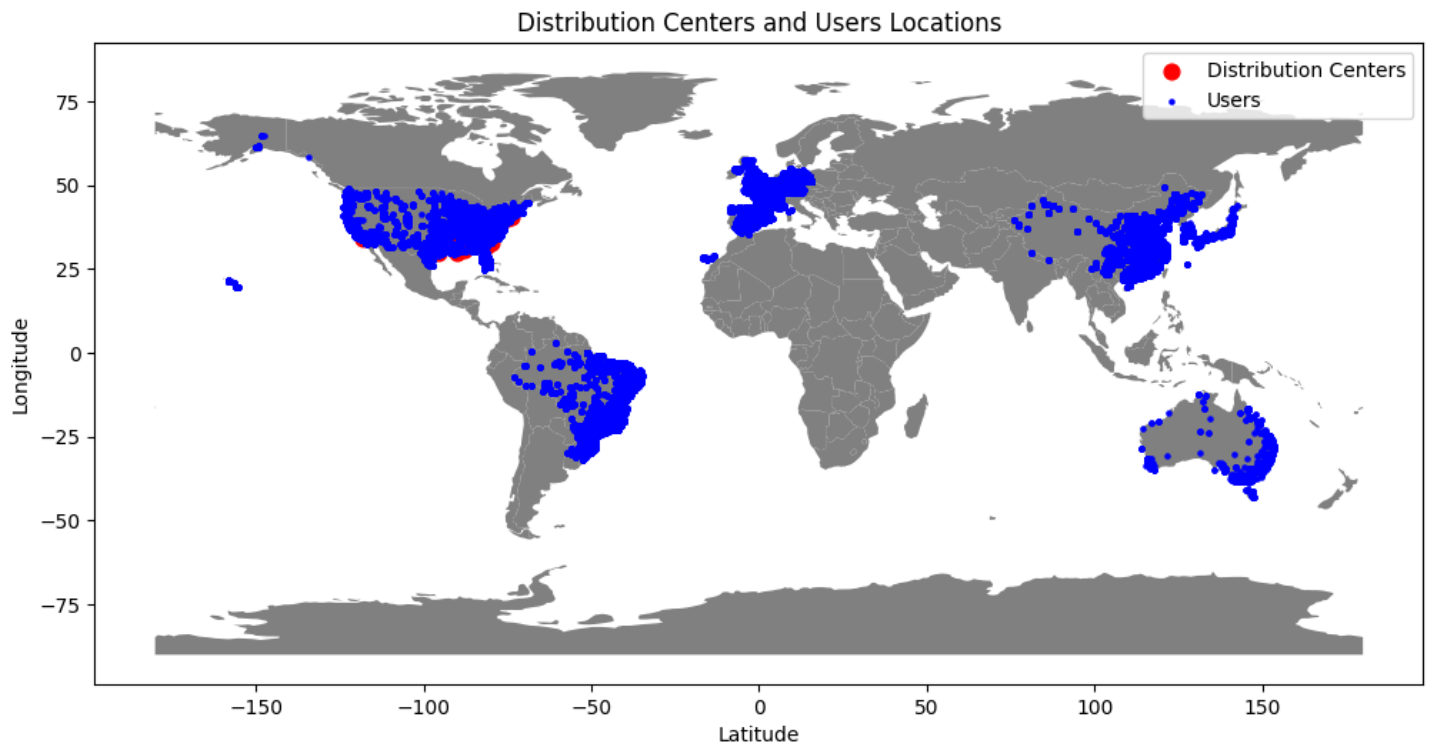# E-Commerce Annual Report

Geospatial Analysis:

- Initially, we plotted our users in a bar plot to get an idea about the distribution.
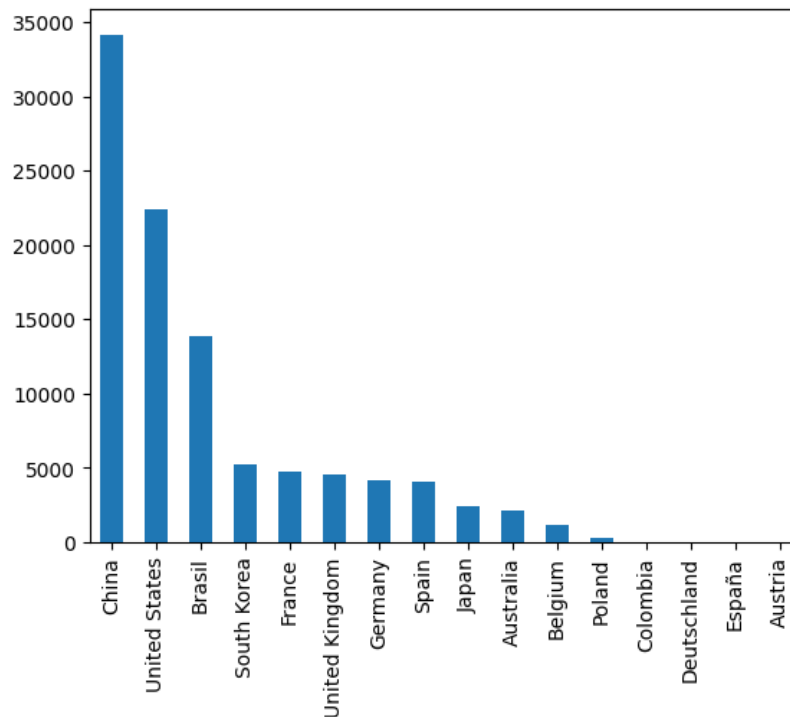
- We found out that we had the highest number of users in China.
- Then we went on to plot the users and the distribution centers according to there latitude and longitude to get a brief idea about their distribution.
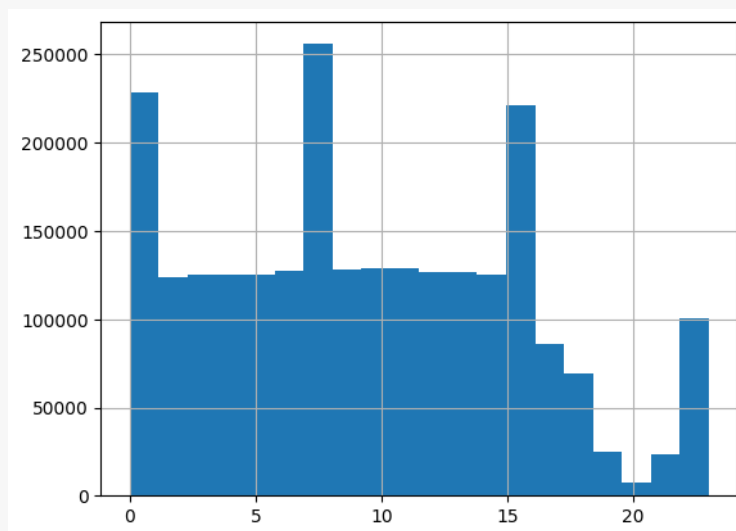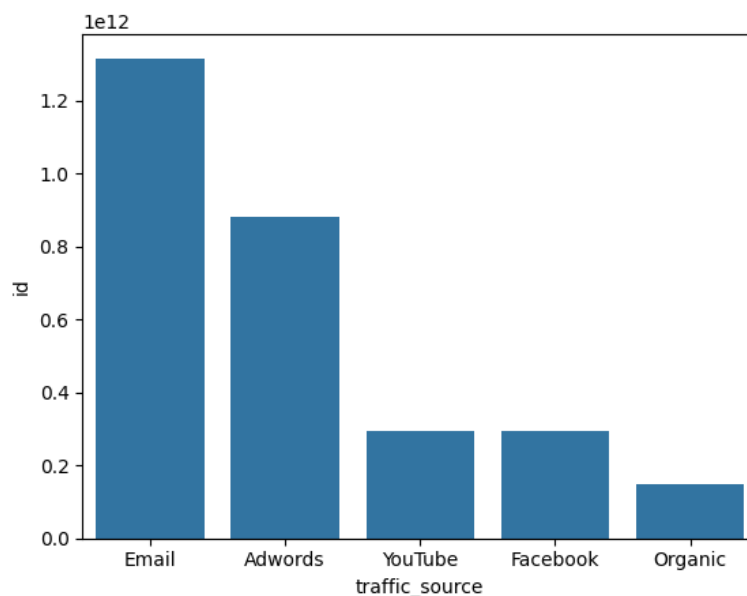
Final Insights:

- We have highest numbers of users in China, United States and Brasil whereas very low userbase in Deutschland, España and Austria. We need to work upon increasing our userbase in these countries.
- The highest userbase contributor city is Shanghai from China.
- Since we have large userbase in China and Brasil, we should open up new Distribution Centres to better serve the users.
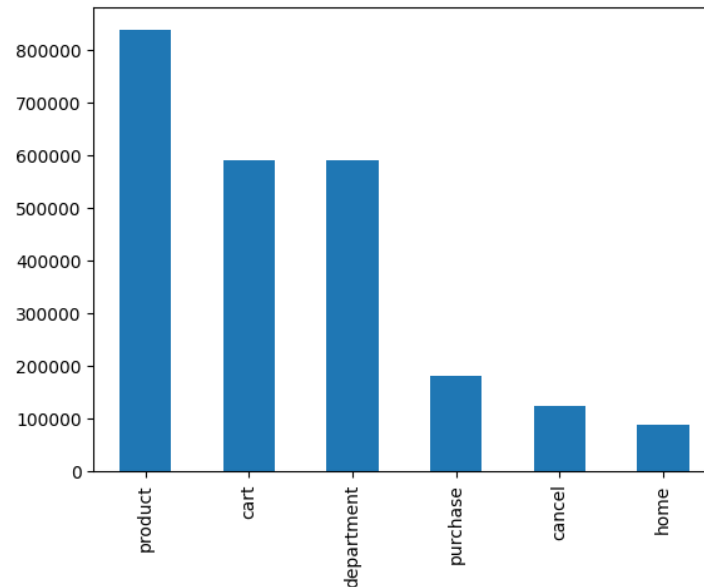
User Behaviour Analysis:

- We will extract hours from our datetime stamp column to check when most of our users are active as show in the Histogram below.

- Also, we will plot a bar graph to understand the traffic source.

- Then by creating a bar plot of the event types, we get the full understanding of the user behavioral analysis as show below.
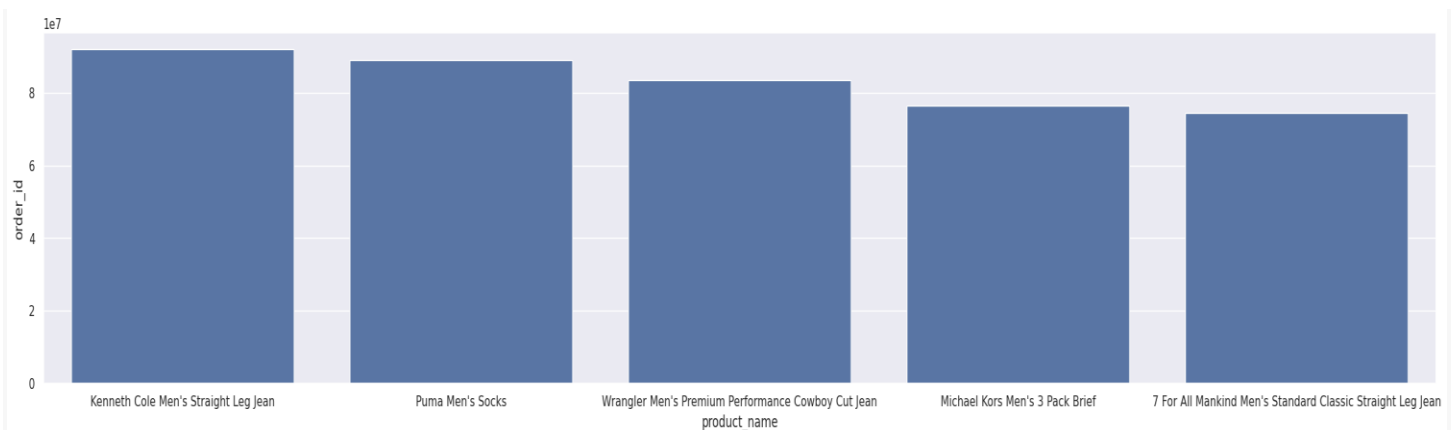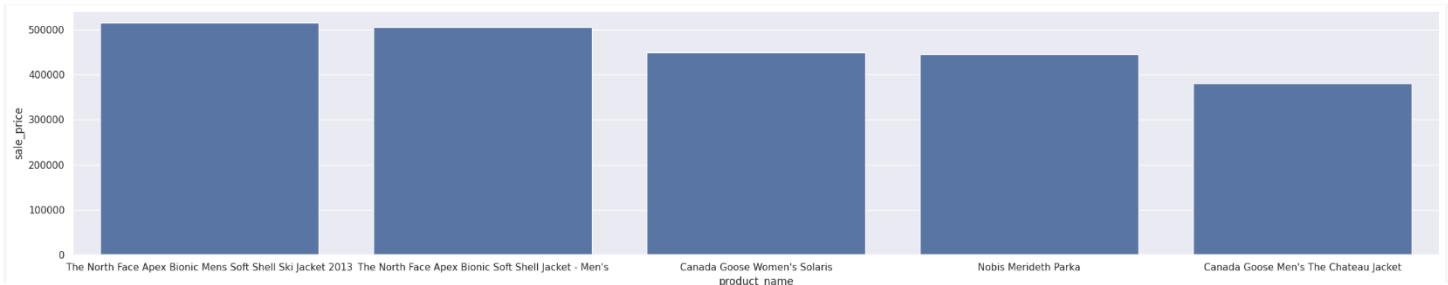

