**Advertising Channel SQL Queries**

## Top 5 Google Ads spenders

-- Step 1: Top 5 Google Ads spenders  
SELECT \*   
FROM Advertising\_Data  
ORDER BY Google\_Ads DESC  
LIMIT 5;

## Average calculations

-- Step 2: Average spend and sales calculations  
SELECT  
 AVG(TV) AS avg\_tv,  
 AVG(Billboards) AS avg\_billboards,  
 AVG(Google\_Ads) AS avg\_google,  
 AVG(Social\_Media) AS avg\_social,  
 AVG(Influencer\_Marketing) AS avg\_influencer,  
 AVG(Affiliate\_Marketing) AS avg\_affiliate,  
 AVG(Product\_Sold) AS avg\_sales  
FROM Advertising\_Data;

## Covariance and standard deviation

-- Step 3: Covariance and Standard Deviations for TV and Product\_Sold  
SELECT  
 AVG(TV \* Product\_Sold) - AVG(TV) \* AVG(Product\_Sold) AS covariance,  
 SQRT(AVG(TV \* TV) - AVG(TV) \* AVG(TV)) AS stddev\_tv,  
 SQRT(AVG(Product\_Sold \* Product\_Sold) - AVG(Product\_Sold) \* AVG(Product\_Sold)) AS stddev\_product\_sold  
FROM Advertising\_Data;

## Pearson correlation (single)

-- Step 4: Pearson Correlation between TV and Product\_Sold  
SELECT  
 (AVG(TV \* Product\_Sold) - AVG(TV) \* AVG(Product\_Sold)) /  
 (SQRT(  
 (AVG(TV \* TV) - AVG(TV) \* AVG(TV)) \*  
 (AVG(Product\_Sold \* Product\_Sold) - AVG(Product\_Sold) \* AVG(Product\_Sold))  
 )) AS correlation\_tv\_product\_sold  
FROM Advertising\_Data;

## Full correlation matrix

-- Step 5: Correlation of all channels with Product\_Sold  
SELECT  
 -- TV  
 (AVG(TV \* Product\_Sold) - AVG(TV) \* AVG(Product\_Sold)) /  
 (SQRT((AVG(TV \* TV) - AVG(TV) \* AVG(TV)) \*  
 (AVG(Product\_Sold \* Product\_Sold) - AVG(Product\_Sold) \* AVG(Product\_Sold)))) AS corr\_tv,  
  
 -- Google Ads  
 (AVG(Google\_Ads \* Product\_Sold) - AVG(Google\_Ads) \* AVG(Product\_Sold)) /  
 (SQRT((AVG(Google\_Ads \* Google\_Ads) - AVG(Google\_Ads) \* AVG(Google\_Ads)) \*  
 (AVG(Product\_Sold \* Product\_Sold) - AVG(Product\_Sold) \* AVG(Product\_Sold)))) AS corr\_google,  
  
 -- Social Media  
 (AVG(Social\_Media \* Product\_Sold) - AVG(Social\_Media) \* AVG(Product\_Sold)) /  
 (SQRT((AVG(Social\_Media \* Social\_Media) - AVG(Social\_Media) \* AVG(Social\_Media)) \*  
 (AVG(Product\_Sold \* Product\_Sold) - AVG(Product\_Sold) \* AVG(Product\_Sold)))) AS corr\_social,  
  
 -- Influencer Marketing  
 (AVG(Influencer\_Marketing \* Product\_Sold) - AVG(Influencer\_Marketing) \* AVG(Product\_Sold)) /  
 (SQRT((AVG(Influencer\_Marketing \* Influencer\_Marketing) - AVG(Influencer\_Marketing) \* AVG(Influencer\_Marketing)) \*  
 (AVG(Product\_Sold \* Product\_Sold) - AVG(Product\_Sold) \* AVG(Product\_Sold)))) AS corr\_influencer,  
  
 -- Affiliate Marketing  
 (AVG(Affiliate\_Marketing \* Product\_Sold) - AVG(Affiliate\_Marketing) \* AVG(Product\_Sold)) /  
 (SQRT((AVG(Affiliate\_Marketing \* Affiliate\_Marketing) - AVG(Affiliate\_Marketing) \* AVG(Affiliate\_Marketing)) \*  
 (AVG(Product\_Sold \* Product\_Sold) - AVG(Product\_Sold) \* AVG(Product\_Sold)))) AS corr\_affiliate  
FROM Advertising\_Data;

## Grouping by TV spend

-- SELECT

categorized\_data.TV\_Spend\_Level,

COUNT(\*) AS records,

ROUND(AVG(Product\_Sold), 2) AS avg\_sales

FROM (

SELECT

Product\_Sold,

CASE

WHEN TV < 1000 THEN 'Low'

WHEN TV BETWEEN 1000 AND 3000 THEN 'Medium'

ELSE 'High'

END AS TV\_Spend\_Level

FROM Advertising\_Data

) AS categorized\_data

GROUP BY categorized\_data.TV\_Spend\_Level;