Marketing Analytics Business Case Project

Introduction to Business Problem

- ShopEasy, an online retail business, is facing reduced customer engagement and conversion rates despite launching several new online marketing campaigns. They are reaching out to you to help conduct a detailed analysis and identify areas for improvement in their marketing strategies.

- **Key Points:**
  - **Reduced Customer Engagement:** The number of customer interactions and engagement with the site and marketing content has declined.
  - **Decreased Conversion Rates:** Fewer site visitors are converting into paying customers.
  - **High Marketing Expenses:** Significant investments in marketing campaigns are not yielding expected returns.
  - **Need for Customer Feedback Analysis:** Understanding customer opinions about products and services is crucial for improving engagement and conversions.

Key Performance Indicators (KPIs)

- **Conversion Rate:** Percentage of website visitors who make a purchase.
- **Customer Engagement Rate:** Level of interaction with marketing content (clicks, likes, comments).
- **Average Order Value (AOV):** Average amount spent by a customer per transaction.
- **Customer Feedback Score:** Average rating from customer reviews.

Goals

- **Increase Conversion Rates:**
  - **Goal:** Identify factors impacting the conversion rate and provide recommendations to improve it.
  - **Insight:** Highlight key stages where visitors drop off and suggest improvements to optimize the conversion funnel.
- **Enhance Customer Engagement:**
  - **Goal:** Determine which types of content drive the highest engagement.
  - **Insight:** Analyze interaction levels with different types of marketing content to inform better content strategies.
- **Improve Customer Feedback Scores:**
  - **Goal:** Understand common themes in customer reviews and provide actionable insights.
  - **Insight:** Identify recurring positive and negative feedback to guide product and service improvements.

Project Workflow

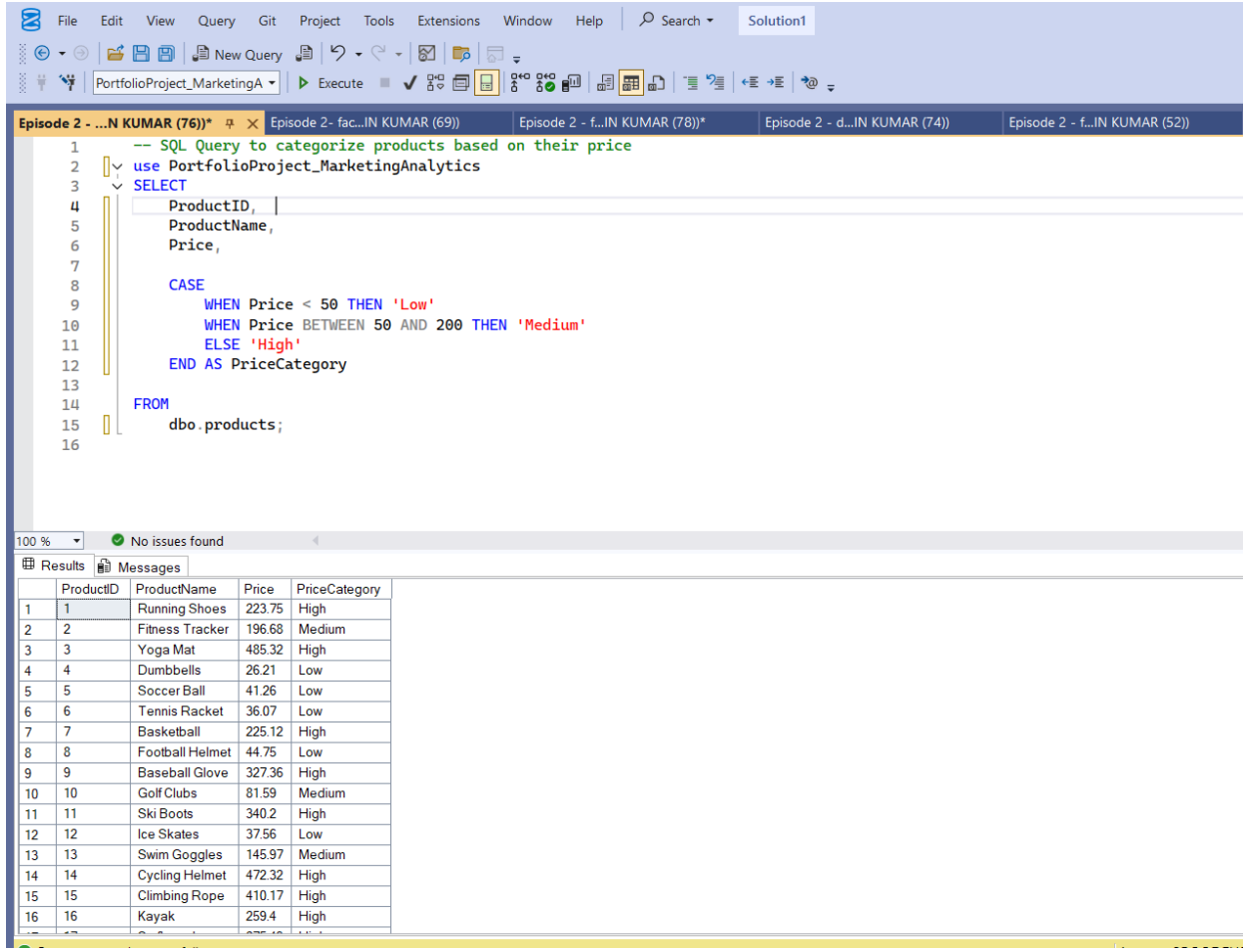
Database Overview

Started with a provided database containing the following tables:

- [dbo].[customer_journey]
- [dbo].[customer_reviews]
- [dbo].[customers]
- [dbo].[engagement_data]
- [dbo].[geography]
- [dbo].[products]

