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Ranking optimization approach enhancement of line-up algorithm

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Abstract: *Ranking is a technique to categorize & finding the best option in the market. When number of best option is available in the market so its difficult to getting the best option is always a problem. In this paper we proposed a technique to optimize the ranking and its availability to check performance factor in order to maintained high ranking and quality of popular option in the market. We enhanced the line-up algorithm for ranking optimization approached, so, we used to line-up technique is demonstration to check other factor which affect to ranking of products, we are finding research to get factor detail which to improve the ranking of product.*
Keywords*: Ranking technique, line-up technique, data analysis, data visualization.*

I. Introduction

The line-up algorithm is a simulated evolutionary algorithm, is proposed for solving combinative expansion problems. In Line-up algorithm is exist independent and parallel evolution. The competitions between tribes and family are used to increase the search efficiency. All clan are ranked a line-up based on their main function and allocated different search spaces according to their position in the line-up, which is favourable to balance local and global search. The Line-up algorithm is applied to the solution of knapsack problem and the optimal design of pressure relief header network. Computational results reveal that the Line-up algorithm is able to find optimal or near-optimal solutions after examining an extremely small fraction of search space. This interactive technique that addresses the limitations of existing methods and is motivated by a comprehensive analysis of requirements of multi-attribute rankings considering various domains [1].Based on this analysis, the design and implementation of Line-Up, a visual analysis technique for creating, refining, and exploring rankings based on complex combinations of attributes. We demonstrate the application of Line-Up in two use cases in which we explore and analyze university rankings and nutrition data. We evaluate Line-Up in a qualitative study that demonstrates the utility of approaches. The evaluation shows that users are enable to solve complex ranking tasks in a short period of time.

In this paper we introduced Line-Up technique for creating, analyzing, and comparing multiple attribute rankings. Initially, our goal for the technique was to enable domain experts to formulate complex biological questions in an intuitive and visual way. When we realized that the technique can be applied in many scenarios, we chose to generalize it to a domain-independent universal solution for rankings of items. Web page ranking requires the optimization of sophisticated performance measures. ranking is a technique to categorize & finding the best option in the market. When number of best option is available in the market so its difficult to getting the best option is always a problem. We proposed an enhanced to current technique which provide a solution to user to optimize the ranking in order to get a solution to the problem which they face to find the factor form andthey are lagging to maintain to good & high ranking for their product & distribution.

II. Literature Review

Due to the ubiquitous presence of rankings and their broad applicability, a wide variety of visualization techniques have been developed for, or have been applied to show, ranked data. Based on the requirements introduced in the previoussection, we can see some visual encodings suitable for ranking visualization and as some specific ranking visualization techniques.

In order to meet our requirement, following are the articles and journals are selected that cover all aspects related to line-up and ranking technique:-

A. Ranking Visualization Techniques

The ranking suggests potentially interesting features between two variables. The scores are calculated according to criteria such as correlation and uniformity. In addition, the authors propose the rank-by-feature prism, a heat map that shows the feature scores between multiple variables. However, as the scores are based only on a single attribute, the rankby- feature system does not address multi-attribute rankings and is thereforeonly tangentially relevant to our technique. The RankExplorer system by Shi et al. [4] uses stacked graphs [3] with augmented

color bars and glyphs to compare rankings over time. While the system effectively addresses the ranking comparison requirement (R X), it can only incorporate the information about the cause of the rank based on multiple attributes (R II and R III) by showing details on demand in a coordinated view fashion. Sawant and Healey [2] visualize multi-dimensional query results in a space-filling spiral. Items from the query result are ordered by a single attribute and placed on a spiral. A glyph representation is used for encoding the attributes of the items. By using animation, the visualization can morph between different query results, highlighting the similarities and differences. Here, the ranking is based only on a single attribute. Recent work by Behrischetal.addresses the comparison of multiple rankings using a small-multiple approach in combination with a radial node-link representation; however, it is not designed to encode the cause of the rankings. The work by Kidwell et al. [5] focuses on the comparison of a large set of incomplete and partial rankings, for example, usercreated movie rankings. The similarity of rankings is calculated and visualized using multi-dimensional scaling and heat maps. While their approach gives a good overview of similarities between a large number of rankings with many items, an in-depth comparison of rankings is not possible.

B. Multi-Attributeranking Visualization Technique

LineUp is an interactive technique designed to create, visualize, and explore rankings of items based on a set of heterogeneous attributes. The visualization uses bar charts in various configurations. By default,
we use stacked bar charts where the length of each bar represents the overall score of a given item. The vertical position of the bar in the bar chart encodes the rank of the item, with the most highly ranked item at the top. The basic design of the Line-Up technique is introduced in detail in thecomponents of the stacked bars encode the scores of attributes, which can be weighted individually. Combined scores can be created for sets of attributes using two different operations. Either the sum of the attributescores is computed and visualized asstackedbars – a serial combination – or the maximum ofthe attribute scores in the set is determined and visualized as bars placed next to each other – a parallel combination. Such combinations can be nested arbitrarily, which can be weighted individually. Combined scores can be created for sets of attributes using two different operations, Either the sum of the attribute scores is computed and visualized as stacked bars – a serial combination – or the maximum of the attribute scores in the set is determined and visualized as bars placed next to each other – a parallel combination. Such combinations can be nested arbitrarily.

