PVP 23

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)

Kanuru, Vijayawada-520007

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (AI&ML)

III B Tech – II Semester

Data Visualization Lab

Course Code	23AM3652	**Year**	III	**Semester**	II
Course Category	PC	**Branch**	CSE (AI&ML)	**Course Type**	Practical
Credits	1.5	**L-T-P**	0-0-3	**Prerequisites**	Python Programming
Continuous Internal Evaluation	30	**Semester End Evaluation**	70	**Total Marks**	100

	Course Outcomes	
Upon Successful completion of course, the student will be able to		
CO1	**Demonstrate** experimental procedures through oral communication and submit comprehensive documentation reports.	**L2**
CO2	**Apply** appropriate R visualization functions to explore and present different types of univariate and bivariate data.	**L3**
CO3	**Analyze** multivariate datasets using advanced R techniques such as scatterplot matrices, 3D plots, heatmaps, and correlograms.	**L4**
CO4	**Evaluate** and interpret large or categorical datasets using advanced visualization techniques and interactive tools.	**L5**

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlation (3: High,2: Moderate,1: Low)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PSO1**	**PSO2**
CO1	2								2				
CO2	3				3						2		
CO3		3									2		
CO4				3							2		

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Syllabus		
Exp. No.	**Contents**	**Mapped CO**
1	a) Load VADeaths(Death Rates in Virginia) dataset in R and visualize the data using different histograms. b) Load air quality dataset in R and visualize La Guardia Airport's dialy maximum temperature using histogram	CO1 to CO4
2	Load AirPassengers dataset in R and visualize the data using line chart that shows increase in air passengers over given time period	CO1 to CO4
3	a) Load iris dataset in R, visualize the data using different Bar Charts and also demonstrate the use of stacked plots. b) Load air quality dataset in R and visualize ozone concentration in air.	CO1 to CO4
4	a) Load iris dataset in R, visualize the data using different Box plots including group by option and also use color palette to represent species. b) Load air quality dataset in R and visualize air quality parameters using box plots.	CO1 to CO4
5	Visualize iris dataset using simple scatter, multivariate scatter plot and also visualize scatter plot matrix to visualize multiple variables across each other.	CO1 to CO4
6	Load diamonds dataset in R and visualize the structure in datasets with large data points using hexagon binning and also add color palette.	CO1 to CO4
7	Load HairEyeColor dataset in R and plot categorical data using mosaic plot.	CO1 to CO4
8	Load mtcars dataset in R and visualize data using heat map	CO1 to CO4
9	Install leaflet library in R and perform different map visualizations	CO1 to CO4
10	Visualize iris dataset using 3d graphs such as scatter3d, cloud, xyplot	CO1 to CO4
11	Make use of correlogram to visualize data in correlation matrices for iris dataset.	CO1 to CO4
12	Install maps library in R and draw different map visualizations	CO1 to CO4

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Text Books

1. R Graphics Cookbook, Winston Chang, 2nd Edition, 2018, O'Reilly Media
2. Data Visualization: A Practical Introduction, Kieran Healy, 1st Edition, 2019, Princeton University Press

References

1. The Art of R Programming, Norman Matloff, 1st Edition, 2011, No Starch Press
2. Hands-On Programming with R, Garrett Grolemund, 1st Edition, 2014, O'Reilly Media

E-Recourses and other Digital Material

1. https://www.analyticsvidhya.com/blog/2015/07/guide-data-visualization-r/
2. https://www.geeksforgeeks.org/data-visualization-in-r/