- **Product Categorization**

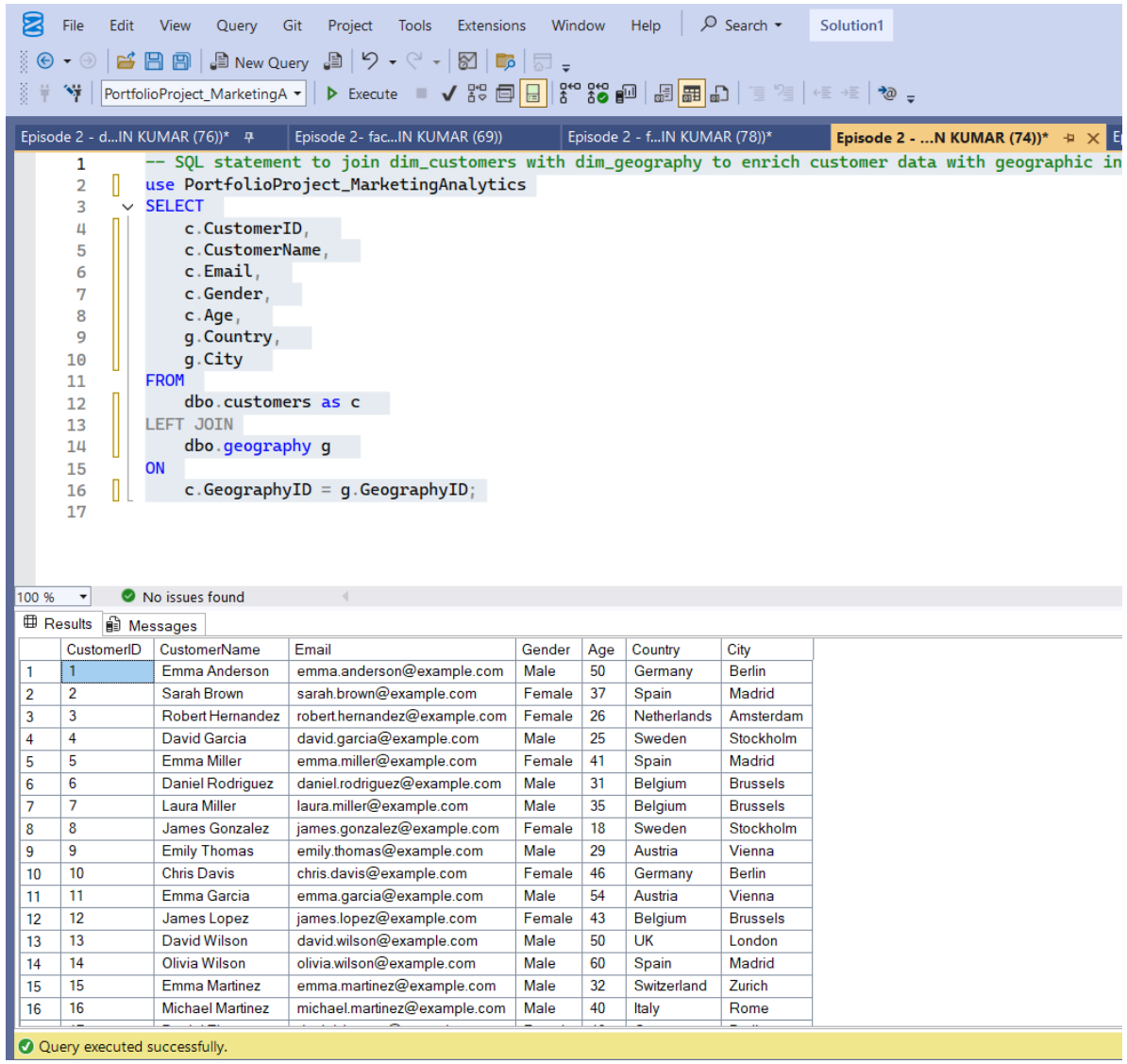
- Used the Products table to categorize products based on their price into high medium low using SQL CASE statements.



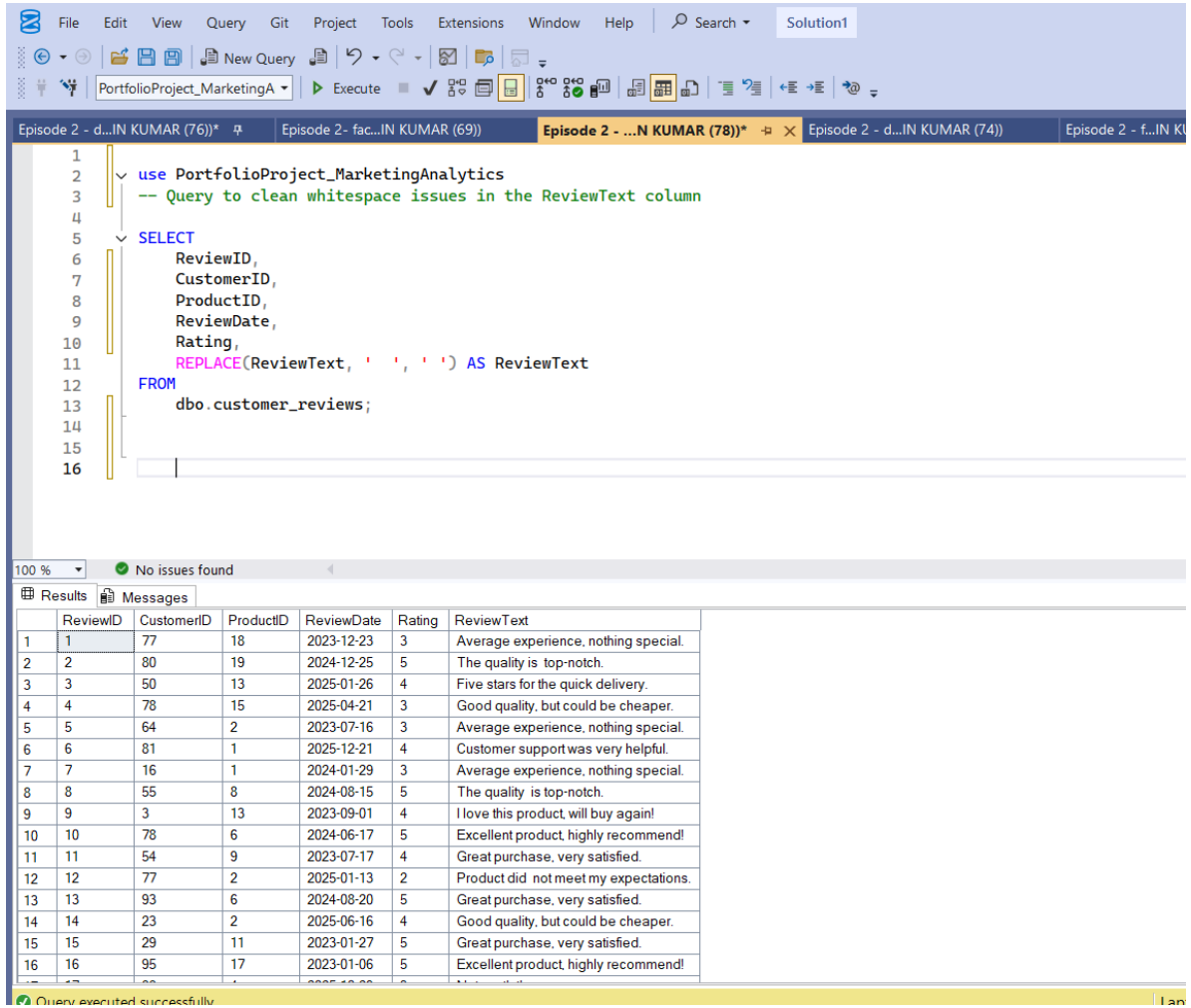
	ProductID	ProductName	Price	PriceCategory
1	1	Running Shoes	223.75	High
2	2	Fitness Tracker	196.68	Medium
3	3	Yoga Mat	485.32	High
4	4	Dumbbells	26.21	Low
5	5	Soccer Ball	41.26	Low
6	6	Tennis Racket	36.07	Low
7	7	Basketball	225.12	High
8	8	Football Helmet	44.75	Low
9	9	Baseball Glove	327.36	High
10	10	Golf Clubs	81.59	Medium
11	11	Ski Boots	340.2	High
12	12	Ice Skates	37.56	Low
13	13	Swim Goggles	145.97	Medium
14	14	Cycling Helmet	472.32	High
15	15	Climbing Rope	410.17	High
16	16	Kayak	259.4	High

