



Data Mining for Business Applications

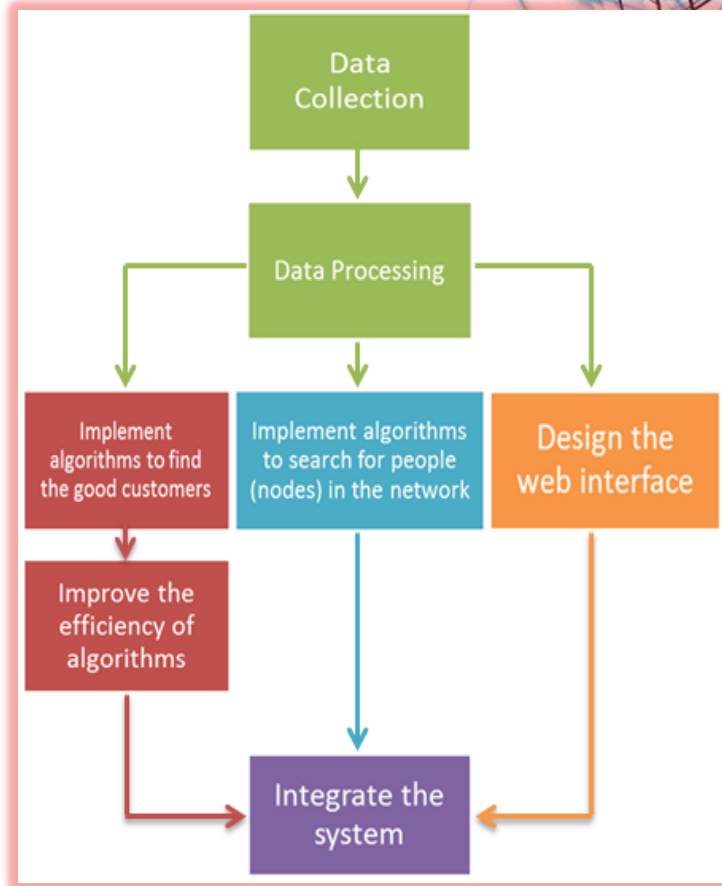
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Introduction

Viral Marketing, the idea of exploiting social interactions of users to propagate the awareness for products, has gained considerable focus in recent years. By using this method, a person who knows some product information may tell it to his friends, and his friends who received the information may then tell it to some of his other friends and so on. Eventually, many people in the network may get to know about this product information. This technique has become prevalent in the business field in recent years because the promotional cost could be reduced in a large extent by just promoting the products to a few people who have higher influencing behavior in the network. After receiving the product information, they will spread the information out in the social network.

