21BC112 DATA VISUALIZATION LABORATORY

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Course Description and Objectives:

This course will introduce the main concepts of visual analytics with a hands-on tutorial using Tableau, a leading self-service data visualization tool. Further, it aims at learning about how to create effective charts and interactive dashboards will provide the student a very useful skill applicable in many business scenarios.

Course Outcomes:

The student will be able to:
- • Understand and describe the main concepts of data visualization
- • Create ad-hoc reports, data visualizations, and dashboards using Tableau Desktop
- • Publish the created visualizations to Tableau Server and Tableau Public

Skills:
- How to recognize good (and bad) data visualizations
- How to interpret a data visualization
- Using shapes, colors, text and layout appropriately

Activities:
- Identifying stories and insights in data
- Preparing data for visualization
- Creating several different charts using Tableau

Task-1: Introduction to Tableau
- • Course introduction
- • Dataviz best practices
- • Getting started with Tableau Desktop
- • Connecting to the tutorial dataset
- • Creating the first charts
- • Filtering and sorting data

Task-2: Common charts
- • Creating common visualizations (bar charts, line charts etc.)
- • Assembling a dashboard layout
- • Using dashboard filters

Task-3: Transform the data
- • Dataviz best practices
- • Creating simple calculations in Tableau
- • Using table calculations

Task-4: Interactions
- • Interactivity with text and visual tooltips
- • Interactivity with actions (filter, highlight, URL)
- • Drilldown between dashboards

Task-5: Advanced visualizations
- • Dataviz best practices
- • Creating more advanced chart types
- • Using multiple source tables

Task-6: Data Storytelling
- • Intro to data storytelling
- • Creating a data story in Tableau
- • Overview of the Tableau ecosystem
- • Further learning opportunities

System Requirements:
- • System requirements are listed here under Tableau Desktop and Tableau Prep: https://www.tableau.com/products/techspecs
- • The latest version of Tableau Desktop as well as Tableau Prep should be downloaded and installed from here: https://www.tableau.com/tft/activation

TEXTBOOK:
Visualization Analysis & Design by Tamara Munzner (2014) (ISBN 9781466508910)

REFERENCES BOOKS:
1. Interactive Data Visualization for the Web by Scott Murray 2nd Edition (2017)
2. D3.js in Action by Elijah Meeks 2nd Edition (2017)
3. Semiology of Graphics by Jacques Bertin (2010)
4. The Grammar of Graphics by Leland Wilkinson
5. ggplot2 Elegant Graphics for Data Analysis by Hadley Wickham