

INFLUENCER ENGAGEMENT TRACKER

Team 2

OVERVIEW

- INTRODUCTION
- WEEK 1
- WEEK 2
- WEEK 3
- FRONTEND DASHBOARD
- CONCLUSION
- FUTURE SCOPE

INTRODUCTION

The aim is to ensure that the solution aligns with current market needs, provides actionable insights, and solves critical pain points faced by marketing teams. By analyzing credible sources and industry trends, this research ensures that the problem statement reflects a genuine need for innovation in influencer analytics.

Marketing teams face significant challenges in tracking and analyzing influencer performance across multiple social media platforms. The fragmented nature of influencer data on platforms like Instagram, YouTube and Twitter makes it difficult to gain unified insights into engagement metrics, audience demographics, and ROI. This lack of comprehensive tools hinders their ability to optimize campaigns, measure success accurately, and demonstrate business impact effectively.

WEEK 1

M1.1: Problem Statement Validation Research

This activity involves conducting structured research to validate whether the proposed Influencer Engagement Tracker addresses a real and pressing challenge in influencer marketing.

M1.2: Key User & Business Requirement Identification

This activity aims to identify the primary users and outline business requirements for developing an automated Influencer Engagement Tracker. The system leverages social media APIs to analyze influencer performance metrics. The solution provides automated insights and visual dashboards that help stakeholders make data-driven marketing decisions.

WEEK 1

M1.3: Product Backlog

Product Backlog Table				
Item ID	Backlog Item	Type	Priority (P1 / P2 / P3)	Owner
SF-01	Influencer profile management system	System Feature	P1	
SF-02	Campaign tracking and association	System Feature	P1	
SF-03	Social media integration API	System Feature	P1	
SF-04	Authentication system	System Feature	P1	
DQ-01	Engagement metrics by influencer	Data Query	P1	
DQ-02	Audience demographics analysis	Data Query	P2	
DQ-03	Performance comparison across platforms	Data Query	P2	
DQ-04	Hashtag and keyword analysis	Data Query	P3	
BI-01	ROI analysis by influencer type	Business Insight	P1	
BI-02	Engagement pattern recognition	Business Insight	P2	
BI-03	Content effectiveness prediction	Business Insight	P3	
BI-04	Audience growth trajectory analysis	Business Insight	P3	
DV-01	Influencer performance dashboard	Data Visualization	P1	
DV-02	Engagement trends visualization	Data Visualization	P2	
DV-03	Audience reach heat map	Data Visualization	P3	
DO-01	Docker containerization setup	DevOps	P1	
DO-02	CI/CD pipeline implementation	DevOps	P2	
DO-03	Performance monitoring implementation	DevOps	P3	

M1.5:Clarification Log

Date	Question/Clarification Needed	Response/Decision	Status
10-04-2025	Which social media platforms should be integrated in the MVP? Focus on Instagram and YouTube for MVP. Twitter/X and LinkedIn	Open	
10-04-2025	What metrics are most important to track for influencer engagement?	Engagement rate, reach, conversion rate, ROI, and audience growth	Open
10-04-2025	Do we need real-time analytics or is daily/weekly reporting sufficient?	Daily data aggregation is sufficient	Open
10-04-2025	Should the system support multiple user roles (admin, manager, etc.)?	Yes, implement role-based access control with at least 3 permissions	Open
10-04-2025	What authentication method should we implement?	OAuth 2.0 with support for SSO through Google and Microsoft accounts	Open
10-04-2025	Should we prioritize mobile responsiveness or develop a separate mobile app?	Focus on responsive web design first. Native mobile app development	Open
10-04-2025	What is the expected data retention period for historical data?	Store detailed data for 18 months, aggregated data for 5 years.	Open
10-04-2025	What export formats should be supported for reports?	PDF, Excel, and CSV formats are required. API access for data	Open