Workflow of the Project



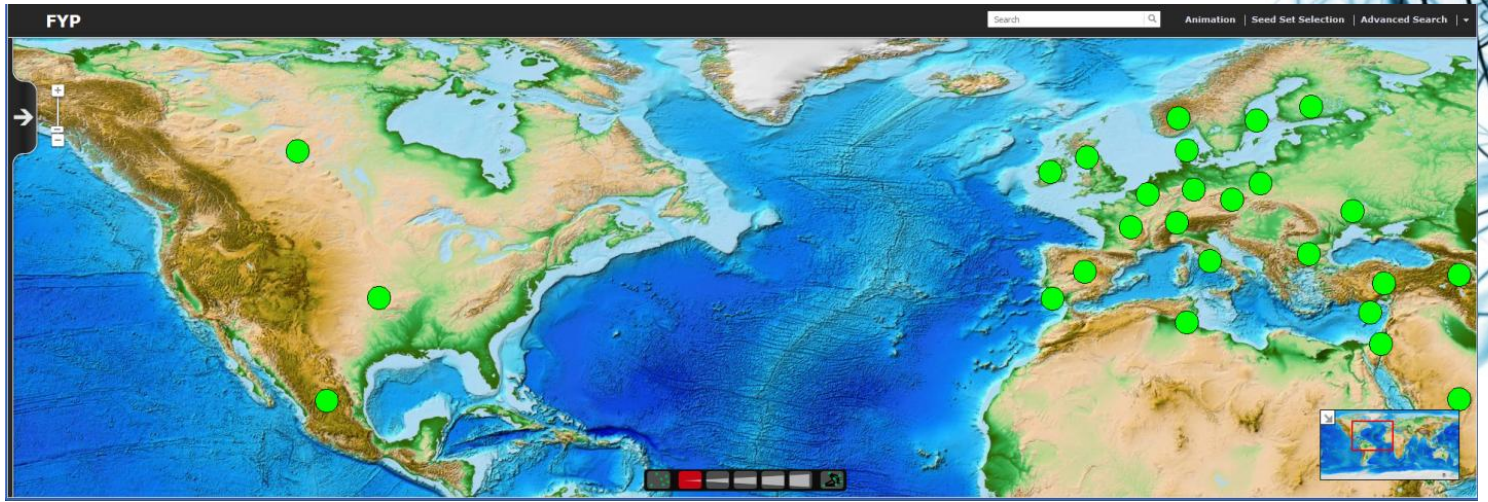
Objectives

In this project, we aimed to achieve 3 goals.

1. Implement algorithms to choose the best customers for multiple products.
2. Implement a keyword query to search for particular potential customers in an efficient manner.
3. Display the result of the best theoretical customers for advertisement on a webpage.

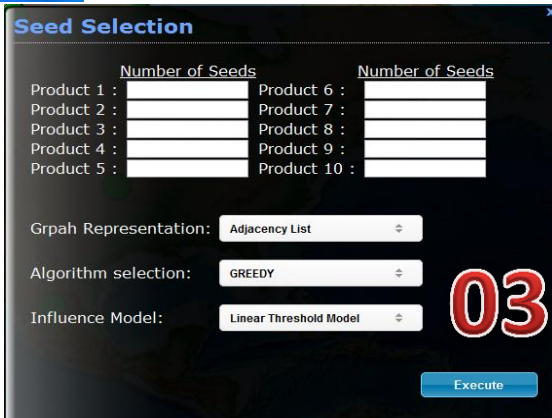
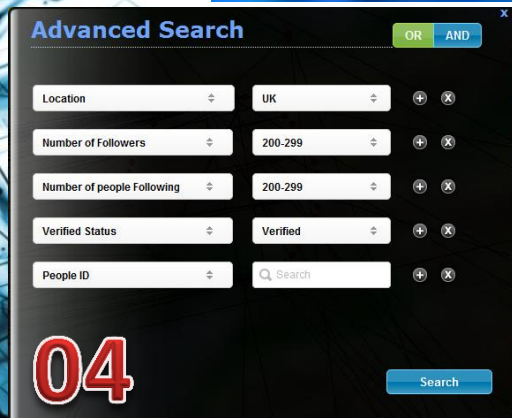
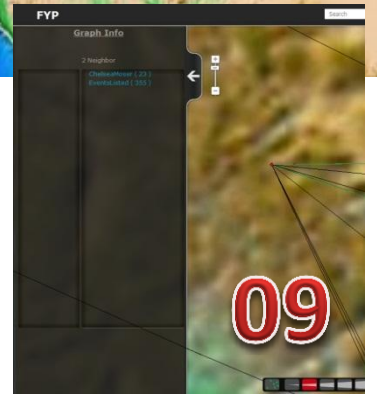
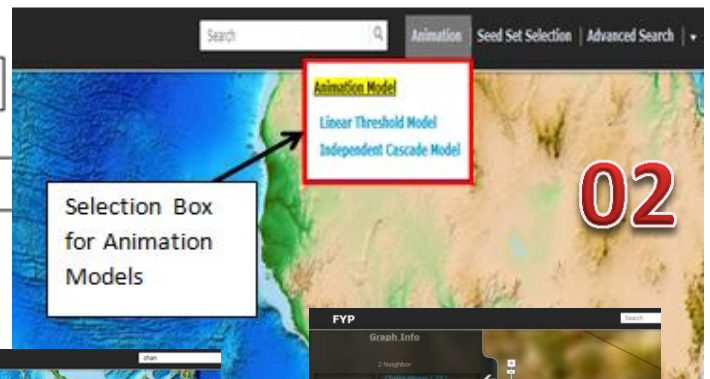
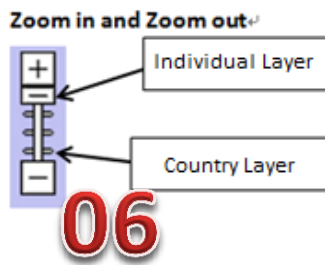
In this project, we have mined information from social networks and implemented a web system. The web system enables marketers to specify a social network and the number of people for promotion, and then the system will recommend the best customers for promotions so that the influence can be maximized in the network. The system also supports some features such as searching for particular users in the network and animating the influence spread step by step.

