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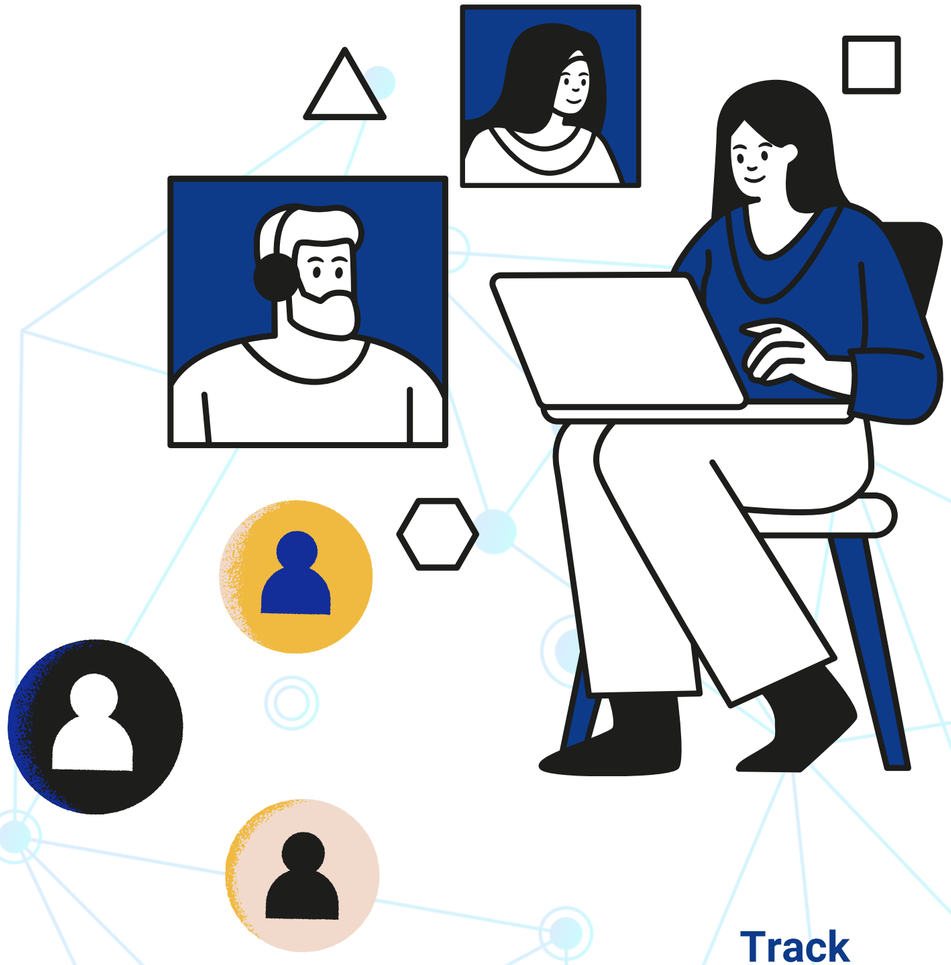
وزارة الاتصالات
وتكنولوجيا المعلومات

Social Media Marketing



Supervisor

Mohamed Abdelmawla

Track

Microsoft Data Engineer

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Overview

- Our Team
- Look back
- Project Overview
- Problem Statement
- Data Collection & Analysis
- Exploratory Data Analysis
- Dashboard
- Insights

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OUR TEAM

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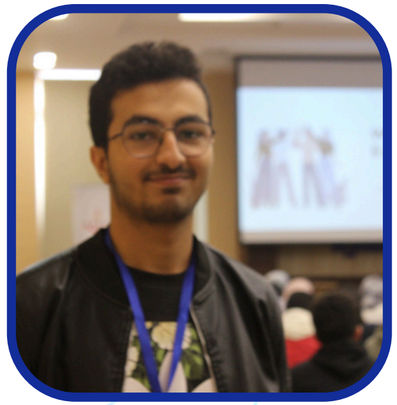
AMR KHALED

IBRAHIM HEGAZI



YOUSEF ALSEBAEY

AMMAR YASSER

ASHRAF MORGAN

MAHMOUD OSAMA

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The Weather Dataset

Weather Data for +1200 Cities Worldwide. Updated every Sunday!

Data Card | Code (15) | Discussion (1) | Suggestions (0)

About Dataset

Feel free to FORK THIS NOTEBOOK in order to correctly load the data for your project!

Overview:

In the beginning

We were going to work on weather data To analyze the impact of population density on weather patterns and compare regions with similar latitudes and longitudes to understand how varying population densities influence local weather conditions such as temperature, humidity, and air quality.

But we faced some problems

PreProcessing problems

While working on Collecting the data, several issues arose, including:

- **Incomplete Data**

  Problem: Where the population, humidity levels, and air temperature columns were missing

  Solution 1: Sense there was no actual up to date data available, therefore we collected the approximates of these values for each 1235 city manually (Worked for the time being)

- **Lots of missing values**

  Problem: Lots of missing cells in some of the most deterimental columns like min, max, avg temperatures, and city names.

  solution 1: To handle the missing cities, we merged the cities table with weather table to get rid of the unavailable data as much as possible.

  solution 2: To handle the temperature values, we filled the missing values with the mean.