Customer-Geography Merge

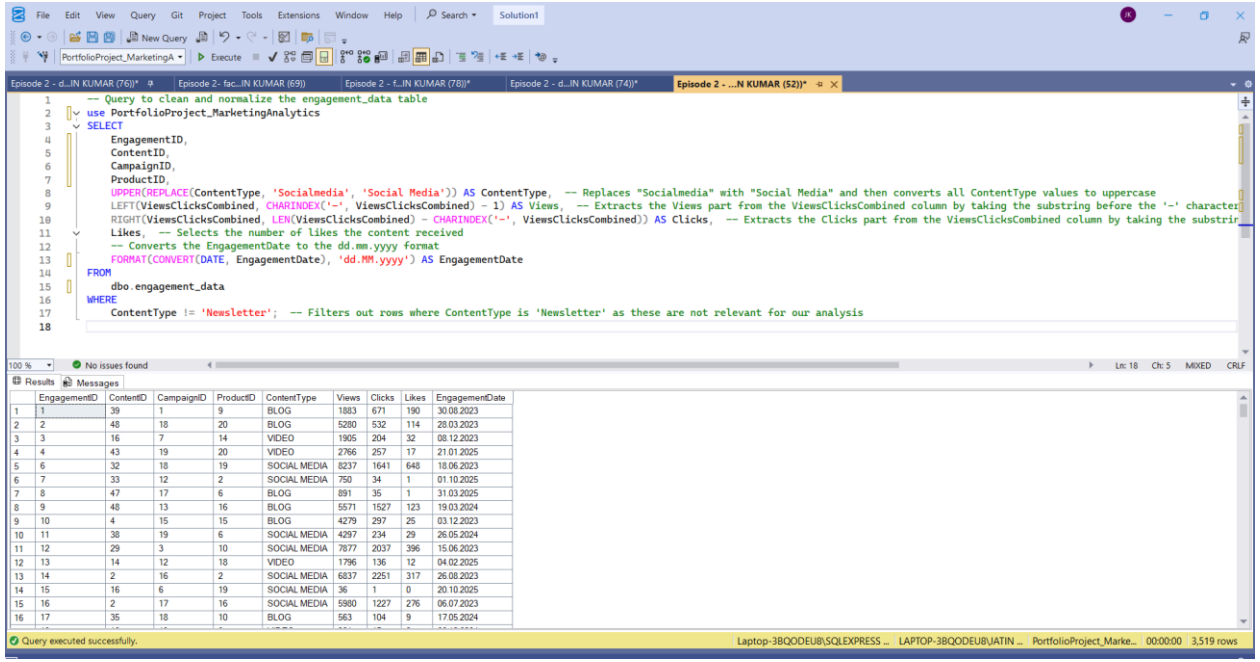
- Merged Customers table with Geography using a LEFT JOIN to enrich customer records with geographical information.



- **Cleaning Customer Reviews**
  - Cleaned the customer reviews table by removing extra spaces from the review text.



- **Engagement Data Normalization**
- Cleaned and normalized the Engagement_data table to standardize engagement metrics (e.g., scaling, null handling, and formatting).

