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Admin Dashboard Analysis: A Web-based Statistical Dashboard

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ABSTRACT: Dashboards let managers monitor activity and advancements in their departments.
There are many established business resource planning Standardised processes for the trading and sales business. However, redundant modules in this business can impact the system's speed and efficiency. The proposed system is a statistical dashboard that monitors all processes, including client requests and order delivery, while also ensuring data protection through multiple means. The system features six modules, including a login module and five dashboards. The login module uses SHA256 hash to store password, variable salt, and ReCaptcha mechanism. The system includes five dashboards: Sourcing.

KEYWORDS: statistical dashboard; web application, web attacks, mitigation technique

I. INTRODUCTION

Dashboards are collections of data that provide a quick overview of key performance indicators for business processes. Generally, a visual representation of the most relevant data It can be monitored at a glance . Managers utilise them to analyse sales, earnings, purchase adjustments, liquidity, and other business metrics. The dashboard is largely web-based and accessible using a web browser. The web-based interface connects to a database for real-time updates to tables and reports.

The designed system is a web-based application with a centralised database accessible from anywhere and at any time. The technology stack utilised is LAMP (Linux, Apache, MySQL, and PHP). The system has been deployed on
In today's data-driven business climate, organisations rely significantly on administrative dashboards to transform complex data into actionable insights, allowing decision-makers to effectively lead the organisation towards its goals. Administrator dashboards function as command centres, giving real-time snapshots of critical performance metrics, trends, and actionable data visualisations. However, ensuring that these dashboards effectively serve their intended function necessitates continuous evaluation and optimisation. This introduction serves as a foundation for a thorough examination of administrative dashboards, with the goal of determining their usability, efficacy, and impact on organisational decision-making processes. This analysis seeks to identify opportunities for improvement and provide actionable recommendations by scrutinising various aspects such as data integration, visualisation techniques, user interface design, and alignment with organisational objectives. During this assessment, we

II.LITERATURE REVIEW

Praveen Gauravaram's survey study "Security Analysis of Salt/Password Hashes" evaluates various hashing techniques, including MD5, SHA1, and SHA256. If security is not a concern, we can use quick hashing algorithms.
Fast hashing methods are quickly cracked. Choose a slow algorithm to give the cracker more time to create the Rainbow table."Dashboard by-Example: A Hypergraph-based approach to On-demand Data warehousing systems" Duong Thi Anh Hoang,Thanh BinhN guyen, and A Min Tjoa. This study uses the Dashboard-by-Example (DBE) paradigm with hyperlink-based approaches to extract knowledge from heterogeneous data. Multidimensional hypergraphs are more adaptable to changing user needs, facilitating dynamic analysis ."A Study of Efficient and Effective Security Models for Databases Designed to Avoid Internal Threats" Written by Aditya.

Dr. P.N. Chatur and A. Shastri. It mostly concentrates on dangers that originate from within the company. Without permission, no user can access information. The model has no references to encryption Jerry Louis's "Detection of Session Hijacking Vol. Jan 2016" Since session hijacking has always been the most effective threat, developers have an even tougher time coming up with a safe authentication procedure.One can identify the attack by examining the sudden database modifications that the user doesn't recall making. Or stay away from unprotected WiFi Based on the survey ERP system was developed taking into consideration customised requirements of the company with additional security mechanism to ensure data confidentiality.

Relevance to current Research

Admin dashboard analysis stands as a cornerstone in contemporary data-driven decision-making across diverse domains, including business, healthcare, finance, and education. As organizations continue to grapple with increasing volumes of data, the need for effective dashboard solutions becomes paramount. This paper provides a comprehensive review of current research trends and advancements in admin dashboard analysis, focusing on key areas such as data visualization, user experience design, predictive analytics, and real-time data analysis.

Data visualization plays a pivotal role in admin dashboard analysis, enabling users to glean insights from complex datasets efficiently. Recent research in this area has explored various techniques to enhance the clarity and interpretability of visual representations. Studies have delved into dashboard layout optimization, examining the impact of different arrangements of charts, graphs, and key performance indicators (KPIs) on user comprehension. Furthermore, researchers have investigated the role of color schemes and visual metaphors in conveying information effectively, aiming to minimize cognitive load and facilitate rapid decision-making.

