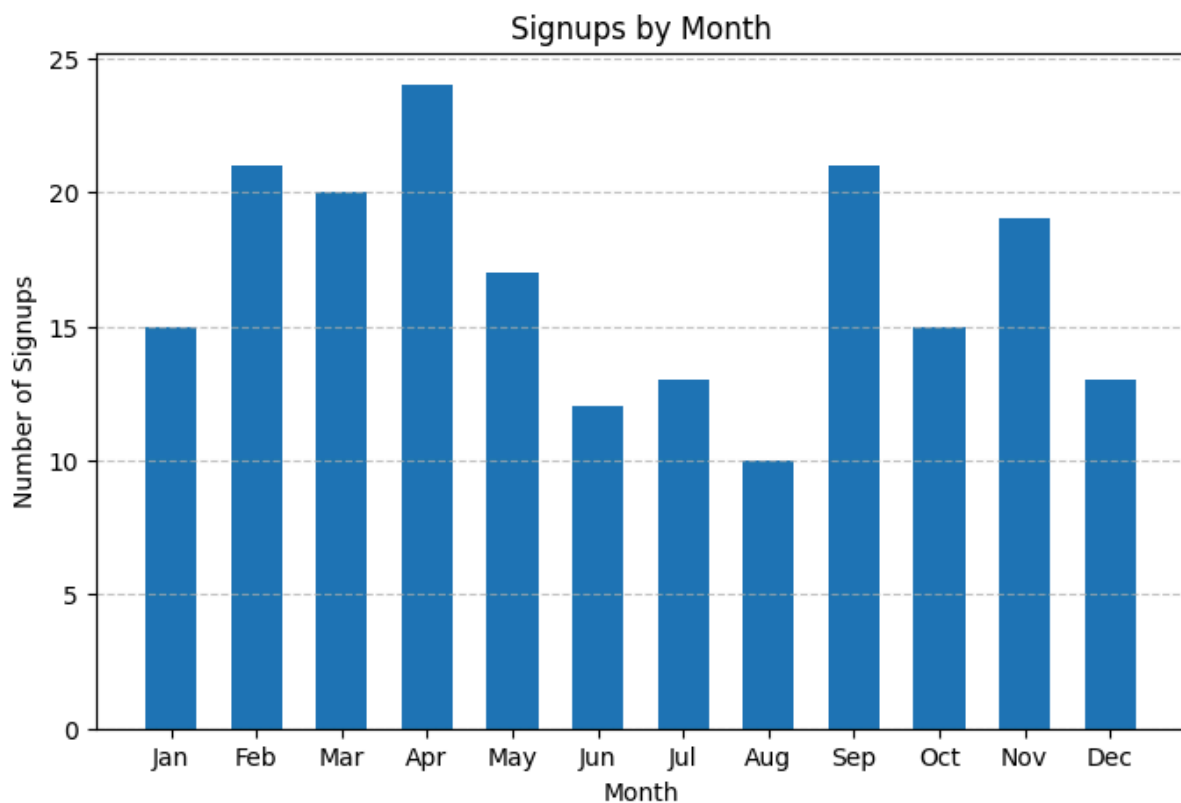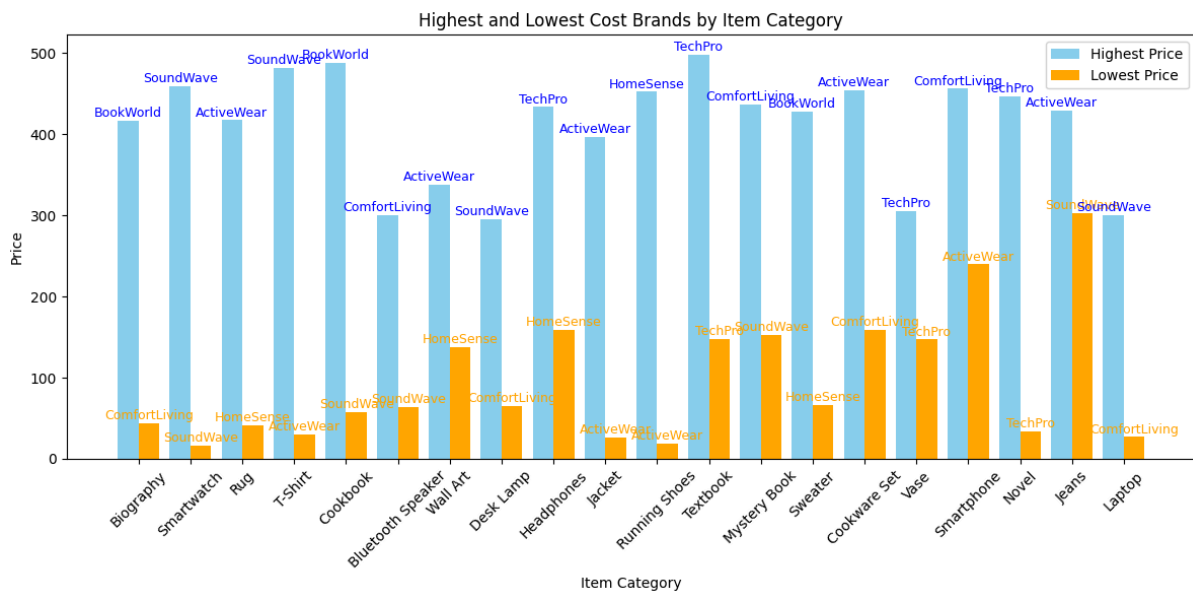Insights