Instagram User Analytics

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Project Overview:

This project involves analysing user interactions and engagement with the Instagram app to provide valuable insights that can drive business growth. As a data analyst, you will extract, analyse, and interpret user data to inform various teams within the business. Your analysis will focus on understanding user behaviour, identifying trends, and providing actionable recommendations to improve user experience and guide future product development. Insights derived from this project will aid the marketing team in launching effective campaigns, assist the product team in prioritizing new features, and help the development team enhance the overall user experience

Project Approach:

1. **Define Objectives:**
    - Identify key user engagement metrics to analyse.
    - Understand the needs of the product, marketing, and development teams.
2. **Data Collection:**
    - Gather user interaction data from Instagram's database.
    - Ensure data is accurate, relevant, and up-to-date.
3. **Data Preparation:**
    - Clean and pre-process the data to handle missing values and inconsistencies.
    - Normalize and structure data for efficient querying.
4. **Data Analysis**:
    - Use SQL queries to extract meaningful insights from the data.
    - Analyse engagement metrics such as likes, comments, shares, and time spent on the app.
5. **Reporting:**
    - Compile findings into comprehensive reports.

Technical Stack Used:

MySQL Workbench (Version 8.0.34)

- MySQL Workbench provides an advanced SQL editor that supports syntax highlighting, code completion, and error detection. These features help streamline the process of writing and debugging complex SQL queries, making it easier to extract and analyse large datasets efficiently.
- With its robust data modelling tools, MySQL Workbench allows analysts to design and manage database schemas visually. This capability ensures that data structures are optimized for querying and analysis, facilitating better organization and retrieval of data for in-depth analysis.

Project Insights:

1. **Loyal User Reward:** The marketing team wants to reward the most loyal users, i.e., those who have been using the platform for the longest time.

   Conclusion: These are the five oldest users of Instagram

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

   Code:
```
SELECT * FROM users
ORDER BY created_at ASC
LIMIT 5;
```

2. **Inactive User Engagement**: The team wants to encourage inactive users to start posting by sending them promotional emails.
   Conclusion: Users who have never posted a single photo on Instagram.

id	username
5	Aniya_Hackett
7	Kasandra_Homenick
14	Jaclyn81
21	Rocio33
24	Maxwell.Halvorson
25	Tierra.Trantow
34	Pearl7
36	Ollie_Ledner37
41	Mckenna17
45	David.Osinski47
49	Morgan.Kassulke
53	Linnea59
54	Duane60
57	Julien_Schmidt
66	Mike.Auer39
68	Franco_Keebler64
71	Nia_Haag
74	Hulda.Macejkovic
75	Leslie67
76	Janelle.Nikolaus81
80	Darby_Herzog
81	Esther.Zulauf61
83	Bartholome.Bernhard
89	Jessyca_West
90	Esmeralda.Mraz57
91	Bethany20

Code:
```
SELECT u.id, u.username FROM users u
LEFT JOIN photos p ON u.id = p.user_id
WHERE p.id IS NULL;
```

3. **Contest Winner Declaration**: The team has organized a contest where the user with the most likes on a single photo win.
   Conclusion: The winner of the contest and their details

username	photo_id	total_likes
Harley_Lind18	145	48

Code:
```
SELECT u.username, l.photo_id, l.total_likes
FROM users u
JOIN (
    SELECT photo_id, COUNT(photo_id) AS total_likes
    FROM likes
    GROUP BY photo_id
    ORDER BY total_likes DESC
    LIMIT 1
) l ON u.id = (SELECT user_id FROM likes WHERE photo_id = l.photo_id
LIMIT 1);
```

4. **Hashtag Research**: A partner brand wants to know the most popular hashtags to use in their posts to reach the most people.
   Conclusion: The top five most commonly used hashtags on the platform.

tag_name	occurrence
smile	59

Code:
```
SELECT t.tag_name, pt.occurrence
FROM tags t
JOIN (
    SELECT tag_id, COUNT(tag_id) occurrence
    FROM photo_tags
    GROUP BY tag_id
    ORDER BY occurrence DESC
    limit 1
    ) pt
ON t.id = pt.tag_id;
```

5. **Ad Campaign Launch:** The team wants to know the best day of the week to launch ads.
   Conclusion: The day of the week when most users register on Instagram

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

Code:
```
SELECT DAYNAME(created_at) DAY_name ,count(*) registered_num
FROM users
GROUP BY day_name
ORDER BY registered_num DESC
;
```

Suggested Ad Campaign Days:

After a thorough analysis of users data, it is recommended to focus our ad campaigns on **Thursdays and Sundays**. These days have consistently shown higher user registration rates compared to other days of the week. By concentrating our advertising efforts on these peak days, we can maximize our reach and effectiveness.