

Statistic of IPL Using Data Visualization

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Abstract

Research on data visualization is undergoing major developments in a number of different fields. These developments include investigating ways of applying visualization techniques and systems for the more efficient manipulation, interpretation and presentation of data. In the built environment field, the potential of new visualization technologies to enhance the presentation of performance data obtained as output from simulation programs has remained almost unexplored. The primary aim of the work summarised in this paper was to commence the development of a method for visualizing the data produced by thermal analysis tools. Two applications are presented. The first is designed to automatically process the output within a commercial spreadsheet program. The second is designed to display the solution in 3D to aid spatial recognition and data navigation. This paper shows, through small-scale user tests, that each of the proposed applications significantly improves some of the attributes associated with usability, namely: learnability, efficiency, memorability, errors and user satisfaction. Advice is given on the key aspects that will require attention when the full method is developed. Finally, it should be possible to develop low-cost data visualization tools to improve the overall usability of a thermal analysis tool within a built environment practice.

Keywords: *Data Visualization, Environment Practice, Spatial recognition, Spreadsheet, Thermal Analysis, User satisfaction*

1. INTRODUCTION

Data visualization is the graphical representation of information and data. By using visual elements like charts, graphs, and maps, data visualization tools provide an accessible way to see and understand trends, outliers, and patterns in data. Additionally, it provides an excellent way for employees or business owners to present data to non-technical audiences without confusion. In the world of Big Data, data visualization tools and technologies are essential to analyze massive amounts of information and make data-driven decisions. Data visualization is commonly used to spur idea generation across teams. They are frequently leveraged during brainstorming or Design Thinking sessions at the start of a project by supporting the collection of different perspectives and highlighting the common concerns of the collective. While these visualizations are usually unpolished and unrefined, they help set the foundation within the project to ensure that the team is aligned on the problem that they're looking to address for key stakeholders. Data visualization is a critical step in the data science process, helping teams and individuals convey data more effectively to colleagues and decision makers. Teams that manage reporting systems typically leverage defined template views to monitor performance. However, data visualization isn't limited to performance dashboards. For example, while text mining an analyst may use a word cloud to capture key concepts, trends, and hidden relationships within this unstructured data. Alternatively, they may utilize a graph structure to illustrate relationships between entities in a knowledge graph. There are a number of ways to represent different types of data, and it's important to remember that it is a skillset that should extend beyond your core analytics team.

LITERATURE REVIEW

Adopt a consistent visual language

Enterprises should embrace a consistent application of visual language, said Dan Lawyer, chief product officer at Lucid Software, a visual collaboration tool provider. For example, a particular shape could always communicate a specific concept. This allows for faster understanding and more clarity in communication. In addition, directly associating the visualization and data can help organize the data into clear and accessible buckets. A proper visual language with direct connections to the data makes it easier to analyze complex webs of data through simplified visuals.

Digitize metrics

Digitization and data collection are crucial to cultivating data visualization literacy, Silipo said. The more data is collected and organized, the more teams can visualize and collaborate around data. One aspect of this step consists of defining KPIs and metrics for consistently measuring processes and events that may not seem easy to quantify. This forms the backbone that makes it easy to choose and apply the appropriate data visualization technique to a given question, analysis or discussion. "Every business problem and every data set shines at its best with the appropriate data visualization technique," Silipo said.

Set up a feedback loop

With data visualization, most of the responsibility is on creators to adjust their visualization, much like book writers adapt their language to the audience. The way they present the data must be understandable by consumers. Quick data analysis and visualization feedback loops can help improve everyone's skills at creating and consuming visualizations, said Marcin Bartoszek, head of business intelligence at Spacelift, an infrastructure-as-code platform for DevOps engineers. In the requirements gathering phase, the analyst needs to understand what needs to be done and present an initial data analysis design, including the visualization. The stakeholder can then learn about the methods, give input and learn how to interpret the data. The analyst can then adjust the level of complexity based on the feedback.

Effective Data Storytelling: How to Drive Change with Data, Narrative, and Visuals by

Brent Dykes

Data storytelling skills are becoming table stakes for anyone presenting on data. Often called the "last mile of analytics", data storytelling provides a framework for breaking down data insights to technical and non-technical audiences alike. In his seminal book, Brent Dykes breaks down the value behind data storytelling and the key components of a successful data story. According to Dykes—who appeared on the DataFramed podcast—rather than focusing exclusively on how to visualize data, we should also leverage narrative and storytelling to drive decisions out of insights. In

his book, Dykes developed a framework for data storytelling, an approach that combines three central elements: data, narrative, and visuals.

