Geo-social Influence Spanning Maximization

Abstract:

Influence maximization has attracted considerable attention in recent years as a means of enhancing marketing campaigns through social networks. In real applications, companies often run surveys for new products, and perform market tests via social networks before they produce the new products. In general, these companies are only able to choose a small number of social users to trial their new products due to financial restrictions. So, the question is: Which users should be targeted by the companies if the goal is to seed the social network such that as many users as possible will hear about the products. This well studied problem is commonly referred to as *Influence Maximization*.

Existing System:

Influence maximization is a recent well-studied problem developed for identifying a small set of users that are most likely to "influence" the maximum number of users in a social network. The problem has attracted a lot of attention as it provides a way to improve marketing, branding, and product adoption. However, existing studies rarely consider the physical locations of the social users, but location is an important factor in targeted marketing. In this paper, we propose and investigate the problem of influence maximization in location-aware social networks, or, more generally, *Geo-social Influence Spanning Maximization*. Given a query q composed of a region R, a regional acceptance rate _, and an integer k as seed selection budget, our aim is to find the maximum geographic spanning regions (MGSR). We refer to this as the MGSR problem. Our approach differs from previous work as we focus more on identifying the maximum spanning geographical regions in the region R, rather than just the number of activated users in the given network like the traditional influence maximization problem, and in the query region like the location aware influence maximization problem. This research can advance the effect of online campaigns in viral marketing by considering the locations of social users. To address the MGSR problem, we first show it is an NP-Hard problem. Next, we present a greedy

algorithm with a $1-1/e$ approximation ratio to solve the problem and further improve its efficiency by developing an upper bound based approach.

Proposed System:

We propose and formally define the novel problem of maximum geographic spanning regions over location aware social networks, which takes a query region, a budget k of seed selection, and a locally minimal covering ratio ρ as parameters. Our approach can compute the top-k selected seed nodes, and capture locality effects. By doing this, query users can easily observe the quality of the selected k seeds based on the geographical coverage within the query region. The larger the geographical coverage influenced by the k seeds, the better the quality of the seed selection strategy is. Using the approach, users can easily determine the seed set that maximally influences the users' preferred regions, providing a new and convenient way to make decision on when and where to launch marketing campaigns.

Modules:

- Greedy Approach.
- Upper Bound based Approach.

SYSTEM REQUIREMENTS

H/W System Configuration:-

Processor	-	Pentium –III
RAM	-	256 MB (min)
Hard Disk	-	20 GB
Key Board	-	Standard Windows Keyboard
Mouse	-	Two or Three Button Mouse
Monitor	-	SVGA

S/W System Configuration:-

Operating System	:	Windows95/98/2000/XP
Application Server	:	Tomcat5.0/6.X
Front End	:	HTML, Jsp
Scripts	:	JavaScript.
Server side Script	:	Java Server Pages.
Database	:	MySQL 5.0
Database Connectivity	:	JDBC