noted by R Keertish Kumar:
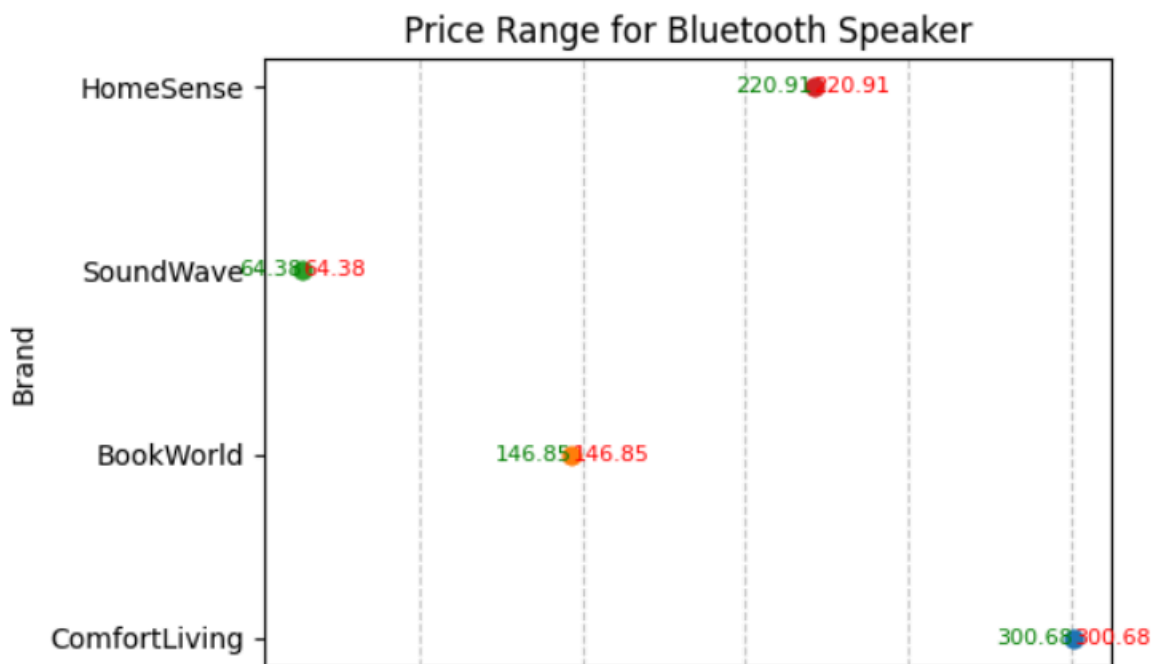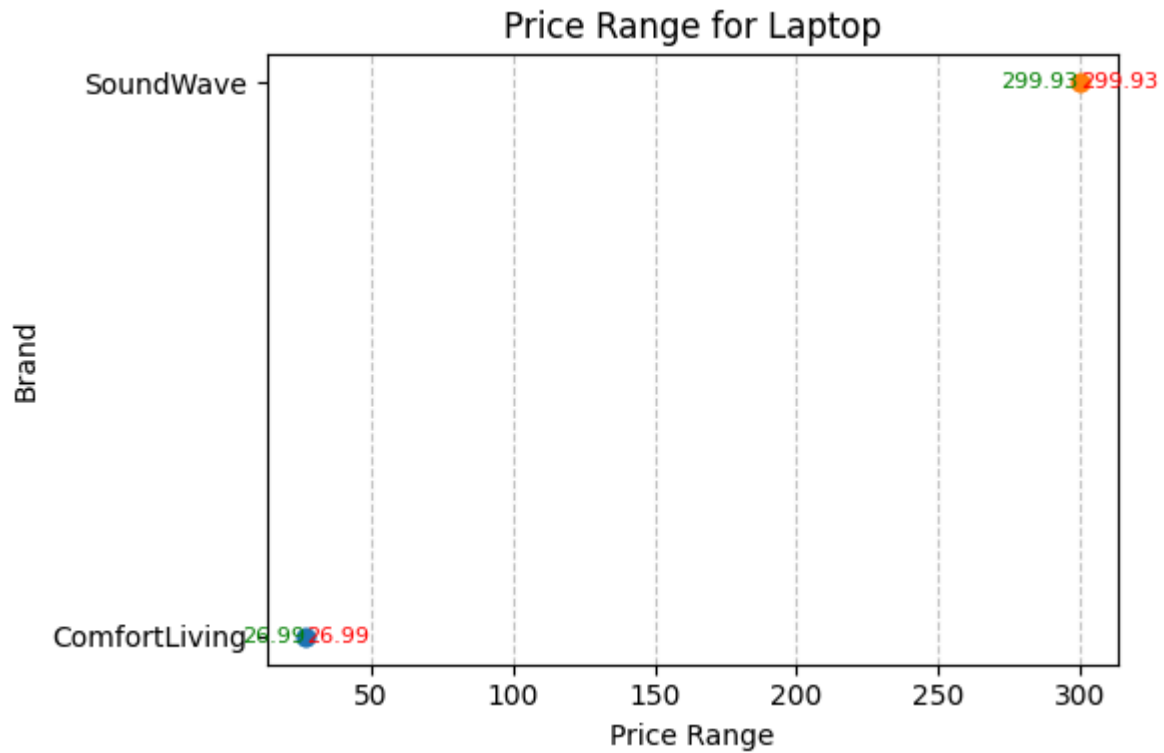
1. Decrease in signups from end of second quarter to start of fourth quarter.