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Database Steps and problems

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While working on creating the database, several issues arose, including:

- **Database Design**: No Problem
- **Database Normalization**: No Problem
- **Loading the Data into SQL Server:**

  Problem: Data was big and lots of data went missing becuase of the SQL Server loading Capabilities

  Solution 1: Dividing the large dataset into smaller batches (did not work)

  Solution 2: Loading the dataset into Power BI to have all the Value (worked)

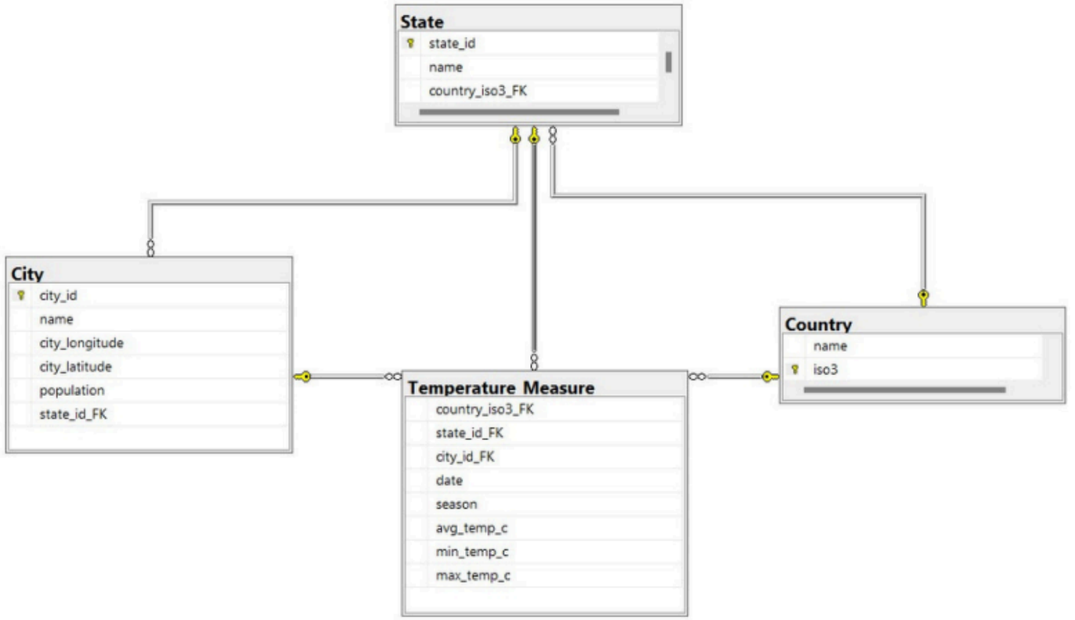
Database Steps and problems 2

- **SQL Code to enter the wrong dataset into the right tables** (no problem)

- **Data inconsistence:**

  Problem: we had two tables that include the longitude and the latitude sadly these values were not the same

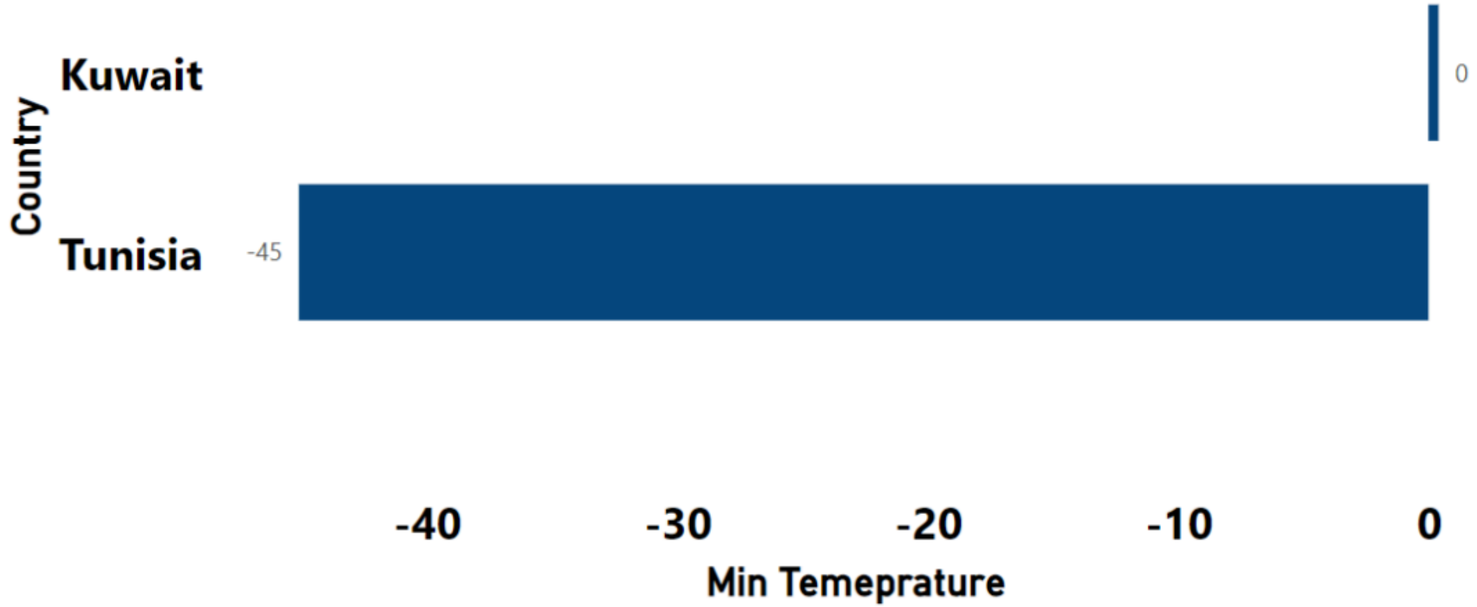
  Solution 1: Dropping one of the tables, country table. (worked)



