INFOCEPTS

Enhancing a Global Media Conglomerate's Viewership Forecasting Process with Machine Learning

Summary

Our client is a global media conglomerate that has achieved significant success through its digital content distribution business. They experienced several challenges in forecasting their viewership across digital platforms. We built a solution powered with machine learning that automatically generates accurate forecasts to empower their business leaders to make informed decisions.

Industry

Mass Media

Users

Finance, Strategy and Insights Executives, Analysts, Content Distribution Teams

Technologies

MicroStrategy, R (Programming Language), Python, Prophet, Apache Spark

Team Size

3 InfoCeptians, 2 Client Associates

The Challenge

Our client is a global media conglomerate that generates multi-billion dollar revenues through digital distribution. They relied on manual forecasting methods to anticipate their viewership across digital platforms to formulate content distribution strategies. Viewership also determines advertising rates and hence accurate forecast of viewership is an important business requirement for our client.

Their manual viewership forecasting methods presented the following major challenges –

- Forecasts were often inaccurate, with significant deviation from actual viewership numbers
- Microsoft Excel based data wrangling for analyzing viewership logs was a laborious task
- Forecasting required significant time and effort, as a result only a handful of decision makers could use the forecasts
- Decision-makers had to rely on a set of fixed forecasting parameters as tweaking these parameters led to critical delays
- Forecasting methods lacked the flexibility to experiment with different permutations and combinations of forecasting parameters required for effective decision making

These challenges made forecasting a weak input for decision makers to rely on. Our customer engaged with us to explore if we could strengthen their forecasting capabilities with an efficient solution.

The Solution

Our client's use case warranted the involvement of our data science team who had to analyze large and unstructured viewership logs to make predictions based on time series data. Our team explored the viewership log data using machine learning algorithms and evaluated several time-series forecasting models. To ensure accuracy of the models, we ran a forecast improvement loop with validation from our client's leadership team.

The above measures enabled us to develop a solution that contains a Facebook Prophet powered algorithm engine. We programmed it using Python around an Apache Spark processing framework and built reporting dashboards with MicroStrategy.

Key features of the solution are -

- It achieves scale and precision with automation and analyst-in-the-loop (*perpetual refinement*) mechanisms
- It accommodates data from six platforms including 30+ providers and five stream modes
- Its forecasting model takes into account key factors such as seasonality, trend and custom inputs critical for the business
- It can handle any permutation and combination of forecasting parameters with ease
- 200+ time series datasets can be processed for forecasting in one go
- Missing data has minimum impact on forecasts

The Results

We successfully delivered a machine learning powered forecasting solution that offers the following benefits –

- Provides forecasts with a minimum accuracy of 85%
- Forecasting timelines have reduced from weeks to minutes
- Decision makers can effortlessly forecast daily, monthly and hourly viewership numbers
- The ability to avail forecasts on a routine basis provides decision-makers greater agility to re-evaluate content distribution strategies
- The solution's statistical and mathematical reasoning capabilities empower business users to make more informed decisions
- Forecasts can be made with granular rather than high-level parameters

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