Interface of the Web



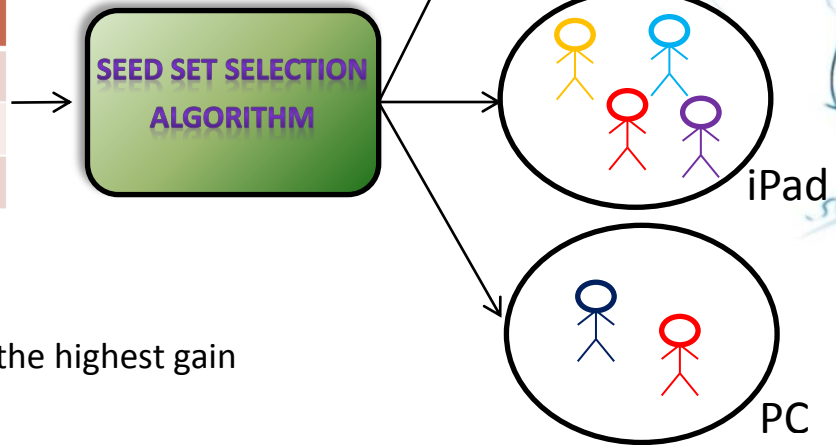
Features of the System

1. Basic Keyword Search
2. Animation
3. Seed Set Selection
4. Advanced Search
5. Resolution Bar
6. Zoom Level
7. Display of node Information
8. Overview Map
9. Highlight of Neighbors of a Node
10. List of Relationship between Two Layers



Algorithms

Product	No. of people being promoted
TV	3
iPad	4
PC	2



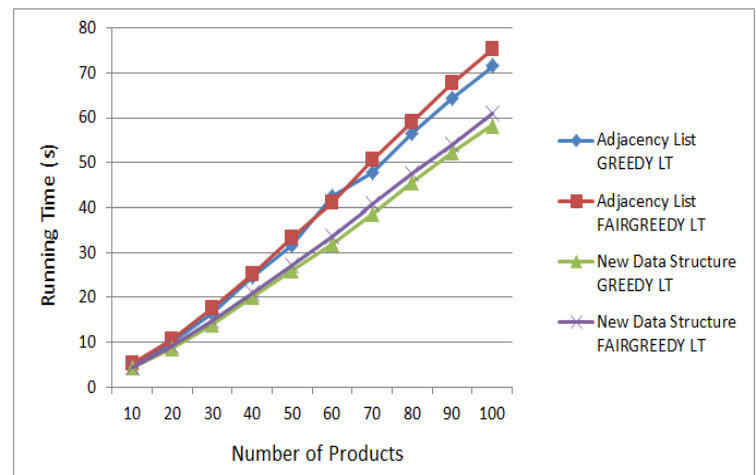
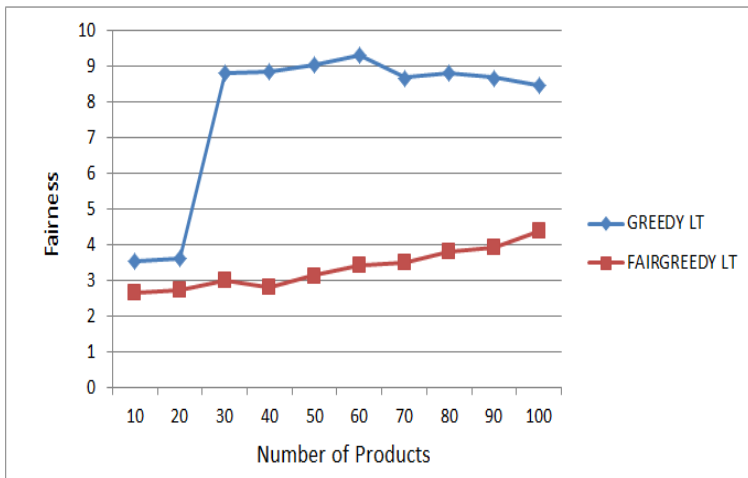
GREEDY Algorithm

- ✓ Continue to add people with the highest gain

FAIRGREEDY Algorithm

- ✓ Add people with highest gain to the set of product with the lowest influence power currently
- ✓ Use performance to trade fairness

Experiments



Conclusion

In our project, we implemented a user-friendly web system to recommend the best customers for advertisements for multiple products. The integrated system can enable marketers to select customers for promotion more effectively and thus generate greater profits. We have added a number of different features to the web system. After the system was completed, we tested the fairness of the system and the running time of the products under different data structures and algorithms. The results of the experiments were satisfying.