Conference Paper “last.forward”

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Abstract

"last.forward" is an open source software for analyzing and visualizing social networks. This visualization represents the user relations of the involved ones and analyses are provided over existing social relations. Often coherent information on web-based systems is to be found scattered stored. Therefore "last.forward" offers the possibility to represent many data and their connections. Conventional static information is brought dynamically into a visualized form and can be indicated in only one application. It is possible to point out additionally demographic factors of the involved relations. The evaluation of the relations is helpfully supported by statistics. Result of our project was the application of the philosophy of the music platform “lastFM”, where we are visualizing user-specific relations as friends, musical neighbours and group membership with our system .

Index-Terms

Graph visualization, Information visualization, Navigation techniques, Interaction techniques,Graphical user Interfaces, Prefuse Visualization Toolkit

Introduction

One of the key terms within all possible social ranges is: "cross-linking". Of mobility over communication up to social and political acting - everywhere cross-linking plays a role. The analysis of social networks was originally a domain of the classical social sciences. The problem is that social networks can be plotted only with difficulty, for example in the so-called "Soziograms". Social networks function after the model of material friendships and contacts. The participants can manufacture friendships, or general relations, to other users of the social network. Further those user can regard to the friends of other users. Thus it will be possible to develop contacts over friends to strange users and to extend the own friend circle. During this Many-to-Many communication everyone can participate without overcoming of large barriers.
With these networks it usually concerns an internet side, on which registered users can present themselves over a profile side and step with one another into contact.
The target groups of the social networks differ clearly. For example

the objective of OpenBC (that is now called Xing) is attaching vocational contacts. The two million users are usually independent or employed. The probably most well-known social network is MySpace with approximately 60 million members. MySpace is used generally of young people as communication platform. Straight one at times of the community hype is a continuous interest in the analysis of the emergence to determine the change and the consequences of these social networks. Further one tries to describe concrete networks empirically and/or theoretically analyze. One tries to create a connection between network analysis and other ranges of the sociological research and to reconstruct these with the help of network-analytic considerations and analyses. Besides one tries to link the ranges simulation, thus visualization, and network analysis.

At this point "last.forward" sets, by applying this philosophy to the music platform “LastFM”. With this in music affected communication platform we find user-specific relations, like friends, musical neighbours and group membership, whom we try to visualize with our system.
Our software settles here the data procurement, processing, safety device, up to the announcement of the data. The system was developed in the platform-spreading programming language JAVA, whereby own and existing algorithms were used for the conversion of visualization.
It is applicable by the idea to a multiplicity of Communities. The project "last.forward" was started in the context of the training meeting "Media Communication and Production" in the summer semester 2007 at the Fachhochschule Kaiserslautern, location Zweibrücken

Related Works

Our searches resulted in, that there are no beginnings which are concerned with the social lattice structure of our selected platform of “LastFM”. The only usable software project, with which the data of “LastFM” has ever be occupied , calls itself “LASTFM BROWSER”. This project can be attained under the Web address http://www.m3nt0r.de/blog/software-lastfm-browser/.

A disadvantage of this application justifies itself in the platform-dependent use of Windows . Here it is done without the social structure of the Community of “LastFM” which this software differs clearly from "last.forward". The information is purely made accessible for the user in tabular form. There is further no special increase in value from the Community data produced.

However there were still some other attempts to analyze social networks and to bring it into a graphical context. Here would to be called on the one hand “VIZTER” and “TreePlus”, which refer to visualization and navigation of a represented user of the network. This "ego centered" representation of users permits a continuous readable representation of the visualized data. Further this concept was taken up by the software "StudiVZ". This software concerns itself with the analysis of a German student Community.

Project Subjects

Tasks of the project team was the data procurement of a suitable communication platform and their consistent safety device. Further it was to be sought out social relations

between the registered users of the selected platform and present these in a responding visualization. Also the draft of own algorithms for the data processing and preparation was a component of the work of the developer team. As last step the before raised and prepared data should be indicated in a suitable graphic component.

