INT233:DATA VISUALIZATION

L:2 T:0 P:2 Credits:3

Course Outcomes: Through this course students should be able to

CO1 :: illustrate the role of data visualization for analytics in an organization

CO2 :: use data visualization principles to help you to design dashboards that enlighten and support business decisions

CO3 :: explore knowledge of data representation and subsetting techniques for real time datasets

CO4 :: use and customize the various graphical packages for creating various types of graphs, plots and charts

CO5 :: analyze real life business problems by using various visualization techniques

CO6 :: integrate data to provide mashed-up dashboards

Unit I

DATA VISUALIZATION FUNDAMENTALS : Basics of Data visualization, Data types, Exploratory versus explanatory visualizations, Design principles for charts and graphs, Value of Visualization, Data and Image Models, Common tools for creating data visualizations, Excel vs SPSS vs R vs Tableau

Unit II

INTRODUCTION TO TABLEAU : Introduction to tool, Installing Tableau, Tableau features, Connecting data with tableau, Joining data sources, Live data connections vs data extracts, Basic functions of tableau, Operations of tableau, Usage of Menus and Toolbar, Usage of Data Pane, Analytics Pane, Sheet Tabs, Shelves and Cards, Marks Card, Legends, Layout for dashboard and stories, Difference between Green and Blue pills

Unit III

MANAGING, ORGANIZING AND ENHANCING DATA IN TABLEAU : Splitting data, Pivoting & Transforming data, Blue & green pills Filters, Blue & green pills affect on dates, Cleaning data by Bulk Re-aliasing, Setting data defaults to save time later on, Create hierarchies to drill down into data, Creating groups for data, Creating and Using Sets, Create data filters, Create calculated fields, Combine data sources using data blending, Creating & using Parameters, Bringing in More data with Joins

Unit IV

CHART TYPES AND THEIR USAGE IN TABLEAU : Defining data and their different visualization ways, Building various charts, Visualizing data using Bar Chart, Lines Charts, Scatterplots, Heat maps, Histograms, Maps, Dual Axis Charts ,Pie Charts, Visualization data with advanced analytics Polygon Maps, Bump Charts, Control charts, Funnel charts, Pareto charts, Waterfall charts, Usage and filtration of data with charts, Visualizing categorical data, Visualizing time series data, Visualizing multiple variables, Visualizing geospatial data, Mapbox integrations, Web Mapping Services, Background Images

Unit V

MATHEMATICAL AND VISUAL ANALYTICS IN TABLEAU : Math and data, Aggregate calculations, Date calculations, Logic calculations, Number calculations, String calculations, Type calculations, Conceptual Topics with LOD Expressions, Nested LOD Expressions Showing change instead of raw numbers, Summary statistics in visualizations, Annotations and pre-attentive attributes, Use visual analytics to find answers in your data, Adding annotations to visualization, Add reference lines and trend lines, Visualizing forecasting data, Clustering, Drag and drop analytics, Analysis with cube and MDX

Unit VI

INTERACTIVE DASHBOARDS AND STORY POINTS IN TABLEAU : Creating a dashboard, Designing dashboard, Add motions, Adding interactivity with actions, Dashboard layout and formatting, Add extra detail to visualization using Marks Shelf, Add Size, Shape, Labels, Details, Tooltips in visualization, Sharing and collaborating dashboards, Story Points and how to create them, Designing effective slide presentations to showcase data story, Publish online business dashboards with Tableau, Exporting Pdfs, Sharing Dashboard Securely

List of Practicals / Experiments:

List of Practicals

- Create a visualization to demonstrate the concepts of parameters in Tableau.

- Create a visualization to demonstrate the concepts of filters in Tableau.
- Create a visualization to demonstrate the concepts of groups in Tableau.
- Create a visualization to demonstrate the concepts of sets in the Tableau.
- Create a visualization to demonstrate the concepts of joins in Tableau.
- Create a visualization to demonstrate the concepts of data blending in Tableau.
- Create a visualization to demonstrate the various charts in the Tableau.
- Create a visualization to demonstrate the concept of clustering in Tableau.
- Create a visualization to demonstrate mathematical functions in Tableau.
- Create a visualization to demonstrate LOD expressions in Tableau.
- Create a visualization to demonstrate animations in Tableau.
- Create a visualization to demonstrate dashboard in Tableau.
- Create a visualization to demonstrate story telling in Tableau.
- Create a visualization to demonstrate the difference between live and extract connection in Tableau.

Text Books:

1. TABLEAU DESKTOP POCKET REFERENCE: ESSENTIAL FEATURES, SYNTAX AND DATA VISUALIZATIONS by RYAN SLEEPER, SHROFF PUBLISHERS & DISTRIBUTORS PVT. LTD

References:

1. PRACTICAL TABLEAU: 100 TIPS, TUTORIALS, AND STRATEGIES FROM A TABLEAU ZEN MASTER (COLOR EDITION) by RYAN SLEEPER, SHROFF PUBLISHERS & DISTRIBUTORS PVT. LTD

2. HANDS-ON DATA VISUALIZATION: INTERACTIVE STORYTELLING FROM SPREADSHEETS TO CODE by JACK DOUGHERTY, SHROFF PUBLISHERS & DISTRIBUTORS PVT. LTD