M1.4: WIREFRAME DESIGN DOCUMENT

Outlier %	Follower Count	SUM	Platform	Post Engagements	Records
TOP 3	1,742	135,400,000	TikTok	2689900	1
	1,683.5	131,100,000	TikTok	1618600	1
	1,095.8	87,900,000	TikTok	1819500	1
AVG					59,069,816.667
BOTTOM 3	-99.9	6,400	TikTok	481800	1
	-99.9	8,200	TikTok	167500	1
	-99.9	4,300	TikTok	223600	1

M1.4: WIREFRAME DESIGN DOCUMENT

Platform	Follower Count	Post Engagements	Engagement Rate (%)
TikTok	7,049,170,100	468,981	13,476.8
-	7,049,170,100	468,981	13,476.8

1 Result

Page 1 of 1 < >

WEEK 2

M2.1: List of Data Sources

We have gathered the following Datasets:

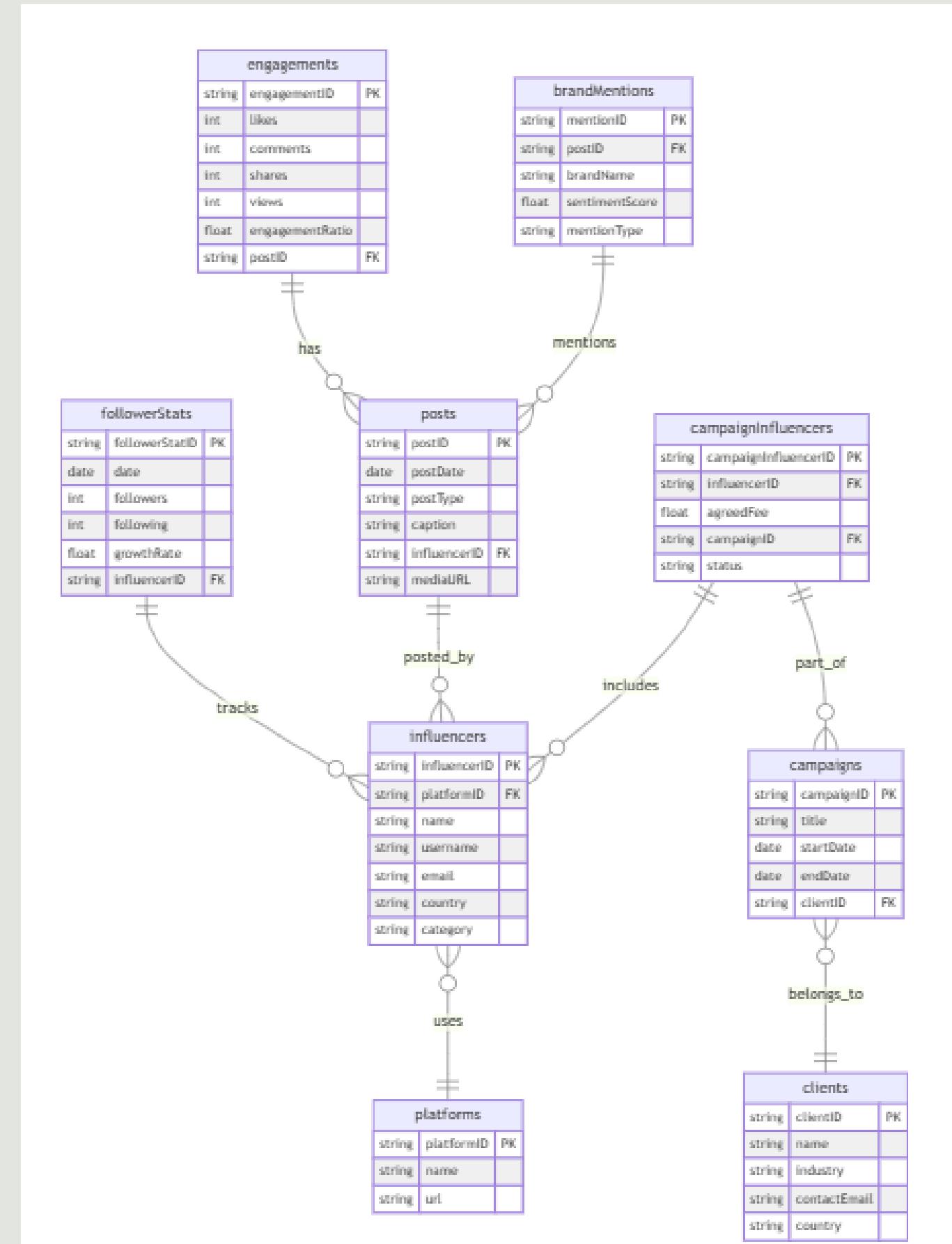
- Instagram Graph API
- Twitter API V2
- Youtube Data API V3
- Twitter Sentiment 140
- Influencer Net Dataset