Problems During Data Discovery

We faced several problems at the Exploratory Data Analysis stage Through which we aimed to analyze data sets to understand their main characteristic

The recorded data is illogical and contains incorrect recordings !!



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Social Media Analysis

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وتكنولوجيا المعلومات

"Not all wealth is money, it can be Data."

"While the digital and AI is the dominant on our Earth, social media is the key of communication and content where hearts believe"

Problem Statement

Businesses and marketers generate vast amounts of data across social media platforms, but struggle to extract meaningful insights

The complexity and volume of data, including user engagement, audience behavior, and content performance, make it challenging to optimize strategies and measure success

Without a centralized system to track and analyze key metrics, decision-makers face difficulties in improving engagement and refining social media campaigns

There is a need for an automated solution to analyze and visualize social media data, providing actionable insights through a comprehensive dashboard for better decision-making

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Project Overview

- The primary goal of this project is to analyze social media data to extract valuable insights and create an interactive dashboard that provides key metrics and trends
- By leveraging data from various social media platforms, this project aims to assist businesses, influencers, and marketers in making data-driven decisions to optimize their social media strategies and understand audience behavior

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Objectives

01

Analyze social media data to extract valuable insights on content performance and audience behavior

02

Develop an interactive dashboard that visualizes key performance indicators (KPIs) for easy and real-time data monitoring

03

Enable data-driven decision-making to optimize social media marketing strategies and enhance audience engagement

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وتكنولوجيا المعلومات

Strengths

- Comprehensive data collection from multiple social media platforms
- User-friendly interface for easy navigation and access to insights
- Customizable dashboards tailored to specific metrics

Weaknesses

- Potential for data overload, making actionable insights difficult to extract
- High subscription costs for advanced features
- Limitations on accessing historical data

S W O T

Opportunities

- Growing demand for social media insights in marketing strategies
- Potential to expand features (e.g., AI-driven insights, predictive analytics)

Threats

- Intense competition in the social media analysis tool market
- Increasing privacy regulations limiting data collection capabilities
- User fatigue from the abundance of available tools

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Social Media Marketing Analysis

Business Model Canvas

KEY PARTNERS

- Social media platforms
- Digital marketing company
- Data analytics service providers
- Content creators
- IT Communities

KEY ACTIVITIES

- Collecting and analyzing data from social media platforms
- Developing and maintaining the dashboard
- Marketing the project

KEY RESOURCES

- A team of data enthusiasts
- Partnerships with platforms to provide the necessary data for analysis

VALUE PROPOSITIONS

- Provide accurate analytics and visual data on content performance and audience behavior
- Enable businesses and marketers to make data-driven decisions to optimize social media marketing strategies
- Offer an interactive dashboard for real-time monitoring of key performance indicators

CUSTOMER RELATIONSHIPS

- Ongoing technical support for users
- Provide content on how to handle data

CHANNELS

- Marketing through social media
- Partnerships with marketing agencies
- Website and dedicated applications for the dashboard

CUSTOMER SEGMENTS

- Content creators
- Digital Marketing Companies
- Small and medium-sized businesses.

