



Customer Experience

Estimate locations of merchants and customers with transaction data

The Big Picture

A leading financial institution had visibility on the card transaction patterns of its customers but did not know where its customers' home locations were, or the locations of the merchants where customers were transacting. The company wanted to build a scalable algorithm to estimate customer and merchant locations to run location-based targeted campaigns for its customers.

The company had the data, but customer and merchant locations were not identified, as this data typically resides with other parties in the transaction chain. It wanted to identify customer and merchant locations, based on transaction behavior. This information could have been purchased, but that option becomes cost-prohibitive given the scale of deployment needed, not to mention creating a dependence for the company. The process needed to be scalable across time, volume of data, and velocity of data. The initial sample data was 3-4 GBs, and the algorithm was to be deployed on 1+ TB of data, for the UK market.

Transformative Solution

Given the low levels of visibility on merchant locations as well as customer locations in the data, the solution was to augment the existing data with third-party data on a sample of all businesses in the UK to enhance the merchant intelligence within the data. The exact third-party data source was finalized after a rigorous data assessment process covering 15+ data sources, across parameters like coverage, quality, granularity, accuracy, and more.

Next, the approach was to leverage text-mining algorithms to extract meaningful location-oriented information from the transaction descriptions captured by the company its transaction data and from the third-party data source. Machine-learning algorithms were then deployed to iteratively estimate customer home locations and merchant locations in the data.

The Change

As a result of the engagement, a terabyte scale algorithm was deployed in the customer environment. The solution estimated home locations for 98% customers and merchant locations for 99% of the merchants in their data. 58% merchant locations were predicted within 0.3 miles of their actual location, whereas 45% of customer locations were estimated within one mile of their home location.

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