Gujarat Technological University

Accredited with A+ Grade by NAAC

(Internal Quality Assurance Cell, GTU)

Report on Online Faculty Capacity Building workshop on Use of Statistical Software for Data Analysis using STAT CRAFT

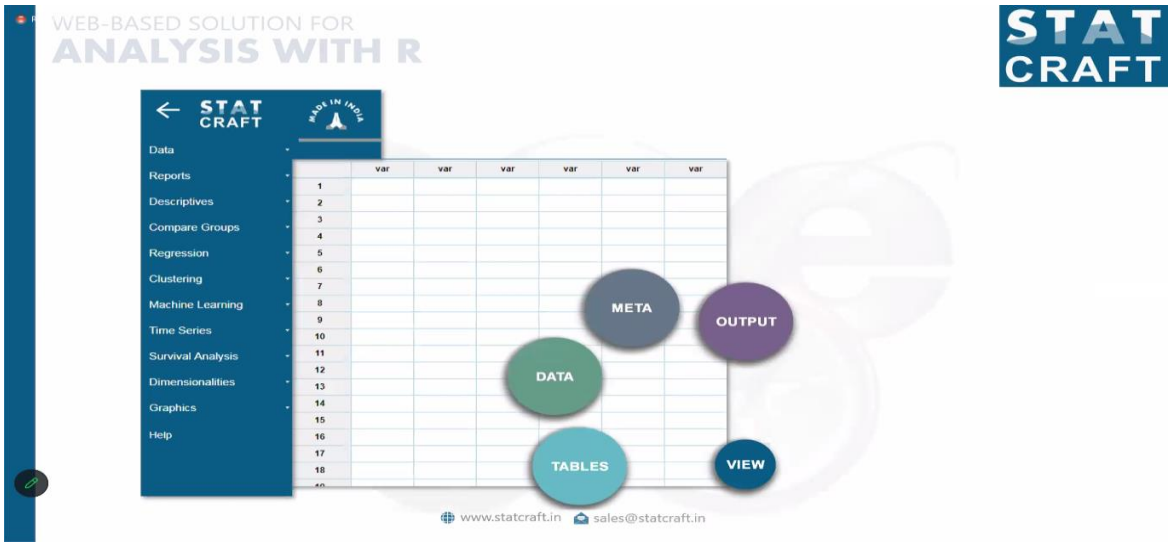
Date of the online Workshop: 19th October, 2023 **Time: 11:00 AM**

Online Demonstration Workshop of STAT CRAFT was conducted on online mode on ZOOM Meeting. There were total 43 GTU staff members have participate in the said workshop. Following points were covered in the workshop.

Statecraft is a company providing software products related to Statistical Data Analysis. These products may be used to the research scholars or faculty members of college for statistical data analysis and visualization. Statistical data analysis software called "STATCRAFT" which is built around "R" and it has gained popularity in no-time because of its ease of use, quick implementation, low learning curve, range of statistics and multi-user access over both local network/internet, configured as per need, perpetual licensing policy & absolutely "NO CODE R" solution at an affordable, attractive and all weather budget.

What is STATCRAFT?

