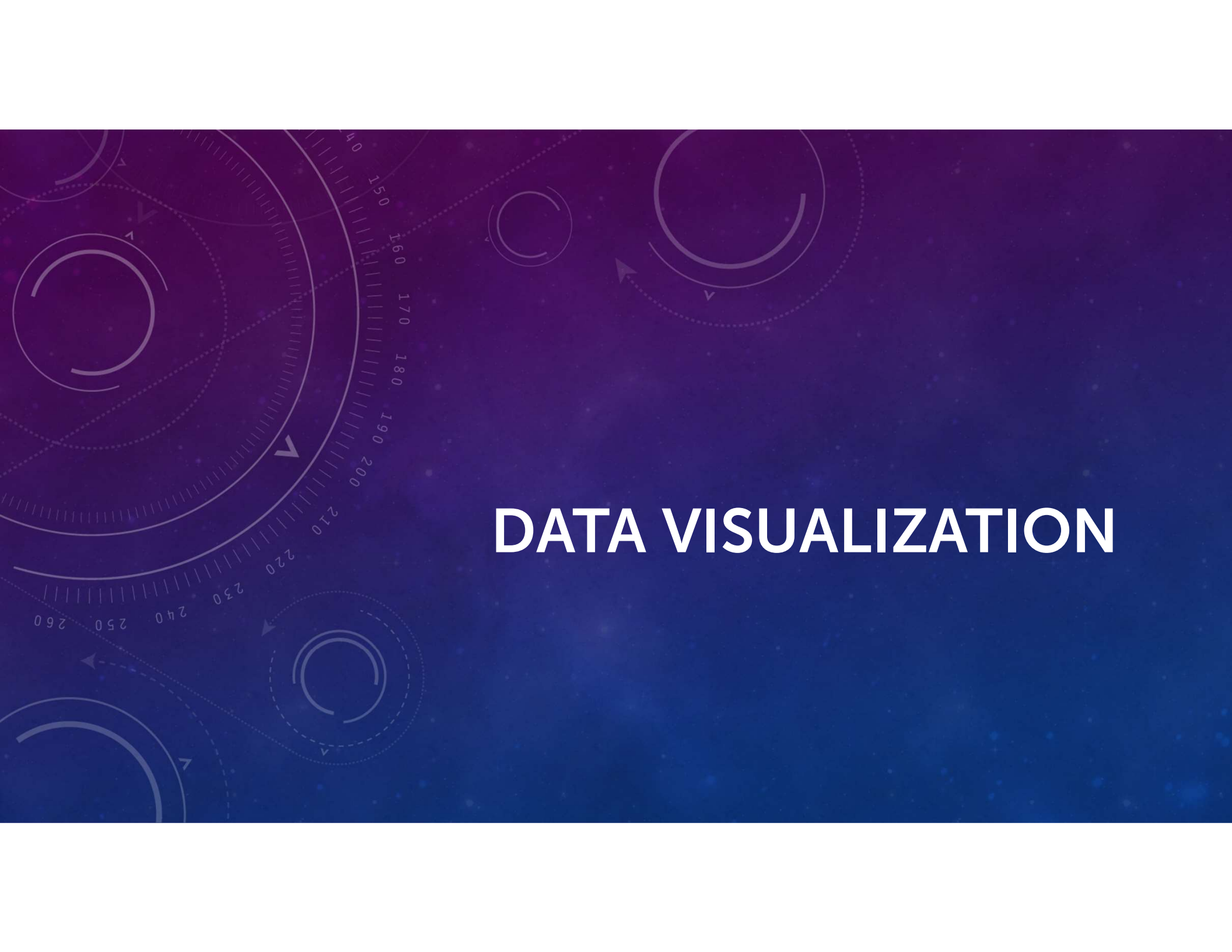


The background is a gradient of dark blue and purple, speckled with small white dots resembling stars. Overlaid on this are several faint, light-colored circular and semi-circular patterns. Some of these patterns include tick marks and numbers, suggesting a circular scale or a gauge. For example, one large arc on the left has numbers ranging from 140 to 260. Other smaller arcs and dashed lines with arrows are scattered across the image, creating a sense of motion and data flow.