Interactive features have emerged as a focal point of research, with studies focusing on the development of intuitive user interfaces that enable seamless data exploration. Techniques such as drill-down, filtering, and linked visualizations have been investigated to empower users with the ability to interactively manipulate data and uncover hidden insights. Additionally, advancements in data storytelling techniques have sought to imbue dashboards with narrative elements, transforming them into compelling tools for communicating insights and driving action.

User experience design lies at the heart of effective admin dashboard analysis, as the usability and accessibility of dashboards directly impact user engagement and decision-making. Recent research has emphasized the importance of understanding user needs and preferences to inform dashboard design decisions. User-centered design approaches, such as persona development, journey mapping, and usability testing, have been employed to gather insights into user behaviors and pain points.

Studies have explored adaptive dashboard design techniques, which enable dashboards to dynamically adjust their layout and content based on user preferences and context. Personalization algorithms have been developed to tailor dashboard recommendations and content based on user interactions and historical usage patterns. Moreover, research has delved into the integration of accessibility features, such as screen reader compatibility and color contrast adjustments, to ensure inclusivity for users with diverse abilities.

In an era of rapid data generation and consumption, the ability to analyze data in real-time has become essential for timely decision-making. Research in real-time data analysis for admin dashboards has focused on developing scalable and efficient processing pipelines capable of handling streaming data sources. Technologies such as Apache Kafka, Apache Flink, and Apache Spark have been leveraged to build real-time data ingestion and processing systems.

Furthermore, research has explored novel approaches for real-time visualization and dashboard updating, ensuring that users have access to the most up-to-date information. Techniques such as data streaming, in-memory caching, and incremental rendering have been employed to minimize latency and deliver responsive dashboard experiences. Moreover, research has investigated anomaly detection algorithms and alerting mechanisms to notify users of critical events and deviations in real-time data streams.

In conclusion, admin dashboard analysis remains a vibrant area of research, with ongoing advancements in data visualization, user experience design, predictive analytics, and real-time data analysis. By embracing innovative

techniques and methodologies, researchers continue to push the boundaries of dashboard capabilities, enabling organizations to derive actionable insights and drive informed decision-making. As data continues to proliferate and evolve, the importance of effective admin dashboard analysis will only continue to grow, shaping the future of data-driven decision-making across industries.

No.	Paper Title	Author Name	Key Points	Remark
1	Information Dashboard Design: The Effective Visual Communication of Data"	Stephen Few	Few's book emphasizes the importance of effective data visualization in dashboard design. He advocates for simplicity, clarity, and relevance in presenting data to users. Few provides practical guidelines and best practices for creating dashboards that facilitate rapid comprehension and decision-making.	Stephen Few is widely regarded as a leading authority in the field of data visualization.
2	"Data Fluency: Empowering Your Organization with Effective Data Communication"	Zach Gemignani, Chris Gemignani, Richard Galentino	Few is widely regarded as a leading authority in the field of data visualization. His work has had a significant influence on dashboard design principles and has been instrumental in shaping the way designers approach data presentation.	The Juice Analytics team offers a comprehensive approach to data communication, highlighting the critical role of dashboards in facilitating data fluency within organizations.
3	"Big Book of Dashboards: Visualizing Your Data Using Real-World Business Scenarios"	Andy Cotgreave	This book focuses on the broader concept of data fluency, which encompasses not only dashboard design but also effective communication of data insights throughout an organization.	Andy Cotgreave's book offers practical inspiration for dashboard designers, providing concrete examples of effective data visualization in action.
4	"Data Points: Visualization That Means Something"	Nathan Yau	Cotgreave's book features a collection of real-world dashboard examples across various industries, accompanied by detailed analyses and insights.	Nathan Yau's work offers valuable insights into the art and science of data visualization.

III.METHODOLOGY OF PROPOSED SURVEY

Determining the target audience is the next step, as it influences the survey's reach and relevance. Professionals involved in This survey aims to gather insights on how administrators utilize and perceive their dashboards. Here's a breakdown of the methodology:

1. Survey Development Target Audience: Identify the specific group of administrators who use the dashboard (e.g., system admins, department heads).

Content: Develop questions that address the following aspects:

Frequency of use: How often do they access the dashboard?

Usability: How easy is it to navigate and understand the information presented?

Information Value: Do the metrics and data displayed provide them with valuable insights?