M2.2: Data Repository

We have gathered the following Datasets:

- Social Blade API
- Hyper Auditor API
- Youtube Trending Dataset
- Youtube Comments Sentiment
- Youtube Data API v3

M2.3 ER DIAGRAM



WEEK 2

M2.4: Data Dictionary

The data dictionary document describes about the schema of the databases and the tables used in the project including Influencers, Platforms, Posts, Engagements, Follower Stats, Clients and Brand Mentions.

M2.5: Database Design

This document describes the table structure of the database with the mentioning of the different columns used in the tables with the constraints associated with it. This also shows an overview of the database and the relations with the tables inside.

WEEK 3

We built a full end-to-end pipeline to analyze and model influencer engagement data across Instagram, YouTube datasets.

We started by:

- a: Checking for missing values and data types
- b: Understanding the distribution of engagement rate
- c: Visualizing top countries and correlations between numeric features

Why it matters: Helps identify patterns like which countries dominate, or which metrics (like followers or post count) influence engagement.

2. Data Preprocessing

- a: Dropped irrelevant text columns (like profile links, IDs)
- b: Encoded categorical features like Country and Post Category
- c: Created a new target column: Engagement_Level (Low, Medium, High)
- d: Scaled features to prepare for machine learning

Why it matters: Preprocessing makes the data ML-friendly. Binning engagement into categories helps marketers act on insights more easily than interpreting floating-point rates.

WEEK 3

3. Machine Learning Models

- a: Random Forest Classifier
- b: Logistic Regression

On the classification task: predicting whether an influencer's engagement is Low, Medium, or High.

Why it matters: This helps marketing teams:

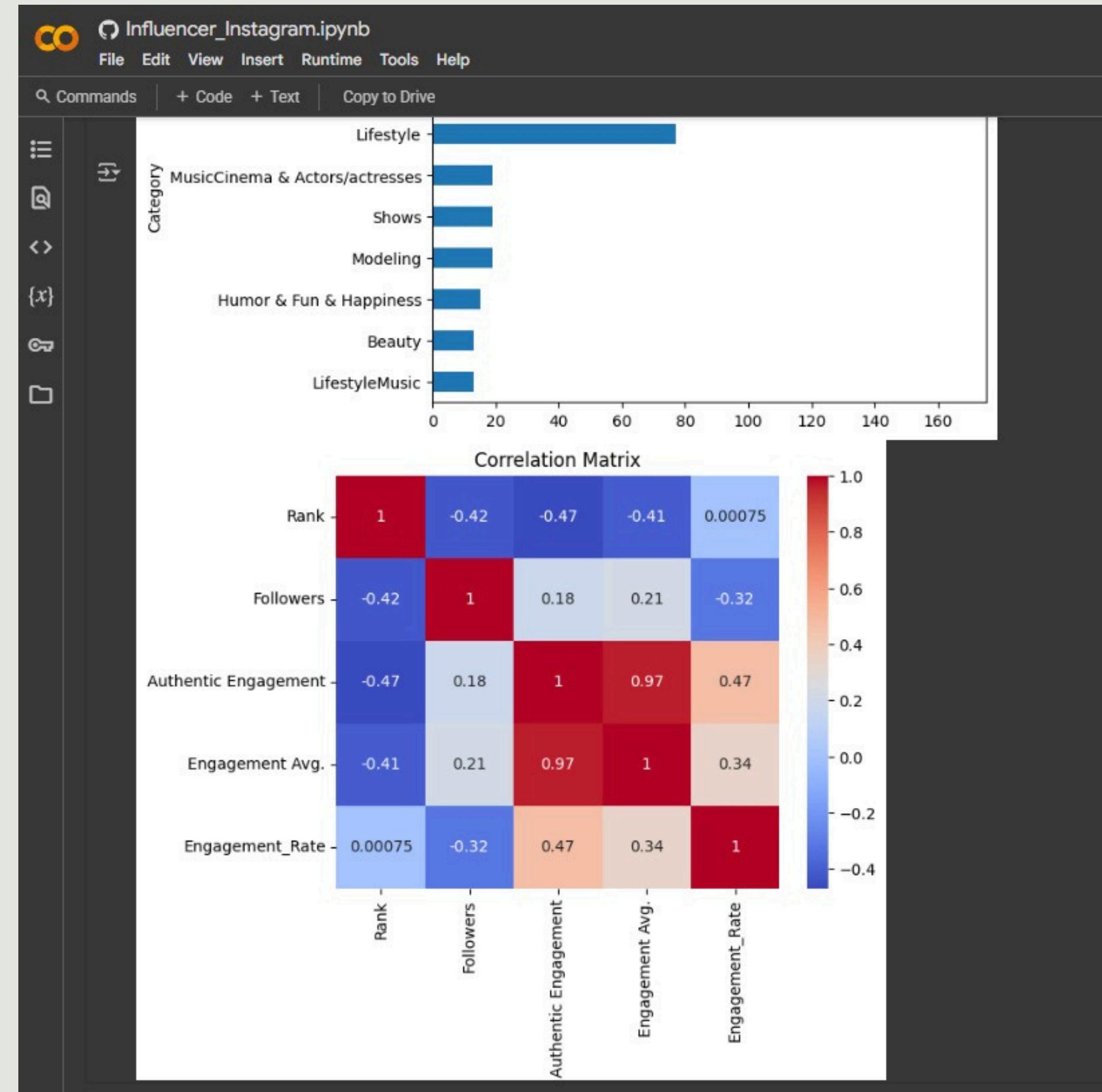
- a: Score influencers automatically
- b: Select high-engagement influencers for partnerships
- c: Compare platforms (e.g., is YouTube or Instagram better for your brand?)

4. Evaluation

- a: Accuracy
- b: Classification Report (Precision, Recall, F1)
- c: Confusion Matrix heatmap

Why it matters: Ensures the model is reliable in differentiating between engagement levels, especially avoiding false "High" predictions which could cost brands money.

CORR. MATRIX



ACCURACY METRICS

Influencer_Instagram.ipynb

File Edit View Insert Runtime Tools Help

Commands + Code + Text Copy to Drive

```
[ ] # 2. Logistic Regression
clf_lr = LogisticRegression(max_iter=1000)
clf_lr.fit(X_train, y_train)
y_pred_lr = clf_lr.predict(X_test)

{x} ⏪ print("Random Forest Accuracy:", accuracy_score(y_test, y_pred_rf))
print("Logistic Regression Accuracy:", accuracy_score(y_test, y_pred_lr))

print("\nRandom Forest Report:\n", classification_report(y_test, y_pred_rf))
print("\nLogistic Regression Report:\n", classification_report(y_test, y_pred_lr))

Random Forest Accuracy: 0.8846153846153846
Logistic Regression Accuracy: 1.0

Random Forest Report:
precision    recall   f1-score   support
High        0.95     0.95     0.95      20
Low         1.00     0.80     0.89       5
Medium      0.00     0.00     0.00       1
accuracy          0.88      26
macro avg      0.65     0.58     0.61      26
weighted avg   0.92     0.88     0.90      26

Logistic Regression Report:
precision    recall   f1-score   support
High        1.00     1.00     1.00      20
Low         1.00     1.00     1.00       5
Medium      1.00     1.00     1.00       1
accuracy          1.00      26
macro avg      1.00     1.00     1.00      26
weighted avg   1.00     1.00     1.00      26
```