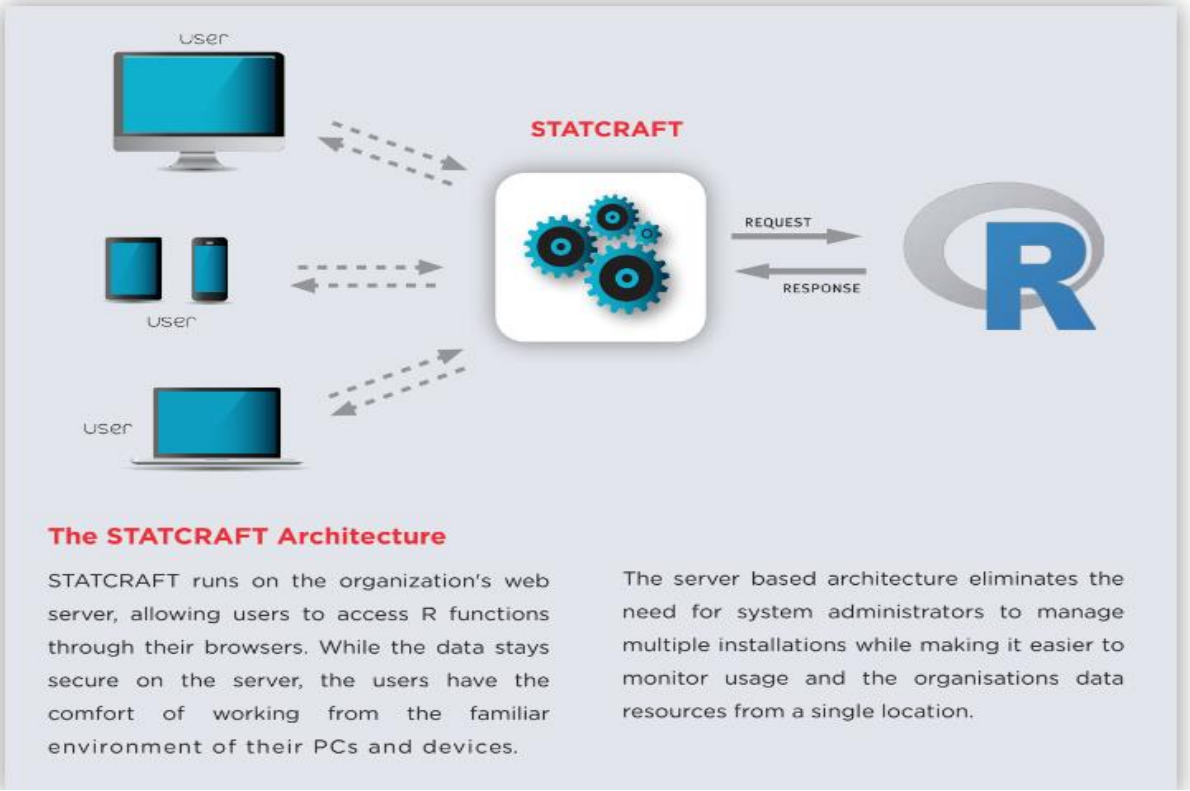
STATCRAFT is a browser based rich GUI that helps Data Scientists harness the power of R without having to write a single line of code. With STATCRAFT you can easily bring in and organize your data, access some of the most popular data analysis techniques in R and view the results in elegantly formatted output tables. STATCRAFT makes it simple and easy to focus on analysis rather than programming.



Why STATCRAFT?

R is an extremely popular and powerful analytics software that is rapidly becoming the tool of choice for Data Scientists around the world. However, R does pose a few challenges. First,

in R any analysis requires coding, consuming time and effort. With STATCRAFT running an analysis is as simple as choosing the options from the menu. Second, the wide number of packages available in R can often require the user to comb through a large number of resources to identify the set of techniques that best suit the task at hand. STATCRAFT combines and groups all the related techniques together making it easy and quick to run end-to-end analyses. Last but not the least, STATCRAFT presents output from R as formatted tables that can straightaway be used in reports and publications.