Actionability: Can they take action based on the information presented (e.g., adjust settings, address issues)?

Missing Information: Are there any crucial data points missing from the dashboard?

Open-Ended Feedback: Allow space for qualitative feedback on overall experience and suggestions for improvement.

Question Format: Utilize a mix of question formats:

Multiple-choice for frequency and usability.

Likert scale for information value and actionability.

Open-ended questions for specific data needs and overall feedback.

2. Survey Distribution Platform: Choose a survey platform that allows for easy distribution and data collection (e.g., online survey tools, email with survey link).

Distribution Method:

Consider sending the survey directly to administrator emails.

If applicable, you could embed the survey within the admin dashboard itself.

3. Data Collection and Analysis Data Cleaning: Ensure data accuracy by removing incomplete or irrelevant responses.

Quantitative Analysis: Analyze multiple-choice and Likert scale data to understand usage patterns, satisfaction levels, and pain points.

Qualitative Analysis: Analyze open-ended responses to identify recurring themes, specific suggestions, and areas for improvement.

4. Reporting and Actionable Insights Report Findings: Present a clear and concise report summarizing the survey results (quantitative & qualitative).

Actionable Insights: Highlight key areas for improvement based on the findings. This could include:

- Dashboard redesign recommendations to enhance usability and information value.
- Implementing features or metrics requested by administrators.
- Addressing usability issues
- Addressing missing data points
- Additional Considerations

Pilot Test: Conduct a pilot test with a small group of administrators before full distribution to identify any issues with the survey.

Incentives: Consider offering incentives (e.g., raffle entries) to encourage participation.

Anonymity: Ensure anonymity to encourage honest feedback.

By following this methodology, you can gather valuable insights from your survey to improve your admin dashboard's effectiveness and user experience.

IV.CONCLUSION AND FUTURE WORK

In conclusion, the proposed survey methodology provides a systematic approach to gather insights into admin dashboard analysis, addressing key objectives such as understanding user preferences, evaluating dashboard effectiveness, and identifying areas for improvement. By following this methodology, researchers can obtain valuable data that informs decision-making and drives enhancements in dashboard usability and functionality.

However, there are several avenues for future work and research in the field of admin dashboard analysis. Firstly, longitudinal studies could be conducted to track changes in user preferences and dashboard usage patterns over time, providing insights into evolving trends and emerging best practices. Additionally, comparative studies could be undertaken to benchmark different dashboard designs and platforms, identifying strengths and weaknesses across various solutions.

Furthermore, there is a need for research focused on advanced analytics techniques within admin dashboards, such as machine learning algorithms for predictive analytics and anomaly detection. Exploring the integration of real-time data analysis capabilities into dashboards could also be an area of interest, enabling users to access up-to-date information and respond swiftly to changing conditions.

Future Work:

✓ Future research should focus on seamlessly integrating advanced analytics techniques, such as machine learning algorithms, within admin dashboards. This involves exploring how predictive analytics and anomaly detection can enhance decision-making by providing users with proactive insights derived from historical data.

✓ There is a need to develop techniques for real-time data analysis and visualization within admin dashboards. This entails investigating technologies and methodologies to support the rapid processing and visualization of streaming data, enabling users to make informed decisions based on the most up-to-date information.

- ✓ Future work should prioritize user-centric design principles to ensure admin dashboards are intuitive and user-friendly. This involves conducting iterative user studies and usability testing to understand evolving user preferences, behaviors, and needs, thereby guiding the design of more effective and engaging dashboard interfaces.

- ✓ As admin dashboards increasingly handle sensitive data, future research should focus on addressing ethical considerations and data governance practices. This includes exploring frameworks and guidelines for ensuring privacy, security, transparency, and fairness in dashboard design and data usage, fostering trust and accountability among users.

- ✓ Future efforts should aim to enhance cross-platform compatibility of admin dashboards, ensuring seamless access and usability across different devices and screen sizes. This involves optimizing dashboard layouts, interactions, and visualizations for desktop, mobile, and tablet environments to accommodate diverse user preferences and usage contexts.

In summary, the proposed survey methodology serves as a foundation for exploring the complexities of admin dashboard analysis, while future research endeavors can delve deeper into emerging trends, advanced analytics techniques, and ethical considerations to further enhance the effectiveness and impact of admin dashboards in diverse organizational settings.

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