FRONTEND DASHBOARD

LANDING PAGE

The screenshot displays the landing page of the SocialPulse frontend dashboard. The header features a large, bold title "FRONTEND DASHBOARD" at the top center, followed by a subtitle "LANDING PAGE". Below the subtitle is a dark navigation bar with links for "SocialPulse", "Features", "Testimonials", "Login", and "Sign Up". The main content area has a dark background with white and light blue text. It includes a large call-to-action button labeled "Start For Free →". To the right, there are two overlapping cards: a blue one labeled "Dashboard Analytics" and a red one labeled "Campaign Metrics". A success message "Successfully logged out" is visible in the bottom right corner.

SocialPulse

Features Testimonials

Login Sign Up

Start For Free →

Measure, Analyze,
Scale Your
Influencer
Marketing

Track engagement, measure ROI, and optimize your influencer campaigns across Instagram, Twitter, and YouTube.

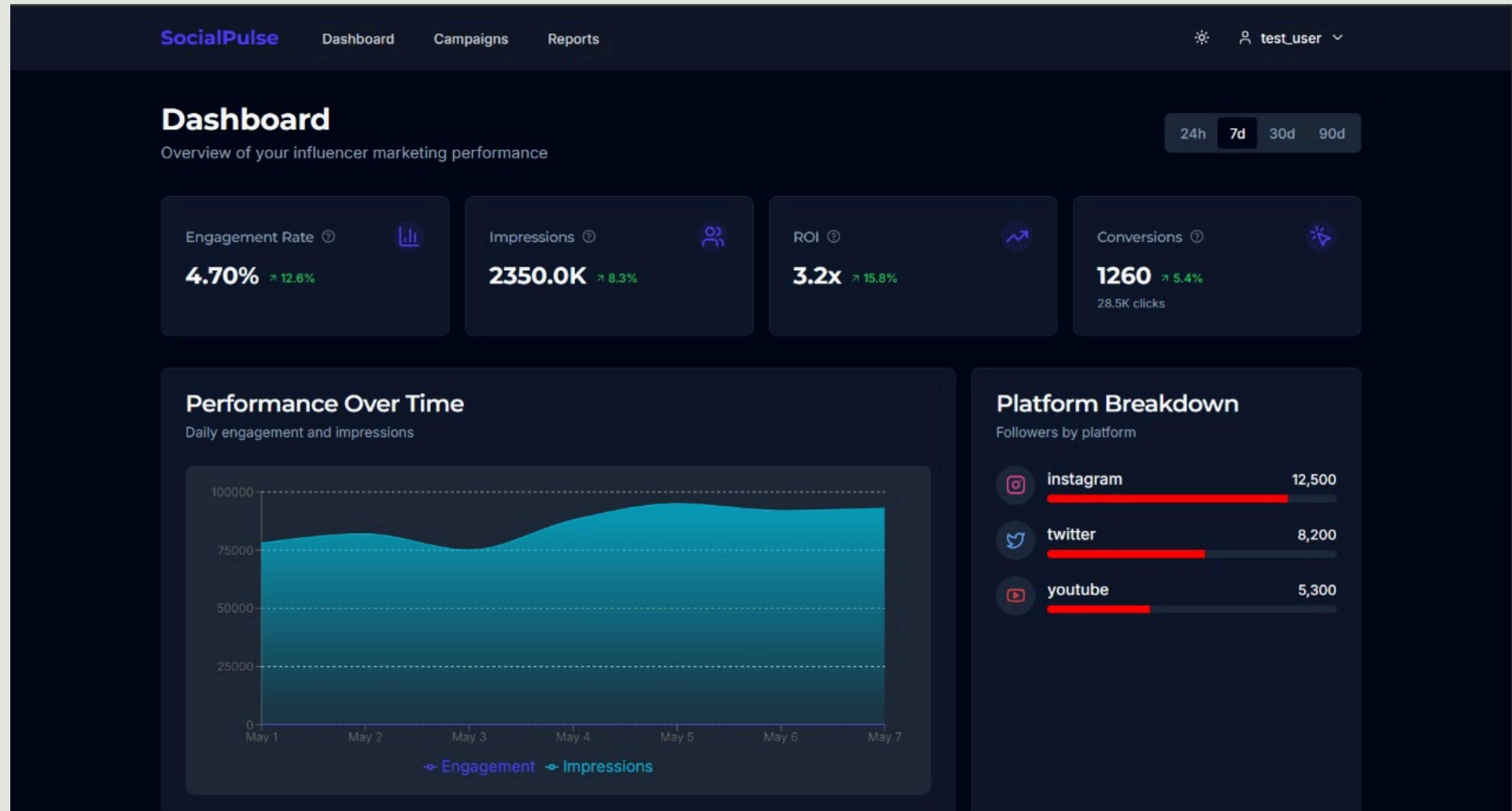
Dashboard Analytics

Campaign Metrics

Successfully logged out

FRONTEND DASHBOARD

DASHBOARD PAGE



FRONTEND DASHBOARD

CAMPAIGNS PAGE

The screenshot shows the 'Campaigns' page of the SocialPulse dashboard. At the top, there's a navigation bar with 'SocialPulse' logo, 'Dashboard', 'Campaigns', 'Reports', a user icon for 'test_user', and a 'Create Campaign' button. Below the navigation is a search bar and a 'Filters' button. The main area displays six campaign cards in a 2x3 grid:

- Summer Collection Launch**: 5/15/2023 - 6/15/2023. Includes Instagram and Twitter icons. Metrics: Budget \$15,000, Influencers 8, Engagement 25,600, Impressions 450,000.
