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User-Based Cannibalization Mitigation in an Online Marketplace

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Abstract : Online marketplaces are not only digital places where consumers buy and sell merchandise, and they are also destinations for brands to connect with real consumers at the moment when customers are in the shopping mindset. For many marketplaces, brands have been important partners through advertising. There can be, however, a risk of advertising impacting a consumer’s shopping journey if it hurts the use experience or takes the user away from the site. Both could lead to the loss of transaction revenue for the marketplace. In this paper, we present user-based methods for cannibalization control by selectively turning off ads to users who are likely to be cannibalized by ads subject to business objectives. We present ways of measuring cannibalization of advertising in the context of an online marketplace and propose novel ways of measuring cannibalization through purchase propensity and uplift modeling. A/B testing has shown that our methods can significantly improve user purchase and engagement metrics while operating within business objectives. To our knowledge, this is the first paper that addresses cannibalization mitigation at the user-level in the context of advertising.

Keywords : cannibalization, machine learning, online marketplace, revenue optimization, yield optimization
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