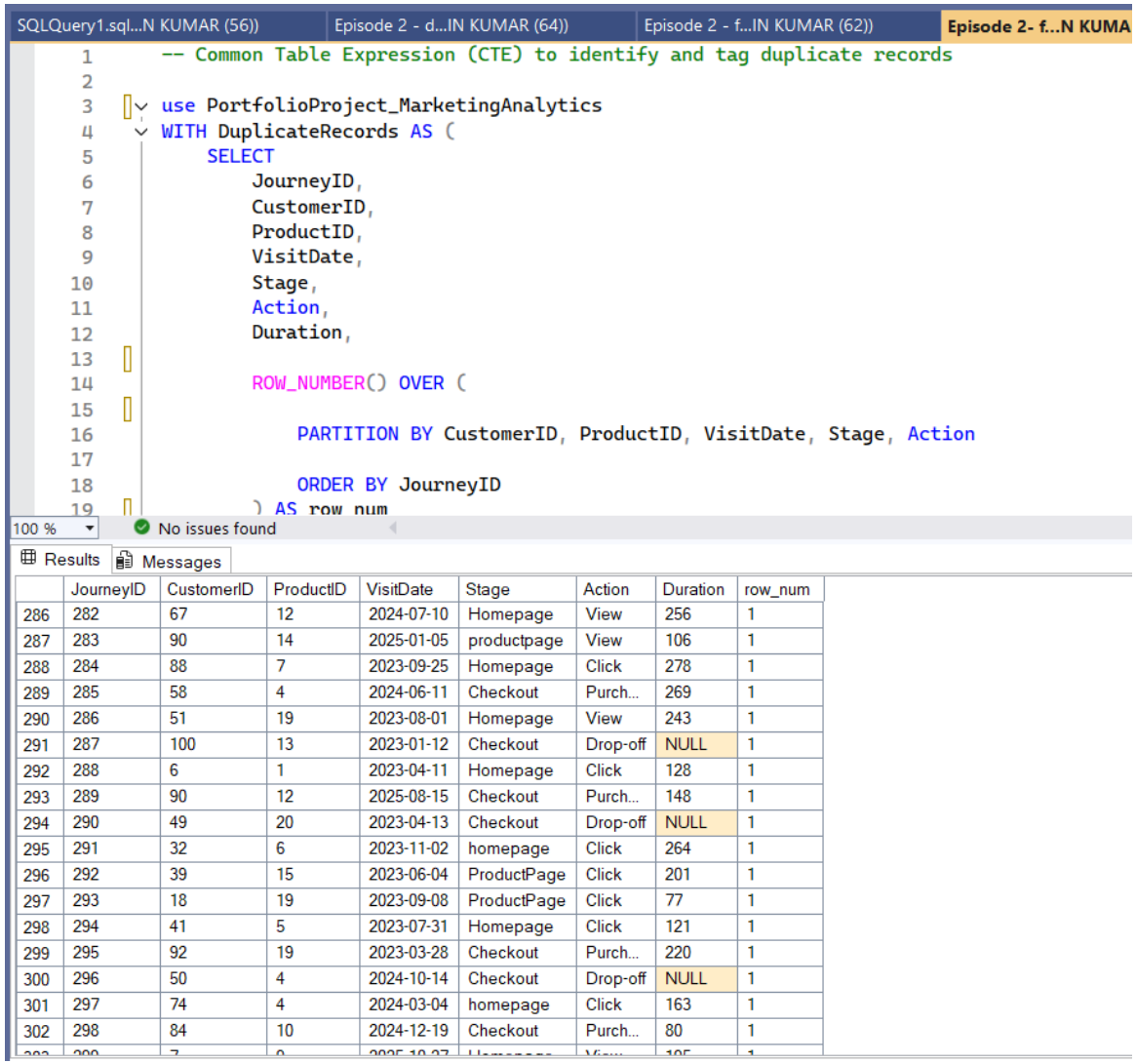


```sql
-- Query to clean and normalize the engagement_data table
use PortfolioProject_MarketingAnalytics
SELECT
    EngagementID,
    ContentID,
    CampaignID,
    ProductID,
    UPPER(REPLACE(ContentType, 'Socialmedia', 'Social Media')) AS ContentType,  -- Replaces "Socialmedia" with "Social Media" and then converts all ContentType values to uppercase
    LEFT(ViewsClicksCombined, CHARINDEX('-', ViewsClicksCombined) - 1) AS Views,  -- Extracts the Views part from the ViewsClicksCombined column by taking the substring before the '-' character
    RIGHT(ViewsClicksCombined, LEN(ViewsClicksCombined) - CHARINDEX('-', ViewsClicksCombined)) AS Clicks,  -- Extracts the Clicks part from the ViewsClicksCombined column by taking the substring
    Likes,  -- Selects the number of likes the content received
    -- Converts the EngagementDate to the dd.mm.yyyy format
    FORMAT(CONVERT(DATE, EngagementDate), 'dd.MM.yyyy') AS EngagementDate
FROM
    dbo.engagement_data
WHERE
    ContentType != 'Newsletter';  -- Filters out rows where ContentType is 'Newsletter' as these are not relevant for our analysis
```

	EngagementID	ContentID	CampaignID	ProductID	ContentType	Views	Clicks	Likes	EngagementDate
1	1	39	1	9	BLOG	1883	671	190	30.08.2023
2	2	48	18	20	BLOG	5280	532	114	28.03.2023
3	3	16	7	14	VIDEO	1905	204	32	08.12.2023
4	4	43	19	20	VIDEO	2766	257	17	21.01.2025
5	6	32	18	19	SOCIAL MEDIA	8237	1641	648	18.06.2023
6	7	33	12	2	SOCIAL MEDIA	750	34	1	01.10.2025
7	8	47	17	6	BLOG	891	35	1	31.03.2025
8	9	48	13	16	BLOG	5571	1527	123	19.03.2024
9	10	4	15	15	BLOG	4279	297	25	03.12.2023
10	11	38	19	6	SOCIAL MEDIA	4297	234	29	26.05.2024
11	12	29	3	10	SOCIAL MEDIA	7877	2037	396	15.06.2023
12	13	14	12	18	VIDEO	1796	136	12	04.02.2025
13	14	2	16	2	SOCIAL MEDIA	6837	2251	317	26.08.2023
14	15	16	6	19	SOCIAL MEDIA	36	1	0	20.10.2025
15	16	2	17	16	SOCIAL MEDIA	5980	1227	276	06.07.2023
16	17	35	18	10	BLOG	563	104	9	17.05.2024

Handling Duplicates

- In the customer journey table, identified duplicate records using ROW_NUMBER() window function and included only the unique vales which is tagged by 1 .



	JourneyID	CustomerID	ProductID	VisitDate	Stage	Action	Duration	row_num
286	282	67	12	2024-07-10	Homepage	View	256	1
287	283	90	14	2025-01-05	productpage	View	106	1
288	284	88	7	2023-09-25	Homepage	Click	278	1
289	285	58	4	2024-06-11	Checkout	Purch...	269	1
290	286	51	19	2023-08-01	Homepage	View	243	1
291	287	100	13	2023-01-12	Checkout	Drop-off	NULL	1
292	288	6	1	2023-04-11	Homepage	Click	128	1
293	289	90	12	2025-08-15	Checkout	Purch...	148	1
294	290	49	20	2023-04-13	Checkout	Drop-off	NULL	1
295	291	32	6	2023-11-02	homepage	Click	264	1
296	292	39	15	2023-06-04	ProductPage	Click	201	1
297	293	18	19	2023-09-08	ProductPage	Click	77	1
298	294	41	5	2023-07-31	Homepage	Click	121	1
299	295	92	19	2023-03-28	Checkout	Purch...	220	1
300	296	50	4	2024-10-14	Checkout	Drop-off	NULL	1
301	297	74	4	2024-03-04	homepage	Click	163	1
302	298	84	10	2024-12-19	Checkout	Purch...	80	1

