

MARKETFLASH

DATABASE DESIGN AND DASHBOARD

Presented by: Elisabeth Hadzic

OVERVIEW

This project involved building a relational database and an interactive dashboard to help MarketFlash track business performance and make data-driven decisions quickly.

01

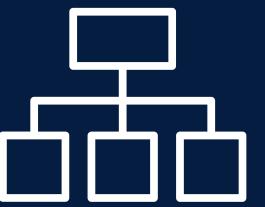
ERD Diagram and
Functional Design

02

The Database

03

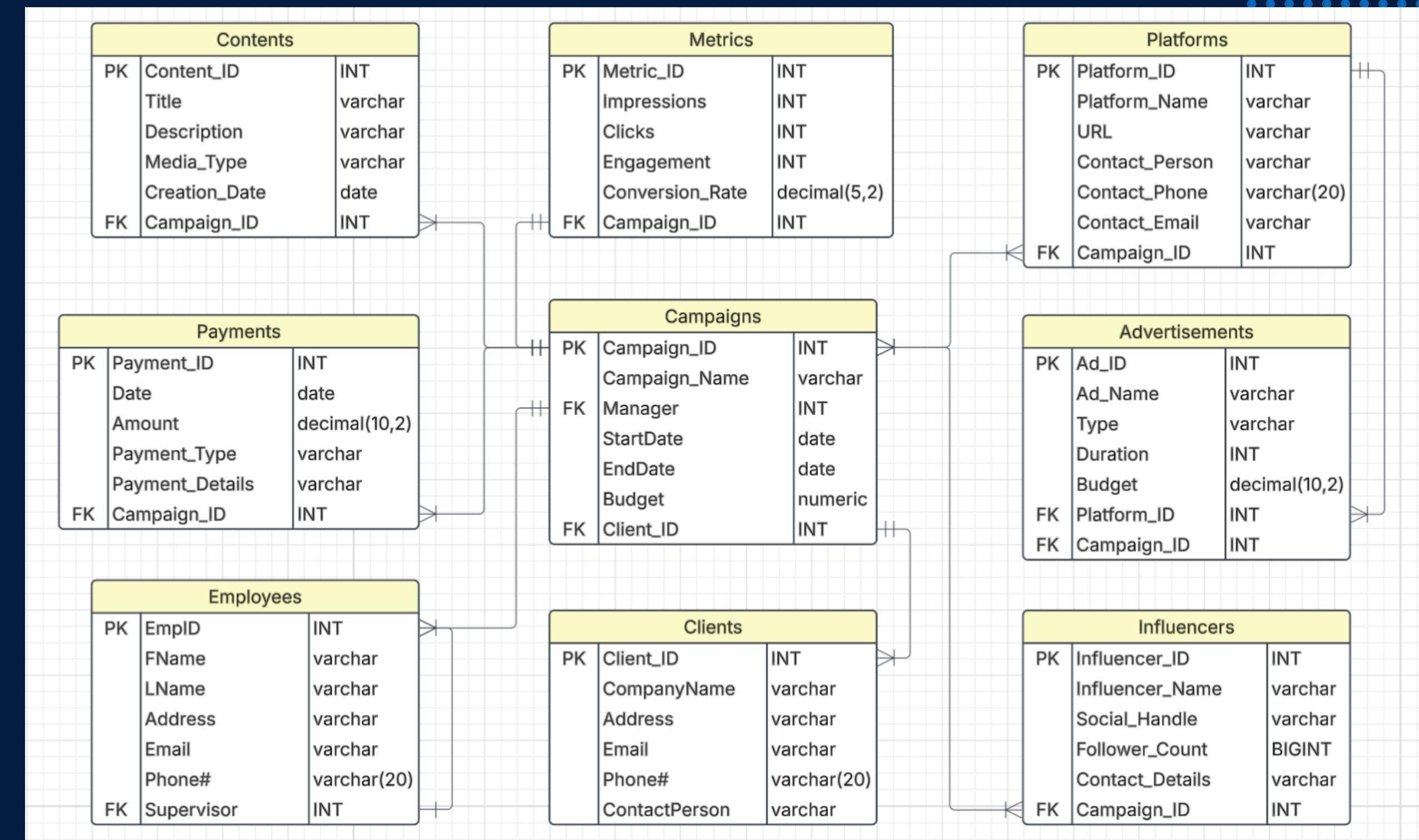
The Dashboard



THE DIAGRAM AND DESIGN

THE ERD DIAGRAM

- Core entities such as Campaigns, Clients, and Metrics
- Relationships between them are designed to reflect real-world business interactions, like which clients used which content , and what metrics were reached in a campaign.



