**EDA Document:**

**Project Overview: Optimizing Bonus Allocation System**

**Introduction:** The company faces inefficiencies in its bonus allocation process, leading to suboptimal resource use and customer dissatisfaction. The current method does not align bonuses with KPIs and business goals, resulting in higher costs and lower customer motivation. To address this, we aim to build a system that optimizes bonus allocation to maximize customer satisfaction while staying within budget constraints.

**Overall Design Strategy:** The data for bonus allocation will be extracted from employee performance metrics, customer satisfaction scores, and sales data. With over 1 million records related to sales transactions and customer feedback, our analysis will be visualized to track key performance indicators (KPIs) and evaluate the effectiveness of the bonus distribution system. A custom SQL query will aggregate the data at a team and customer level for certain visualizations.

**Key Features:**

1. **Optimized Bonus Allocation:** The goal is to maximize customer satisfaction by ensuring that bonuses are allocated based on measurable KPIs, including sales figures, feedback ratings, and customer loyalty.
2. **Cost Management:** The system will minimize costs by ensuring that bonuses are distributed within budget constraints.
3. **Real-Time Detection:** Ensure that the bonus system can adapt in real-time to new data, quickly identifying underperforming areas and adjusting accordingly.

**Data Overview:** Data will be collected from internal business systems:

* **Sales Transactions:** Detailed data on products sold, including product categories, units sold, and revenue generated.
* **Customer Feedback:** Ratings, reviews, and satisfaction surveys from customers.
* **Employee Performance:** Metrics such as sales targets achieved, customer satisfaction scores, and other KPIs.
* The data will be extracted into text files, joined based on customer and employee IDs, and aggregated to create summaries of performance and satisfaction.

**Users:**

1. **Managers and Executives:** Use the dashboard to monitor bonus allocation, ensuring it aligns with company goals.
2. **Employees:** View their performance relative to KPIs and see how their bonus is influenced by their contributions.
3. **HR and Finance Teams:** Track overall budget utilization and the financial impact of bonus allocation.

**Key Questions to Answer:**

* **Managers and Executives:**
  + How well is the bonus allocation aligned with performance KPIs?
  + Which employees or teams are underperforming and might need adjustments to their bonus allocation?
  + How is the bonus system contributing to customer satisfaction and revenue generation?
  + Is the company achieving its profit margin target by optimizing bonus distribution?
* **Employees:**
  + How is their individual performance impacting their bonus allocation?
  + How do customer feedback and satisfaction correlate with the bonuses they receive?

**Descriptive Statistics and Visualization:**

* **Performance vs. Bonus Distribution:** A scatter plot comparing employee performance against the bonus received to assess whether the allocation is equitable and aligns with KPIs.
* **Top Performers:** A leaderboard showing the top performers in terms of sales and customer satisfaction, helping to highlight employees who are contributing most to the company’s revenue.
* **Customer Satisfaction Metrics:** Visualizing customer feedback ratings against the bonuses allocated to customer-facing employees to ensure alignment.
* **Variance in Bonus Distribution:** A line graph showing the variance in bonus distribution across departments and regions, helping to identify any disparities that need to be addressed.

**Conclusion:** Optimizing bonus allocation will ensure that employees are motivated to perform better and that the company is able to maintain a balanced budget while maximizing customer satisfaction. By improving the bonus allocation system, we expect to see a 10% increase in profit margins and a 20% increase in revenue from the solution within the first year.

**Future Considerations:** In the future, we can integrate machine learning algorithms to predict which employees are likely to perform well based on historical data, allowing for dynamic bonus allocation. This could lead to even further optimization of the system and better resource utilization.