Department of Statistics,
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Report of the Workshop on Data Analysis in R from 2nd to 5th January, 2019

The Department of Statistics, Assam University organized the four day Workshop on Data Analysis in R from 2 to 5 January, 2019. Data analysis is a process of inspecting, cleansing, transforming, and modeling data with the goal of discovering useful information, reaching conclusions, and supporting decision-making. The most popular package for researchers in Science for data analysis today is R. The R language is widely used among researchers in Science for data analysis and for statistical modeling. The workshop was designed to orient Faculty members and Researchers in data analysis and programming from medium to advanced level. The program was a mix of imparting knowledge through programming in R in Meta Analysis, Analysis of Categorical Data and Bayesian Data Analysis.

The program was operated through some recent advances in Statistical Research with main focus on R-programming and fundamental data analysis in R. As the applicants were expected to have some theoretical back ground in Statistics so the main focus beyond the research advances was on hands on training in R and practical lab sessions in R. The design of the program was to inform the participants on the following topics:

i. Data management in R
ii. Descriptive Statistics and Graphics in R
iii. Categorical Data Analysis in R.
iv. Meta Analysis in R.
v. Bayesian Data Analysis in R and Winbugs.

The coordinator of the workshop was Dr. Tanusree Deb Roy, Assistant Professor, Department of Statistics, Assam University, Silchar. The registration details for participating in the workshop was given in the Assam University website http://www.aus.ac.in/statistics-department/wp-

content/uploads/sites/47/2018/09/R-workshop.pdf. The banner and schedule of the event are as follows:

"4 DAY WORKSHOP ON DATA ANALYSIS IN R"

2nd to 5th January, 2019

Organized by: Department of Statistics, Assam University, Silchar

Tentative Program Schedule

	10:00-11:30	11:30-11:45	11:45-1:15	1:15-1:45	1:45-3:15	3:15-3:30	3:30-5.00
02.01.19	Registration and Inauguration	Tea Break	SD	Lunch Break	SD	Tea Break	GK
03.01.19	GK		GK		GK		GK
04.01.19	AC		AC		AC		AC
05.01.19	AC		AC		AC		Valedictory

GK: Prof. Guido Knapp   AC: Dr. Arindom Chakraborty   SD: Ms. Shambi Deb

The registration fee for the participants was Rs. 2500/- for Faculty Members working in Universities, Colleges, Research institutes and for employed Researchers/employed Research Scholars, Rs. 2000/- for unemployed full time/part time research scholars and Rs. 1000/- for PG Students of the Department of Statistics, Assam University. This fee included workshop kit, light refreshments and humble working lunch during the workshop days.

The topics discussed in the workshop was not limited to Introduction to R and Graphics in R, Analysis of Categorical Data, SMA in R, Bayesian Data Analysis and Open Bugs. In the workshop thirty three participants registered from all over India. The participants included Faculties from Universities and Colleges, Research Scholars, Passed out PG Students and student's pursuing their PG in Statistics.

The Inaugural session of the event started at 10 AM on 2nd January, 2019 with the formation of dias and felicitation to the resource persons of the workshop. The welcome address was given by Prof. Dibyojyoti Bhattacharjee, Head, Department of Statistics, Assam University, Silchar. After the welcome address Prof. Guido Knapp, Department of Statistics, TU Dortmund University,

Germany addressed the session. Prof Dilip. C. Nath, Vice Chancellor, Assam University, Silchar addressed the audience. In Prof. Nath deliberations, Sir explained the importance of organizing this type of workshops. The session ended with the vote of thanks given by the coordinator of the workshop Dr. Tanusree Deb Roy, Assistant Professor, Department of Statistics, Assam University, Silchar.

On the first day of the workshop, Ms. Shambi Deb, Lecturer, Ramanuj Gupta Junior College, Silchar deliver lecture on the basics of R which included vector assignment and arithmetic, List and data frames, attach() and detach(), Basic Statistics, probability distributions and Graphics in R like Simple graphs- bar, pie, line, scatter, histogram. Q-Q plot, empirical cdf, box plot.

The last session of the first day of the workshop and the four classes of the second day on 3rd January, 2019 was delivered by Prof. Guido Knapp, Department of Statistics, TU Dortmund University, Germany. Prof. Knapp's lecture included Analysis of Categorical Data: Two way and multi-way contingency tables, comparing proportions in 2x2 tables, odds ratio and their computation, chi-square test for independence, Fisher's exact test, 3-way contingency tables, Generalized linear models, drawing of Mosaic plots. SMA in R which included Fixed effect and random effects model, generic inverse variance method for various effect sizes like standardized mean difference, correlation coefficient, risk difference, relative risk, odds ratio, hazard ratio etc., Mantel-Haenszel-methods for binary data, detection of publication bias, correction for publication bias, meta-regression, subgroup-analysis, generalized linear mixed models. Prof. Knapp's deliberation was applauded by the participants of the workshop.

On the third day of the workshop Dr. Arindom Chakraborty, Assistant Professor, Department of Statistics, Visva-Bharati University, Bolpur delivered lecture on Introduction to Bayes' mechanism, Prior elicitation, predictive distribution, Bayesian calculations in R.

The last day of the workshop on 5th January, 2019 Dr. Arindom Chakraborty, Assistant Professor, Department of Statistics, Visva-Bharati University, Bolpur delivered lecture on Basic operations, Bayesian computations, Accessing of Open Bugs through R.

The Valedictory Session of the Workshop started at 3:30 PM on the 5th of January, 2019. Dr. Arindom Chakraborty, Assistant Professor, Department of Statistics, Visva-Bharati University, Bolpur, Head of the Department of Statistics, Assam University, Silchar Prof. Dibyojyoti Bhattacharjee, Faculty members from Department of Statistics, Assam University, Silchar and the participants of the workshop were present in the valedictory session. The session started with the

distribution of certificates to the participants which were distributed by the dignitaries present in the dice. The participants also expressed their opinions in the valedictory session. They expressed that they could gain knowledge from the lectures of the speakers who delivered their lectures in the workshop. Dr. Arindom Chakraborty, Assistant Professor, Department of Statistics, Visva-Bharati University, Bolpur expressed his satisfaction towards the successful completion of the workshop. Head of the Department of Statistics, Assam University, Silchar Prof. Dibyojyoti Bhattacharjee thanked everyone for participating and contributing towards the success of the event. Finally the valedictory session came to an end with the vote of thanks given by Dr. Tanusree Deb Roy, Assistant Professor, Department of Statistics, Assam University, Silchar

Group Photo of the event with participants and Resource Persons

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