Final Insights:

- Most of our session is created at early Morning, Afternoon and Midnight. We have to improve our website session by evening.
- Email and adwords contribute to the maximum traffic to our website. We should try to drive more traffic from social medias.
- Most of the products are either purchased or in the shopping cart. We shall try to convert the items in the cart to the final purchase.
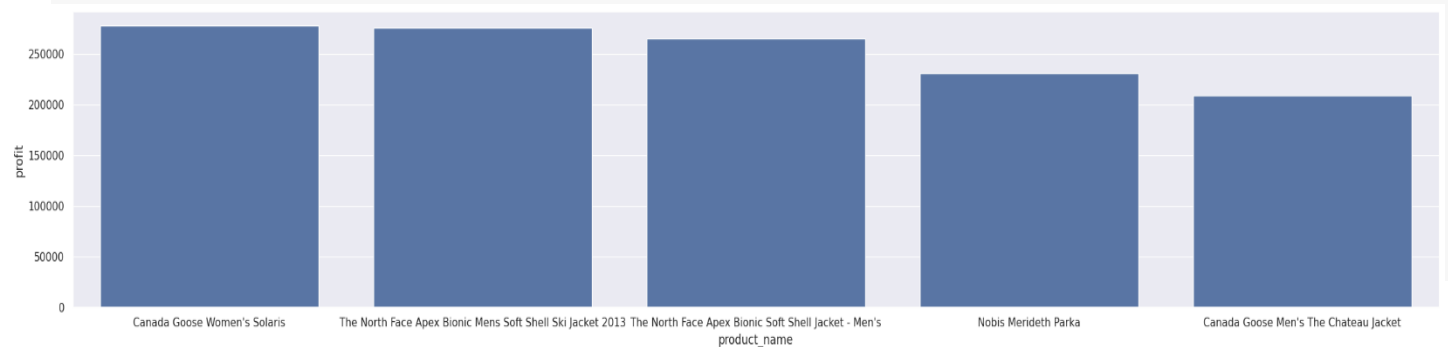
Sales and Revenue Analysis:

- Here are the top 5 products by order id count (unique record).

- Then we need to find out the revenue generated by most of the products. That would be called our 'Hero Product'.