Handling Duplicates

- In the customer journey table, after selecting unique rows another issues of null values in duration column and which is solved using the sub query:

SQLQuery1.sql...N KUMAR (56)) | Episode 2 - d...IN KUMAR (64)) | Episode 2 - f...IN KUMAR (62)) | Episo

```
29
30  -- Outer query selects the final cleaned and standardized data
31
32  SELECT
33      JourneyID,
34      CustomerID,
35      ProductID,
36      VisitDate,
37      Stage,
38      Action,
39      COALESCE(Duration, avg_duration) AS Duration
40  FROM
41      (
42          -
43          SELECT
44              JourneyID,
45              CustomerID,
46              ProductID,
47              VisitDate,
```

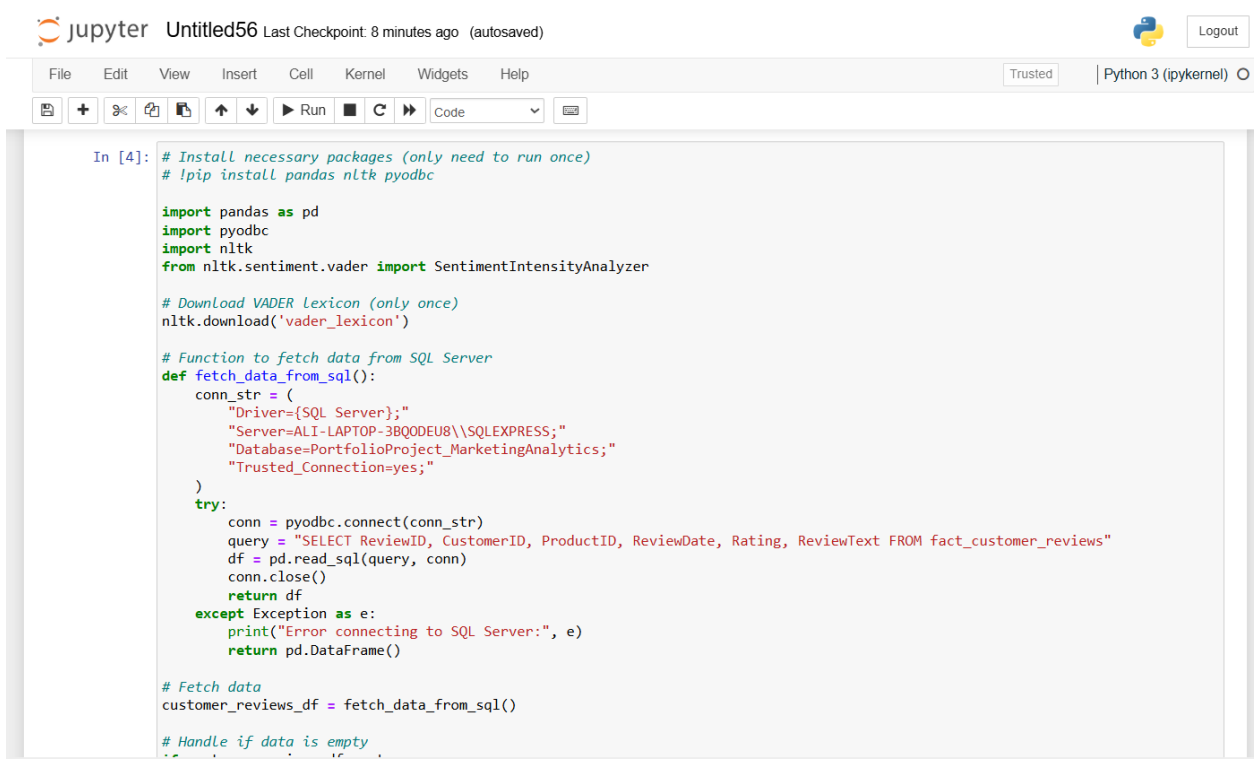
100 % | 8 | 0

Results | Messages

	JourneyID	CustomerID	ProductID	VisitDate	Stage	Action	Duration
1	2040	1	1	2023-03-11	HOMEPAGE	Click	26
2	3077	1	1	2024-03-18	HOMEPAGE	View	66
3	3388	1	1	2024-06-28	HOMEPAGE	Click	18
4	577	1	1	2025-12-17	HOMEPAGE	Click	115
5	3312	1	2	2023-03-03	PRODUCTPAGE	View	40
6	3696	1	2	2024-02-10	PRODUCTPAGE	View	231
7	2124	1	3	2023-09-23	PRODUCTPAGE	View	161
8	1548	1	3	2024-11-06	HOMEPAGE	View	238
9	2696	1	3	2025-07-09	PRODUCTPAGE	View	110
10	3344	1	5	2023-07-20	CHECKOUT	Drop-off	187.6
11	2490	1	6	2023-02-19	PRODUCTPAGE	View	196
12	1929	1	6	2025-06-25	CHECKOUT	Drop-off	185.4
13	55	1	7	2024-03-17	CHECKOUT	Drop-off	226
14	2271	1	7	2025-09-17	CHECKOUT	Drop-off	209
15	2187	1	9	2024-10-23	CHECKOUT	Purchase	10
16	1451	1	9	2025-01-25	CHECKOUT	Drop-off	144
17	2473	1	10	2023-02-12	CHECKOUT	Purchase	271

- **Sentiment Analysis**
  Exported customer reviews to Jupyter Notebook and performed sentiment analysis using Python libraries to classify reviews as Positive, Neutral, or Negative.