COST STRUCTURE

- Costs related to technology development and software maintenance
- Marketing expenses
- Employee salaries and operational costs

REVENUE STREAMS

- Monthly or annual subscriptions for dashboard access
- Marginal data analysis consulting services for a fee
- Offering additional premium features for an additional fee

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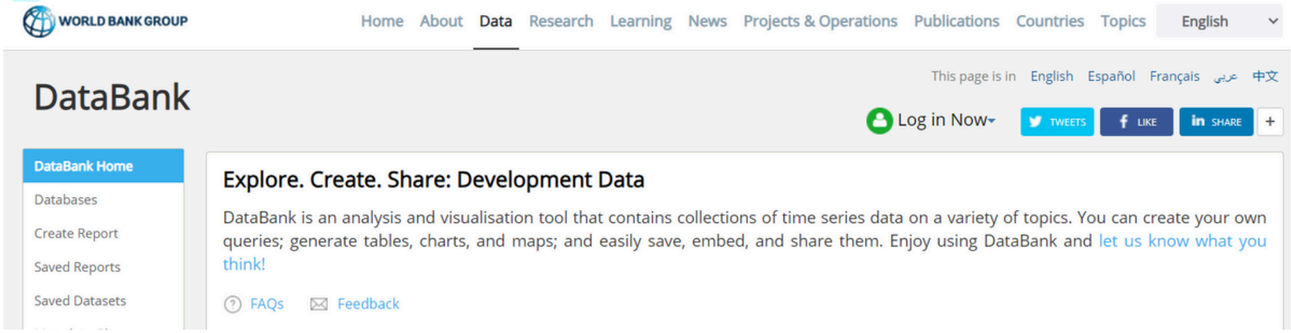
Data Collection

- kaggle

- World bank data



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Exploratory Data Analysis

What are the platforms within the dataset?

```
unique_platform = sentiment_fact['Platform'].nunique()
unique_platform
```

```
5
```

```
platform_counts = sentiment_fact['Platform'].value_counts()
platform_counts
```

```
Platform
Facebook     2014
TikTok       2013
Twitter      2012
Instagram    1986
Snapchat     1975
Name: count, dtype: int64
```

- There are five platforms in the data that we will analyze through, which are TikTok, Facebook, Instagram, Twitter, and Snapchat.

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وتكنولوجيا المعلومات

Exploratory Data Analysis

Are there missing values in the data

```
sentiment_fact.isnull().sum()
```

```
SentimentID          0
PostID               0
UserID               0
DateID               0
SentimentScore       0
SentimentCategory    0
Date                 0
Month                0
Quarter              0
Year                 0
```

- There is no data loss and the data is intact and clean

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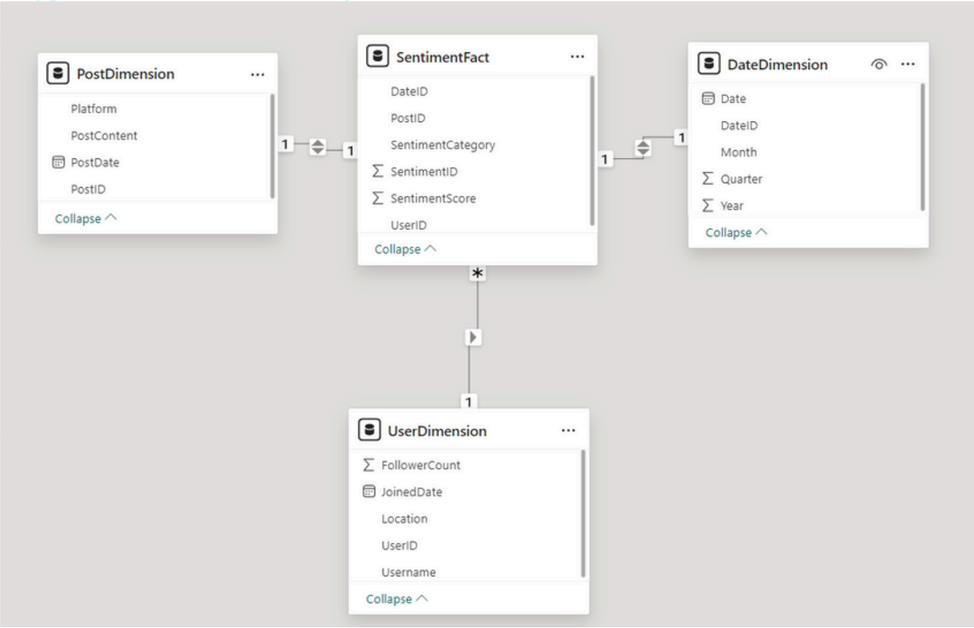
ETL Process



- Star Schema Model
- Extract: Downloading the dataset from Kaggle
- Transform: Cleaning the data using Power Query
- Load the data to visulazation

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وتكنولوجيا المعلومات

Dashboards

Dashboard 1

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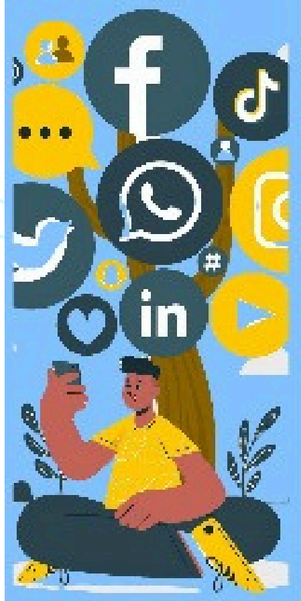
وتكنولوجيا المعلومات