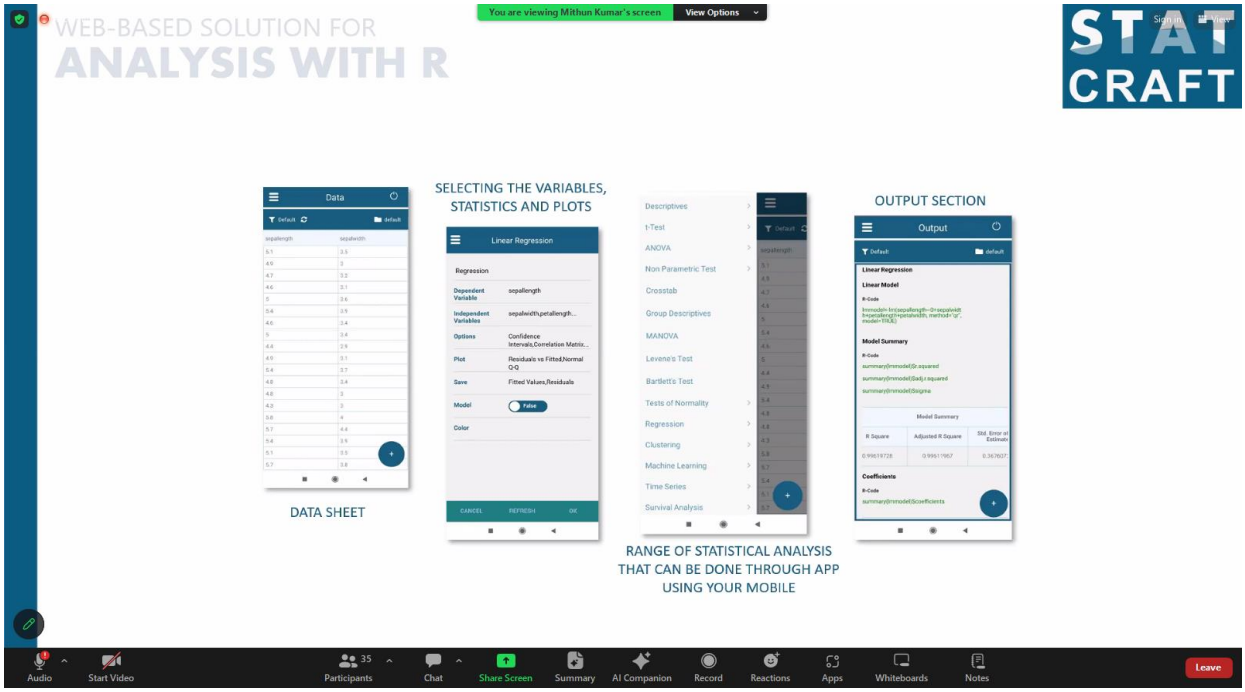
Web based Analysis with R:

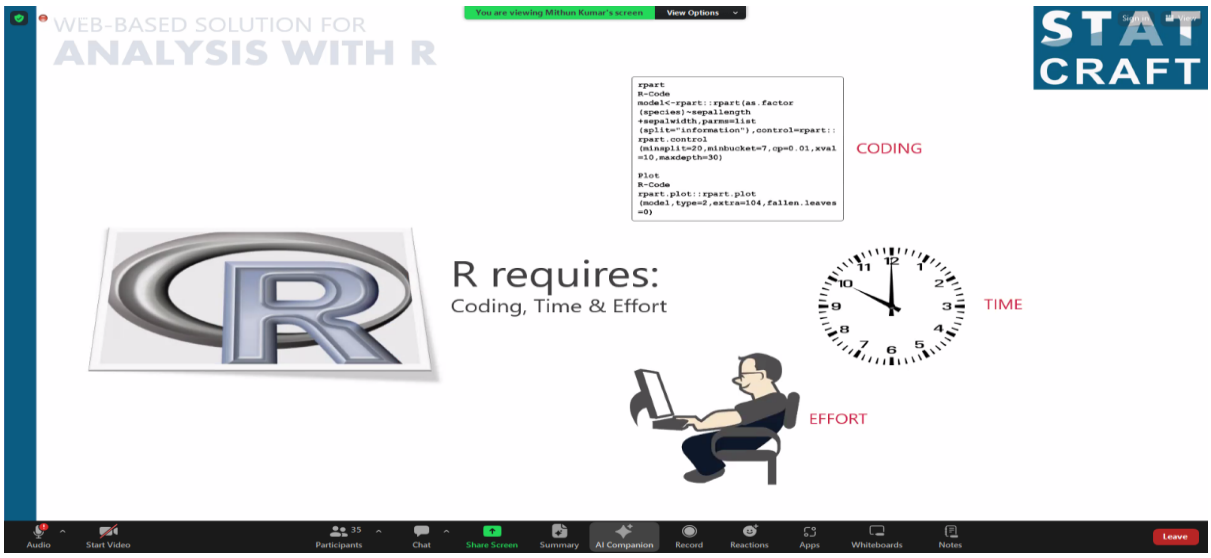
Statecraft a browser based rich GTU that helps Data Scientists harness the power of R without having to write a single line of code. With statecraft you can easily bring in and organize your data, access some of the most popular data analysis techniques in R and view the results in elegantly formatted output tables. It makes it simple and easy to focus on analysis rather than programming.

