

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

Computer Science & Information Technology, VII-Semester

Open Elective CSIT –703 (D) Data Visualization

Objective:

- 1.To understand the various types of data, apply and evaluate the principles of data visualization.
2. Acquire skills to apply visualization techniques to a problem and its associated dataset.
- 3.To apply structured approach to create effective visualizations thereby building visualization dashboard to support decision making

Course Outcomes:

- 1.Identify the different data types, visualization types to bring out the insight. Relate the visualization towards the problem based on the dataset.
- 2.Identify the different attributes and showcasing them in plots. Identify and create various visualizations for geospatial and table data.
3. Ability to visualize categorical, quantitative and text data. Illustrate the integration of visualization tools with hadoop.
4. Ability to visualize categorical, quantitative and text data.

UNIT I

Introduction to Data Visualization

Overview of data visualization - Data Abstraction -Analysis: Four Levels for Validation- Task Abstraction - Analysis: Four Levels for Validation.

UNIT II

Visualization Techniques

Scalar and point techniques Color maps Contouring Height Plots - Vector visualization techniques Vector properties Vector Glyphs Vector Color Coding Stream Objects.

UNIT III

Visual Analytics

Visual Variables- Networks and Trees - Map Color and Other Channels- Manipulate View, Arrange Tables Geo Spatial data Reduce Items and Attributes.

UNIT IV

Visualization Tools and Techniques

Introduction to data visualization tools- Tableau - Visualization using R.

UNIT V

Diverse Types of Visual Analysis

Time- Series data visualization Text data visualization Multivariate data visualization and case studies. Dashboard creation using visualization tools for the use cases: Finance-marketing-insurance healthcare etc.,

Recommended Books:

1. Tamara Munzer, Visualization Analysis and Design -, CRC Press 2014
2. AlexandruTelea, Data Visualization Principles and Practice CRC Press 2014.
3. Paul J. Deitel, Harvey Deitel, Java SE8 for Programmers (Deitel Developer Series) 3rd Edition, 2014.
4. Y. Daniel Liang, Introduction to Java programming-comprehensive version-Tenth Edition,Pearson ltd 2015.
5. Paul Deitel Harvey Deitel ,Java, How to Program, Prentice Hall; 9th edition , 2011.
6. Cay Horstmann BIG JAVA, 4th edition,John Wiley Sons,2009
7. Nicholas S. Williams, Professional Java for Web Applications, Wrox Press, 2014.

List of Experiments:

1. Acquiring and plotting data
2. Statistical Analysis such as Multivariate Analysis, PCA, LDA, Correlation, regression and analysis of variance.
3. Time-series analysis stock market
4. Visualization on Streaming dataset
5. Dashboard Creation
6. Text visualization