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Creating the Social Web – Assignment 2

Social Network of AJAX Books

Goal:

The idea for this experiment comes from an article on Agile Ajax [1]. AJAX is one of the newest and hottest techniques for web developers today. It can be used with many programming languages such as HTML, ASP.NET, JSP, JSF, PHP, Ruby. So we can assume that many developers will likely buy AJAX books. In this experiment, I want to study the social network of AJAX books and other programming language books that have been bought by developers. I want to examine three research questions:

RQ1: What are important AJAX books that have been used by most users?

RQ2: Which techniques that developers usually used with AJAX?

RQ3: Are the social network of AJAX books and other programming language books stable or not over a period of time?

Method:

We examine Amazon [2] and find that it provides the information about the books that have been bought together with a specific book. We can extract this information from the section “*Customer who bought this item also bought*“ at Amazon. So starting with a list of common AJAX books, we can extract the other books related to the starting books. We repeat the process for some iteration and build a network of these books.

The tool to extract this information is written in C# and Html Agility Pack [3]. We manually identify the XPATH to extract the desiring information at Amazon. Given XPATH information, the tool can atomically download pages from Amazon and build the network of book.

We extract three datasets. The first one starting with 4 AJAX books recommended by Ajaxian [4], is downloaded in 10/06/06 with 3, 4 & 5 iterations. The second one also starting with 4 AJAX books recommended by Ajaxian [4], is downloaded in 10/11/06 with 3,4 & 5 iterations. The last one starting with 18 AJAX books recommended by Agile Ajax [1], is downloaded in 10/11/06 with 3 iterations. For the retrieved book, we manually classify them to different kinds of programming languages. The datasets are visualized using Pajek[5].

Results & Discussion:

The first and second datasets are identical. They contains 57, 101 and 152 books corresponding with 3,4 and 5 iterations (Figure 1). While AJAX, CSS and Javascript books are central, we also have some subsets of books, especially the .NET books. This shows that the network is not only strictly related in AJAX developing but also extent to many other programming languages. Table 1 totals up the number of books belong to other programming languages in the network. It is interesting to me that most popular books related to AJAX books are not only web developing books. We have a lot of books in Object Oriented Design /

Software Engineering and J2EE/WinForm NET developing. Contrary to our expectation, it seems there is no or weak relationship between some web developing languages like JSP/PHP and AJAX. Now we can answer to the RQ2, *the most techniques that user usually learn (and hopefully use) together with AJAX are Javascript(DHTML), CSS and ASP.NET.*

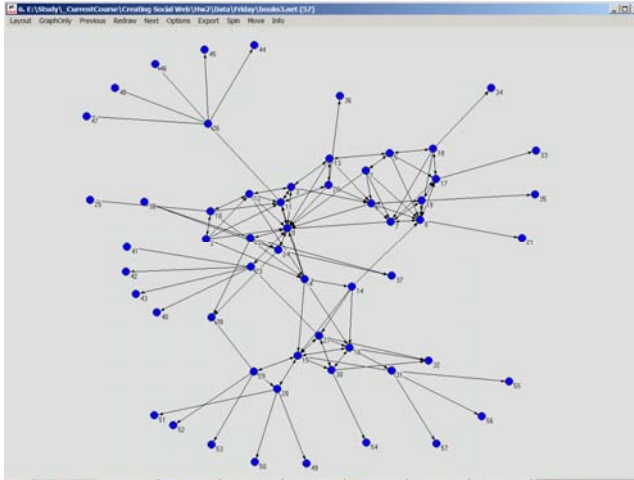


Fig1 (a) dataset 1 & 2 with 3 iteration

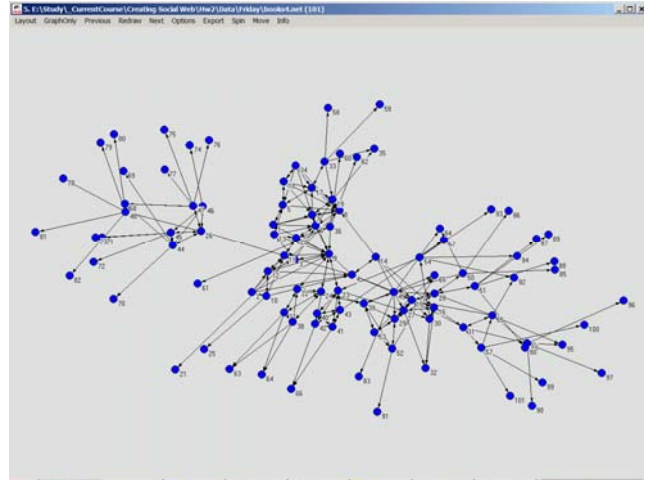


Fig1 (b) dataset 1 & 2 with 4 iteration

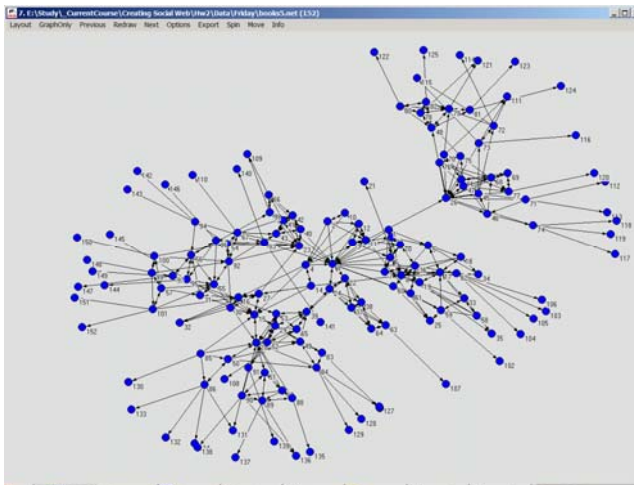


Fig1 (c) dataset 1 & 2 with 5 iteration

To answer the RQ1, we calculate the rank of AJAX nodes, the number of edges that link to AJAX nodes (Table 2). Another interesting result! *The AJAX books that have been bought most by users are “Ajax in Action” and “Professional Ajax (Programmer to Programmer)”.* Both of them are not in the starting AJAX book list recommended by Ajaxian.

