Week 10 Deliverables

Group Name: Data Forecasting Team

Team Member's Details

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Problem Description:

The large beverage company in Australia needs to forecast demand for each of their products at the item level, on a weekly basis. Their sales are influenced by various factors including promotions, holidays, and seasonality. The company currently uses an in-house software solution for forecasting, but it often produces unreliable results. They want to explore AI/ML-based forecasting to replace their current system.

EDA:

From my data visualizations, one can notice certain trends that may interest our client. For example, when checking the sales of each product vs. time, I noticed there were many spikes displayed for the SKU1 product. It seems certain factors (either holidays or seasonal changes) had caused this product to jump so favorably. However, SKU2 seemed to have the least change throughout the three years, telling us that nothing significant had changed in the amount of sales on that product.

Considering whether the spikes had anything to do with the promotional sales, I used the bar plot to compare the sales with all of the promos and concluded that only Catalogue promotions had a powerful increase in sales. I couldn't really find any direct correlation patterns with the sales vs price discount, only that the large clusters were within a discount of 0.0 to 0.57, with sales of 4900. Yet at 0.52 was the highest sale, which I can't determine whether it was a holiday that made the sales so high.

In checking whether the holidays had any influence on sales, I saw from all the bar plots that there was a major increase in sales on Christmas, with only a gradual increase on Valentine's day and Easter. Google Mobility didn't really have much influence on Sales, but it appears that there were more sales in the months of Covid, telling us how an emergency crisis could impact the sales positively, instead of negatively.