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Analytics for an Online Retailer: Demand Forecasting and Price Optimization.

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Empresa/Entidad: Rue La La (Company)

NAICS/Códigos del sector: 453998 All Other Miscellaneous Store Retailers (except Tobacco Stores)
453999 All other miscellaneous store retailers (except beer and wine-making supplies stores)
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Resumen: We present our work with an online retailer, Rue La La, as an example of how a retailer can use its wealth of data to optimize pricing decisions on a daily basis. Rue La La is in the online fashion sample sales industry, where they offer extremely limited-time discounts on designer apparel and accessories. One of the retailer's main challenges is pricing and predicting demand for products that it has never sold before, which account for the majority of sales and revenue. To tackle this challenge, we use machine learning techniques to estimate historical lost sales and predict future demand of new products. The nonparametric structure of our demand prediction model, along with the dependence of a product's demand on the price of competing products, pose new challenges on translating the

demand forecasts into a pricing policy. We develop an algorithm to efficiently solve the subsequent multiproduct price optimization that incorporates reference price effects, and we create and implement this algorithm into a pricing decision support tool for Rue La La's daily use. We conduct a field experiment and find that sales does not decrease because of implementing tool recommended price increases for medium and high price point products. Finally, we estimate an increase in revenue of the test group by approximately 9.7% with an associated 90% confidence interval of [2.3%, 17.8%]. [ABSTRACT FROM AUTHOR]

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