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**Class : BE**

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**Assignment 8**

**Title: Data Visualization and Analysis Using Tableau/PowerBI**

**Problem Statement:** In today's data-driven world, organizations gather vast amounts of data from various sources. However, to derive actionable insights from this data, it needs to be visualized effectively. Data visualization tools like Tableau and PowerBI provide powerful platforms to connect to data sources, build charts, analyze data, create dashboards, and tell compelling stories through data visualization. The objective of this project is to utilize Tableau/PowerBI to connect to a dataset, build visualizations, analyze the data, create a dashboard, and craft engaging data-driven narratives.

**Learning Objectives:**

1. Gain proficiency in using Tableau/PowerBI for data visualization and analysis.
2. Learn to connect to different data sources and import data into Tableau/PowerBI.
3. Understand the principles of effective data visualization and chart design.
4. Develop skills in creating interactive dashboards to convey insights effectively.
5. Learn to create data-driven stories using visualizations to communicate key findings.

**Procedure:**

1. **Selecting and Preparing the Dataset:**
   * Choose a dataset relevant to the analysis goals. Ensure the dataset is structured and contains the necessary variables for analysis.
   * Cleanse and preprocess the data as needed, addressing missing values, outliers, and inconsistencies.
2. **Connecting to Data:**
   * Launch Tableau/PowerBI and establish a connection to the selected dataset.
   * Import the dataset into Tableau/PowerBI and verify the data is loaded correctly.
3. **Building Charts and Analyzing Data:**
   * Utilize the built-in features of Tableau/PowerBI to create various types of charts (e.g., bar charts, line charts, scatter plots) to analyze different aspects of the data.
   * Apply appropriate filters and aggregations to extract meaningful insights from the data.
   * Explore relationships between different variables and identify patterns or trends.
4. **Creating Dashboard:**
   * Compile the individual visualizations into a cohesive dashboard layout.
   * Arrange the visualizations logically and aesthetically to facilitate easy interpretation.
   * Incorporate interactivity features such as filters, parameters, and actions to enhance user engagement.
5. **Creating Stories:**
   * Develop a narrative around the insights derived from the data.
   * Arrange the visualizations in a sequence that tells a compelling story, guiding the viewer through the analysis process.
   * Incorporate annotations and textual descriptions to provide context and highlight key findings.
6. **Refinement and Iteration:**
   * Review the dashboard and storytelling components for clarity, coherence, and effectiveness.
   * Iterate on the design based on feedback and insights gained during the review process.
   * Fine-tune the visualizations and dashboard layout to improve usability and impact.

**Conclusion:** In conclusion, the utilization of Tableau/PowerBI for data visualization and analysis has enabled us to connect to data sources, build informative charts, analyze the data, create interactive dashboards, and craft compelling data-driven stories. Through this project, we have achieved the objective of leveraging data visualization tools to derive actionable insights from complex datasets. By adhering to principles of effective visualization design and storytelling, we have effectively communicated key findings to stakeholders, empowering them to make informed decisions based on data-driven insights. This project has not only enhanced our proficiency in Tableau/PowerBI but also equipped us with valuable skills in data analysis and storytelling through visualization.