Project Description:

- To know the profit or loss of any product used by the public, we need to analyse the product's or business's usage, sales and govern its security.
- This project helps in giving insights to the team for better growth and promotion of the digital product Instagram by drawing conclusions based on few criteria from the database using MySQL.
- We come up with the queries in this project and give some insights to the team which gives people a good user experience and help Instagram grow their business too.

Approach:

The database tables creation query existed in the documents. So, a database named ig_clone was created under which there were 7 tables.

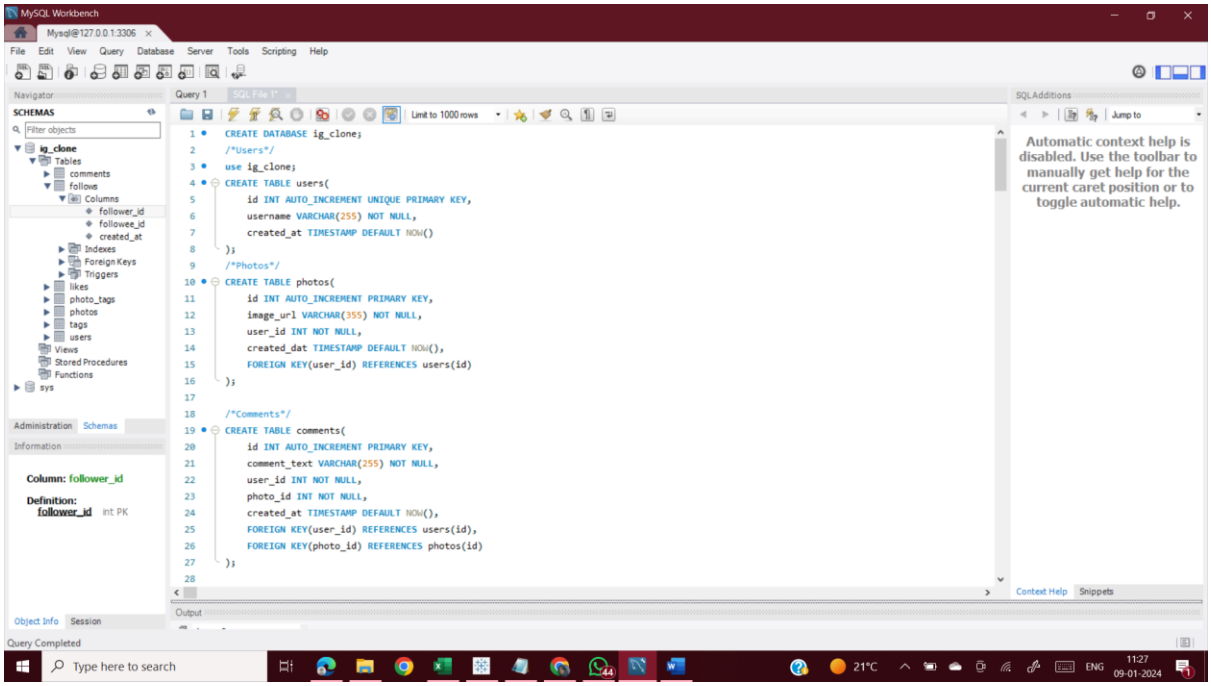
1. Users
2. photos
3. comments
4. likes
5. follows
6. tags
7. photo_tag

After creation, the data was inserted into the respective tables. Now, the queries were executed based on the requirements of the company.

1. **Loyal User Reward**
2. **Inactive User Engagement:**
3. **Contest Winner Declaration**
4. **Hashtag Research**
5. **Ad Campaign Launch**
6. **User Engagement**
7. **Bots & Fake Accounts**

I used the MySQL queries using few clauses (SELECT,INSERT,GROUPBY,WHERE) to extract the information and fulfil the requirements.