Python coding in juypter notebook



Resulted csv file:

	A	B	C	D	E	F	G	H	I	J	K
	ReviewID	CustomerI	ProductID	ReviewDat	Rating	ReviewTex	Sentiment	Sentiment	SentimentBucket		
	1	77	18	########	3	Average e	-0.3089	Mixed Neg	-0.49 to 0.0		
	2	80	19	########	5	The quality	0	Positive	0.0 to 0.49		
	3	50	13	########	4	Five stars	0	Positive	0.0 to 0.49		
	4	78	15	########	3	Good qual	0.2382	Mixed Posi	0.0 to 0.49		
	5	64	2	########	3	Average e	-0.3089	Mixed Neg	-0.49 to 0.0		
	6	81	1	########	4	Customer	0.6997	Positive	0.5 to 1.0		
	7	16	1	########	3	Average e	-0.3089	Mixed Neg	-0.49 to 0.0		
	8	55	8	########	5	The quality	0	Positive	0.0 to 0.49		
	9	3	13	########	4	I love this	0.6696	Positive	0.5 to 1.0		
	10	78	6	########	5	Excellent p	0.7773	Positive	0.5 to 1.0		
	11	54	9	########	4	Great purc	0.8016	Positive	0.5 to 1.0		
	12	77	2	########	2	Product di	0	Negative	0.0 to 0.49		
	13	93	6	########	5	Great purc	0.8016	Positive	0.5 to 1.0		
	14	23	2	########	4	Good qual	0.2382	Positive	0.0 to 0.49		
	15	29	11	########	5	Great purc	0.8016	Positive	0.5 to 1.0		
	16	95	17	########	5	Excellent p	0.7773	Positive	0.5 to 1.0		
	17	88	4	########	3	Not worth	-0.1695	Mixed Neg	-0.49 to 0.0		
	18	17	16	########	4	Shipping w	0	Positive	0.0 to 0.49		
	19	34	13	########	4	The quality	0	Positive	0.0 to 0.49		
	20	34	6	########	1	I had a ba	-0.5423	Negative	-1.0 to -0.5		
	21	22	15	########	5	Amazing v	0.7351	Positive	0.5 to 1.0		
	22	52	3	########	4	The quality	0	Positive	0.0 to 0.49		
	23	69	18	########	5	Five stars	0	Positive	0.0 to 0.49		
	24	100	4	########	3	I love this	0.6696	Mixed Posi	0.5 to 1.0		
	25	55	20	########	4	Shipping w	0	Positive	0.0 to 0.49		
	26	76	11	########	4	Five stars	0	Positive	0.0 to 0.49		
	27	56	6	########	4	The quality	0	Positive	0.0 to 0.49		

Data Visualization

Decreased Conversion Rates: The conversion rate demonstrated a strong rebound in December, reaching 10.2%, despite a notable dip to 5.0% in October.

Reduced Customer Engagement:

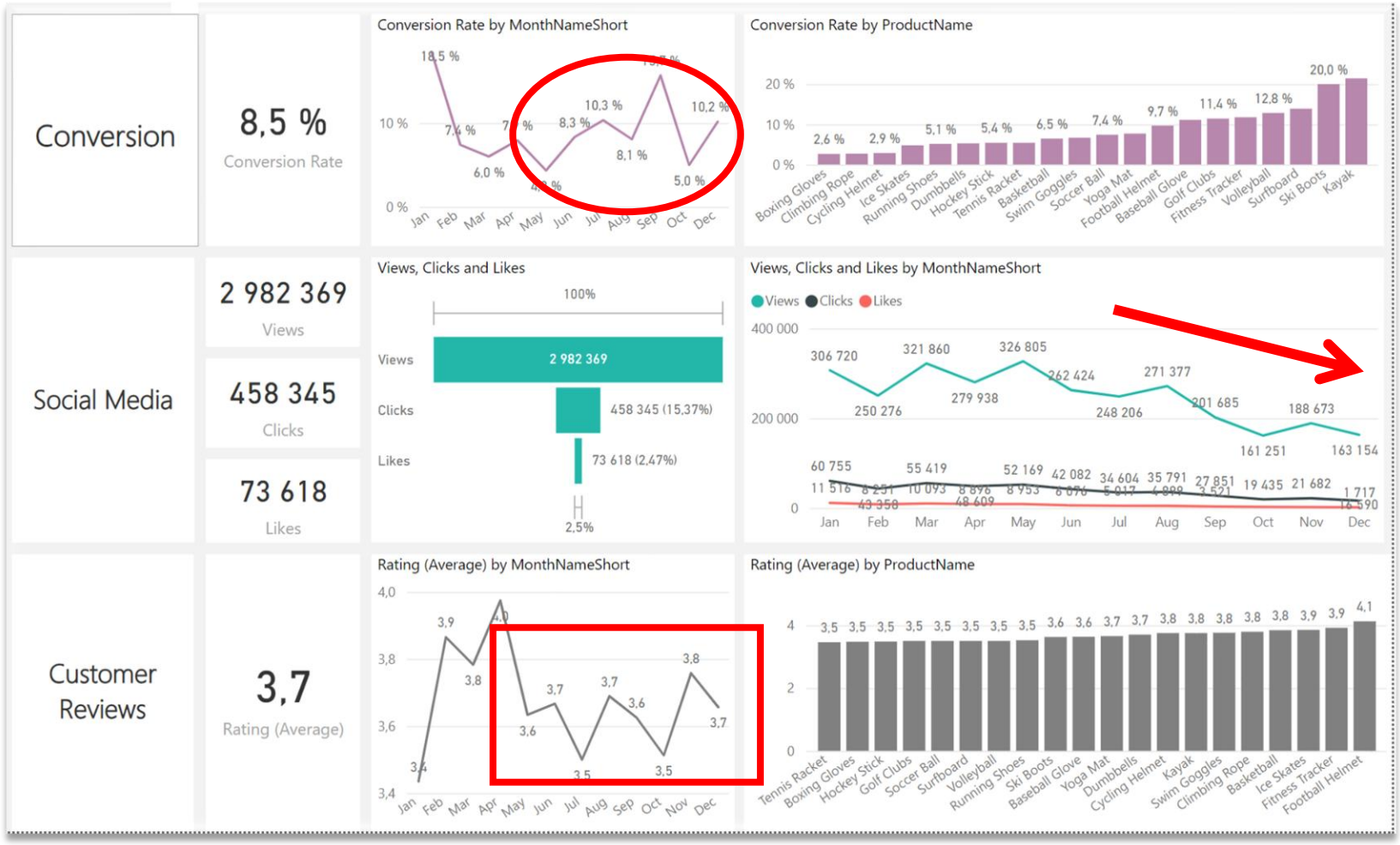
There is a decline in overall social media engagement, with views dropping throughout the year.

