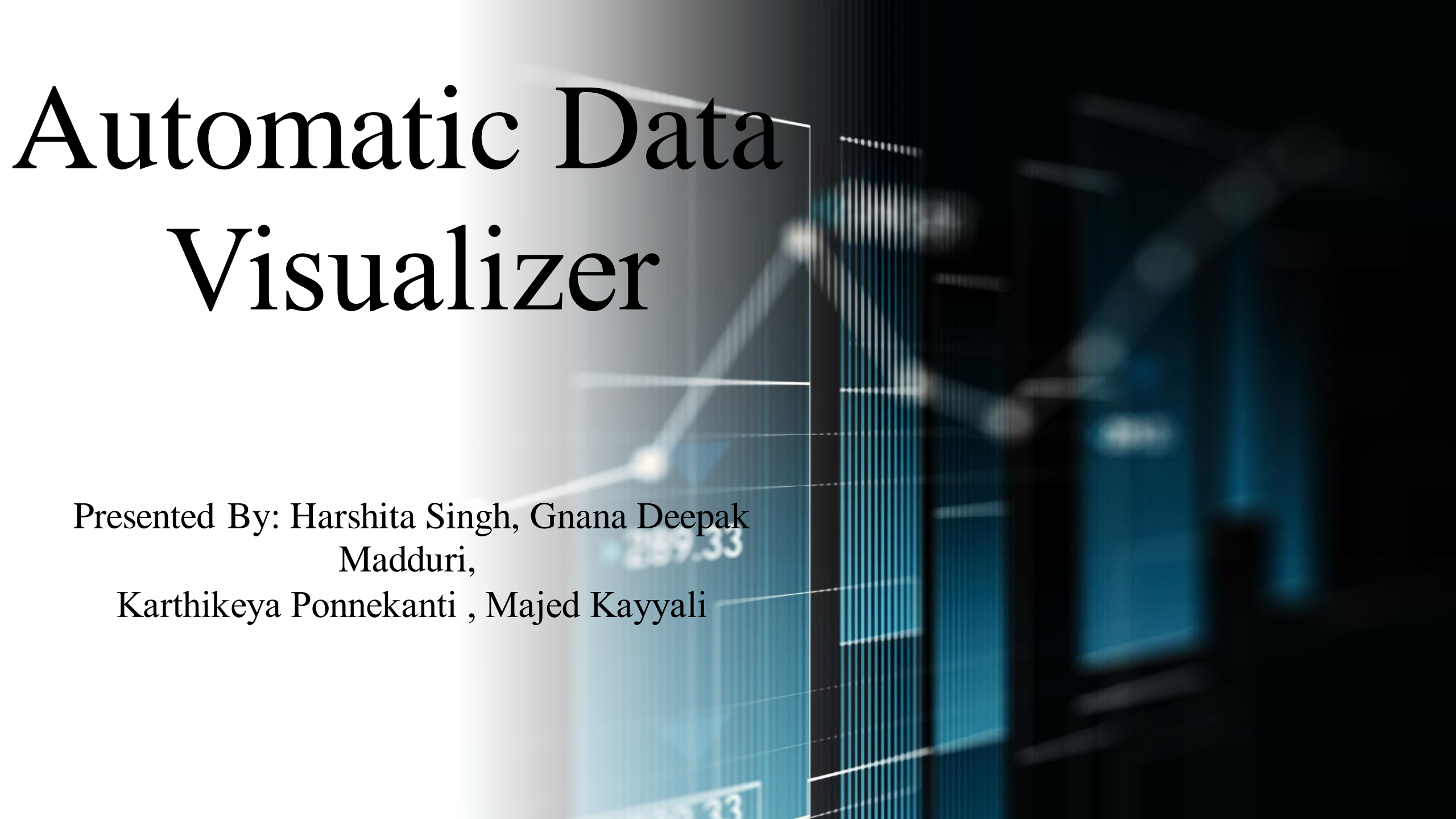


Automatic Data Visualizer

The background of the slide features a stylized, semi-transparent graphic of a data visualization. It includes a blue line graph with a white dot and a blue bar chart. The overall aesthetic is modern and tech-oriented, with a dark blue and black color palette.

Presented By: Harshita Singh, Gnana Deepak
Madduri,
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The background of the slide features a dark blue, abstract design. On the left side, there is a white line graph with three data points marked by small orange circles. The line starts at the top left, goes down to the middle, and then goes up to the right. In the center-right area, there is a faint, semi-transparent rectangular box containing a line graph and some data points. One data point is labeled with the number '289.33' in a light blue font. The overall aesthetic is high-tech and data-oriented.