THE FUNCTIONAL DESIGN

- Entities chosen based on MarketFlash operations
- Redundancy was minimized using normalization.
 - *Employee details are stored once in the Employees table and referenced via foreign keys.*

Campaigns			Platforms			Influencers		
Campaign_ID	INT	Primary Key	Platform_ID	INT	Primary Key	Influencer_ID	INT	Primary Key
Campaign_Name	varchar		Platform_Name	varchar		Influencer_Name	varchar	
Manager_ID	INT	FK to Employees.Emp_ID	URL	varchar		Social_Handle	carchar	
StartDate	date		Contact_Person	varchar		Follower_Count	BIGINT	
EndDate	date		Contact_Phone	varchar		Email	varchar	
Budget	decimal(10,2)		Contact_Email	varchar		Phone	varchar	
Client_ID	INT	FK to Clients.Client_ID	Campaign_ID	INT	FK to Campaigns.Campaign_ID	Campaign_ID	INT	FK to Campaigns.Campaign_ID
Employees			Advertisements			Metrics		
Emp_ID	INT	Primary Key	Ad_ID	INT	Primary Key	Metric_ID	INT	Primary Key
First_Name	varchar		Ad_Name	varchar		Impressions	INT	
Last_Name	varchar		Type	varchar		Clicks	INT	
Address	varchar		Duration	INT		Engagement	INT	
Email	varchar		Budget	decimal(10,2)		Conversion_Rate	decimal(5,2)	
Phone	varchar		Platform_ID	INT	FK to Platforms.Platform_ID	Campaign_ID	INT	FK to Campaigns.Campaign_ID
Supervisor	INT	FK to Emp_ID (self-referencing)	Campaign_ID	INT	FK to Campaigns.Campaign_ID			
Payments			Clients			Contents		
Payment_ID	INT	Primary key	Client_ID	INT	Primary Key	Content_ID	INT	Primary Key
Date	date		CompanyName	varchar		Title	varchar	
Amount	decimal(10,2)		Address	varchar		Description	varchar	
Payment_Type	varchar		Email	varchar		Media_Type	varchar	
Campaign_ID	INT	FK to Campaigns.Campaign_ID	Phone	varchar		Creation_Date	varchar	
			ContactPerson	varchar		Campaign_ID	INT	FK to Campaigns.Campaign_ID



THE DATABASE

Schema and Testing

Coding the Database

- Schema enforces referential integrity.
- Data types and keys
- Foreign keys link Influencers to Campaigns and Advertisements to Platforms.
- Input my own data for testing

```
+ + + + +  
+ + + + +  
60  
61 INSERT INTO Payments (Payment_ID, Date, Amount, Payment_Type, Campaign_ID)  
62 VALUES  
63 (0001, '2025-01-01', 45000, 'Credit', 0005),  
64 (0002, '2025-03-05', 17300, 'Cash', 0003),  
65 (0003, '2024-09-01', 30000, 'Credit', 0006),  
66 (0004, '2024-03-15', 11500, 'Check', 0002),  
67 (0005, '2024-02-01', 19000, 'Check', 0001),  
68 (0006, '2024-07-03', 31250, 'Credit', 0004);  
69  
70
```

```
CREATE TABLE Platforms (  
    Platform_ID INT PRIMARY KEY,  
    Platform_Name VARCHAR(255),  
    URL VARCHAR(255),  
    Contact_Person VARCHAR(255),  
    Contact_Phone VARCHAR(20),  
    Contact_Email VARCHAR(255),  
    Campaign_ID INT,  
    FOREIGN KEY (Campaign_ID) REFERENCES Campaigns(Campaign_ID)  
);
```

```
CREATE TABLE Advertisements (  
    Ad_ID INT PRIMARY KEY,  
    Ad_Name VARCHAR(255),  
    Type VARCHAR(255),  
    Duration INT,  
    Budget DECIMAL(10,2),  
    Platform_ID INT,  
    Campaign_ID INT,  
    FOREIGN KEY (Platform_ID) REFERENCES Platforms(Platform_ID),  
    FOREIGN KEY (Campaign_ID) REFERENCES Campaigns(Campaign_ID)  
);
```

```
CREATE TABLE Influencers (  
    Influencer_ID INT PRIMARY KEY,  
    Influencer_Name VARCHAR(255),  
    Social_Handle VARCHAR(255),  
    Follower_Count BIGINT,  
    Email VARCHAR(255),  
    Phone VARCHAR(20),  
    Campaign_ID INT,  
    FOREIGN KEY (Campaign_ID) REFERENCES Campaigns(Campaign_ID)  
);
```

