Goal

The goal for this project is to find similar products to given product based on customers' buying history by building machine learning model.

Data

Revolution Dancewear belongs to fashion industry. Different types of products have different selling seasons. So, for the input data are three different datasets (Dancewear, Costumes and Tenth House), which are three different types products. And they are transactional data from fiscal year 2019. In fashion industry, companies update their products year by year, as what Revolution Dancewear have done since the company was found. Therefore, we believe older historical data is not helpful to fit to the model.

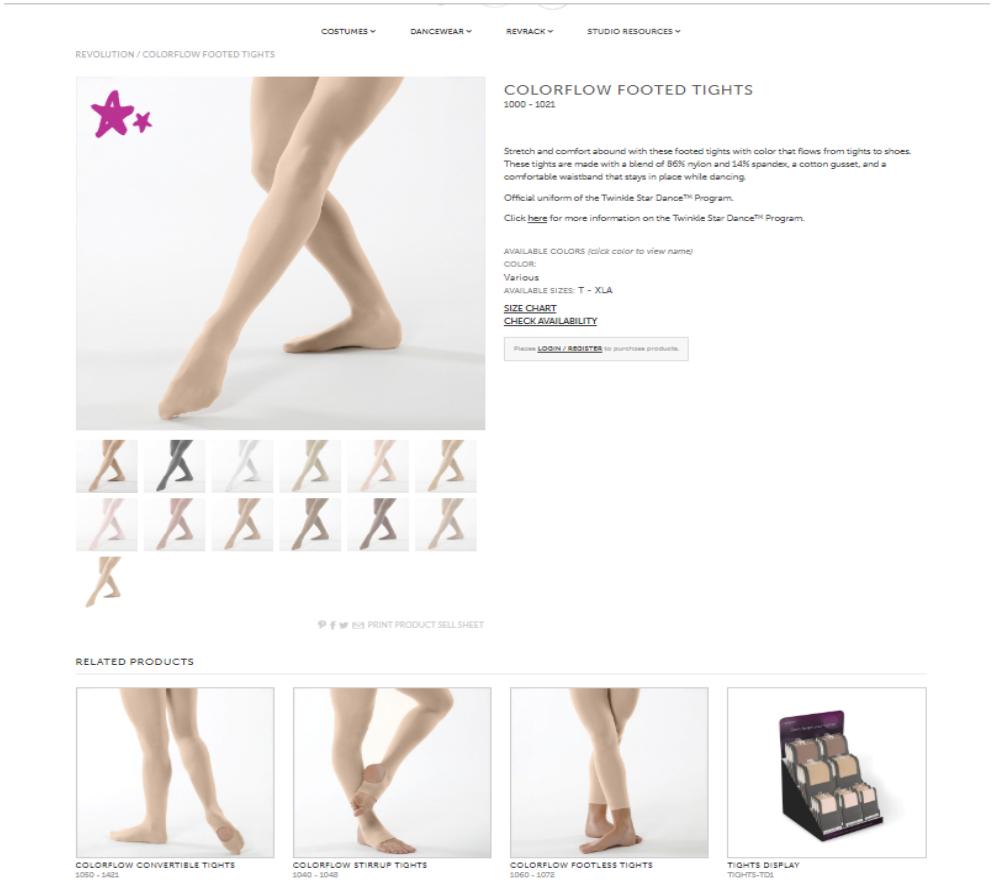
Fit a model

We created item-based rating matrix. Column represents Customer ID, row represents Product ID, and the values are QtyOrdered and filled missing values with zero. For implementing collaborative filtering, we have to use ratings, so the order quantities are transformed to ratings based on the quantity quartiles. Then KNN is applied to find similar items.

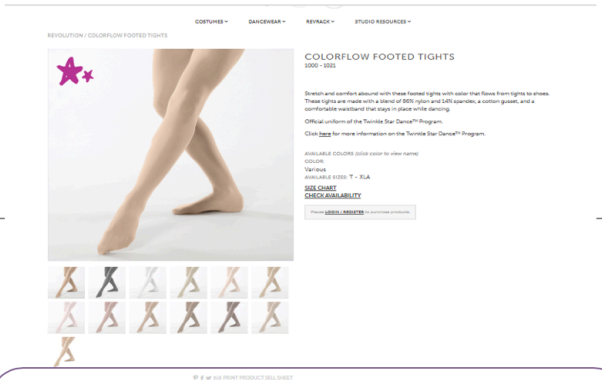
For evaluations, we split the data into training and validation sets. The training portion was used to develop a collaborative filtering model, while the validation portion evaluated the model's performance.

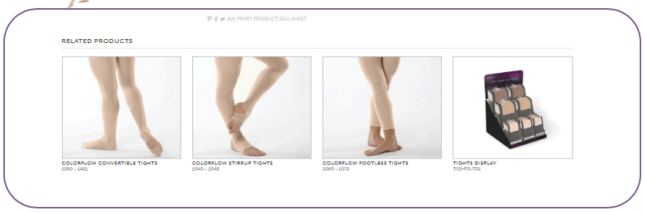
Applications

This is what the E-commerce site looks like currently.



After implementing the recommendation model's output to the website, there will be new section for recommendations showed as follow:





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