**Overall Objective :**

The main goal of this Power BI project using the Olist Brazilian E-commerce dataset is to build a smart, interactive dashboard that gives clear insights into how the business is working and how happy the customers are.

This dashboard helps Olist team members to:

* **Track how the business is doing:** Easily see revenue, number of orders, average order value, and delivery performance over time, across states, and by product category.
* **Improve sellers and products:** Spot which sellers and products are doing well or poorly. This helps Olist focus on what’s working and fix what’s not.
* **Make customers happier:** Understand how delivery time affects review scores and customer satisfaction. Find areas where delivery or product issues are making customers unhappy.
* **Solve problems early:** Spot unusual changes like sudden revenue drops, major delivery delays, or sellers getting bad reviews even with high sales. This helps Olist take action early.

In short, this project turns raw data into smart business insights that help Olist grow, improve customer service, and make better decisions.

**Scope of the Project :**

This project covers the full process of creating a Power BI dashboard using the Olist dataset. Here’s what was done:

**1. Data Connection and Cleaning:**

* Got the raw data from the Olist datasets.
* Cleaned the data using Power Query by fixing missing values, converting data types, and creating new useful columns (like Delivery Time, Late Delivery).

**2. Advanced Data Modeling:**

* Built a well-organized data model (star schema) with:
  + **Fact tables**: Like Order Items, Reviews.
  + **Dimension tables**: Like Products, Sellers, Customers, and a Date table.
* Managed complex table relationships properly:
  + Used the correct relationship types (e.g., many-to-one, many-to-many).
  + Allowed smart cross-filtering between related tables.
  + Handled special filtering needs using helper tables (like Review\_Category\_Map) and DAX functions like USERELATIONSHIP where needed.
* Made sure the Date table was correctly set up for time-based analysis.

**3. DAX Measures and KPIs:**

* Created useful metrics using DAX such as:
  + Total Revenue
  + Average Order Value
  + Average Review Score
  + Percentage of Late Deliveries
* Made sure the measures work correctly even when data is missing or filters are applied.

**4. Dashboard Design and User Experience:**

* Designed multiple report pages with clear focus areas:
  + Marketplace Overview
  + Product and Seller Performance
  + Delivery Timeliness
  + Customer Feedback
* Used different types of visuals like bar charts, line charts, scatter plots, maps, donut charts, and tables.
* Added filters and slicers (like by state, year, category) that work across all report pages for easy exploration.

**5. Business Insights and Recommendations:**

* Found meaningful patterns in the data and turned them into easy-to-understand insights.
* Shared basic recommendations, such as:
  + Which sellers or categories need attention.
  + Where delivery delays are affecting customer satisfaction.

**Note:**This project focuses only on analyzing historical data and creating useful visuals. It doesn’t include prediction models or complex financial analysis, but it sets a strong base to add those in the future if needed.

**Olist - Brazilian Marketplace Analysis**

This is the first page of the Power BI report. It gives a quick and clear summary of how Olist’s marketplace is performing overall. It is designed for business stakeholders to quickly understand key metrics and trends.

**1. Overall Marketplace Performance at a Glance:**

* **Total Revenue: R$ 20.31 Million**
  + This means Olist earned over 20 million Brazilian Reais in total from all orders. It shows the platform handles a lot of business.
* **Total Orders: 99K**
  + Almost 1 lakh (99,000) orders were placed. This tells us Olist is very active and gets a lot of customers.
* **Average Order Value: R$ 205.83**
  + On average, every customer spent around R$ 206 per order. This helps understand how much money Olist earns from each sale.
* **Average Delivery Time: 12.4 days**
  + On average, customers get their order in about 12.4 days. This is an important metric for understanding delivery speed, which directly affects how happy customers are.
* **Average Rating: 4.02 out of 5**
  + This shows that most customers are happy with their experience. A rating above 4 is a good sign of customer satisfaction.

**2. Geographic Revenue Distribution (by State):**

* This map shows how much revenue is earned in different states of Brazil.
* **Insight:** Most of the revenue comes from the Southeast region of Brazil, especially São Paulo. This is expected since it’s a big city with lots of buyers.
* **Actionable Tip:** Olist can try to grow in other regions where revenue is low. Or it can make its service even better in São Paulo to stay strong there.

**3. Monthly Sales Trend (Over Time):**

* This line chart shows how sales have changed month by month from late 2016 to late 2018.
* **Growth Trend:** Sales kept increasing steadily until mid-2018. This is a good sign that Olist was growing.
* **Seasonality:** There may be some ups and downs due to seasons or holidays, but the overall trend is upward.
* **Anomaly in October 2018:**
  + Suddenly in October 2018, sales dropped almost to zero.
  + **Insight:** This is not normal. Most likely the dataset ends here or there was a problem collecting data after this date.
  + **Actionable Tip:** This drop should be checked. If the data is incomplete, it should be mentioned clearly in the report to avoid confusion.