Testing the Database

- This query displays the Ads associated with each Campaign and Company

```
SELECT Ad_Name, c.Campaign_ID, Campaign_Name, CompanyName
FROM Campaigns c
LEFT JOIN Advertisements a
  ON c.Campaign_ID = a.Campaign_ID
LEFT JOIN Clients cl
  ON c.Client_ID = cl.Client_ID;
```

Ad_Name	Campaign_ID	Campaign_Name	CompanyName
New Flavors	1	Coke Zero Sugar	Coca Cola
Your New Bestie	2	Petco Pets	Petco
Discounts	3	Weekly Circular	ShopRite
Product Launch	4	iPhone 16 Launch	Apple
Listen Like A Pro	5	Airpods Max Launch	Apple
Friends Forever	6	Sharing Memories	Instagram

- This query displays the highest performing platform (conversion rate) and metrics for each platform

```
9 SELECT Platform_ID,
10    Platform_Name,
11    Impressions,
12    Clicks,
13    Conversion_Rate
14 FROM Campaigns c
15 LEFT JOIN Platforms p
16   ON c.Campaign_ID = p.Campaign_ID
17 LEFT JOIN Metrics m
18   ON m.Campaign_ID = c.Campaign_ID
19 GROUP BY Platform_ID
20 ORDER BY m.Conversion_Rate DESC;
```

Platform_ID	Platform_Name	Impressions	Clicks	Conversion_Rate
1	Email	298234111	267990078	63.55
4	Facebook	564230887	423564333	59.05
3	Youtube	1200000000	876455321	55.52
5	TikTok	860000000	500000000	41.86
2	Instagram	980375	406523	24.84
6	Snapchat	998965400	349877022	23.36

Testing the Database

- This query displays calculates the Cost per Click for each campaign
- This query displays how many campaigns each Employee manages

```
55 SELECT c.Campaign_ID,  
56      (m.Clicks/p.Amount) AS cost_per_click  
57 FROM Campaigns c  
58 LEFT JOIN Payments p  
59 ON p.Campaign_ID = c.Campaign_ID  
60 LEFT JOIN Metrics m  
61 ON m.Campaign_ID=c.Campaign_ID;
```

Campaign_ID	cost_per_click
1	26315
2	35
3	15490
4	28046
5	7775
6	14118

```
32 SELECT Emp_ID, First_Name, Last_Name, COUNT(*) AS total_campaigns  
33 FROM Campaigns c  
34 LEFT JOIN Employees e  
35 ON e.Supervisor = c.Manager_ID  
36 GROUP BY Emp_ID;
```