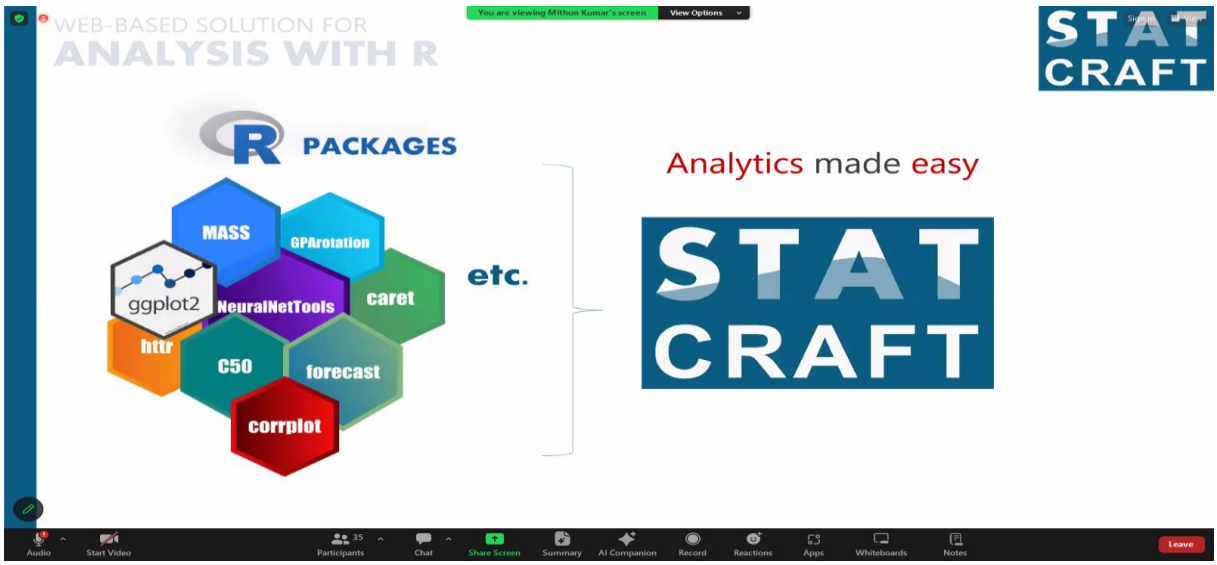
R is an extremely popular and powerful analytical software. However, given that R is a programming language that requires coding often poses challenges of time and effort. With STATCRAFT you can effortlessly access the power of R through a menu driven rich GUI running in your browser and when you perform your analysis STATCRAFT not only returns formatted, presentation ready tables and charts that can be copied and pasted right away, but also the complete, ready to use R code for the analysis that was run.

