

Navigator

Query 1

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

```
1 • use ig_clone;
2 • describe users;
3
4 • select * from users,likes;
5 • with base as(
6 ✘ select u.username,count(l.photo_id) as numberoflikes from likes l inner join users u on u.id=l.user_id
7   group by u.username)
8   select username,numberoflikes from base where numberoflikes=(select count(*) from photos) order by username;
9
```

Result Grid

username	numberoflikes
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
...	...

Form Editor

Field Types

MySQL Workbench

Local instance MySQL91 - W...

File Edit View Query Database Server Tools Scripting Help

Navigator:

SCHEMAS

ig_clone

- Tables
 - comments
 - follows
 - likes
 - photo_tags
 - photos
 - tags
 - users
- Views
- Stored Procedures
- Functions

sys

- Tables
- Views
- Stored Procedures
- Functions

Administration Schemas

Information Result 103

Column: user_id

Definition: user_id int PK

Object Info Session

Query Completed

Query 1 x

use ig_clone;
describe users;

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

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

username	numberoflikes
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

Result Grid | Form Editor | Field Types

Output

Action Output

#	Time	Action	Message	Duration / Fetch
157	00:08:11	describe users	3 row(s) returned	0.000 sec / 0.000 sec
158	00:08:11	select * from users,likes LIMIT 0, 1000	1000 row(s) returned	0.000 sec / 0.016 sec
159	00:08:11	with base as(select u.username,count(l.photo_id) as numberoflikes from likes l inner join users u on u.id=l.us...	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL se...	0.000 sec
160	00:08:47	with base as(select u.username,count(l.photo_id) as numberoflikes from likes l inner join users u on u.id=l.user_...	13 row(s) returned	0.016 sec / 0.000 sec

Read Only Context Help Snippets

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

INSIGHTS AND RESULTS

From this project, I got an idea about how as a data analyst we work on real-time data to take any data-driven decision. It helped me a lot to understand the analysis process well, and to provide insights for the best decisions possible.