DATA VISUALIZATION

TOPICS

- Overview
- Using matplotlib library
- Key types of plots
- Exploratory analysis using matplotlib library

DATA VISUALIZATION

- Data visualization is the process of interpreting data and presenting it in a pictorial or graphical format.
- Data visualization helps people understand the significance of data by summarizing and presenting a huge amount of data in a simple and easy-to-understand format in order to communicate the information clearly and effectively.

SHIFTING FROM INPUT TO OUTPUT

- A decision-maker for any business wants to access highly visual business intelligence (BI) tools that can help to make the right decisions quickly.
- Business intelligence has become more mainstream; hence, vendors are beginning to focus on both ends of the pipeline and improve the quality of data input.
- There is also a strong focus on ensuring that the output is well-structured and clearly presented

WHY IS DATA VISUALIZATION IMPORTANT?

- A picture is worth a thousand words, as they say.
- Humans just understand data better through pictures rather than by reading numbers in rows and columns.
- Accordingly, if the data is presented in a graphical format, people are more able to effectively find correlations and raise important questions.

DATA VISUALIZATION HELPS THE BUSINESS TO ACHIEVE NUMEROUS GOALS

- Converting the business data into interactive graphs for dynamic interpretation to serve the business goals.
- Transforming data into visually appealing, interactive dashboards of various data sources to serve the business with the insights.
- Creating more attractive and informative dashboards of various graphical data representations.
- Making appropriate decisions by drilling into the data and finding the insights.

DATA VISUALIZATION HELPS THE BUSINESS TO ACHIEVE NUMEROUS GOALS (CONT.)

- Figuring out the patterns, trends, and correlations in the data being analyzed to determine where they must improve their operational processes and thereby grow their business.
- Giving a fuller picture of the data under analysis.
- Organizing and presenting massive data intuitively to present important findings from the data.
- Making better, quick, and informed decisions with data visualization.

WHY DO MODERN BUSINESSES NEED DATA VISUALIZATION?

- Data visualization helps companies to analyze its different processes so the management can focus on the areas for improvement to generate more revenue and improve productivity.
- It brings business intelligence to life.
- It applies a creative approach to understanding the hidden information within the business data.

WHY DO MODERN BUSINESSES NEED DATA VISUALIZATION?

- It provides a better and faster way to identify patterns, trends, and correlation in the data sets that would remain undetected with just text.
- It identifies new business opportunities by predicting upcoming trends or sales volumes and the revenue they will generate.
- It supplies managers with information they need to make more effective comparisons between data sets by plotting them on the same visualization.

WHY DO MODERN BUSINESSES NEED DATA VISUALIZATION? (CONT.)

- It enables managers to understand the correlations between the operating conditions and the business performance.
- It helps businesses to discover the gray areas of the business and make the right decisions for improvement.
- Data visualization helps managers to understand customers' behaviors and interests and hence retains customers and market share.

HOW DATA VISUALIZATION IS USED FOR BUSINESS DECISION-MAKING

- Faster Responses
- Simplicity
- Easier Pattern Visualization
- Team Involvement
- Unify Interpretation

INTRODUCING DATA VISUALIZATION TECHNIQUES

- Data visualization aims to understand data by extracting and graphing information to show patterns, spot trends, and identify outliers.
- There are two basic types of data visualization.
 - *Exploration* helps to extract information from the collected data.
 - *Explanation* demonstrates the extracted information.

MATPLOTLIB

- Matplotlib is a Python 2D plotting library for data visualization built on NumPy arrays and designed to work with the broader SciPy stack.
- It produces publication-quality figures in a variety of formats and interactive environments across platforms.

SEABORN

- Seaborn is a Python data visualization library based on Matplotlib that provides a high-level interface for drawing attractive and informative statistical graphics.

PLOTLY

- The Plotly Python graphing library makes interactive, publication-quality graphs online.
- Different dynamic graphs formats can be generated online or offline.