Clear all slicers

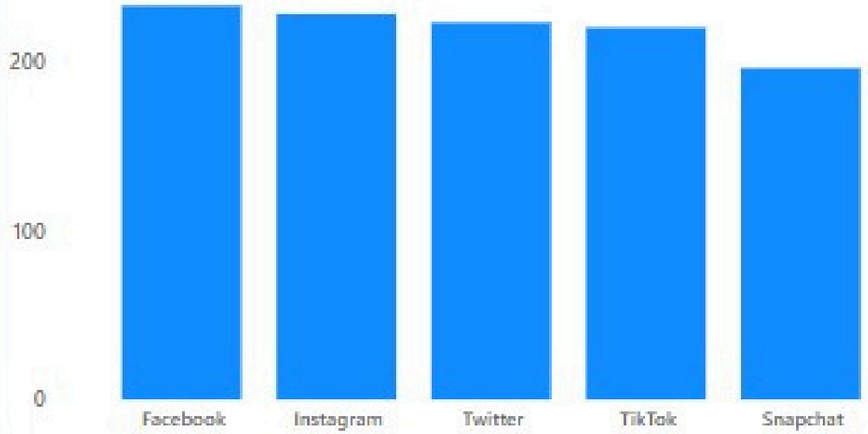
Evaluating Platform Success Based on Post Volume and Content Type

Year
All

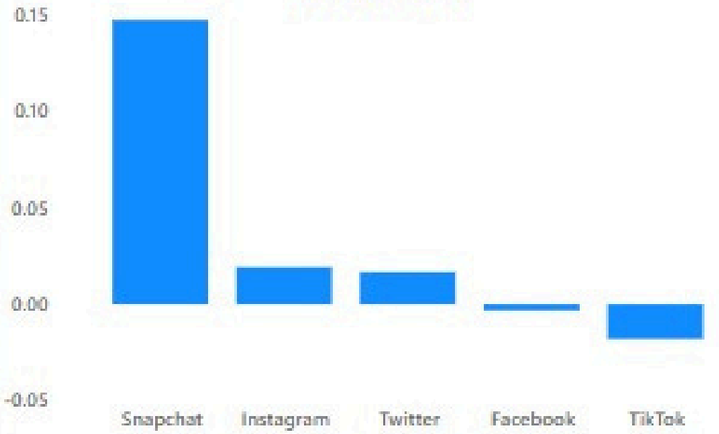
Post Content
Games



Post Volume and Content Type



Sentiment Score Distribution by Year Across Platforms



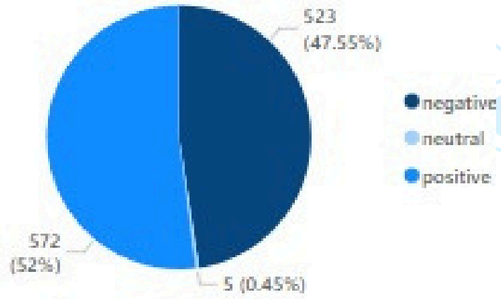
Top Global Content Creators Ranked by Follower Count

1106	19996	Tokyo
1191	9996	Paris
1854	9993	Tokyo
3174	9979	New York
414	9991	New York
4422	9997	New York

Top Global Content Creators Ranked by Sentiment Score

1002	0.78	Tokyo
1004	0.03	New York
101	0.89	Cairo
1020	-0.96	Tokyo
1021	0.51	Paris
1023	-0.22	Tokyo

Overall Sentiment Distribution for Global Content



Dashboard 2

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وزارة الاتصالات وتكنولوجيا المعلومات

Clear all slicers

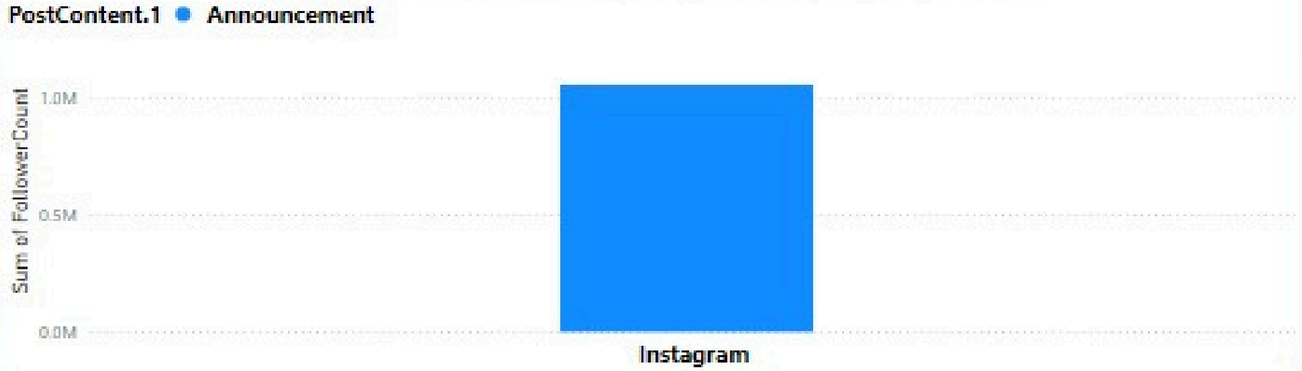
Analysis Platform And Content

Platform
Instagram

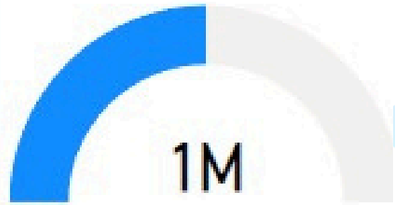
PostConten
Announce...