Languages	3 iteration	4 iteration	5 iteration
ASP.NET	5	13	16
C++	1	5	10
CSS	6	9	10
Java (J2EE, JavaBean)	9	18	25
JavaScript (HTML, DHTML)	9	12	12
JSP / Servlet	1	2	4
NET (C#, VB.NET)	1	8	17
PHP	0	0	1
Software Design / Software Engineering	8	15	28
Rail / Ruby	4	6	7

Table 1: The number of book of different kinds of programming languages

Books	3 iteration	4 iteration	5 iteration
Ajax Hacks	1	1	1
Foundations of Ajax (Foundation)	4	4	4
Head Rush Ajax	4	4	4
Ajax in Action	13	15	19
Ajax Design Patterns	2	2	2
Professional Ajax (Programmer to Programmer)	7	7	7
Ajax Patterns and Best Practices (Expert's Voice)	4	4	4
Pro JSF and Ajax: Building Rich Internet Components (Pro)	0	0	1
Foundations of Atlas: Rapid Ajax Development with ASP.NET 2.0	0	0	1

Table 2: The number of books that have relationship with each AJAX book

To answer RQ3, we need to diff two datasets over a period of time. However, we find out that one week is not enough for this kind of social network (the dataset 1 & 2 are identical). So we decide to extract the dataset 3 on 10/11/06 to compare with an old dataset provided by Agile Ajax on 08/21/06. Both datasets start with 18 related AJAX books and run with 3 iterations. Agile dataset contains 121 books while our dataset has 126 books. We find out that our dataset has 5 new books just released in September and October 2006. All of them are not AJAX books. *So at this time we conclude that the social network of AJAX books and other programming language books will be stable for short time (several months).* It can be explained that not too many good books are published every year on AJAX and it takes times to let new books be popular and bought by users, especially in the case there are already several good books on AJAX topic.

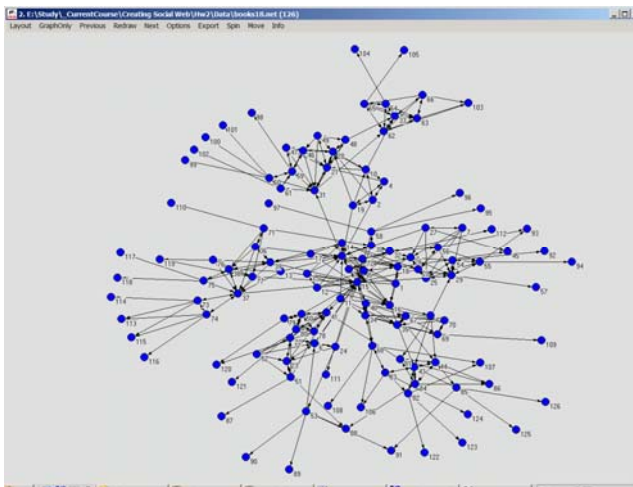


Fig2 (a) Our dataset 3

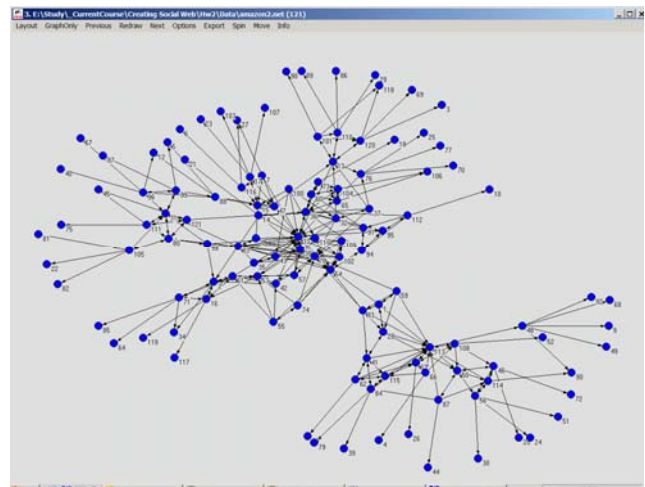


Fig2 (b) Agile dataset

Future works:

For RQ1, we may use other information like the rate of the users to get good AJAX books. Are the books most bought by users also the highest rate books?

For RQ3, long period datasets, for example one year later, may be more appropriate to examine this kind of social network.

References:

- [1] Agile Ajax, http://blogs.pathf.com/agileajax/2006/08/social_network.html
- [2] Amazon, <http://www.amazon.com>
- [3] Html Agility Pack, <http://www.codeplex.com/Wiki/View.aspx?ProjectName=htmlagilitypack>
- [4] Ajaxian, <http://ajaxian.com/archives/ajax-book-review-series>
- [5] Pajek, <http://vlado.fmf.uni-lj.si/pub/networks/pajek/>