- Created a new column to calculate profits by using sale price and cost columns and plotted the same.
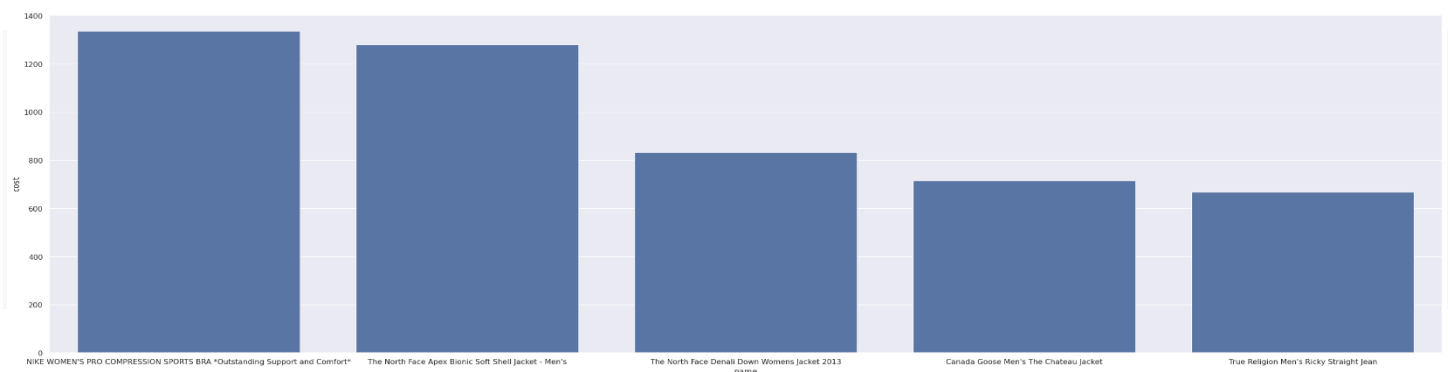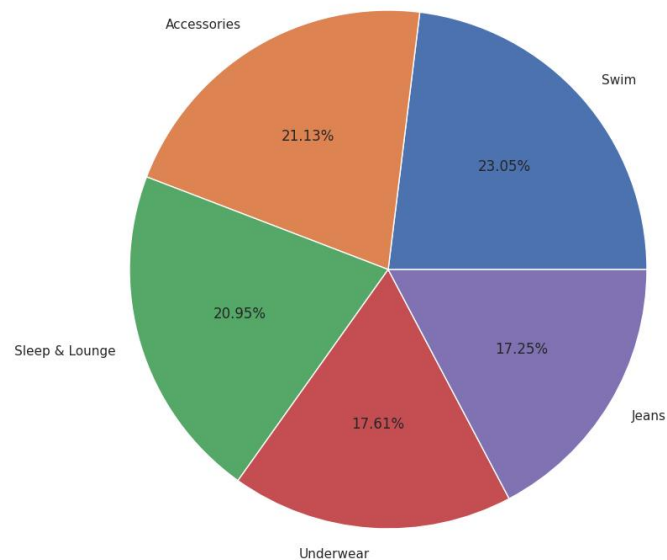

Final Insights:

- The top five selling products are Kenneth Cole Mens Straight Leg Jean, Puma Mens Socks, Wranglesr's Mens Premium Performance Cowboy Cut Jean, Michael Cors Men's 3 Pack Brief and 7 For All Mankinds Mens Standard Classic Straight Leg Jean.
- The North Face Apex Bionic Mens Soft Shell Ski Jacket 2013 tops by revenue generation but most of the profits are drawn by Canada Goose Women Solans.
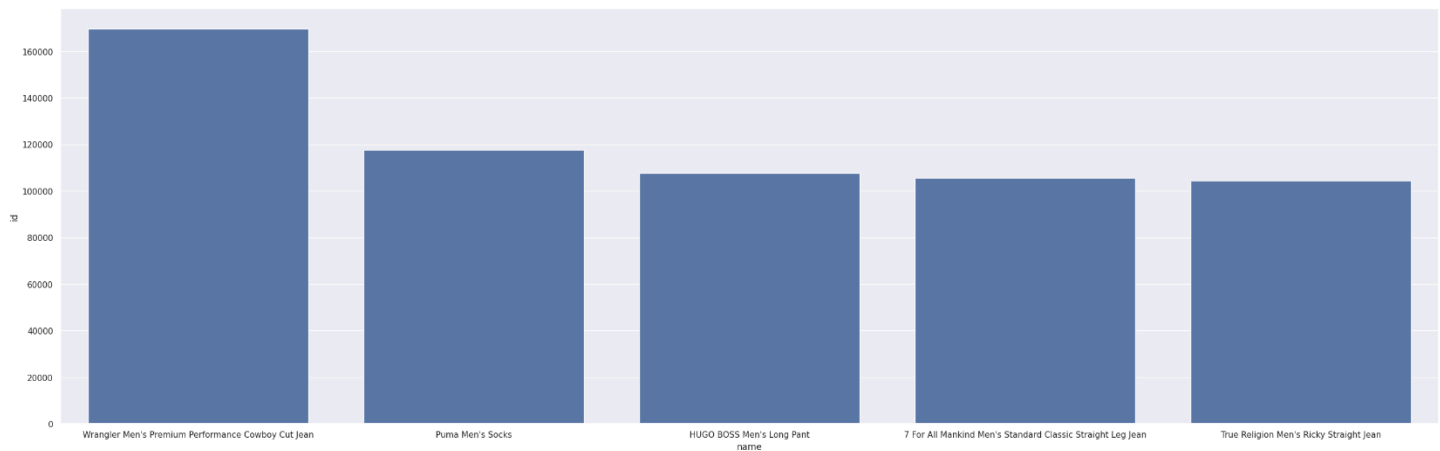
Product Performance Analysis:

- First, we will find the lowest costing products that will generate more in profit.

- Then we will plot a pie chart to indicate maximum of the various categories sold.


- The top products by popularity were:
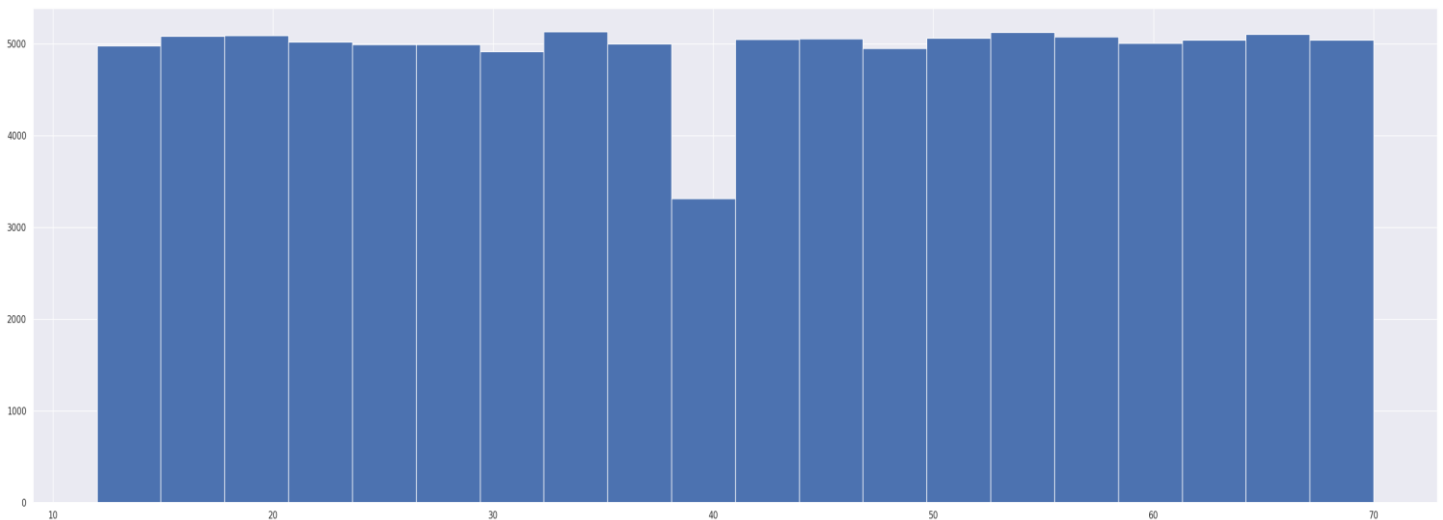

Final Insights:

- The top 5 costliest products which will generate more revenue are Nike Pro Compression Sports Bra, The North Face Apex Bionic Soft Shell Jacket-Mens, The North Face Denelli Down Women's Jacket 2013, Canada Goose Mens The Chateau Jacket and The Religions Mens Ricky Straight Jean.
- Products in swim wear, Accessories and Slep & Lounge are generating highest revenue.
- The most popular product at the ecommerce website is wrangler Mens Premium Performance Cowboy Cut Jean.