While clicks and likes are low compared to views, the click-through rate stands at 15.37%, meaning that engaged users are still interacting effectively

Customer Feedback Analysis:

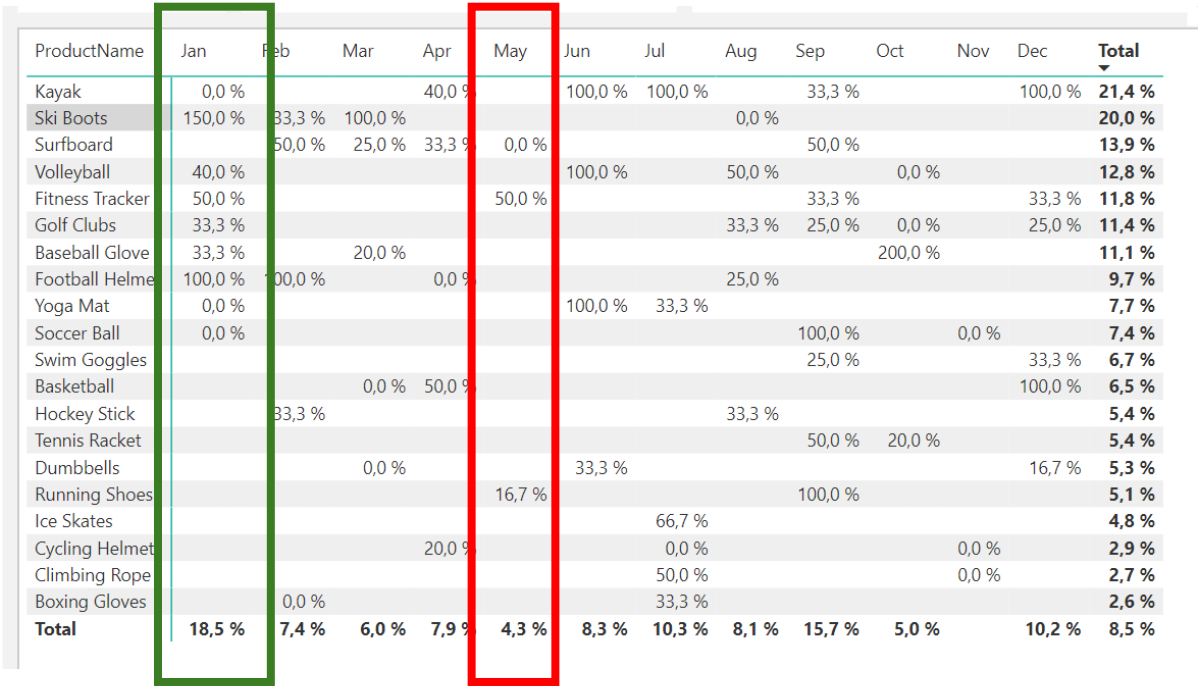
Customer ratings have remained consistent, averaging around 3.7 throughout the year.

Although stable, the average rating is below the target of 4.0, suggesting a need for focused improvements in customer satisfaction, for products below 3,5.



Decreased Conversion Rates

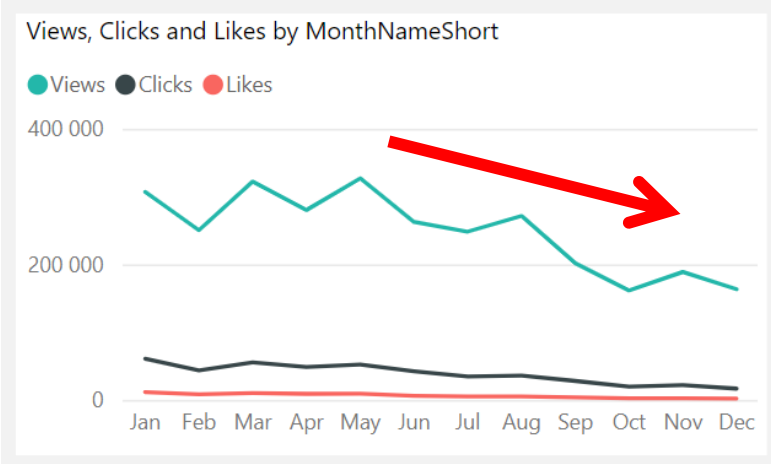
- **General Conversion Trend:**
  - Throughout the year, conversion rates varied, with higher numbers of products converting successfully in months like February and July. This suggests that while some products had strong seasonal peaks, there is potential to improve conversions in lower-performing months through targeted interventions.
- **Lowest Conversion Month:**
  - May experienced the lowest overall conversion rate at 4.3%, with no products standing out significantly in terms of conversion. This indicates a potential need to revisit marketing strategies or promotions during this period to boost performance.
- **Highest Conversion Rates:**
  - January recorded the highest overall conversion rate at 18.5%, driven significantly by the Ski Boots with a remarkable 150% conversion. This indicates a strong start to the year, likely fueled by seasonal demand and effective marketing strategies.

