



INTERACTIVE VISUALIZATION OF DATA BY USING TABLEAU, DATABASE MANAGEMENT SYSTEMS AND HTML.

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Abstract: Big data analysis has been getting a lot of attention in many industries. Visualization plays an important role not only in intuitively showing the results of data analysis but also in the whole process of collecting, cleaning, analyzing, and sharing data. This paper presents a procedure for the interactive visualization and analysis of data using Tableau as a business intelligence tool. Methods: Starting with installation of the Tableau Desktop Personal version 10.3, this paper describes the process of understanding and visualizing data using an example. The example data of information of students of an institution are fictitious and are used solely for the purpose of experimentation. Results: To explore the visualization of data using Tableau for beginners, this paper describes the creation of a simple view for the statistics of the expenditures and income of a fictional education institution. Since Tableau provides various visualizations and customization, the level of analysis can be increased with small multiples, view filtering, mark cards, and Tableau charts. Conclusions: Tableau is a software that can help users explore and understand their data by creating interactive visualizations. The software has the advantages that it can be used in conjunction with almost any data base, and it is easy to use by dragging and dropping to create an interactive visualization expressing the desired format.

Index Terms - Database management systems, Tableau, HTML, data visualization.

I INTRODUCTION

Data visualization is an intuitive way for users to easily read and understand data, especially in big data analysis. It helps to improve the quality of policies or services by presenting an integrated view and evidence for making decisions. Tableau connects users with a variety of data sources and enables them to create data visualizations by making charts, maps, dashboards, and stories through a simple drag and drop interface. Although Tableau has received some attention in the past few years, Tableau is still not widely used in today's industry. Therefore, this paper introduces Tableau and presents the procedure of using Tableau for the interactive visualization and analysis of data to encourage its widespread use.

II LITERATURE SURVEY

Inseok Ko, Hyejung Chang Et.Al : This paper explains the use of Tableau in the Health care industry. The software is used in order to provide an interactive visualization of the data in the health-care industry. As Tableau provides several interactive and visual tools for data representation, it becomes easy to understand and analyse the changing statistics of the health-care industry. Due to its easy accessibility, the use of Tableau can be highly useful in case of health-care. [1]

Rajeev Gore Et.Al : Modal and temporal logic is finding new and varied applications in computing in fields as numerous as computing [Marek et al.,1991], Models for Concurrency [Stirling, 1992] and Hardware Verification [Nakamura et al.,1987]. usually the ultimate use of those logics boils all the way down to the task of deducing whether or not an explicit formula of a logic could be a logical consequence of a group of different formula of an equivalent logic. the tactic of linguistics tableaux is currently well established within the field of machine-driven Deduction [Oppacher and Suen, 1988; Baumgartner et al., 1995; Beckert and Possega, 1995] as a viable various to the a lot of ancient strategies supported resolution [Chang and Lee, 1973].[2]

Vidya Setlur, Enamul Hoque, Dae Hyun Kim, Angel X. Chang Et.Al : Natural language interaction has evolved as a useful morality to help users explore and interact with their data during visual analysis. Little work has been done to explore how autocompletion can help with data discovery while helping users formulate analytical questions. A system was developed, called *Sneak Pique* as a design probe to better understand the usefulness of autocompletion for visual analysis. Three Mechanical Turk studies were ran to evaluate user preferences for various text- and visualization widget-based auto-completion design variants for helping with partial search queries. Findings indicate that users found data previews to be useful in the suggestions. Widgets were preferred for previewing temporal, geospatial, and numerical data while text autocom- pletion was preferred for categorical and hierarchical data. An exploratory analysis of our system implementing this specific subset of preferred autocompletion variants was conducted. Our insights regarding the efficacy of these autocompletion suggestions can inform the future design of natural language interfaces supporting visual analysis. [3]

Juhee Bae, Vidya Setlur, Benjamin Watson Et.Al : Although mobile devices area unit generating a chop-chop increasing proportion of search queries, search interfaces haven't modified considerably to accommodate mobile constraints. specifically, general search exists within the no-man's land between specific inquiring and general browsing, and might be particularly difficult on mobile devices, once user input is tough and environmental we have a tendency to examined the prevalence of those mobile search use cases in a very two-week diary study, finding that general and general search accounted for the Hypothesizing that the flexibility to look at a link neighborhood round the search result may be quite useful in these cases, we have a tendency to designed GraphTiles, avisible interface for mobile search that exploits the structured entity relationships gift in a very significant slice of on-line datasets (e.g.) In AN experimental analysis, users performed general searches additional quickly with GraphTiles than with a typical mobile website.[4]