- Product Review Series**: 4/10/2023 - 5/10/2023. Includes YouTube icon. Metrics: Budget \$12,000, Influencers 5, Engagement 18,700, Impressions 380,000.
- Back to School**: 7/1/2023 - Ongoing. Includes Instagram, Twitter, and YouTube icons. Metrics: Budget \$20,000, Influencers 12, Engagement 0, Impressions 0.
- Holiday Special**: 11/15/2023 - 12/25/2023. Includes Instagram and YouTube icons. Metrics: Budget \$25,000, Influencers 15, Engagement 0, Impressions 0.
- Brand Awareness**: 3/1/2023 - 4/30/2023. Includes Twitter and YouTube icons. Metrics: Budget \$18,000, Influencers 10, Engagement 31,200, Impressions 520,000.
- New Product Launch**: 5/20/2023 - 6/20/2023. Includes Instagram and YouTube icons. Metrics: Budget \$22,000, Influencers 12, Engagement 19,800, Impressions 410,000.

CONCLUSION

The research highlights several critical gaps in current influencer analytics tools:

- Most existing solutions fail to provide unified cross-platform analytics.
- Real-time tracking capabilities are limited in many tools, leaving marketers unable to respond dynamically during campaigns.
- Fraud detection features (e.g., identifying fake followers or bots) are increasingly important but underrepresented in mainstream solutions.
- There is growing demand for predictive analytics powered by AI to forecast campaign outcomes based on historical data.

Additionally, incorporating automated reporting capabilities with shareable dashboards would enhance usability for stakeholders.

FUTURE SCOPE

- Dynamic responsiveness
- Subscription based models
- Real time data fetching and updating the dashboard
- Deploying in Cloud architecture
- Integrating CI/CD pipelines

Thank You