Below are the screenshots of the queries executed along with output.




```
/*tags*/
CREATE TABLE tags(
    id INTEGER AUTO_INCREMENT PRIMARY KEY,
    tag_name VARCHAR(255) UNIQUE NOT NULL,
    created_at TIMESTAMP DEFAULT NOW()
);

/*junction table: Photos - Tags*/
CREATE TABLE photo_tags(
    photo_id INT NOT NULL,
    tag_id INT NOT NULL,
    FOREIGN KEY(photo_id) REFERENCES photos(id),
    FOREIGN KEY(tag_id) REFERENCES tags(id),
    PRIMARY KEY(photo_id,tag_id)
);
INSERT INTO users (username, created_at) VALUES ('Kenton_Kirlin', '2017-02-16 18:22:10.846'),
('Andre_Purdy85', '2017-04-02 17:11:21.417'), ('Harley_Lind18', '2017-02-21 11:12:32.574'),
('Arely_Bogan63', '2016-08-13 01:28:43.085'), ('Aniya_Hackett', '2016-12-07 01:04:39.298'), ('Travon.Waters', '2017-04-30 13:26:14.49
('Kasandra_Homenick', '2016-12-12 06:50:07.996'), ('Tabitha_Schamberger11', '2016-08-20 02:19:45.512'), ('Gus93', '2016-06-24 19:36:3
('Presley_McClure', '2016-08-07 16:25:48.561'), ('Justina.Gaylord27', '2017-05-04 16:32:15.577'), ('Dereck65', '2017-01-19 01:34:14.
('Alexandro35', '2017-03-29 17:09:02.344'), ('Jaclyn81', '2017-02-06 23:29:16.394'), ('Billy52', '2016-10-05 14:10:20.453'),
('Annalise.McKenzie16', '2016-08-02 21:32:45.646'), ('Norbert_Carroll35', '2017-02-06 22:05:43.425'),
('Odessa2', '2016-10-21 18:16:56.390'), ('Hailee26', '2017-04-29 18:53:39.650'), ('Delpha.Kihn', '2016-08-31 02:42:30.288'),
('Rocio33', '2017-01-23 11:51:15.467'), ('Kenneth64', '2016-12-27 09:48:17.380'), ('Eveline95', '2017-01-23 23:14:18.569'),
('Maxwell.Halvorson', '2017-04-18 02:32:43.597'), ('Tierra.Trantow', '2016-10-03 12:49:20.774'), ('Josianne.Friesen', '2016-06-07 12
('Yazmin_Mills95', '2016-07-27 00:56:44.310'), ('Jordyn.Jacobson2', '2016-05-14 07:56:25.835'), ('Kelsi26', '2016-06-08 17:48:08.478
('Rafael.Hickle2', '2016-05-19 09:51:25.779'), ('Mckenna17', '2016-07-17 17:25:44.855'), ('Maya.Farrell', '2016-12-11 18:04:45.344')
('Janet.Armstrong', '2016-10-06 07:57:44.491'), ('Seth46', '2016-07-07 11:40:26.557'), ('David.Osinski47', '2017-02-05 21:23:37.392'
```

Loyal User Reward----------

```
1 •  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

Inactive User Engagement----------

Limit to 1000 rows

```
1   SELECT username FROM users WHERE username NOT IN (SELECT DISTINCT user_id FROM photos);
2
```

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

username
Kenton_Kirlin
Andre_Purdy85
Harley_Lind18
Arely_Bogan63
Aniya_Hackett
Travon.Waters
Kasandra_Homenick
Tabitha_Schamberger11
Gus93
Presley_McClure
Justina.Gaylord27
Dereck65
Alexandro35
Jaclyn81
Billy52
Annalise.McKenzie16
Norbert_Carroll35

Contest Winner Declaration----------

```
SELECT u.id, u.username, p.user_id, COUNT(l.user_id) AS total_likes FROM Users u JOIN Photos p ON u.id = p.user_id JOIN
Likes l ON p.id = l.photo_id GROUP BY u.id, u.username, p.id ORDER BY total_likes DESC LIMIT 1;
```

id	username	user_id	total_likes
52	Zack_Kemmer93	52	48

Hashtag Research----------