Content Performance: Positive vs. Negative Sentiment Over Monthes by Platform

Followers By Platform And Content



Followers



Dashboard 3

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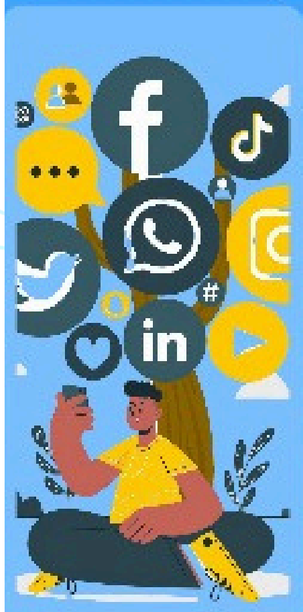
Global Comparative Analysis of Content Quality and Sentiment Across Major Cities

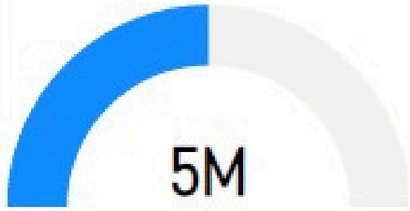
Year
All

Post Content
Course

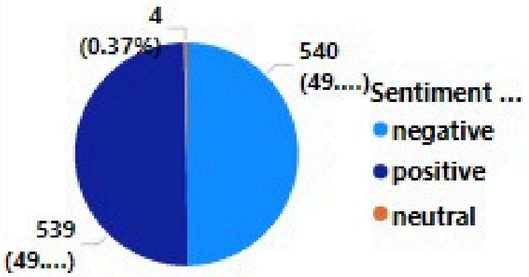


Content Quality Distribution Across Global Cities

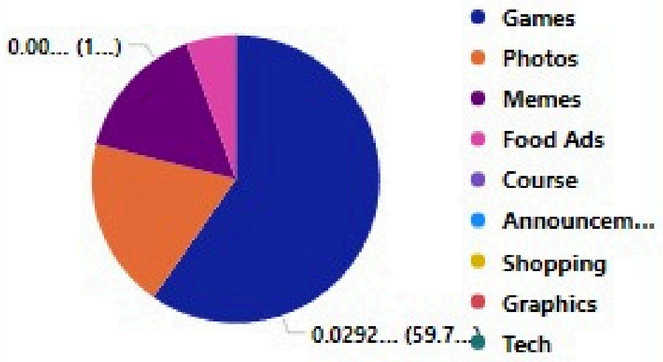
Followers



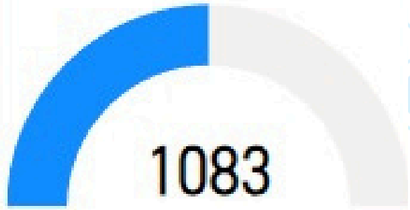
Number Of Feedback Based On Category



SentimentScore For Content all year



Total number Of Feedback



Dashboard 4

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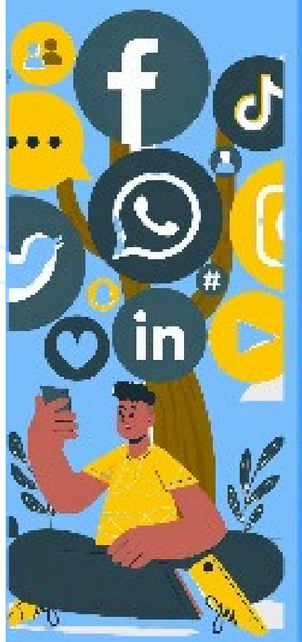
Clear all slicers

