**Reporting and Visualization with SSRS**

The third project component related to reporting and visualization through SQL Server Reporting Services (SSRS). SSRS is a mighty tool for building interactive reports that allow users to analyze and visualize data. The purpose of this phase was to come up with a series of reports which will provide valuable insights regarding the detecting of frauds.

The first report that we developed was a Sales Trends Report. This report provided users the ability to analyze the time-based sales performance on a product, region and timeline granularity. The time series of total revenue and quantities sold was presented for inspection and analysis of trends, patterns, and outliers. This was critical for spotting buying behavior changes during a surge or refund that might be causing fake purchasing activity.

Refund Analysis Report focused on tracking refund activity through time. The most interesting part of this report was that it pointed out the products with the greatest refund rates, which let users know which products were more vulnerable to being associated with fraudulent returns. We can work with these stakeholders to analyze between the relationship between sales and refunds with the hope of pinpointing which products are at greatest risk of fraud.

In addition, a High Risk Transactions Report was developed to identify transactions commonly associated with fraud. Transactions that exceeded the usual amount, occurred frequently with refunds, or many sold to the same customer in a short amount of time were flagged in this report. It acted as a red flag sparking further investigation by the fraud detection team.

The Customer Behavior Report was the final SSRS report, reviewing customer purchase behaviour over time. For this report, they segmented customers based on total revenue, purchase frequency and refund history. If the team could identify customers who had a high return rate, or customers who do not have the habit of regularly shopping, they can flag the potential fraudsters, and monitor their activity more closely.

But these reports were meant to be interactive, so the user could drill down into particular data pieces and tailor the analysis as they desired. Users could select time periods, product categories and customer segments to implement features like parameterized reports. Reports had this flexibility and allowed users to get deeper insights in the fraud detection data.