Approach

First step was to find a suitable platform with internal social structures. Further the platform should offer sufficient data to the developer team for the processing.

Finally one decided to select “astFM”. This decision justified itself on the fact, that “LastFM” is the largest international music community with over 15 million registered user from 239 countries. Most users come from the USA and UK. At third position with also over 1.5 million registered user is Germany. Thus this community offered a very large potential to us for data procurement. Furthermore a social structure between the users was present. On the one hand over direct friendly contacts, on the other hand over musical taste.

Further important is the linkage from groups to the user lying in the focus of our application. Next work procedure was the definition of the Personas. The primary Persona in our project was the registered “LastFM” user. As secondary Persona we saw developers and their interest in the technology and conversion of our project.

Considerations were made subsequently to the selection of the relevant data. Basis of this selection were general social relations of the registered users. A further criterion of this selection was the analysis possibility of the found data. Further one, it was important to procure the for the user not evident data of the web application from “LastFM” . This is for example the musical agreement of a neighbour with the focused user in per cent. These data already offer a high increase in value to the user of our application.

Further as increase in value we see the modifiableness of the announcement in our application, in the detail by use of filter related to the visualization of the data. Also the performance of our software is by far more productive than those of the web servers of the community of “LastFM”.

After selection of meaningful data we made ourselves to the data procurement. For these we used the “ Audioscrobbler” service of “LastFM”. Further, over a HTTP Parser more data were picked out and used directly by the Web server by “LastFM”. For the first safety device of the data a MySQL data base was consulted, and replaced in the course of the project by a real timable local-executable JAVA data base library.

As technical conversion of our system we selected an application independent of the operating system, in order to be able to address many final users like possible for our project. From reasons for performance we decided for a Client lateral execution of our system.
Organization goals of this Client application was the user friendly representation of the information according to the DIN standard 9241 part 12 (graphic interfaces).

Analysis

The software shows social relationship of the user with its direct friends, musical neighbours and group memberships. These can be modified in their opinion by different filter criteria such as age, sex, Playcount and country of origin.
Further the user receives the information which other user in the individual groups themselves is again a member.
Here we refer maximally 50 most active group members to those. To each user participating in a relation, the profile of the selecting is shown in a separate section of our software. These values refer to data records put down in the data base.
For the selected users of "LastFM" we offer also different statistics on the basis of pie charts . These contains analyses over the sex distribution, the origin of the neighbours as well as the age distribution of the friends.
By the musical neighbours the user can find persons who have the same interest in music and so they can exchange themselves over this topic. Mainly the user can see new contacts with the help of our software and associate more easily with them over the communication platform .

Software Facts

The data procurement -, data processing, and the visualization component are exclusively based on the programming language Java. The data procurement component uses the Audioscrobbler Web service from "LastFM".
It also uses particularly written Parser components for reading in HTML documents. The data protection component uses an real time-executable memory component which is developed in Java and names HSQLDB.

The main component, the visualization,uses the Prefuse Visualization Framework which is also developed in Java. This Framework was selected because of its flexible handling and adaptability on our problem.

Risks and Chances

We see chances in the advancement by the Open Source Community of "sourceforge.net". Thus our application could be developed further also with strange assistance. Further it would be of advantage, if the Community of "LastFM" would take up our development and merge it as Web service .
For the developer it would be naturally also a large advantage if "LastFM" makes more data free available, in order to be able to develop our system still further.
So we could develop an application with all important functions of the Web services of "Last.Fm". This would supplement and underline the increase in value of "last.forward".
As risk we see the data conversion in the Web service of Audioscrobbler and/or in the conversion of the HTML structure of "LastFM".
As the largest risk we see the interest lacking on the part of our primary Personas, the "LastFM" users.
A goal is to developed the application in the next years so far that ever more service and data can be offered by "LastFM". Finally our application could take up the complete function range of the "LastFM" homepage.
A desirable feature would be the integration of the Audioscrobbler into the software "last.forward"; this is an application that transfers the music secondarly in the portal, and so determined the music taste of the users.

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