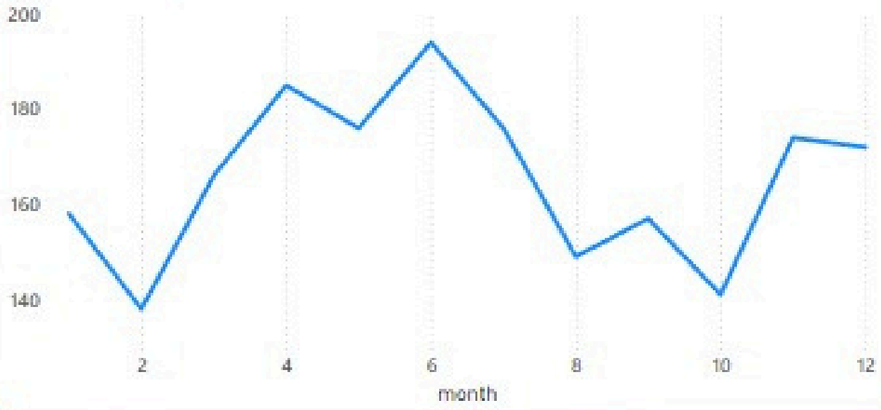
analysis growth rate

Platform

Instagram

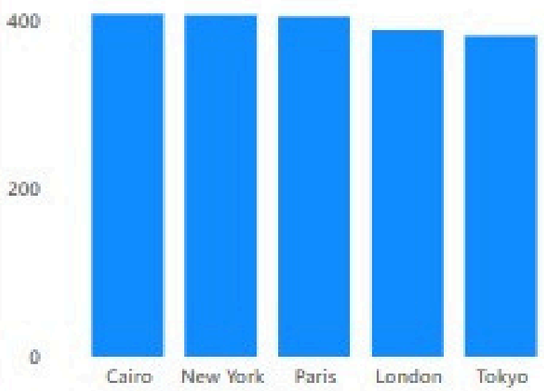


Monthly Posts Volume AAcross Platforms Over Time

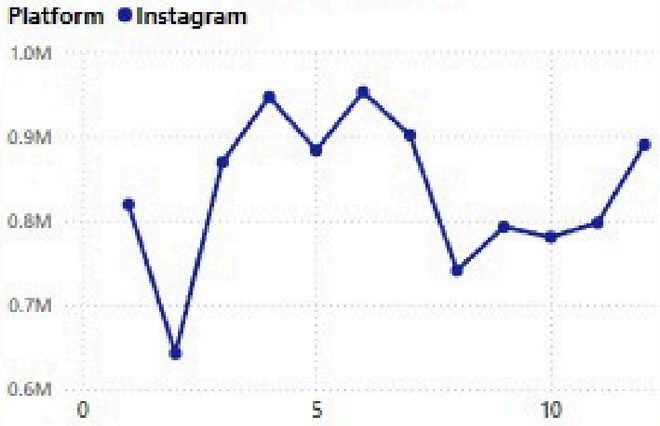


Monthly Sentiment Score Fluctuations

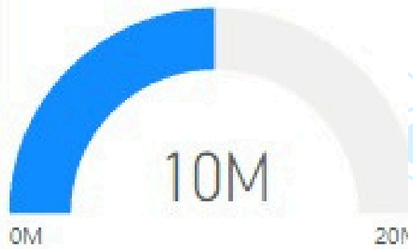
Post Distribution by Country



Follower Growth by Content Type, Month, and Platform



Followers by Platform



Dashboard 5

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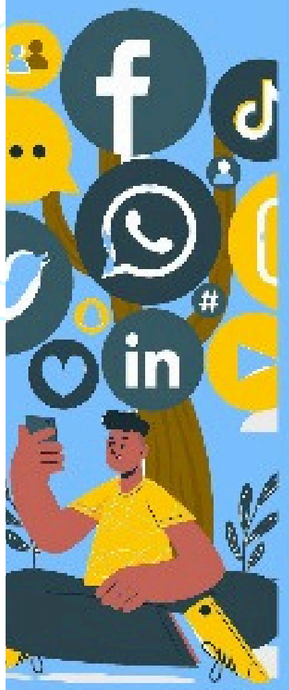
وتكنولوجيا المعلومات

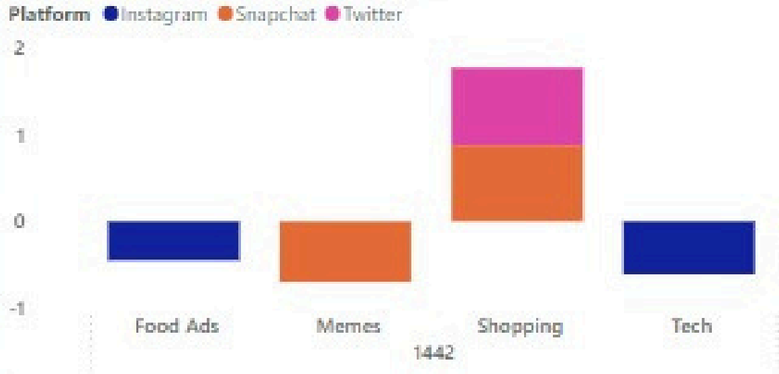
User Sentiment and Content Insights Across Global Platform

