OFFER PERSONALIZATION USING DEEP NEURAL NETWORK AND MULTI-OBJECTIVE OPTIMIZATION

Anonymous authors
Paper under double-blind review

ABSTRACT

Personalized marketing has become important for large scale to small scale e-retail firms due to significant raise in online shopping and market competition. Increase in online shopping and high market competition has led to an increase in promotional expenditure for online retailers. Within these firms, the category manager has to solve the promotion optimization problem for each consumer segment and item combination, to be able to design the best offer for each period in a finite horizon, so as to maximize the retailer's profit. This paper considers the problem of planning sales promotions at the intersection of consumer, item and time in e-retail setting, where we first predict item purchase propensity and then estimate the consumer offer elasticity for solving offer optimization. We build deep neural network model to predict purchase propensity, simulation approach for consumer elasticity and finally offer optimization to compute best offer at consumer item level.