Introduction:

- With the advent of the big data age these days, data exploration and analysis methods using visualization have become essential.
- The data visualization is an effective way to understand data in a short time and makes a great contribution to information delivery.
- It is a powerful means of discovering useful information embedded in a given data and communicating with others.
- The user can obtain various visualization results while changing the type of visualization according to the purpose of analysis .

Objective:

- The aim of this project is to create a model that utilizes machine learning algorithms to automate the visualization of diverse datasets. This project aims to develop an intuitive and efficient model capable of analyzing input data and presenting different visualizations based on data characteristics and user preferences.
- By incorporating advanced algorithms and user-friendly features, the project aims to enable users to effectively explore, interpret, and communicate insights from complex datasets, thereby improving decision-making processes across various domains.

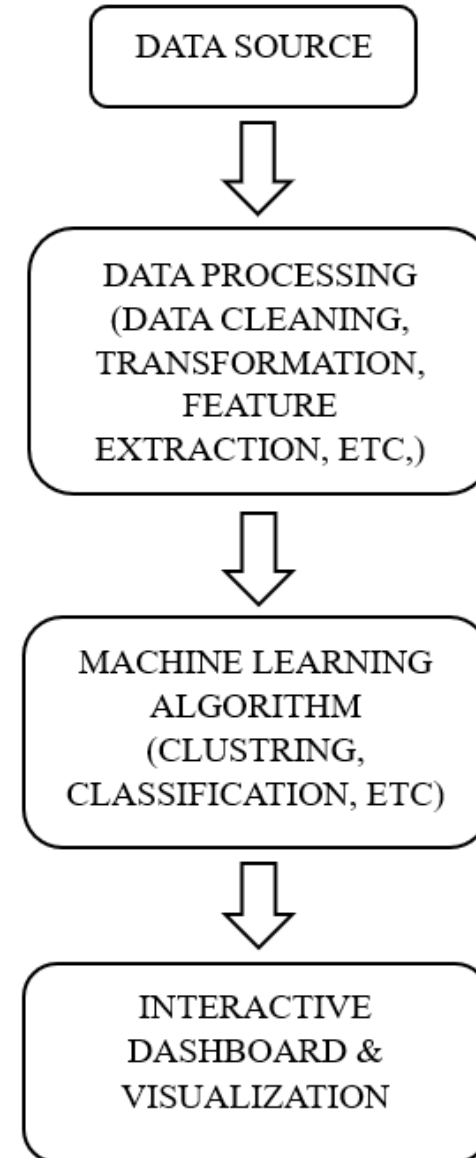


Methods and applications used :

- For our project, we'll use R programming language with the Shiny framework to create an interactive web application. R offers extensive tools for data analysis and visualization, while Shiny enables the development of web apps directly from R scripts.
- This approach allows us to build a user-friendly interface where users can explore dynamic visualizations based on their inputs or predefined parameters. By leveraging R and Shiny, we'll empower users to gain insights and make data-driven decisions efficiently.



System Architecture :



Literature review:

- The paper titled "Machine Learning-based Automated Data Visualization" presents an approach to automatically visualize data using machine learning techniques. This paper addresses the need for efficient data exploration and analysis methods in the era of big data. It introduces an automated data visualization system based on machine learning and proposes a meta-feature engineering process to construct a visualization recommendation model. The meta-features are derived from the input datasets and are used to determine the significance of visualization results.
- The paper discusses various visualization types such as scatter plots, bar charts, line charts, and pie charts, and presents the effects of meta-features on these visualization types. Experimental results using six machine learning algorithms show that decision trees perform best in classifying visualization types. The paper concludes that the proposed meta-feature engineering approach improves the performance of automated visualization systems and suggests avenues for future research in this area.

Literature review:

- The paper titled "An Overview of Data Visualization" provides a comprehensive guide to understanding the significance of data visualization in aiding data comprehension through visual representations. It discusses its crucial role in modern business intelligence and decision-making processes, elucidating various visualization categories like hierarchical, network, multidimensional, and geospatial with illustrative examples. Furthermore, it outlines different data visualization tools such as Tableau, Infogram, ChartBlocks, Datawrapper, and Google Charts, detailing their features and suitability for diverse needs.
- The paper also examines the current trends and future prospects of the data visualization market, emphasizing its growing adoption across industries and evolving technologies. In essence, this paper serves as an insightful resource for comprehending the importance, tools, categories, market trends, and future directions of data visualization in facilitating data-driven decision-making processes.

Timeline:

Dates	Task
01/30/2024	PROJECT PROPOSAL
02/15/2024	FEATURE EXPLORATION
02/27/2024	DATA VISUALIZATION
03/19/2024	MODEL DEVELOPEMENT
04/02/2024	SHINY APP / WEBSITE
04/18/2024	FINAL PRESENTATION



Thank You!