User Demographics Analysis:

- For user demographic analysis, first we will count the gender of each user and plot a pie chart to it.
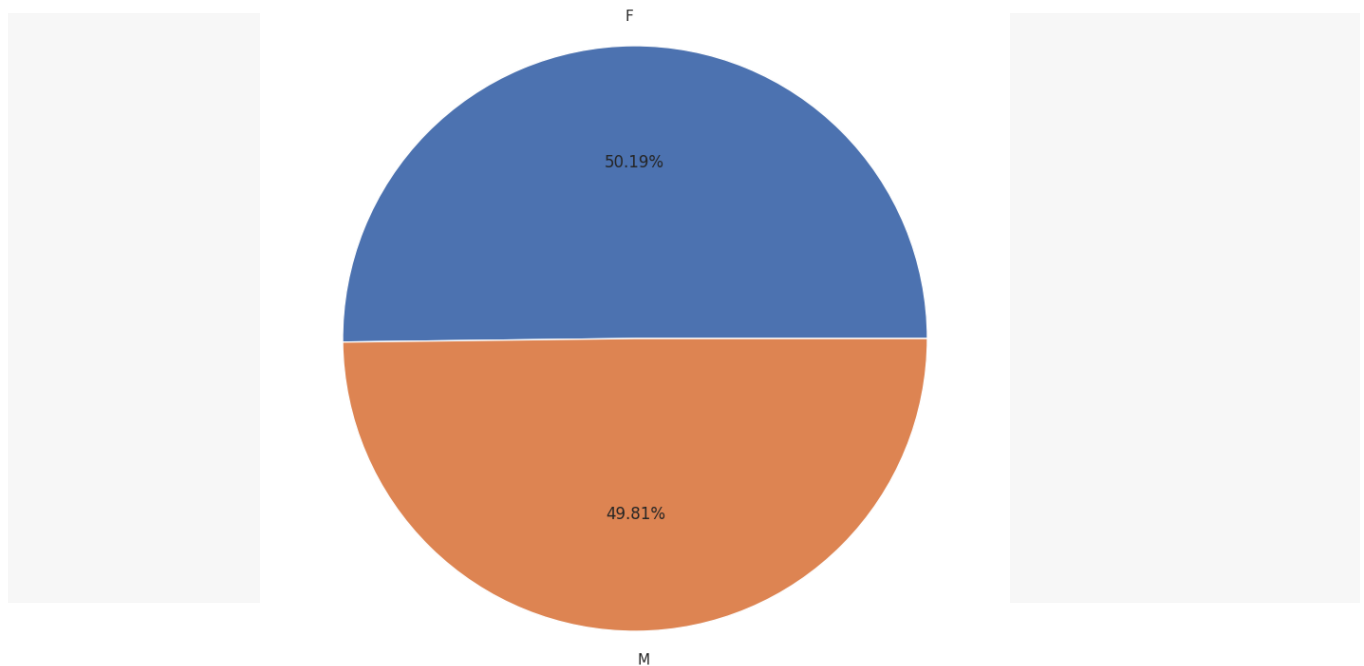
- Next, we will plot a histogram of the age of each user to find the age group interested.
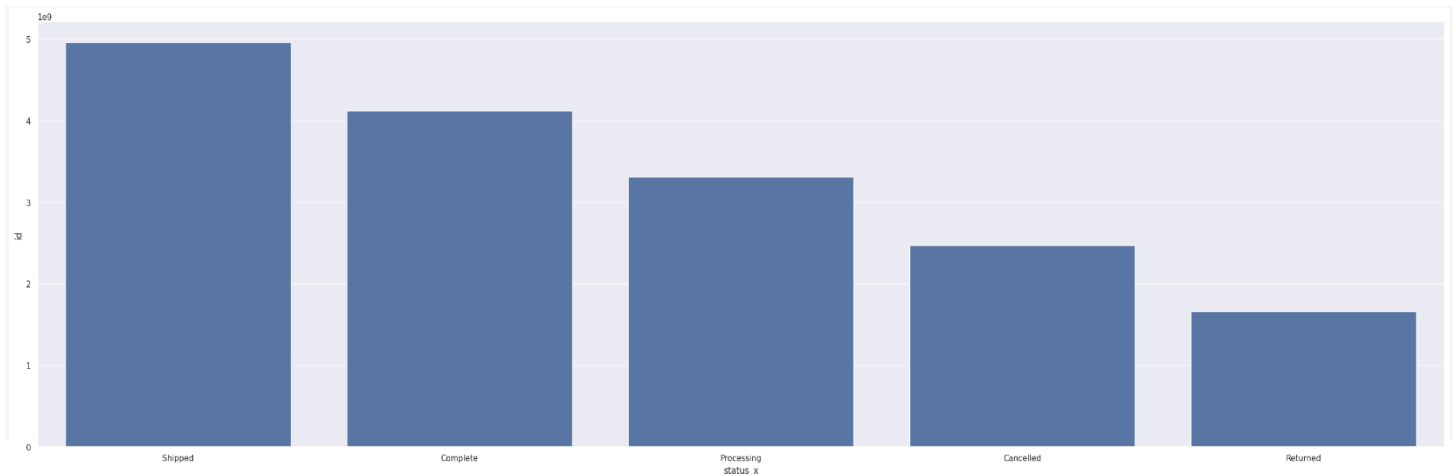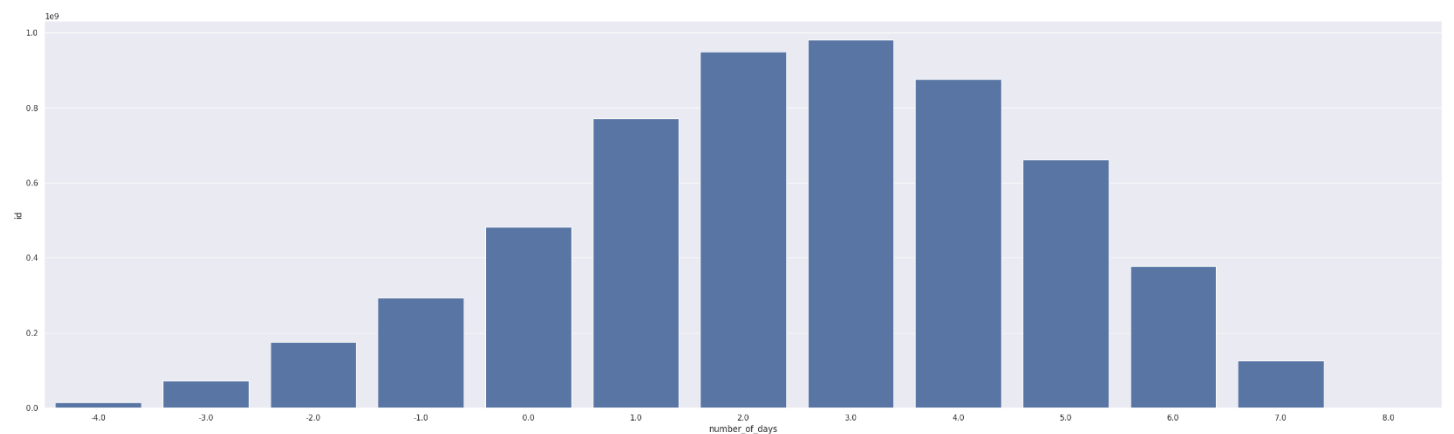

Final Insights:

- The majority of our users are in the age group of 25-35.
- There are more female users than male users on our website.
- As mentioned earlier most of our users are from China, United States and Brasil.

Order Fulfilment Analysis:

- Let's check the order status by plotting a bar graph of the same.

- Also, we will plot a bar graph to check the number of days required to fulfil an order.

- Some values are negative since the delivery has not been done yet.

Final Insights:

- The majority of our orders are in the status of Shipped and completed.
- The average order fulfilment timeline is 2-4 days.
- We need to improve our order fulfilment timeline to reduce the number of orders in the status of Processing.