C. Line-Based Techniques

Line-based techniques are also a widely used approach to visualizing rankings. In principle, lines can be used to connect the value of items across multiple attributes (R III) or to compare multiple rankings (R X). Although a wide array of line-based techniques exist [7], only a few of them are able to also encode the rank of items (R I).The first technique relevant in the context of ranking visualization are slope graphs [6]. slope graphs allow users to track changes in the order of data items over time. The item values for every time point (attribute) are mapped onto an ordered numerical or interval scale. The scales are shown side by side, in an axis like style without drawing them explicitly, and identical items are connected across time points. By judging differences in the slope, users are able to identify changes between the time points. Lines with slopes that are different to the others stand out. Note that slope graphs always use the same scale for all attributes shown. This makes it possible not only to interpret slope changes between two different time points, but also to relate changes across multiple or all time points. Although Tufte used the term slope graph only for visualizing time-dependent data, the technique can be applied equally to arbitrary multi-attribute data that uses the same scale.

III. Problem Definition

Line-up technique has always given a solution to get the ranking on given attribute as input and to get a perfect output to out of number of products, which are there in a market as a competitor, here we don't have such technique which provide us the solution also to get the detailed about the factor & phenomenon which gives the solution to improved the ranking of products.

Such kind of ranking optimization technique is not available currently in existing system, in the same way it is the problem for working to the present system ranking.

IV. Solution Domain

The existing problem of ranking optimization & problem of efficiency. We are going to solve using enhancement of line-up algorithm where we are going to prove using our experimental result that our approach is more efficient than over existing approach which already been defined.

Here the results on the experiments which we are going to demonstrate are highly efficient anddesirable to make change to define present algorithm make moreuse ofcurrent system and ranking optimization for the user help, and highly efficient system to get user ranking optimization and to provide a perfect tool for open to use of users.

Line-Up is a multi-column representation where users can arbitrarily combine various types of columns into a single table visualization, The following column types are supported:

- Rank columns showing the ranks of items.
- Textual attribute columns for labels of items or nominal attributes. Text columns provide contextual information on the basis of which users can also search or filter items.
- Categorical attribute columns can be used in a similar fashion as textual attribute columns.
- Numerical attribute columns encoding numerical attribute scores as bars. In addition to the name of the attribute, the header can show the distribution of attribute scores on demand. When the user selects a particular item, the corresponding bin in the histogram will be highlighted.
- Combined attribute columns representing combinations of sets of numerical attributes.

V. System domain

In this project demonstration we are going to use following technique specification:-
Software tools:

- Php/android
- Codelobster
- My sql
- Reporting tool(chart library)

Here the php is going to use for our research because php is well known technique language, having a huge library and object oriented programming approach to program efficieently in order to get more efficient experimental result.

Hardware tools:

- 2 GB RAM
- 160 GB HARD DISK
- Standard mouse keyword

Algorithm we are going to demonstrate-

- Local search engine
- Line up algorithm,
- Enhanced line up version

On demonstrate the entire three algorithm we are going to show the experiments on all three algorithm and going to show differences using chart library available.

A. Application domain:

We are going to demonstrate particular problem statement in various sector where we can apply this particular algorithm in application such as product strategies in product sector, visting the different places in tourism which contain apackage in a city or for a place, department problem in university.

So, here we can apply particular research in order to solve the problem of repetition of ranking facing by product.

Also the optimization of the ranking can't be done using a high technique tools which we are going to demonstrate over here itself is a highly data mining approach and problem solving technique for the user .

B. Expected Outcomes

Here in our research we are experimentally going to provide a simulation of local search algorithm, line-up algorithm and our proposed technique where we are going to present the result using php technology application and going to show our approach on showing difference between three approaches of solving the product ranking problem.

Ranking optimization is going to show using our experimental result over 200+ products performing their result in different attribute; we are going to simulate our result using changing of the multiple attribute in the various product ranges in market.

VI. Information Gathering

In this we are finding all the information regarding all the previous technique has been introduced in order to find the solution of ranking & its optimization problem.

In previous technique the things has not been introduced which give an efficient search and ranking optimization.

Review we are finding-

- Local search based algorithm.
- Line-up algorithm
- Enhancement of line-up algorithm to make a fit ranking optimization on the various range of product available in the market on the same category.

VII. Conclusion

In this paper I have proposed a powerful enhanced line-up in finding very high quality solution for the ranking optimization. The proposed has found optimal or best known solution for most benchmark instances with up to max. Number of categories. One of the strengths of my technique is the use of line-up, the local version of ELU and global version of LU significantly reduced the computational cost, with the help of efficient implementation techniques. This resolves the common problem that line-up for ranking optimization are usually much more time consuming than efficiently implemented local search based algorithms. Another important contribution is the development of ELU in generating even better solution from very high quality parent solution at the phase of the line-up. An interesting feature is that I design a simple local search procedure intoELU to determine good combination of edges of attributes. I am going to demonstrate that the enhancements significantly improve the performance of the ranking optimization and other related tools which provide us efficient way to get a ranking on changing ranking attributes. I believe that theproposed ELU provides a good example of a sophisticated product comparison application for a reprehensive combinational optimization problem and thatsome of the ideas can be successfully applied to the design of LU for other combinational optimization problems.

In this paper we conclude to get a best optimization technique on enhancing the current algorithm which is line-up available today where we are performing ranking optimization solution on the particular provide algorithm.

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