**Summary:**

* This page gives a good overall picture of how Olist is performing.
* The growth, high number of orders, and good average rating show that Olist is doing well.
* However, attention is needed on delivery times, regional differences in sales, and the sudden drop in data after October 2018.

**Olist - Product Performance & Sales Drivers (Page 2)**

This page focuses on understanding which product categories are performing the best in terms of sales, revenue, and customer satisfaction. This helps Olist make better decisions about inventory, marketing, and product strategy.

**1. Top Product Categories by Revenue (R$):**

* This bar chart shows which product categories are bringing in the most money.
* **Insight:** Categories like 'cama\_mesa\_banho' (Bed, Bath & Table) and 'beleza\_saude' (Beauty & Health) are the biggest earners. 'informatica\_acessorios' (Computer Accessories) is also performing well.
* **Actionable Tip:** Olist should pay special attention to these top categories by:  
  + Keeping enough stock
  + Offering good prices
  + Promoting them through ads
  + Watching customer reviews closely

**2. Order Share by Product Category:**

* This donut chart shows which categories have the most number of orders.
* **Insight:** The same top categories that earn the most revenue also have the most orders. This means they are very popular with customers.
* **Actionable Tip:**
  + Make sure fulfillment processes (like packaging and delivery) are smooth for these high-volume items.
  + If a category has a lot of orders but low revenue, it may mean low prices. Olist can review pricing or offer bundle deals.

**3. Customer Ratings by Product Category:**

* This bar chart shows the average customer rating for each product category.
* **Insight:** Some categories have very high customer ratings (above 4.5), like:  
  + 'cds\_dvds\_musicais'
  + 'fashion\_roupa\_infant'
  + 'livros\_interesse\_geral'
  + 'construcao\_ferramentas'
* This means customers are very happy with these items.
* **Actionable Tip:**
  + Promote these high-rated categories more in marketing.
  + Add 'Top Rated' or 'Customer Favorite' badges on the website.
  + Learn what makes these products successful and apply those lessons to lower-rated categories.
  + Watch and improve categories with poor ratings to avoid negative customer experiences.

**Overall Recommendations:**

* **Focus on Winning Categories:** Use revenue and order data to invest in top-selling categories like 'cama\_mesa\_banho' and 'beleza\_saude'.
* **Use Customer Ratings as a Guide:** Promote high-rated categories to attract more buyers and improve trust.
* **Plan Inventory and Ads Smartly:** Adjust stock levels and marketing strategies based on each category’s performance and customer feedback.

This page helps Olist decide which product types deserve more investment, attention, and improvement based on solid data.

**Delivery Latency & Logistics Analysis (Page 3)**

This page helps us understand how well Olist delivers products to customers. It shows us where the delivery system is working and where there are problems, especially with delays. This is important because customers get upset when deliveries are slow.

**Main Delivery Metrics:**

1. **Average Delivery Time = 12.4 days**
   * This is quite slow. For an online store, fast delivery is a big advantage. So, this number should be improved.
2. **Total Orders Delivered = 96K**
   * Shows that Olist handles a large number of deliveries.
3. **Late Orders = 7K**
   * This is the number of deliveries that were not on time.
4. **% Late Deliveries = 6.77%**
   * Almost 7 out of every 100 deliveries are late. It’s not terrible, but still needs improvement.

**How Product Weight and Size Affect Delivery Time (Scatter Plot):**

* Heavier and bulkier products (like big furniture) take much longer to deliver — often 20+ days.
* Lighter products get delivered faster.
* So, Olist has trouble delivering large items quickly. They may need special transport or more planning.

**Actionable Idea:** Olist should make a separate plan for heavy and large products. They could use different delivery partners, better packaging, or let customers know early that delivery will take longer for such items.

**Average Delivery Time by Product Category (Line/Bar Chart):**

* Some product categories like Office Furniture (‘moveis\_escritorio’) take over 20 days on average.
* Many others also go over 15 days.

**Important Finding:**

* The **minimum delivery time** for almost all categories is between 1-3 days — this means **fast delivery is possible.**
* The **maximum delivery time** in some cases is extremely bad (195 days!) — this shows that something seriously went wrong in a few cases (maybe lost or delayed badly).

**Actionable Idea:**

* Olist should regularly check if any orders are going past their maximum delivery time and fix those quickly. Also, look deeper into categories that are always slow to improve the system.

**Seller-Wise Delivery & Performance (Table):**

This table shows how individual sellers are performing in terms of:

* Delivery time
* Number of orders
* Customer reviews
* Order cancellations
* Revenue generated

**Key Findings:**

1. **High revenue, low reviews:**
   * Seller 1536 earned over R$500K but got only a 3.36 review score (below the average of 4.02). They need help to improve customer experience.
2. **Worst performers:**
   * Seller 2700 has an average delivery time of 190 days and only 1.00 review score. That’s very bad, even if it’s just one order.
3. **Best performers:**
   * Seller 56 delivered in 3.0 days and got 5.00 review (even though it was just 1 order).
   * Seller 1014 has good balance: 358 orders, 4.08 review score.

