

## Modeling Usage Patterns of Mobile App Service in App Market Using Hidden Markov Model

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**Abstract :** Mobile app service ecosystem has been abruptly emerged, explosively grown, and dynamically transformed. In contrast with product markets in which product sales directly cause increment in firm's income, customer's usage is less visible but more valuable in service market. Especially, the market situation with cutthroat competition in mobile app store makes securing and keeping of users as vital. Although a few service firms try to manage their apps' usage patterns by fitting on S-curve or applying other forecasting techniques, the time series approaches based on past sequential data are subject to fundamental limitation in the market where customer's attention is being moved unpredictably and dynamically. We therefore propose a new conceptual approach for detecting usage pattern of mobile app service with Hidden Markov Model (HMM) which is based on the dual stochastic structure and mainly used to clarify unpredictable and dynamic sequential patterns in voice recognition or stock forecasting. Our approach could be practically utilized for app service firms to manage their services' lifecycles and academically expanded to other markets.

**Keywords :** mobile app service, usage pattern, Hidden Markov Model, pattern detection

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