User ID
- 1441
- 1442
- 1443



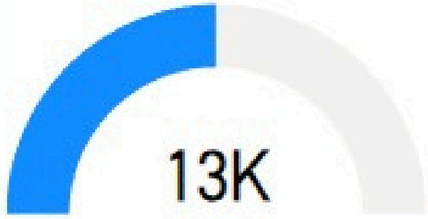
Sentiment Analysis by Content Type

Platform Insights for Specific Content Type and Users

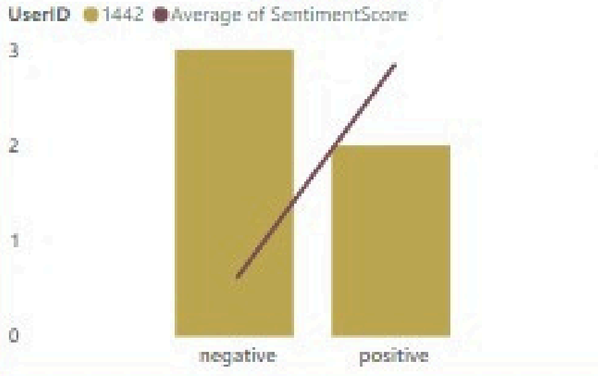


Location

Followers



Correlation Between Sentiment and The Number Of feedback Among Creators



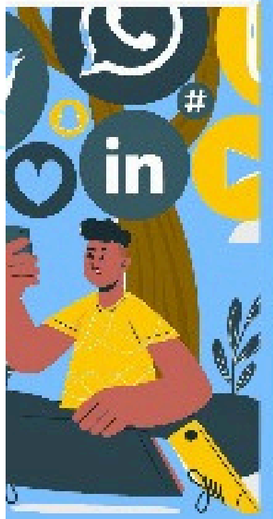
Dashboard 6

Top and Bottom 10 Content Creators Ranked By Performance

Post Content

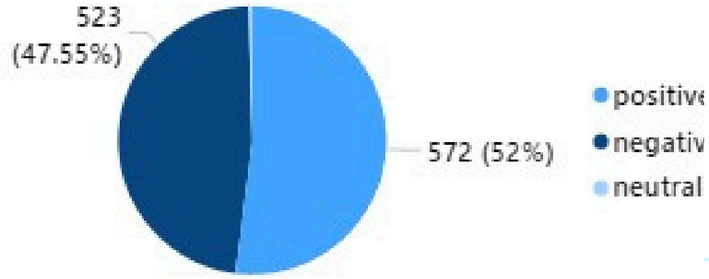
Games

- Announce...
- Course
- Food Ads
- Games
- Graphics



Geographical Distribution of Top-Ranked Content Creators

Sentiment Analysis of Top and Bottom Conten Creators



Top 10 Content Creators by Quality and Content Type

185	0.99	Games
2352	0.99	Games
2388	0.99	Games
245	1.00	Games
2559	0.99	Games
2710	0.99	Games
28	1.00	Games

Bottom 10 Content Creators Ranked by Performance Quality

1763	-0.99	Games
1794	-0.99	Games
2410	-0.97	Games
2965	-0.98	Games
3103	-0.98	Games
3203	-1.00	Games

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وتكنولوجيا المعلومات

insights

- **Best city to target based on your content type:**

1 - Announcement content: Tokyo

2 - Course content: NewYork

3 - Food content: London

4 - Games content: London

5 - Graphics content: Tokyo

6 - Memes content: NewYork

7 - Shopping content: NewYork

8 - Photos content: London

9- Tech content: Paris

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insights

وزارة الاتصالات وتكنولوجيا المعلومات

- **The platforms with the most number of positive feedback(Sentiment Score)**

1 - Announcement content: Facebook

2 - Course content: Facebook

3 - Food content: Instagram

4 - Games content: Snapchat

5 - Graphics content: Twitter

6 - Memes content: Facebook

7 - Shopping content: Facebook

8 - Photos content: Facebook

9- Tech content: TikTok

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insights

وزارة الاتصـــــالات
وتكنولوجيا المعلومات

- **The platforms with the most number Users(Followers)**

1 - Announcement content: Facebook

2 - Course content: Twitter

3 - Food content: Snapchat

4 - Games content: Instagram

5 - Graphics content: TikTok

6 - Memes content: Snapchat

7 - Shopping content: TikTok

8 - Photos content: TikTok

9- Tech content: Instagram

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Recommendations

Recommendations for Campaign Success

- Focus on High-Engagement Platforms : Prioritize **Snapchat** and **TikTok** for campaigns due to their higher positive sentiment scores.
- Focus on High-Engagement Influencers Collaborate with influencers from **Tokyo**, **NewYork**, and **Cairo**, where follower counts and sentiment are strong, to amplify campaign reach and ensure positive audience interaction
- Content creators would benefit from focusing their efforts on posting during the months of **May**, **June**, and **July**. This period aligns with the start of summer vacation, which tends to have a positive impact on public sentiment.

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وتكنولوجيا المعلومات

Future Work

1- Add a date for each time the follower who follow or unfollow a user

2- give us more information about the engagement time for each post to know the beat time to post

3-The learning model helps content creators publish at the right time according to the type of content that achieves the highest reach

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Any Questions?

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Thank You