I noticed that over the three years of customer data, customer's signup frequency is less over Jun to Aug indicating we could do targeted marketing with offers for signing up during this period to acquire new customers. A simple EDA done using Dtype datetime with a broader thought to explore monthly activities.

2. To find specific brands for premium and budget segments.

Highest and Lowest Cost Brands by Item Category

Price Range for Laptop

SoundWave — 299.93 299.93

Brand

ComfortLiving 26.99 26.99

Price Range

(x-axis: 50, 100, 150, 200, 250, 300)

Price Range for Bluetooth Speaker

HomeSense — 220.91 220.91

SoundWave 64.38 64.38

Brand

BookWorld — 146.85 146.85

ComfortLiving — 300.68 300.68

For each customer we could do targeted advertising of products that come within their budget range based on transaction history.

3. To invest in decreasing the onboarding period in certain regions.

Average Time to make the first transaction by Region after initial Signup
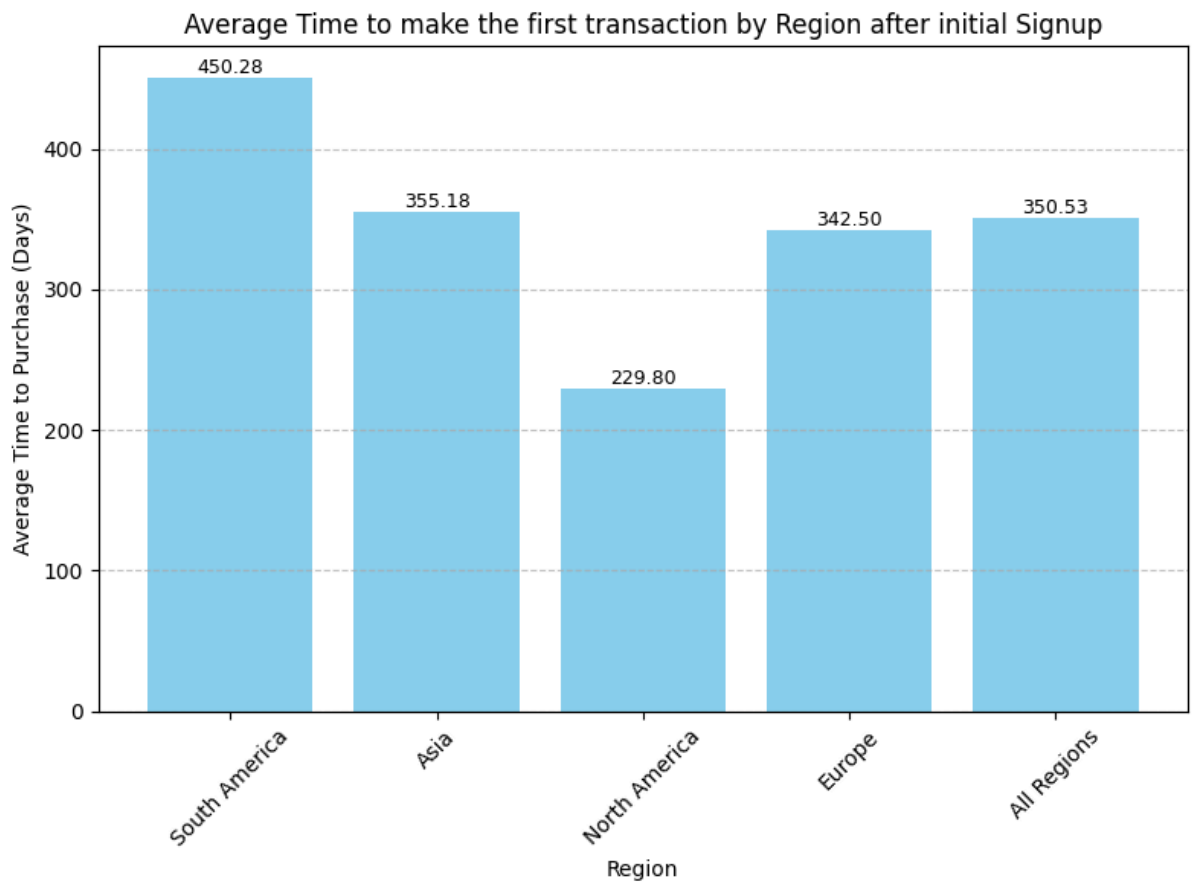
Certain regions like South America have a longer duration before the first purchase compared to a region like North America. Hence, features or offers could be directed towards first purchase.