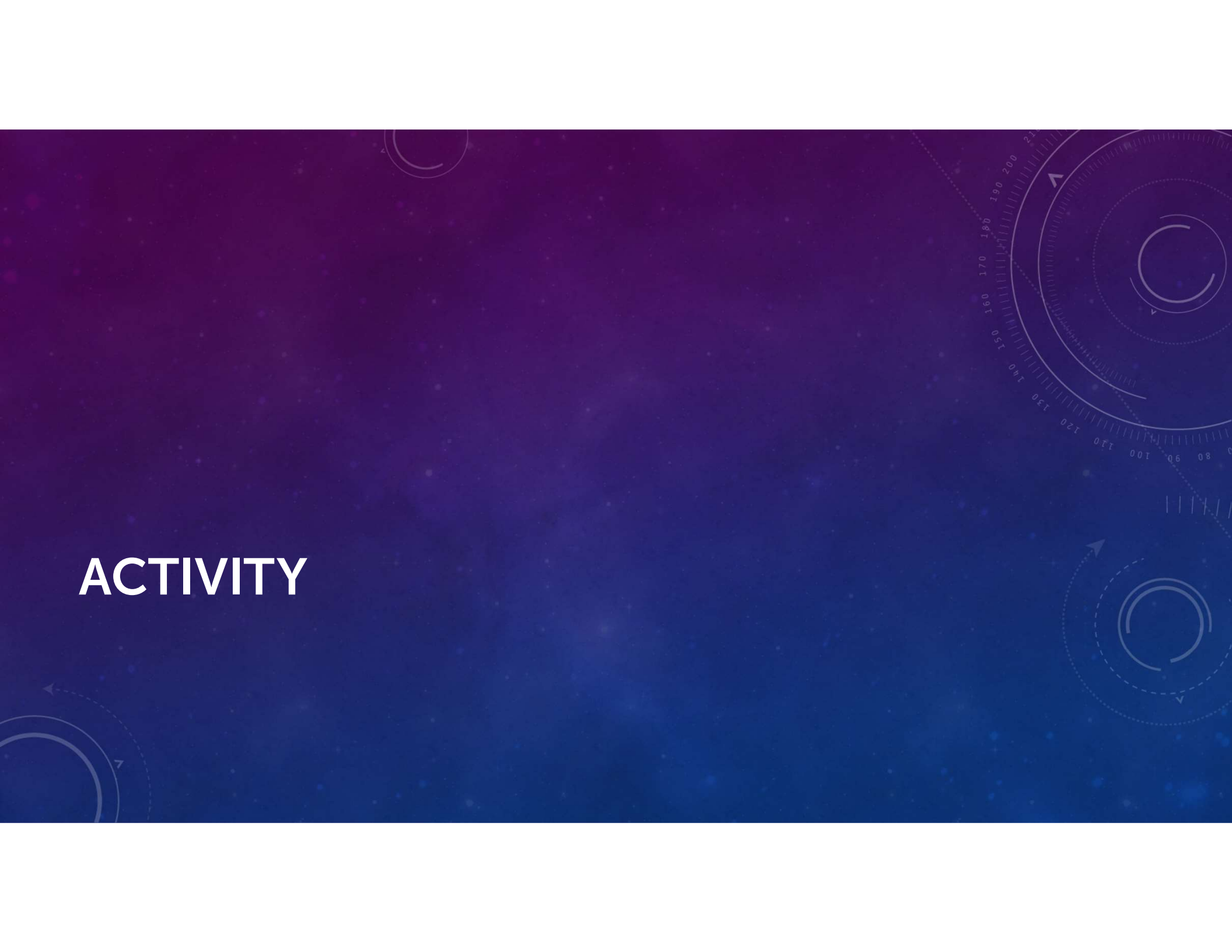
PANDAS

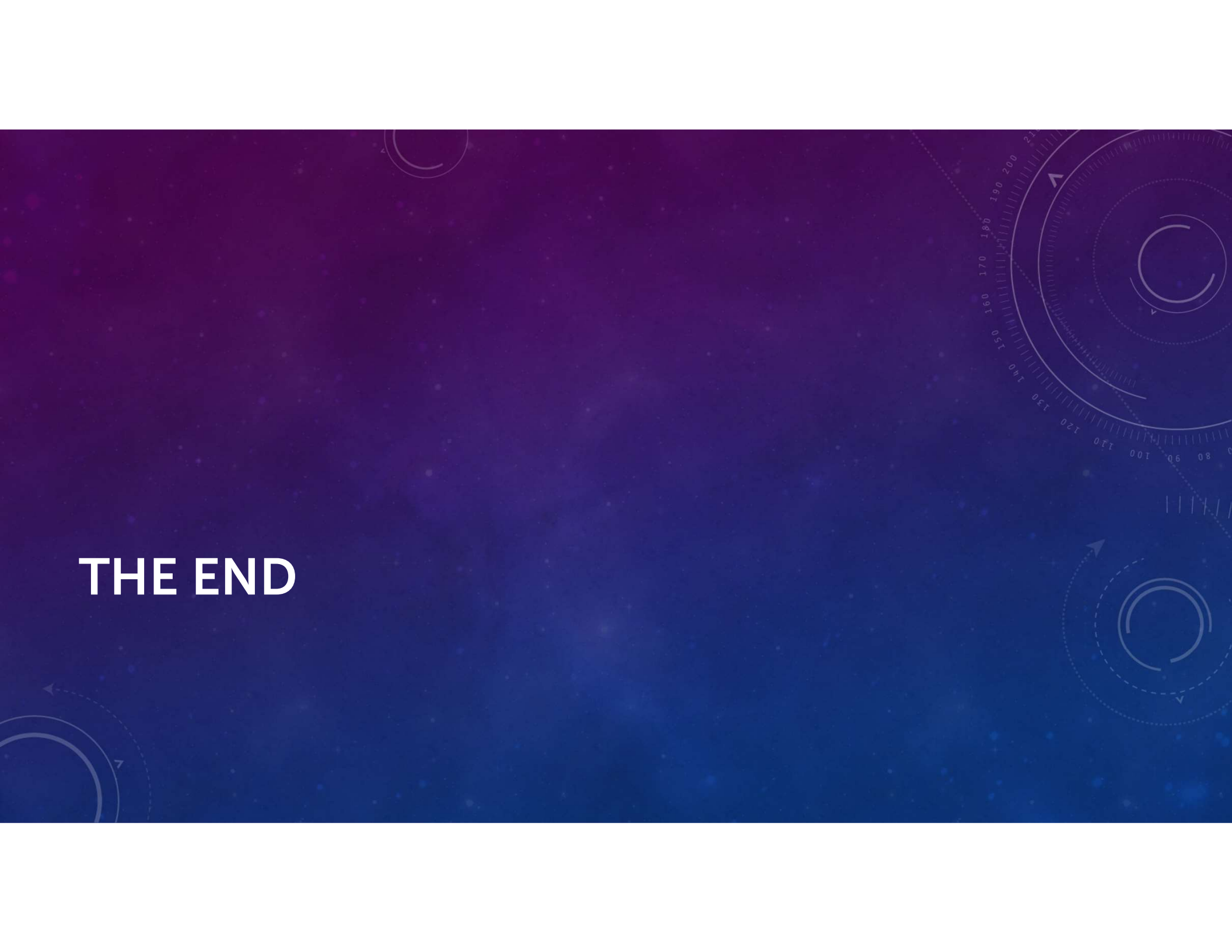
- Pandas is a Python library written for data manipulation and analysis.
- You can use Python with Pandas in a variety of academic and commercial domains, including finance, economics, statistics, advertising, web analytics, and much more.

INTRODUCING PLOTS IN PYTHON

- Basic plotting
- Direct plotting
- Stacked bar plot
- Horizontal bar plots
- Histograms
- Box plot
- Area plot
- Scatter plot

ACTIVITY





THE END