Markov Chain Applicaition in Recommendation System

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2021-01-21

차 례

Introduction (Markov Chain Applicaition in Personalized Recommendation System)

Recommendation system is one of the hot topics these days. Companies like Netflix and Watcha are making great success using the recommendation system as a key technology. as I know, they are using item-based or user-based recommendation systems or Hybrid Ensemble Technique. But Usr's web log data or Purchase data contians TimeSeries history, which is one of most important feature in prediction of future works. I Think it would be modeled as a Markov Chain, further more MDP or RL Problem

We will be able to answer 'what is the best recommendation item or what is optimal action in now ?' in the process of solving this problem.

Unlike User-based and Item=based Recomendation System, I want to create a more personalized agent.

Problem Formulation

There is a clear limit because I do not know the Makov chain perfectly yet. Following, the basic level of Problem Folmulation I tried is described.

I'll give you an example MDP with Netflix that I like.

- State : set of recent history of Watching Movies. ex) recent 5 history of recent Movie Title and Raiting
- Action : Based on that history(State) recommend several similar movies, which will be action of each of Recommendation
- Trainsition Probability : ? 1 or 0
- Reward : if User see the Recommended Movies +1 else 0 or Rating Point

we will find what is Optimal action to maximize the reward,

the agent will be traind, The more rewards receive, the better will recommend

FInally, The more users use, the more likely have a better personalized agent.

Imitation

yet, I only came up with ideas, but I do not know how to model them perfectly.

what is Transition Probability? .. State?

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"Done"
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## [1] "Done"
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