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WINGS TO YOUR THOUGHTS.....

## Social Network Platform for Polls and Surveys Using SOA

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**Abstract:** All types of businesses in today's world require a strong suite of market analysis and feedbacks over their products. Polls and surveys is a strong medium to achieve these statistical measures. Our platform provides a solution to these needs of businesses which is also suitable for individuals. There have been a few sites which provide a platform for surveying, but our solution is in the form of a social network platform blended with other features like involvement of the expert users, a vast range of categories to which a particular poll or survey can belong to and better data visualizations in the form of user-force directed graphs and datamaps. Being a social network platform, it eliminates the tedious process of manual link distribution.

**Keywords:** social network, businesses, polls, surveys, visualizations, platform, API.

### 1. INTRODUCTION

The important requirements to start a new business are market size, target market, marketing strategies and product or service feedbacks. An easy way to achieve these requirements is a platform where the potential users can express their views and opinions about the product and services of corresponding business. Even though there exist many services to extract these opinions, there are very few services which are made available for small scale businesses. The already available services or platform requires manual distribution of the polls via emails or other instant messaging application but that doesn't assure the distribution of these links to the potential user-base [2]. Our platform provides better data visualization techniques compared to other existing websites and applications. Our proposed system also provides ways to analyze user behavior through parallel co-ordinate plots, choropleth maps, user-force directed graphs. Choropleth maps provide opinion of users over specific geographical areas using which the creator can analyze the changing opinions of the product or services. Parallel co-ordinate plots provides user traversal over the questions pool [4]. Force directed graphs helps the creator to understand the set of options most preferred by the users.

### 2. LITERATURE REVIEW

#### 2.1 Need For Polls And Surveys

In today's competitive world, starting a proper business depends on various factors like the area where the business is to be established, the type of business, the existing competition for that type of business in that particular area, the needs of the people residing in that area and many more. The polls and surveys platform thus provide a concise solution to all these problems. Not only in the business sector but also this polls and surveys methodology can be used in various domains like reviewing any product, expressing once thought on a particular scenario,

generalizing the solutions provided to a particular problem etc.

#### 2.2 Need of a Social Network

The polls and surveys platform unites many users, their views to provide a better solution thus creating a social network between them. Solving more polls will help a user to gain more experience. The follow feature helps the platform to grow and increase the interactivity. If a user follows another user then he/she can view the polls created by that user [6], [8]. The automatic category detection feature assigns the category to the profile of a particular user depending on the type of polls solved/created by him.

#### 2.3 Better data visualization techniques

For good data analysis it is necessary for the system to provide better data visualization techniques. The visualization techniques provided by the existing applications are bar charts and pie charts. The proposed system tries to bring out more accurate information from the data by using choropleth maps, force directed graphs, stacked bar chart, line charts, area charts, spline charts, parallel co-ordinate plots. Every type of graphs has a special use associated with them. The bar charts and pie charts are mainly used for multiple choice questions which can easily show the number of votes obtained for each answer [1]. Line and spline charts are used for those questions whose answers are distributed over certain time zones or whose answers are numeric in nature [5]. Stacked bar chart helps in visualizing the data provided by matrix of choices. The data visualization techniques proposed by this system also helps in extracting user behavior [4]. Parallel co-ordinate graphs shown in Figure 1, plots the traversal of the user over the set of questions. This graph helps in understanding what the user is more likely to choose once he has chosen the answer to the prior question.

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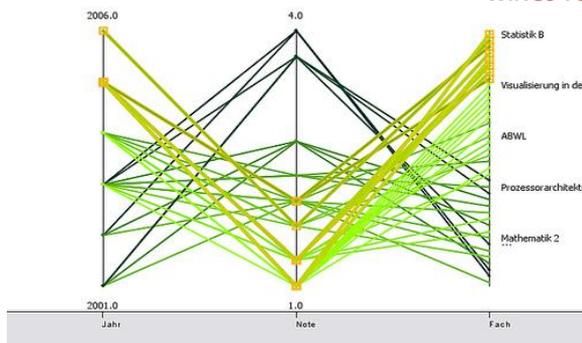


Figure 1: Parallel coordinate plots

Choropleth maps shown in figure 2 helps in understanding the changing needs of the users over geographical areas. As user of different areas may have different views or opinions on the same product [3].