A Data Visualization Guide for Business Professionals by Cole Nussbaumer Knafllic

In the same vein, Cole Nussbaumer Knafllic's book on Storytelling with Data breaks down the different ways to deliver a data story. Visualizations provide the visual layer to our data stories when working with data. However, how to present and speak effectively through data to tell a compelling story is not an easy task. Bridging this gap is precisely what Cole Nussbaumer Knafllic attempts to do with her book. Storytelling with Data is filled with practical resources and case studies for business and data practitioners looking to use data visualizations effectively. Whether deciding which charts to use, how to structure a data story, or how to declutter a graph, the combination of theory and practice makes the book a great resource for both novel and advanced data visualizations practitioners.

Displaying Data for At-a-glance Monitoring by Stephen Few

Dashboards are the most effective ways to provide at-a-glance views of complex data landscapes. However, dashboards can easily be designed in cumbersome and inefficient ways. The goal of Information Dashboard Design by Stephen Few is to help practitioners avoid common mistakes and traps when developing their dashboards. Conceived as a practical guide, the book presents best practices when designing dashboards. It goes into great detail, providing many examples to illustrate both effective and ineffective dashboards and how to avoid common dashboard design pitfalls. In addition to explaining how to create great dashboards, Stephen Few offers a valuable introduction to the principles of design theory and data visualization in the light of recent advancements in the field of neuroscience.

The Accidental Analyst by Eileen McDaniel and Stephen McDaniel

As data volumes grow and invade more and more jobs, more professionals—irrespective of their backgrounds—are having to work with data in their day-to-day. If you see yourself as an accidental analyst who didn't plan to work with and analyze data in their role, this book is for you. The Accidental Analyst by Eileen McDaniel and Stephen McDaniel provides an intuitive, step-by-step framework to address the complexities of data analysis and visualization. The so-called “Seven Cs of Data Analysis” define a straightforward course of action to successfully organize, analyze and visualize data following industry best practice.

METHODOLOGY

Proposed Methodology

Data visualization is the graphical representation of information and data. By using visual elements like charts, graphs, and maps, data visualization tools provide an accessible way to see and understand trends, outliers, and patterns in data. That's where data visualization comes in handy.

With the goal of making data more accessible and understandable, data visualization in the form of dashboards is the go-to tool for many businesses to analyze and share information.

Statistic of IPL Using Data Visualization

Data visualization plays a crucial role in understanding and analyzing statistics related to the Indian Premier League (IPL). By visually representing data, we can uncover patterns, trends, and relationships that may not be immediately apparent in raw numbers or textual form. Through data visualization, we can create various types of charts, graphs, and plots to showcase IPL statistics. For instance, we can use bar plots to compare the performance of different IPL teams based on metrics such as total runs scored, wickets taken, or matches won. Line plots can be utilized to visualize the progression of runs or wickets over the course of a season. Scatter plots can help identify correlations between player statistics, such as the relationship between batting average and strike rate. Heatmaps can showcase the performance of teams or players across different venues or seasons. These visualizations provide a comprehensive and intuitive way to explore and interpret IPL statistics.

Steps to achieve the desired visualization

Step 1: Data Collection Collect the IPL data, which typically includes information such as match results, player statistics, team details, and other relevant data. You can obtain this data from official IPL websites, cricket APIs, or other reliable sources.

Step 2: Data Preprocessing Clean and preprocess the collected data to ensure it is in a suitable format for analysis. This step may involve tasks like removing duplicates, handling missing values, and converting data types if required.

Step 3: Selecting Visualization Tools Choose appropriate data visualization tools based on your requirements and familiarity. Popular tools for data visualization include Python libraries such as Matplotlib, Seaborn, Plotly, or Tableau, which offers a graphical interface for creating visualizations.

Step 4: Define Objectives and Questions Identify the objectives of your analysis and the questions you want to answer using the IPL data. This step will guide you in selecting the types of visualizations that will best serve your purpose.

Step 5: Exploratory Data Analysis (EDA) Perform exploratory data analysis to gain insights into the IPL data. This can involve analyzing basic statistics, distributions, correlations, and relationships between variables. EDA helps in understanding the data and identifying patterns or trends.

Step 6: Choose Visualization Techniques Select appropriate visualization techniques based on the nature of your data and the questions you want to answer. Common visualization techniques for IPL data include bar plots, line plots, scatter plots, heatmaps, box plots, and pie charts.

Step 7: Create Visualizations Use your chosen visualization tools to create the visualizations that will help answer your questions. Depending on your objectives, you may create multiple visualizations for different aspects of IPL, such as team performance, player statistics, or match outcomes.

Step 8: Interpret and Analyze Visualizations Analyze the visualizations you have created to extract meaningful insights from the IPL data. Look for patterns, trends, outliers, and other interesting observations. Compare different visualizations and draw conclusions based on the analysis.