```
select t.tag_name, count(p.tag_id) as hashtags from tags t join photo_tags p on t.id=p.tag_id group by t.tag_name order by hashtags
desc limit 1;
```

tag_name	hashtags
smile	59

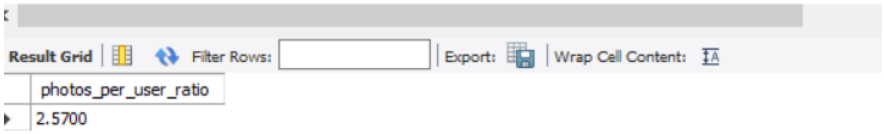
Ad Campaign Launch----------

```
SELECT dayname(created_at) AS weekly, count(*) as reg_count from users group by weekly order by reg_count desc;
```

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

User Engagement----------

```sql
SELECT COUNT(*) / COUNT(DISTINCT user_id) AS average_posts_per_user
FROM Photos;
SELECT COUNT(*) / (SELECT COUNT(*) FROM Users) AS photos_per_user_ratio
FROM Photos;
```



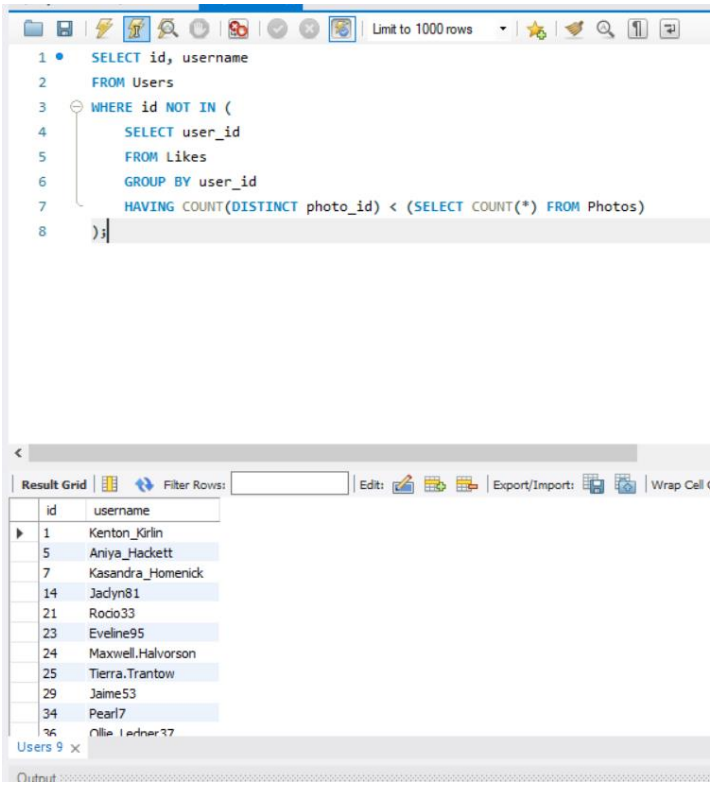
photos_per_user_ratio
2.5700

```sql
SELECT COUNT(*) / COUNT(DISTINCT user_id) AS average_posts_per_user
FROM Photos;
SELECT COUNT(*) / (SELECT COUNT(*) FROM Users) AS photos_per_user_ratio
FROM Photos;
```

average_posts_per_user
3.4730

Result 7 | Result 8

Bots & Fake Accounts----------



Tech-Stack Used –

- **MYSQL Workbench 8.0 CE** has been used for this project as it has the capability to handle large datasets with good user interface.
- It also supports multiple databases like Oracle. Myslq, PostgreSQL making it flexible.
- This tool is regularly updates and fixes the bugs and is easy to use.
- It also helps in creation of ER diagram efficiently.

Insights:

- Every table is linked with one another using foreign keys.
- Primary keys have also been used which are auto incremented in few tables while others have used a set of attributes for a primary key.
- We now know which user is linked to which photo and his number of likes or comments. Is he a genuine user or not, his followers and followee, or when he had joined this social media (Instagram) and the tags that he created along with when was it made.

Result:

- The project has helped me learn MySQL queries. It expanded my knowledge and think and analyse the data.
- It has helped me to draw conclusions and the requirements for a better understanding of the business growth.

- It has helped me to better understand the MySql Workbench.
- I can be confident enough if such scenarios come up in the future and can achieve appreciation in my work.