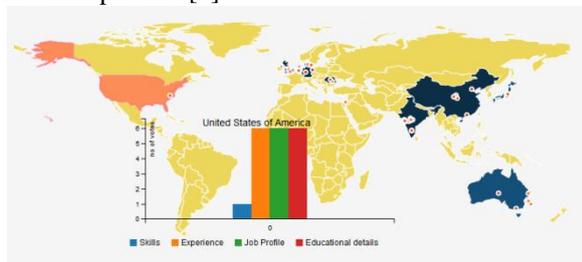


Figure 2: Choropleth maps

Force directed graph shown in Figure 3 helps in determining which set of options or answers are closely related. The option with higher number of votes will appear more closely on force directed graphs. Thus the proposed system provides analysis of user behavior compared to the traditional method of simple data analysis/.

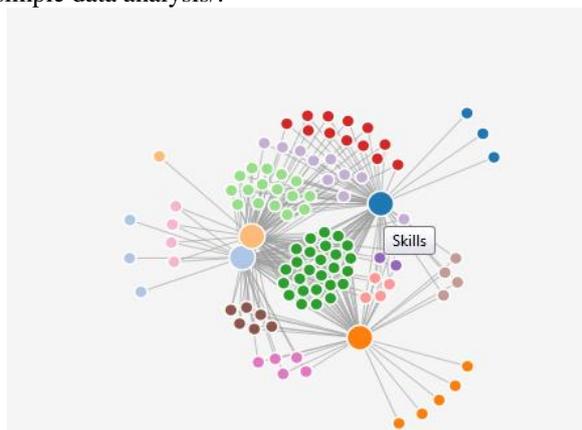


Figure 3: User force directed graphs

### 3. EXPERT USER-BASE

The proposed system has more than 565 different categories like sports, entertainment, programming languages and so on. A user can solve poll based on his interests and solving every poll updates his experience quotient of all those categories to which that poll belongs to. For example, consider a poll related to cricket world cup 2015. The solvers of this poll will gain a raise of some points in their experience of 'sports' and 'cricket'. This will lead into generation of an expert user base eventually. Thereafter, a

preference for evaluation of private poll's outcomes will be given to those users who have higher experience in the corresponding poll's categories. Implementation of above feature can be seen in the figure 4.



Figure 4: User Experiences

### 4. IMPLEMENTATION AS A WEB SERVICE

There are web sites which may like to include polls on specific domains and topics. These web sites can use the web service proposed by this system. The proposed system also aims in building a web service as an API (application program interface) by which other website developers can provide polls related to their content. For this reason the whole system is built on a SOA (service oriented architecture). This can help both the developer of the website as well as the system as a whole. The system will get more potential users belonging certain domains and also statistical analysis based on gathered poll data with effective visualizations for the same [7].

#### 4.1 API for developers

API in the form of poll links to be embedded into other websites and even the poll results and statistics of the same for betterment of the system. For example, consider a tours and travels website. They often face need of an opinion poll or feedback from their users about their service. Most of these opinion polls are implemented by website developers hardcoded into HTML forms and fields [2]. Using our API, the developers can create a poll onto our platform and share or embed poll as a whole onto their website or any other platform. The result of poll will be available to them via the API itself. This will result into one platform covering every entity in that domain with a centralized architecture to facilitate such needs of developers and system designers.

#### 4.2 Reducing the generation of a lot of less useful data in the form of comments

A large amount of data is generated daily in the form of "comments" on the articles, photos, statuses and other such entities [4][8]. Most of these responses are repeated or junk. A poll can be created for each such article and shared with users and they can vote or put up their opinion in a standardized way with which a lot of junk data can be avoided, statistically useful and modular information packages can be generated as well analysis of article and user tendencies can be mapped in a better way. API helps in embedding or using created polls onto their own system.

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## 5. CONCLUSIONS AND FUTURE WORK

The polls and surveys platform benefits businesses. It helps to get user opinions over a product or service. A social network platform connects different users and their views which lead to a set of statistical conclusions. The effective data visualization techniques provides poll analytics in a very interactive and user friendly form. The web service enables the platform to get integrated with other applications thereby strengthening the use of proposed system on a wider scale.

Proposed system works on mobile browsers but there is not any dedicated application which runs on mobiles. Future implementation will focus on development of a cross platform mobile application of this system. It will help users to access entire system inside a single shell and also reduce burden on browsers for requesting and sending the data. Lite version for the same can help in faster retrieval of cacheable data and benefit user to interact with the system in a more efficient manner thereby scaling the system workflow many-fold.

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