Heidi Lam, Melanie Tory, Tamara Munzner Et.Al : Visualization researchers and practitioners engaged in generating or evaluating styles area unit two-faced with the troublesome drawback of remodeling the queries asked and actions taken by target users from domain-specific. Existing abstract task classifications aim to supply support for this endeavour by providing a fastidiously delineate suite of actions.Our expertise is that this bottom-up approach is a component of the challenge: low-level actions area unit troublesome to interpret while not a higher-level context of study goals and to bridge this gap, we tend to propose a framework supported analysis reports derived from open-coding twenty style study papers revealed at IEEE InfoVis 2009-2015, to make on the previous work of abstractions that jointly embrace a broad kind of domains.It helps situate the analysis goals by inserting every goal below axes of specificity (Explore, Describe, Explain, Confirm) and sort of information populations.[5]

Vidya Setlur Et.Al : Natural language interaction in visual analysis tools sup- ports expressive ways for users to interact with their data. Chatbot systems have recently garnered interest as con- versational interfaces for a variety of tasks. Crafting the business logic for handling user intent in natural language input using a pre-defined grammar can be precise, but often covers a small set of intent models for a specific platform. More recently, machine learning approaches have shown to be promising for supporting complex responses based on the current conversational state of the interface. Such techniques could be employed for bootstrapping a rangeof chatbot interfaces for visual analysis. One approach isto use a labeled dataset of natural language interactions that capture user intent distribution, co-occurrence, and flow patterns. Another approach is employing deep learning techniques that approximate the heuristics and conversa- tional cues for continuous learning in a chatbot interface. This paper explores the implications for these data-driven approaches in broadening the scope for visual analysis workflows across various chatbot experiences.[6]

III PRESENT WORK

In this project we used three different interfaces in order to get a completely interactive visualized data dashboard in the end. The first part of the project includes creating a front-end and back-end interface. In this project we have used the basic Microsoft access software to create a back-end user interface. The front-end for the database is a web page that is created by using Hypertext Markup Language (HTML). By means of PHP hypertext processor, the front-end is then connected to the database.



Figure 3.1 : model front-end HTML page

Figure 3.1 shows the basic HTML webpage that is used in order to add data to the database. The database, as it is linked to Tableau, it regulates changes on it's own, saving the user trouble of recreating the dashboards with the new changes. The database from Microsoft Access acts as the data source for Tableau.

In the second part of the project, we use Tableau. The Access database is first linked to Tableau. By using Tableau's interactive tools, we can create multiple dashboards. These dashboards can be modified and analyzed according to the user's requirements. After initial creation of the dashboard, Tableau automatically makes changes to the data with every change made in the database. Hence, with every new entry to the application form in the webpage, we can see that the dashboard is automatically edited with every new session.



Figure 3.2 Initial Data Source Connections

IV. RESULT AND DISCUSSION



Figure 4.1 Source of input for the database.

In the above figure, we can see a webpage where the user can enter details in order to book an appointment. When the user submits the data, it gets accumulated to the database.