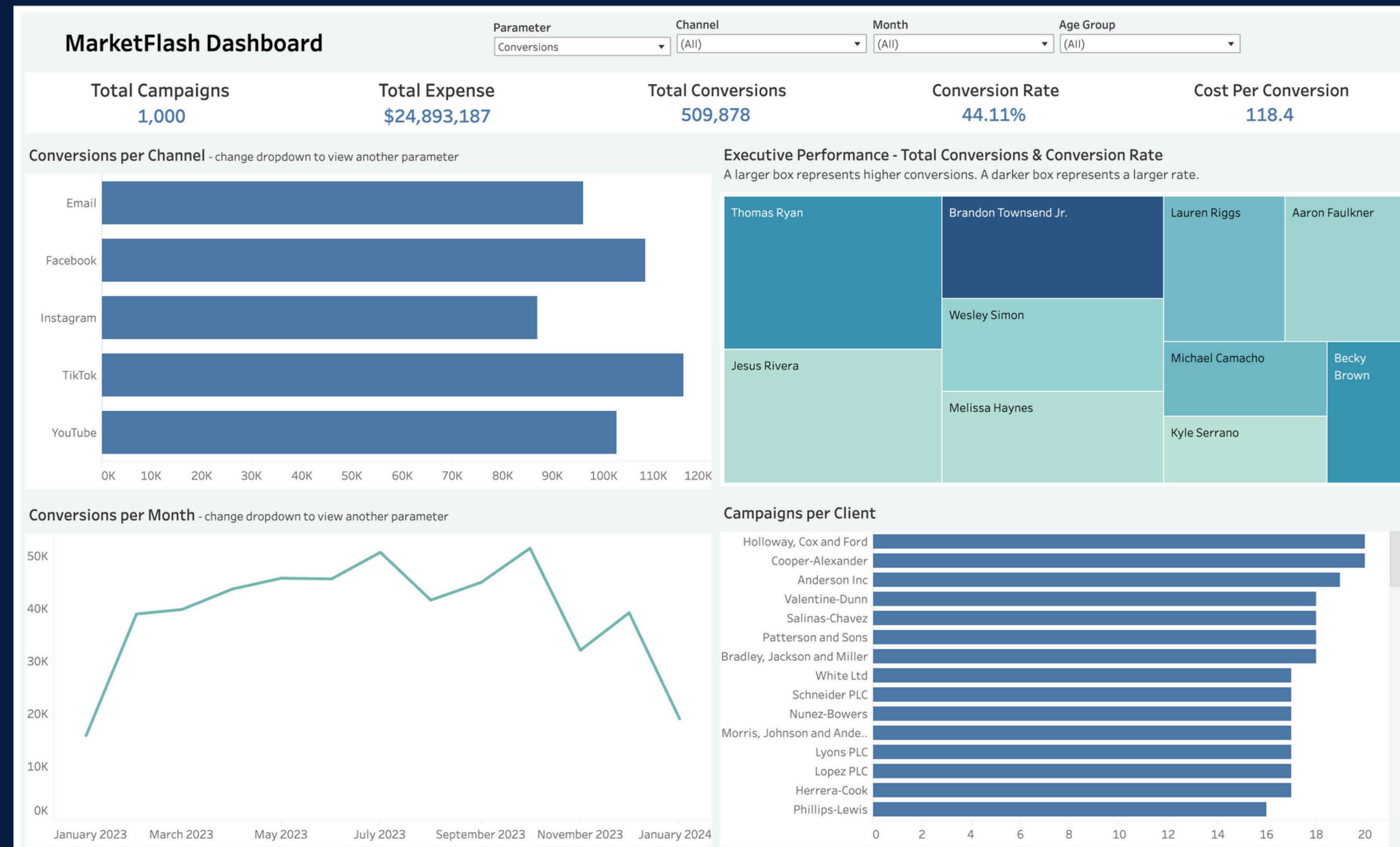
Emp_ID	First_Name	Last_Name	total_campaigns
1	Sara	Smith	1
2	John	Doe	1
3	Samira	Okifi	1
4	Alexandra	Clements	1
5	Kiren	Nadanam	2



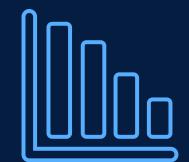
THE DASHBOARD

And Key Findings

The dashboard displays key metrics, parameters for channels and time, executive performance, and popular clients.



