UNIVERSITI TEKNOLOGI MARA

PARALLEL COORDINATES VISUALIZATION OF SURVEY DATA

NUR AIN AFRINA BINTI YAHYA
2020601848

BACHELOR OF COMPUTER SCIENCE (Hons.)

AUGUST 2023

ACKNOWLEDGMENT

I am immensely grateful and offer my praises to Allah S.W.T for granting me the opportunity and the time to complete my thesis within the required timeframe, without any delays. I extend my deepest gratitude to Encik Mohammad Bakri Bin Che Haron, my supervisor, for his unwavering support, guidance, and dedication to ensuring the successful completion of this splendid thesis. His patience and commitment during the corrections were truly remarkable. It has been a blessing to work with him, and I am thankful for his guidance, from emphasizing the importance of being detailed in all aspects to teaching me how to write a well-structured document.

I would also like to express my sincere appreciation to my lecturer, Dr. Noorhasimah Ibrahim Teo, for always making time to assist me with my thesis and for being an exceptional teacher throughout this journey. I extend my heartfelt gratitude to my examiner, Madam Nor Fadilah Tahar@Yusoff, for promptly reviewing my thesis and providing valuable constructive criticism. Her feedback has significantly contributed to the overall quality of my work.

Finally, I owe an immeasurable debt of gratitude to my family, who have been my motivation and source of strength. Their unwavering support and sacrifices have been instrumental in my ability to complete this thesis under any circumstances. I am forever indebted to them, and I will strive to express my gratitude through future successes. I would also like to acknowledge my friends for their unwavering support and assistance throughout this entire journey. Their encouragement and support have played a crucial role in pushing me towards success. Thank you for standing by me, even during my most exhausting moments.

ABSTRACT

Parallel coordinates visualization has emerged as a potent method for analyzing high-dimensional survey data, enabling a comprehensive exploration of intricate relationships and patterns between multiple variables simultaneously. The proposed web-based application aims to harness the power of parallel coordinates to enhance survey data analysis, providing an efficient data exploration tool. However, the current limitations of traditional survey data visualization tools hinder the effective exploration of relationships within the data. To overcome these challenges, the waterfall model was followed during the development of the web-based application, ensuring thorough testing and validation of the system's functionality and usability. As a result, this system significantly aids in the easy analysis of survey data, offering a user-friendly and functional interface. The application's ease of use is further supported by an impressive System Usability Scale (SUS) score of 86.8%, demonstrating its effectiveness and acceptance among users. With its ability to provide deeper insights and improved data understanding, the adoption of parallel coordinates presents promising opportunities to revolutionize survey data analysis, contributing to enhanced decision-making and data exploration. By empowering users to explore their survey data in an interactive and visual manner, the web-based application enhances the efficiency of data analysis, leading to more informed insights and research outcomes. However, it is essential to acknowledge the significance of using well-structured and pre-processed datasets to ensure accurate and reliable visualizations. In conclusion, the integration of parallel coordinates and the waterfall model in the proposed web-based application offers an innovative and powerful solution to address the limitations of traditional survey data visualization tools, empowering users with a more efficient and insightful approach to survey data analysis.

TABLE OF CONTENTS