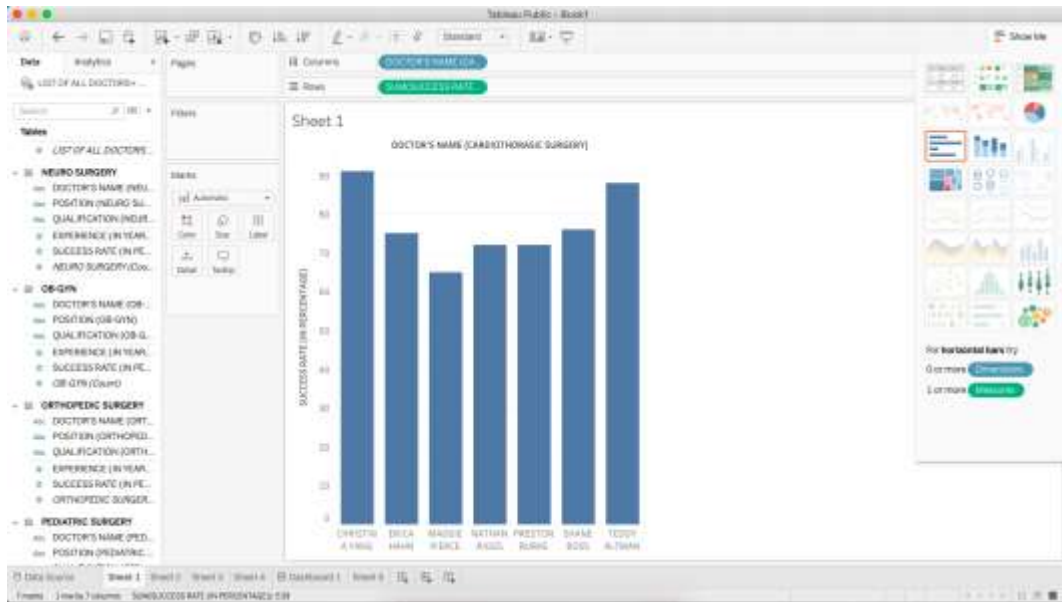


Figure 4.2 A Tableau Sheet made from the data obtained from the data source.

Several sheets similar to Figure 4.2 are made as per the users requirements. In order to analyze multiple sheets at once, the user can create a dashboard. Due to its flexible options, Tableau helps edit making dashboards that are extremely interactive and easy to edit, as per the user's changing needs.

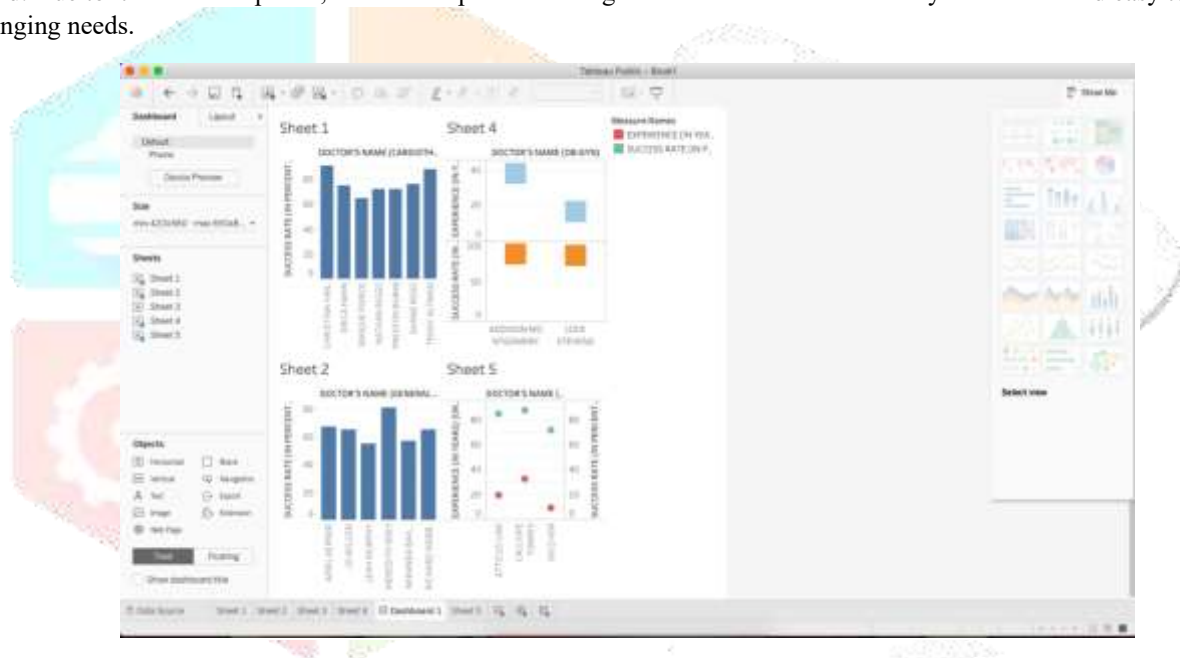


Figure 4.3 Tableau Dashboard

VI. CONCLUSION

By following the procedure described in this paper, it is possible to create a simple view to explore sample data using Tableau for beginners. Tableau provides various visualizations, such as tables, heatmaps, maps, bar charts, treemaps, line charts, bubble charts, and so on as well as customizations, such as radar charts with user intention. Users can also create interactive visualizations that express the desired format using filters, drop-down lists, the calculated field, and so on.

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