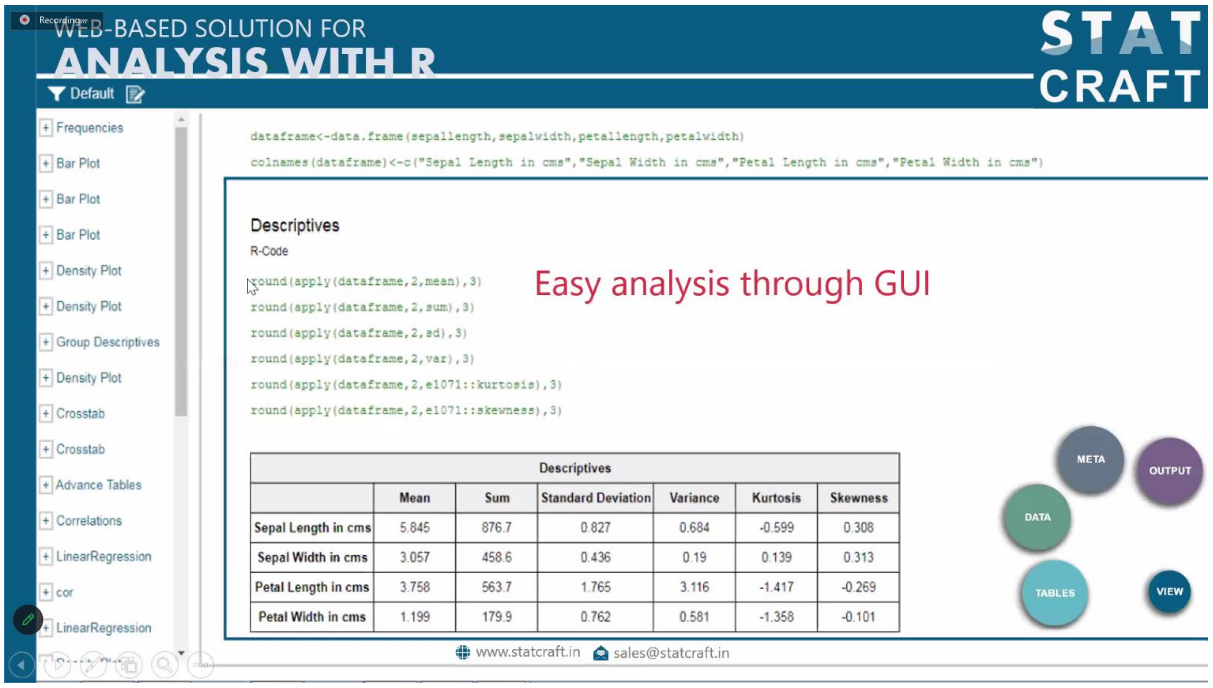
In addition with STATCRAFT you can:

- Share your data, output and models with other users.
- Save predictive models and apply them to newer data
- Organize your output in separate folders.
- Create filters for running analysis on data subsets.
- Export output tables to Excel.