Step 9: Communicate Findings Communicate your findings and insights derived from the visualizations

effectively. Prepare clear and concise reports or presentations that highlight the key takeaways from your analysis. Use appropriate labels, titles, and annotations to enhance the understanding of your visualizations.

Step 10: Iterate and Refine Review your analysis and visualizations, seeking feedback from others if possible. Iterate and refine your approach as necessary to improve the clarity and effectiveness of your visualizations.

Result and analysis:

It represent the detailed view of the Indian Premier League(IPL). It shows the best player of the match and it represent the best blower and it represent the best player of the tournament and show the highest wicket taker and the highest run scorer. And they can be filtered by the preference of the user.

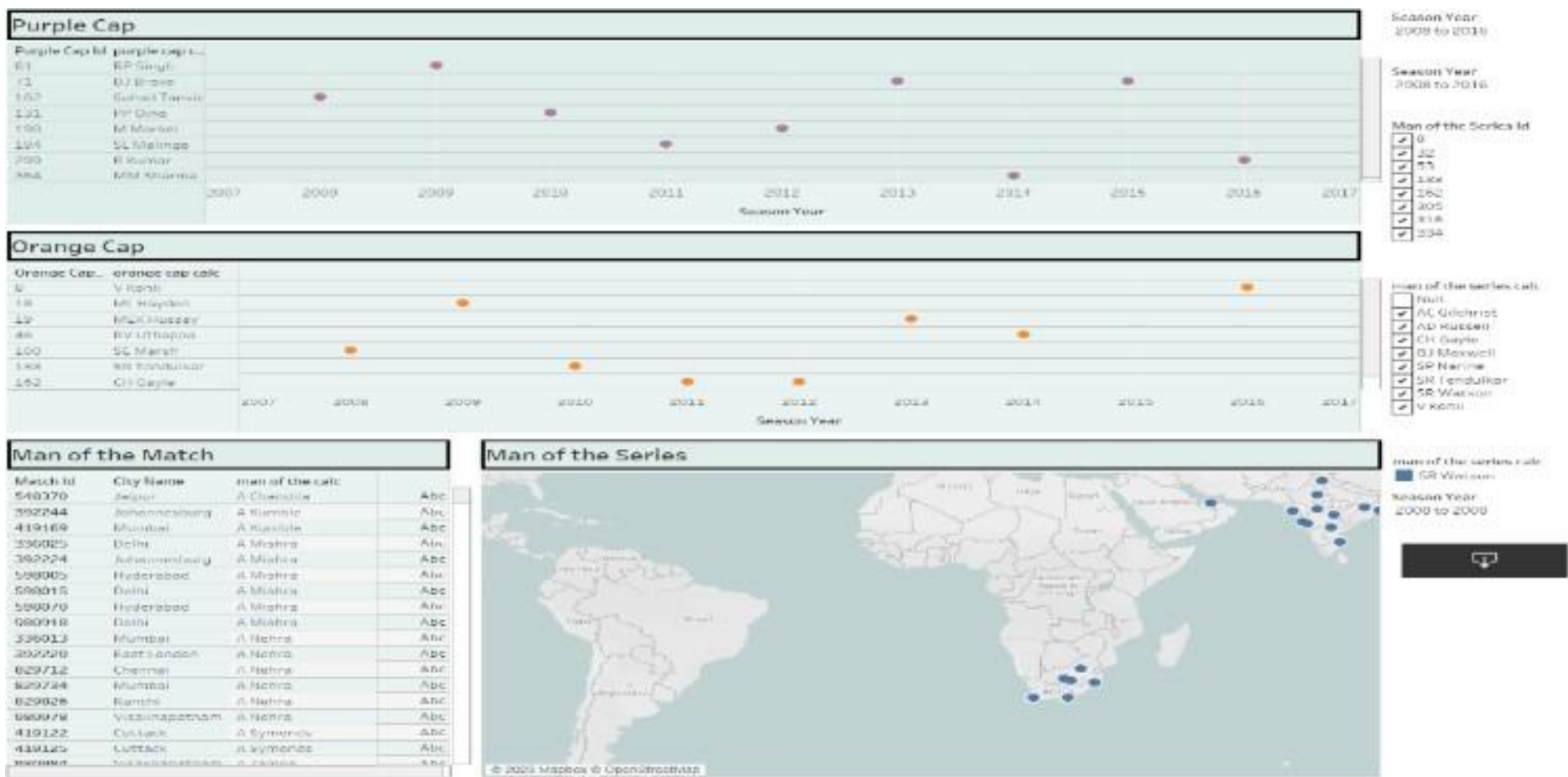


Fig.1:Dashboard for Statistics IPL

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