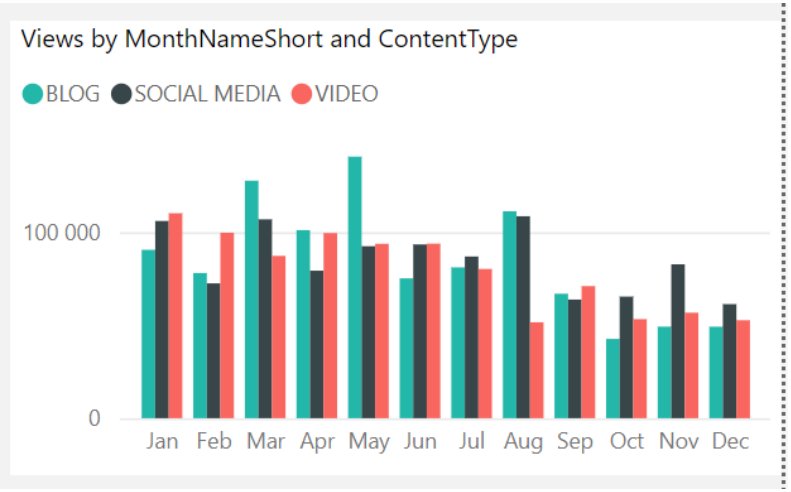


ProductName	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Kayak	0,0 %			40,0 %		100,0 %	100,0 %		33,3 %			100,0 %	**21,4 %**
Ski Boots	150,0 %	33,3 %	100,0 %					0,0 %					**20,0 %**
Surfboard		50,0 %	25,0 %	33,3 %	0,0 %				50,0 %				**13,9 %**
Volleyball	40,0 %					100,0 %		50,0 %		0,0 %			**12,8 %**
Fitness Tracker	50,0 %				50,0 %				33,3 %			33,3 %	**11,8 %**
Golf Clubs	33,3 %							33,3 %	25,0 %	0,0 %		25,0 %	**11,4 %**
Baseball Glove	33,3 %		20,0 %							200,0 %			**11,1 %**
Football Helme	100,0 %	100,0 %		0,0 %				25,0 %					**9,7 %**
Yoga Mat	0,0 %					100,0 %	33,3 %						**7,7 %**
Soccer Ball	0,0 %								100,0 %		0,0 %		**7,4 %**
Swim Goggles									25,0 %			33,3 %	**6,7 %**
Basketball			0,0 %	50,0 %								100,0 %	**6,5 %**
Hockey Stick		33,3 %						33,3 %					**5,4 %**
Tennis Racket									50,0 %	20,0 %			**5,4 %**
Dumbbells			0,0 %			33,3 %						16,7 %	**5,3 %**
Running Shoes					16,7 %				100,0 %				**5,1 %**
Ice Skates							66,7 %						**4,8 %**
Cycling Helmet				20,0 %			0,0 %				0,0 %		**2,9 %**
Climbing Rope							50,0 %				0,0 %		**2,7 %**
Boxing Gloves		0,0 %					33,3 %						**2,6 %**
Total	**18,5 %**	**7,4 %**	**6,0 %**	**7,9 %**	**4,3 %**	**8,3 %**	**10,3 %**	**8,1 %**	**15,7 %**	**5,0 %**		**10,2 %**	**8,5 %**

Reduced Customer Engagement

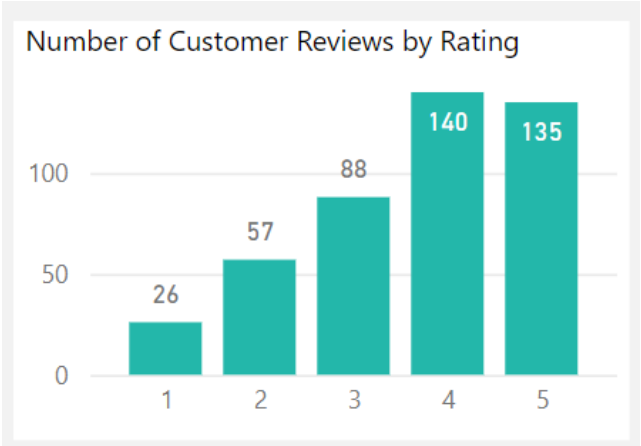
- **Declining Views:**
  - Views peaked in February and July but declined from August and on, indicating reduced audience engagement in the later half of the year.
- **Low Interaction Rates:**
  - Clicks and likes remained consistently low compared to views, suggesting the need for more engaging content or stronger calls to action.
- **Content Type Performance:**
  - Blog content drove the most views, especially in April and July, while social media and video content maintained steady but slightly lower engagement.

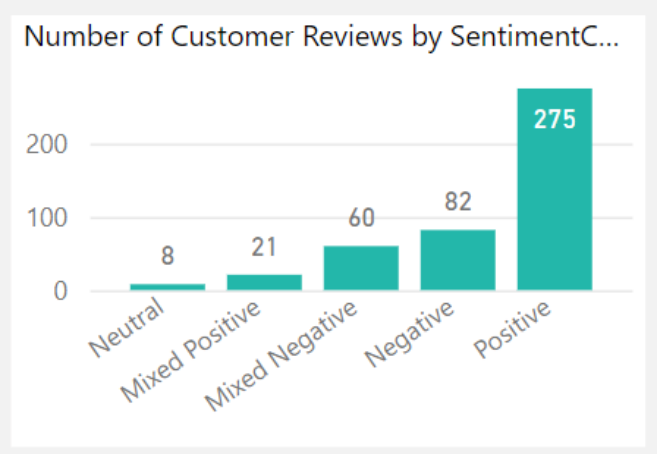




Customer Feedback Analysis

- **Customer Ratings Distribution:**
  - The majority of customer reviews are in the higher ratings, with 140 reviews at 4 stars and 135 reviews at 5 stars, indicating overall positive feedback. Lower ratings (1-2 stars) account for a smaller proportion, with 26 reviews at 1 star and 57 reviews at 2 stars.
- **Sentiment Analysis:**
  - Positive sentiment dominates with 275 reviews, reflecting a generally satisfied customer base. Negative sentiment is present in 82 reviews, with a smaller number of mixed and neutral sentiments, suggesting some areas for improvement but overall strong customer approval.
- **Opportunity for Improvement:**
  - The presence of mixed positive and mixed negative sentiments suggests that there are opportunities to convert those mixed experiences into more clearly positive ones, potentially boosting overall ratings. Addressing the specific concerns in mixed reviews could elevate customer satisfaction.





Goals & Actions

Goals

- **Increase Conversion Rates:**
    - **Goal:** Identify factors impacting the conversion rate and provide recommendations to improve it.
    - **Insight:** Highlight key stages where visitors drop off and suggest improvements to optimize the conversion funnel.
- **Enhance Customer Engagement:**
    - **Goal:** Determine which types of content drive the highest engagement.
    - **Insight:** Analyze interaction levels with different types of marketing content to inform better content strategies.
- **Improve Customer Feedback Scores:**
    - **Goal:** Understand common themes in customer reviews and provide actionable insights.
    - **Insight:** Identify recurring positive and negative feedback to guide product and service improvements.

Actions

- **Increase Conversion Rates:**
    - Target High-Performing Product Categories: Focus marketing efforts on products with demonstrated high conversion rates, such as Kayaks, Ski Boots, and Baseball Gloves. Implement seasonal promotions or personalized campaigns during peak months (e.g., January and September) to capitalize on these trends.
- **Enhance Customer Engagement:**
    - Revitalize Content Strategy: To turn around declining views and low interaction rates, experiment with more engaging content formats, such as interactive videos or user-generated content. Additionally, boost engagement by optimizing call-to-action placement in social media and blog content, particularly during historically lower-engagement months (September-December).
- **Improve Customer Feedback Scores:**
    - Address Mixed and Negative Feedback: Implement a feedback loop where mixed and negative reviews are analyzed to identify common issues. Develop improvement plans to address these concerns. Consider following up with dissatisfied customers to resolve issues and encourage re-rating, aiming to move average ratings closer to the 4.0 target.