



CHAPTER I INTRODUCTION

1.1 Background Of The Study

As The rising of digital technologies and the continual growth of mobile app market has led to more dependence on the mobile devices. The mobile apps are growing exponentially in the market, as they provide a flexible solution to access the data. The hybrid mobile apps prove to be very useful as they are easily extensible over multiple OS and mobile devices with a universal user interface. A modern day hybrid application may require a lot of data to be showcased and visualizing that data in a well-groomed format is need of the hour.

Data visualization is a process that transforms numerical data into graphical or visual forms, such as diagrams, charts, or maps, to make it easier for users to understand and interpret. By using data visualization, users can easily identify patterns, trends, and relationships between complex data, making it easier to make decisions and develop solutions. In addition, data visualization also helps in explaining complex information in a more intuitive and attention- grabbing way.

The use of data visualization aims to facilitate the understanding and expression of information and patterns hidden in data. Through data visualization, we can find trends, comparisons, patterns, and correlations between variables in data more easily than by looking at raw data or tables of numbers. Data visualization can also help us present information effectively and make it easier to understand for the audience. For this reason, data visualization is essential in many fields, such as business, social science, and information technology.



In the early 2000s, highly advanced data visualization platforms such as Tableau, Power BI, and QlikView emerged. These platforms make it possible to create interactive charts and complex data visualizations in a relatively short time. In addition, with the development of Internet and mobile technology, data visualization can also be reached online or through mobile applications.

The development of data visualization at this time continues to grow rapidly, especially with the advancement of technologies such as big data, machine learning, and artificial intelligence.



1.2 Problem Statement

Here are the problem statements in "Design And Development Of Comprehensive Data Understanding A Hybrid Visualization Solution" :

1. How hybrid visualization solutions can simplify complex data through visual elements such as bars, lines, points, and shapes.
2. To create clear, accessible, and engaging visualizations that meet diverse audience needs and effectively communicate insight gained from data.
3. Create interactive visualizations that balance form and function, ensuring that they are engaging while effectively communicating the desired message and insight.



1.3 Project Objectives

The objectives of this project are as follows:

1. To Improving data understanding by represent the complex data in a way that can be easily understood and interpreted by a wider audience. This can be achieved by using interactive and intuitive visualization that allow user to explore and analyze data in depth
2. To Provide a variety of visualization options to meet different types of data and visualization needs. This helps users to choose the types of visualization
3. To develop the interactive visualization system to enable user to engage with visual data actively by providing interactivity features.



1.4 Project Scope

1.4.1 System Scope

1. Application Research:

Before entering the system creation stage, first i make observations on existing applications and identify any deficiencies that can be corrected in the system that I will create.

2. Data Visulization Development:

This project focuses on website data visualization development, dedicating efforts to creating a user-friendly website that improves the experience of visualize data.

3. User Interface:

The design display to making this website use a user friendly system by using features that can be used easily.

1.4.2 User Scope

1. Benefit Data Visualization Solution:

The advantage that users get from using this website is that users can use this website to become a place changing the data into a chart.

2. Target User:

This application aims to be a place for anyone who wants to visualize data simply and easily.



1.5 Significance Of Study

The importance of learning a comprehensive data visualization solution lies in the fact that data visualization is a powerful tool for converting complex data into an easy-to-digest visual format. It simplifies data interpretation, uncovering patterns, trends and correlations on which to base strategic decisions. By providing a clear and comprehensive visual representation of complex data sets, data visualization makes data less intimidating and offers an intuitive way for users to take action. Effective data visualization is multifaceted, including initial data understanding, efficient data understanding, and communication. Additionally, data visualization is an essential tool for modern businesses, contributing to an organization's operational and strategic success. Therefore, studying comprehensive data visualization solutions can help individuals and organizations gain a deeper understanding of their data, resulting in more informed decision making and better results.

1.6 Summary

Data visualization is the process of presenting data in graphical form that makes information easy to understand, this helps explain facts and determine the direction of action. The definition of data visualization explains the importance of data by placing data in a visual context. It involves the creation and study of visual representations of data known as information. Data visualization allows users to gain more knowledge about raw data obtained from various sources. Visualization can be done using a dashboard, where undetected text, patterns, and correlations can be easily visualized using visualization software. Data visualization does not only convert data into visual graphs, but data visualization also requires planning. Each type of data requires an appropriate visualization technique based on its needs. Based on the level of data complexity, to produce valuable solutions, it is necessary



to involve various disciplines, such as statistics, data mining, graphic design, and information visualization.