January Lows



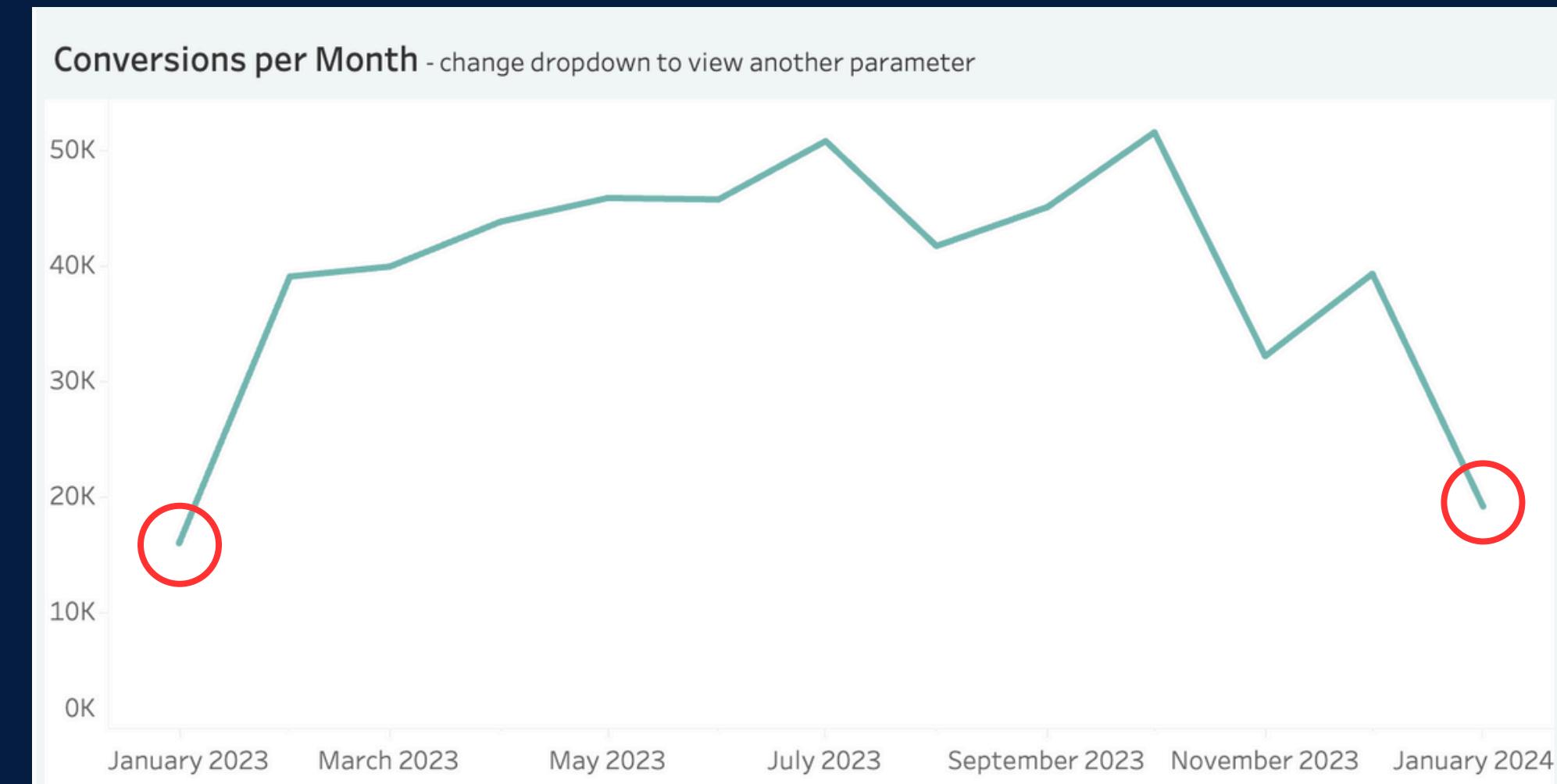
- The parameters (Conversions, Clicks, Likes, and Views) are at its lowest in January
- Decline in winter months

Jan 2023 - 15,938

Jan 2024 - 19,120

Oct 2023 - 51,543

- Recommend winter-focused campaigns and promotions to help clients boost engagement and conversions during post-holiday downturns



BENEFITS

WITH THIS
SYSTEM
MARKETFLASH
CAN...

- Better track campaign success, expenses, and key metrics
- Store data in an organized and easily accessible way
- Make quicker and accurate business insights

RECOMMENDATIONS

Implement scheduled reports and refining campaigns based on dashboard insights.



THANK YOU

Questions?