Personalized Email Marketing Strategy: A Reinforcement Learning Approach

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Abstract : Email marketing is one of the most important segments of online marketing. It has been proved to be the most effective way to acquire and retain customers. The email content is vital to customers. Different customers may have different familiarity with a product, so a successful marketing strategy must personalize email content based on individual customers' product affinity. In this study, we build our personalized email marketing strategy with three types of emails: nurture, promotion, and conversion. Each type of email has a different influence on customers. We investigate this difference by analyzing customers' open rates, click rates and opt-out rates. Feature importance from response models is also analyzed. The goal of the marketing strategy is to improve the click rate on conversion-type emails. To build the personalized strategy, we formulate the problem as a reinforcement learning problem and adopt a Q-learning algorithm with variations. The simulation results show that our model-based strategy outperforms the current marketer's strategy.

Keywords : email marketing, email content, reinforcement learning, machine learning, Q-learning

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