PROJECT REPORT: DATA VISUALIZATION

OBJECT ORIENTED PROGRAMMING (OOPs)

DEPARTMENT OF COMPUTER SYSTEM ENGINEERING

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INTRODUCTION:

Allow me to provide an overview of this project and its various stages of design and development. First, I would like to introduce the project and its purpose. Data Visualization is a technique that helps individuals understand data in a more effective and insightful way. It involves using graphical representations and charts to make sense of complex data sets. Java is a popular programming language that offers many tools and libraries to support data visualization. This project explores different ways to implement data visualization using Java, with a focus on four common chart types: bar charts, line charts, pie charts, and 3D bar charts.

We designed this data visualization software to address the growing complexity of managing data in today's world. As data sets continue to increase in size, it becomes difficult to track progress. The software makes it easier to understand an organization's data and progress.

OBJECTIVES:

The main objectives of this project are as follows:

1. To understand the concepts of data visualization and its importance in data analysis.
2. To learn how to use different tools and libraries in Java for data visualization.
3. To implement data visualization techniques in Java for various data sets.
4. To evaluate the effectiveness of the different data visualization techniques.

METHODOLOGY:

Simple Data Visualization Software is developed using JAVA Programming Language and different functions and libraries.

1. NETBEANS IDE:

We have use netbeans ide for the development of our software. There we have used built-in objects for better user interface and for better graphical representation.

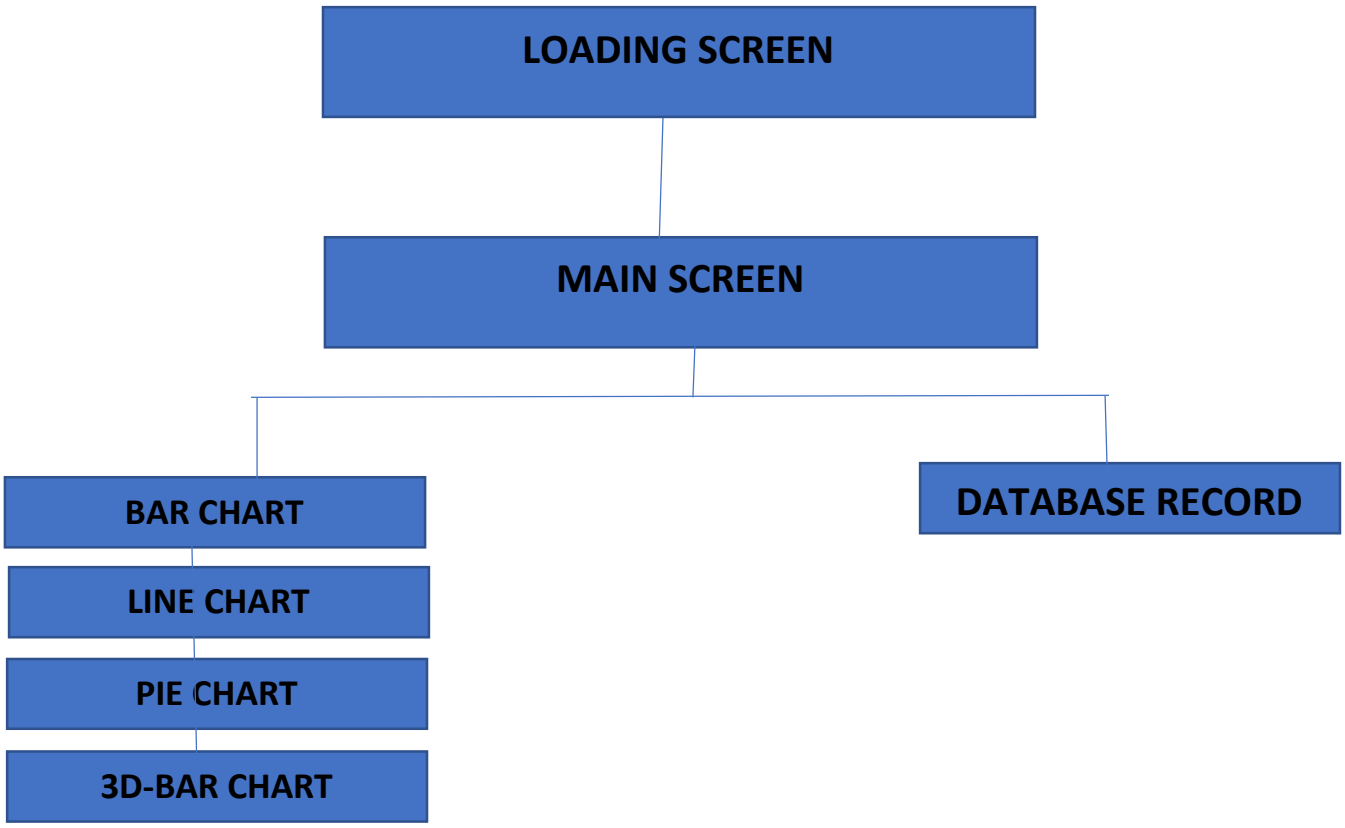
2. Jfreechart Library:

We have use jfreechart library for the representation of data in graphical form. We have use some of its classes like bar char, pie chart etc.

3. MYSQL DATABASE:

We have use mysql database in our project in order to make it more effective and efficient as it will read data from database and draw graphs according to it.

4. FLOW CHART:

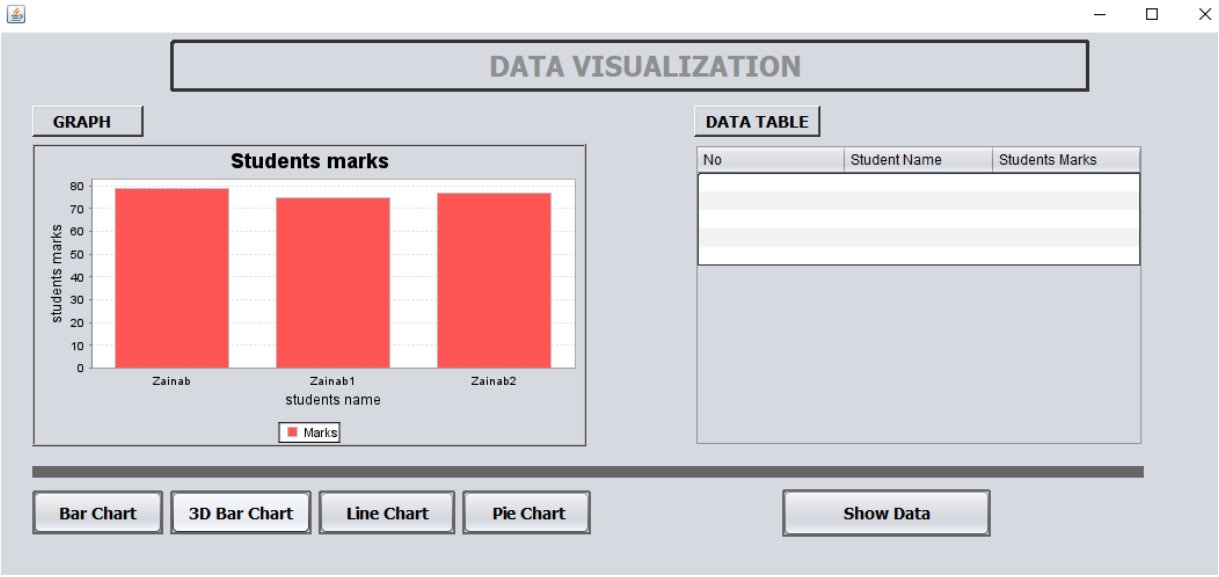


IMPLEMENTATIONS:

We develop four different data visualization techniques using Java for different data sets. These are as follows:

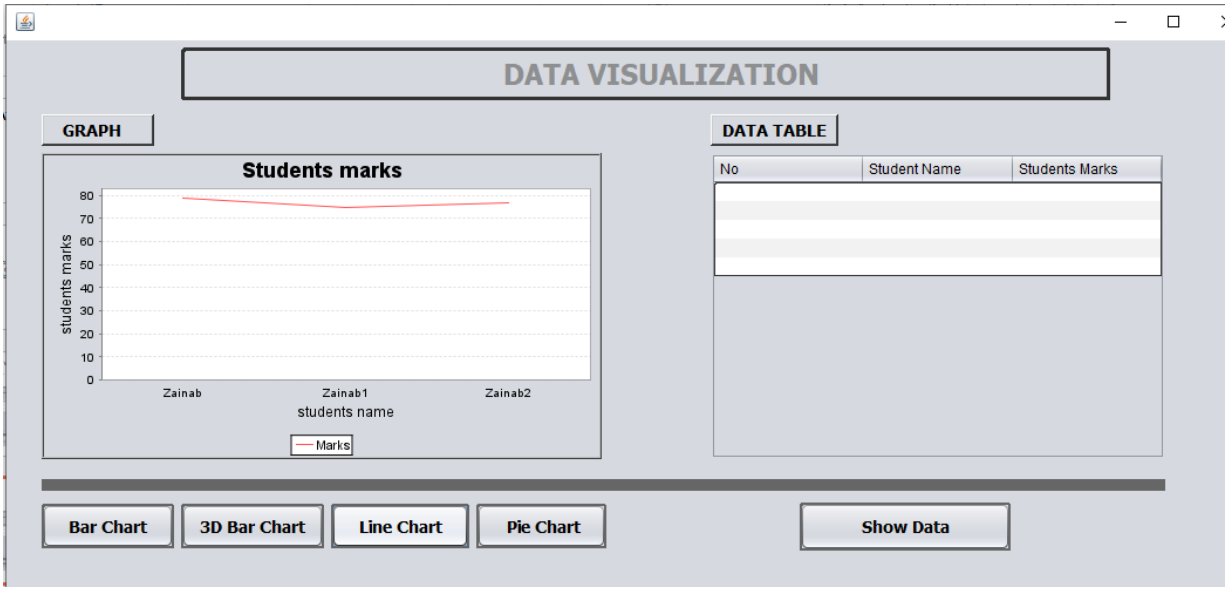
1. Bar Chart:

We implement a bar chart using JFreeChart to visualize the data in block format. The bar chart effectively show the differences in data between the different datasets and help us identify the progress.



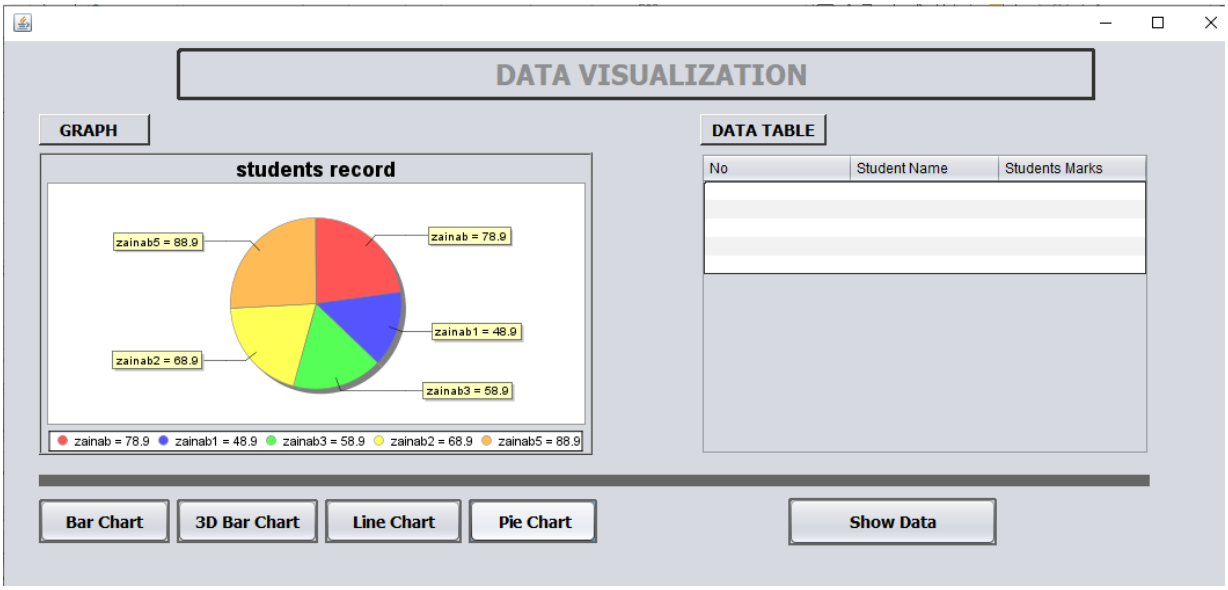
2. Line Chart:

We implement a line chart using JFREECHART to visualize the trend of dataset into line format. The line chart effectively show the lows and highs of variations in data into dataset and help us identify the progress.



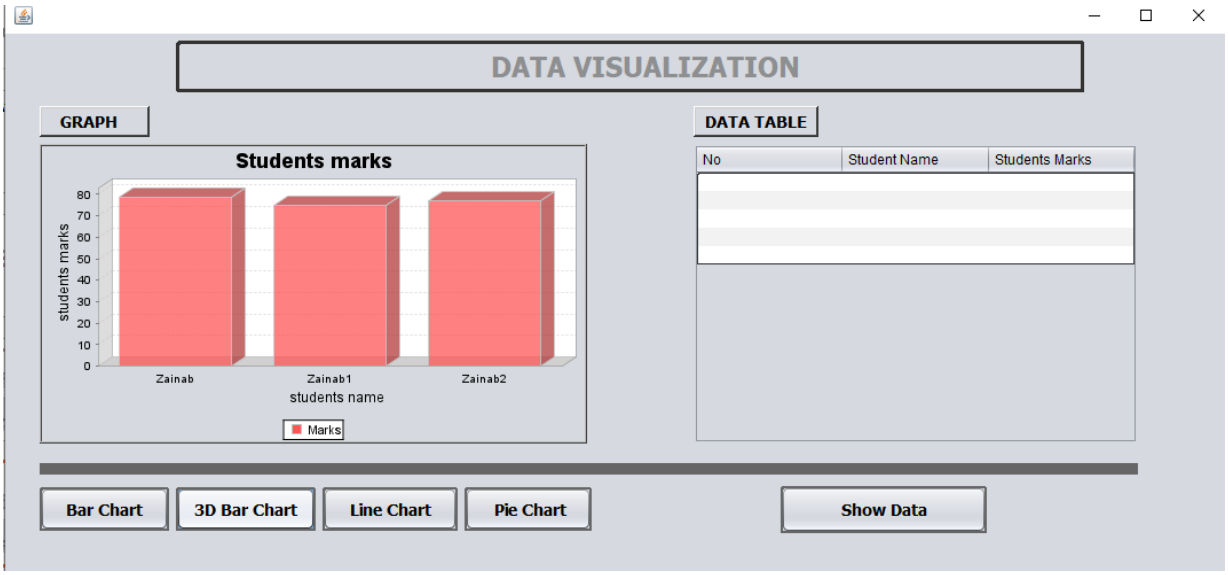
3. Pie Chart:

We implement a pie chart using JFREECHART to visualize the data into percentage /ratio. The pie chart effectively show the proportions of each type of data and help us identify about the most occurring or repeated data or majority and minority of progress.



4. 3D-Bar Chart:

We implement a 3D bar chart using JFreeChart to visualize the data in block format. The 3D bar chart effectively show the differences in data between the different datasets and help us to identify the progress in more better way.



CONCLUSION:

To conclude, this project highlights the significance of data visualization in comprehending complex data sets. It also showcases how Java can be utilized to implement various data visualization techniques, such as bar charts, line charts, pie charts, and 3D bar charts. Based on our evaluation, the different data visualization methods effectively achieved their intended objectives.

Further research can explore the application of other Java tools and libraries for data visualization and assess their effectiveness.

REFERENCES:

1. Gilbert, B. (2014). JFreeChart Developer Guide. Object Refinery.
2. JFreeChart - https://www.jfree.org/jfreechart/
3. JFreeChart Examples - https://github.com/jfree/jfreechart/tree/master/src/main/java/org/jfree/chart/examples