**Actionable Ideas:**

* Help and train low-performing sellers.
* Remove sellers who consistently perform poorly.
* Learn from top sellers and encourage others to follow their methods.

**Recommendations:**

Olist can turn its delivery system from a weak point into a strong advantage. This page gives clear steps:

* Make better delivery plans for heavy products.
* Stop extremely delayed orders before they damage customer trust.
* Manage sellers based on their delivery and review performance.

This analysis is very useful for interviews, as it shows how to use data to improve real-world business logistics.

**Customer Satisfaction Analysis Based on Review Trends (Page 4)**

This page focuses on what customers think about Olist's service, using their review ratings to find insights. It helps us understand what factors influence customer satisfaction and what areas need improvement.

**Key Metrics from Reviews:**

1. **Average Review Score = 4.06** (out of 5)
   * This is a good score. It means most customers are happy with Olist.
   * The review score is calculated only for those who left a rating.
2. **Distribution of Ratings:**
   * Majority of reviews are either 5-star or 1-star.
   * This tells us that customers are either very happy or very unhappy — there is not much in between.
   * It shows a polarized experience, possibly depending on the seller, delivery time, or product condition.

**Review Score vs. Delivery Delays (Scatter Plot with Bubble Size):**

* This chart helps us see if delays in delivery affect customer reviews.
* Categories with higher delays generally have lower review scores.
* Bubble size represents the number of reviews.

**Key Finding:**

* Customers **do not like late deliveries**. It clearly affects how they rate their shopping experience.
* For example, categories like Office Furniture with long delivery times have lower review scores.

**Review Score vs. Product Category (Bar/Box Plot):**

* Some categories consistently get better reviews than others.
* Categories like **fashion and health** products tend to have better scores.
* Categories with fragile or bulky items often get lower reviews (due to damage or delivery issues).

**Actionable Ideas:**

1. Prioritize delivery performance for low-rated categories.
2. Work with sellers of these categories to improve product handling, packaging, and delivery speed.

**Impact of Seller Behavior on Review Scores:**

* Sellers who delay orders, provide wrong or damaged products, or don’t communicate properly often get poor reviews.
* There is a strong connection between **seller performance** and **customer satisfaction**.

**Actionable Idea:**

* Create a performance improvement program for sellers with average reviews below 3.5. Offer training, packaging guidance, or penalties for poor service.

**Final Takeaway:**Customer reviews are a direct reflection of product quality, delivery experience, and seller behavior. Olist can use these review insights to:

* Fix delivery delays
* Improve seller accountability
* Enhance overall customer experience

These insights are strong points to discuss in interviews as they clearly show how review data connects with business improvement strategies.

**What This Project Does for Olist (Impact & Value Added):**

Think of this Power BI project as Olist's 'Smart Business Compass'. It takes all the complicated sales, delivery, and customer review information and turns it into clear, easy-to-understand answers.

**Here’s what it helps Olist do, and why it's so valuable:**

**1. Makes Smarter Plans:** Instead of guessing, Olist can now see exactly how much money they're making, how many orders they're getting, and if sales are growing. This helps them decide where to focus next.

*Example:* Like seeing where the most sales come from in Brazil, or spotting if sales suddenly dropped like in October 2018 so they can quickly figure out why.

**2. Helps Them Work Better & Faster:** It points out where deliveries are slow (like for heavy furniture, or with certain sellers who take 190 days!).  
 It also shows who the best-performing sellers are.

*Value:* This means Olist can fix slow deliveries, help struggling sellers get better, and learn from their top sellers to make the whole system more efficient. This saves money and makes deliveries smoother.

**3. Keeps Customers Happier:** We can clearly see what customers think through their review scores. Most are happy, but it highlights specific products or deliveries that led to bad reviews.

*Value:* By understanding what makes customers happy (or unhappy), Olist can make sure they keep buying, reduce complaints, and build a great reputation. It even shows that some customers are okay with longer waits if they know what to expect!

**4. Finds & Fixes Problems Quickly:** If something goes wrong (like a sudden drop in sales, or a seller with really bad reviews), this dashboard flags it immediately.

*Value:* This means Olist doesn't wait weeks to find out about a problem; they can jump on it right away, before it costs them more customers or money.

**5. Helps Everyone Use Numbers, Not Just Gut Feelings:** It gives everyone, from marketing to logistics, an easy way to look at the numbers themselves.

*Value:* This helps different teams talk the same 'data language' and work together better to make Olist more successful.

**Overall:** This project makes Olist more effective, helps them understand their customers deeply, and gives them the clear information they need to grow and succeed.