1. **What marketing campaign(s) had the highest ROI, Return of Ad Spends(RoAS)? Provide visualizations to support your answer.**

* 204516416418 has the highest ROI of USD 748.50
* 204516416418 has the highest RoAS of USD 749.50
* Campaign ID 268185789697 has the highest Revenue of USD 1,24,36,410 from Sales.
* Stacked Bar Chart is used to visualize Highest Revenue, Highet ROI and Highest RoAS.

1. **How does the sales performance vary across different product categories? Present your findings in a suitable chart.**

* There are three different Product Categories -> Mattress, Bed Frame, Mattress Toppers.
* Mattress had the highest Sales at USD 83,79,454.65, followed by Bed Frame at USD 7,412.85 and Mattress Toppers at USD 4,923.95.
* Mattress accounted for 99.85% of Sales.
* A Stacked Column Chart is used to visualize this data.

1. **How does each campaign behave and each item behave hourly?**

* Top performing campaign in terms of Sales during the campaign period is 363748908938, with 1338 Units Ordered and Sales of USD 31,00,898. Followed by 227126308369 with 1859 Units Ordered and Sales of USD 29,64,089.
* Most of Sales i.e., USD 27,79,820 are during 10:00 to 11:00, which accounted for about 33% of the total sales during this period of campaign. Followed by 12:00 to 13:00, which accounted for 16.5% of total Sales.
* A Donut Chart is used to extract this data, where a new column is created by using Conditional Formatting and creating hourly bins.

1. **Is there any correlation between the timing of marketing campaigns and changes in product sales?**

* Yes, Marketing Campaigns and Product Sales are Correlated with each other. Because, Sales and Units Ordered are high during the Campaign, when compared to outside the campaign period.

1. **What is the overall trend of sales before, during, and after each marketing campaign? Are there any significant spikes or dips in sales?**

* Sales dropped from 27,79,820.79 to 9,68,427 during its steepest decline during the 11:00:00 hour.
* During the start of the campaign the Sales were about 27,79,820.79, while the Average Sales being 14,00,000 during the overall Campaign, but after the campaigning period, the sales were below Average Sales i.e., 11,00,000. So, its not a significant dip, but campaigning period can be extended so as to maintain the Average of Sales.
* This can be concluded from a line chart in the report, where a Reference Line is used to show the Average Sales, and Forecast Line in Red is used to Forecast the Sales for the next 5 hours.

1. **How can the marketing strategies be optimized to improve overall sales and customer engagement?**

* Increase the duration of Campaign. 10:00:00 to 11:00:00 have the most sales in our Campaign period. But from 14:00:00 to 15:00:00 we have the least sales. So we can start the campaign from 9:00:00 and analyze the situation.
* Remove Campaigns that have Zero Sales, Zero Orders, Minimum or Zero Clicks, very less conversion rate, and transfer these less-effective ad investment on to our best campaigns or new campaigns.
* To increase Click-Through-Rate(CTR) or increase customer segmentation, we need improve our ad design and make them more interactive.
* ‘Detail Page on-Amazon’ Ad Placement has very low Clicks (12,145), which is only 14% of the total Clicks on different Ad Placements. So, we need to improve customer engagement in this ad placement.
* ‘Mattress Toppers’ has very less Sales, so instead of adding new Category, we can instead change the Category name and add discounts to gain customer engagement.

1. **Which products have shown the highest growth in sales during the campaign period? Are there any products that performed poorly during campaigns?**

* Top Items Sold during the Campaign are as follows: Bamboo Charcoal Mattress Twin Size 8 inch with USD 65,35,037 Sales and 5222 Units Ordered; Anula Mattress Twin Size 6 inch with USD 17,53,064 Sales and 1680 Units Ordered and Victoria Mattress Twin Size 12 inch with USD 11,488 Sales and 60 Units Ordered.
* While, there are many Products that have 0 sales and 0 units ordered like 5-Zone gel Mattress Toppers Full Size 1.5 inch, 5-Zone gel Mattress Toppers Full Size 2 inch, 5-Zone gel Mattress Toppers Full Size 3 inch, etc.
* Stacked Column Chart is used to visualize this data.

1. **A sudden change in the dataset format occurs, making it incompatible with the existing Power BI model. How would you handle this situation while maintaining progress on the dashboard creation?**

* First step should be understanding the data, and performing any research related to it if needed.
* Be it any format, after loading the data DATA CLEANING is a mandatory step, followed by Feature Engineering.
* Data Cleaning includes replacing values, changing datatypes, aggregations, removing unnecessary values/ rows/ columns and statistical analysis.
* Feature Engineering includes Feature addition from existing data or conditional formatting to create new features/ columns.
* Then convert the new dataset, that aligns with our dashboard and perform the analysis.
* ***Other important Points:***
* At 13451, 255040353222 had the highest Clicks and was Infinity higher than 127250948729, which had the lowest Clicks at 0.﻿﻿
* Clicks and total Sales are positively correlated with each other.﻿﻿
* 255040353222 accounted for 16.07% of Clicks.﻿﻿
* Across all 33 campaign\_id, Clicks ranged from 0 to 13451, Sales ranged from 671.50 to 31,00,898.37, and Impressions ranged from 1140 to 749498.
* At 3.22, 301792637330 had the highest Cost Per Click and was 849.72% higher than 723048845760, which had the lowest Cost Per Click at 0.34.
* ***Important terms:***
* ***Revenue Of Investment (ROI)***: it is measuring the money your company spends on marketing campaigns against the revenue those campaigns generate. As long as you remain profitable, there's no hard and fast rule on the ideal ROI. However, typical Amazon ROAS is somewhere between 3 and 5. This may change depending on your industry's average profit margin.
* ***Return on Ad Spend (RoAS)***: ROAS refers to the amount of revenue earned for every dollar spent on a campaign. An ideal RoAS on Amazon Ad Campaign can be about 3 - 4 times the amount spent on Ad.
* ***Cost Per Click (CPC):*** CPC is a metric that determines how much advertisers pay for the ads they place on websites or social media, based on the number of clicks the ad receives. Anything above 0.89 is regarded as an ideal CPC for Amazon Ad Campaign.
* ***Click-through Rate (CTR):*** CTR is the number of clicks that your ad receives divided by the number of times your ad is shown. An ideal CTR for Amazon Ad Campaign is above 0.5.
* ***Conversion Rate:*** A conversion rate in Ads is when a user performs some specified action after clicking an ad, such as purchasing a product, installing a mobile app,etc. Conversion tracking provides key insights into users' actions after viewing or clicking an ad. A good conversion rate for Amazon Ad Campaign is 10 - 15%.