Forecasting Framework For A Global Retailer

In today's competitive retail landscape, forecasting demand accurately makes or breaks any business. A major global retailer relied on a slow and resource-intensive forecasting process that made it hard to keep up competitiveness. With VirtusLab's help the retailer now uses a new forecasting framework that allows for faster creation of forecasts and the addition of further predictions easily.

The challenge

Our client faced a significant challenge with their existing forecasting process. The slow, resource-intensive process lacked the flexibility to easily add long-term forecasts. The prediction of future sales, inventory levels, and customer demand for their products lagged behind, disrupting the retailer's efforts to plan their buying and merchandising strategies. The customer had been seeking to maximise profits, how ever this goal had been undermined by overstocking and understocking of products.

The solution

VirtusLab (VL) implemented a new forecasting framework that streamlined the entire process, making it faster and more efficient than ever before. By introducing parallelisation with Spark, we enabled our client to take advantage of multiple computers and run the process simultaneously, eliminating the bottleneck caused by using only a single computer.

The framework relied on complex time series analysis and statistical models to predict future trends better. VirtusLab processed several hundred terabytes of historical data, analysed it, and ran validation tests to ensure accuracy. The framework VL developed includes handling external data sources and factors such as inflation rates that may impact sales forecasts.

The results

Our client experienced several positive outcomes as a result of implementing the new forecasting framework:

Streamlined Forecasting: the automated forecasting process significantly reduces manual intervention and errors, leading to smoother and faster calculations.

Faster Forecasting: the forecasting time has been **reduced from several days to just an hour**, increasing the productivity and efficiency of the team.

Improved Flexibility: the new framework allows the client to quickly add long-term forecasts and adapt swiftly to changing business requirements.

Enhanced Data Science: data scientists now focus on critical business analysis rather than simply performing manual calculations for forecasts.

The tech stack

LANGUAGES	python	Spark	**CLOUD**	Azure Databricks
DATABASE	HIVE	amazon S3	**MODELLING**	Statistical models
INFRASTRUCTURE	yarn	kubernetes		
CI/CD	Jenkins	Apache Airflow		

Contact details

✉ info@virtuslab.com

**from Poland
and all other countries**

📞 +48 17 778 86 20

**from Germany,
Switzerland and Austria**

📞 +49 30 52014256

**from United Kingdom
& Ireland**

📞 +44 (0)20 4577 1051

POLAND

Kraków Headquarters
Virtus Lab Sp. z o.o.
ul. Szlak 49
31-153 Kraków

Kielce Office
Virtus Lab Sp. z o.o.
ul. Warszawska 25/6
25-512 Kielce

Rzeszów Karowa Office
Virtus Lab Sp. z o.o.
al. Tadeusza Rejtana 20, piętro 2
35-310 Rzeszów

GERMANY

Berlin Office
VirtusLab GmbH
Potsdamer Platz 10
10785 Berlin

UNITED KINGDOM

London Office
Virtuslab Ltd.
40 Bank Street HQ3
London E14 5NR

WWW.VIRTUSLAB.COM

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