4. Products with high disparity in transactions when taken across months. We could use it to stock up products before demand.

Top 5 Products with High Disparity in Transactions Across Months

We can thus stock up on items like rugs in May when there is low demand so that we can meet the demand during June to September when the sales are high.

5. To scale up resources based on regions to avoid transaction failure based on past data.

Transaction Heatmap Across 24 Hours by Region
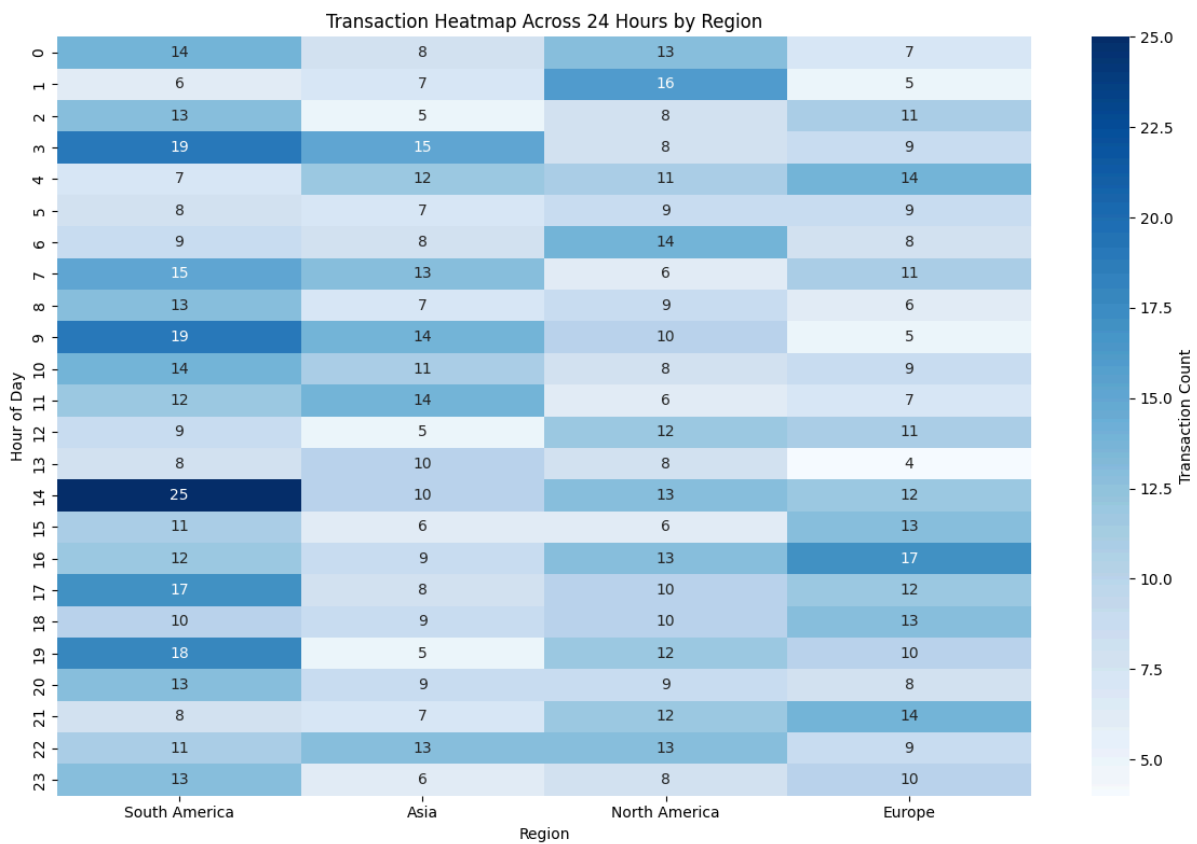
Regions like Asia could have specific hours where the servers could be scaled up to avoid transaction failure while it could be scaled down the other hours to perform cloud cost optimization.