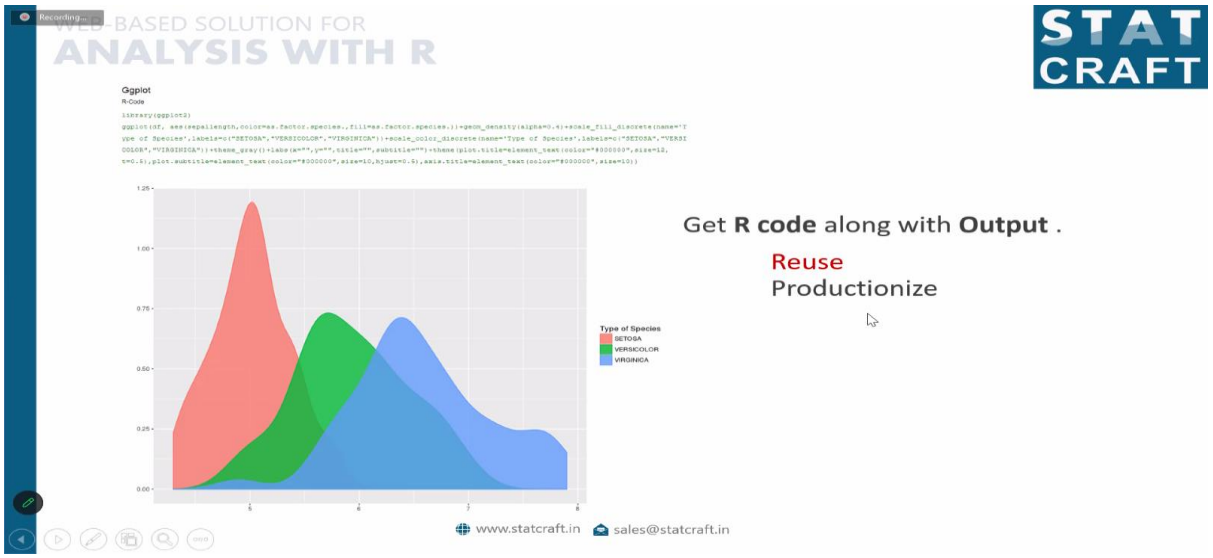


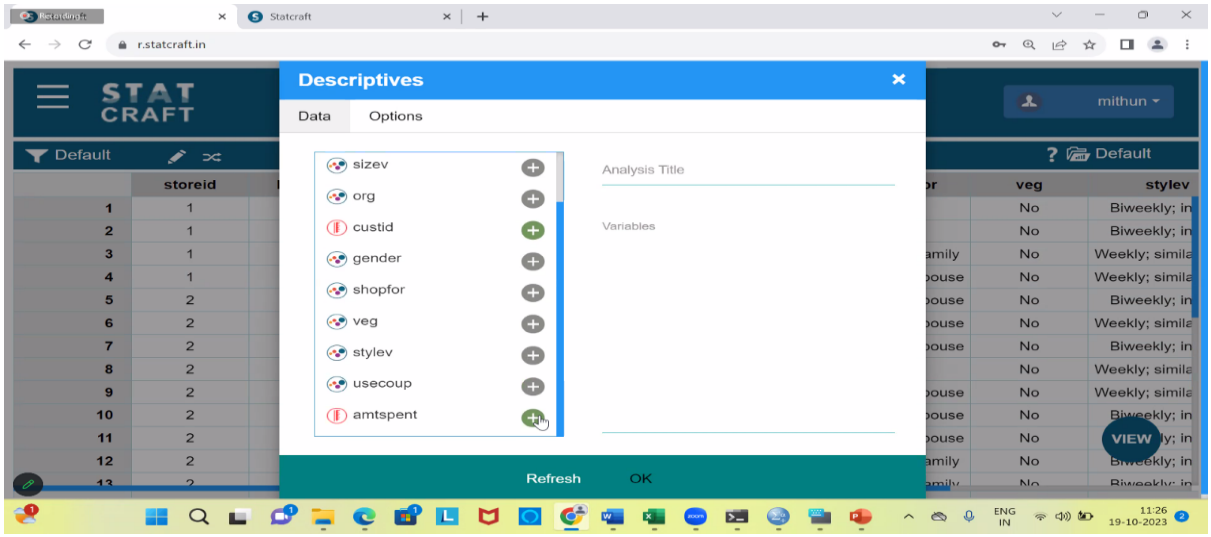




Descriptives

	Mean	Sum	Standard Deviation	Variance	Kurtosis	Skewness
Sepal Length in cms	5.845	876.7	0.827	0.684	-0.599	0.308
Sepal Width in cms	3.057	458.6	0.436	0.19	0.139	0.313
Petal Length in cms	3.758	563.7	1.765	3.116	-1.417	-0.269
Petal Width in cms	1.199	179.9	0.762	0.581	-1.358	-0.101





Features:

This application has been built on Micro services architecture with new features and enhancements. It includes the new features such as Repeated Measures, Flinger-Killeen Test, Multivariate Normality Test, Partial Correlations, Lasso and Ridge Regression and Naïve Bayes. Also, enhancements been done for the existing techniques like paired samples t-Test, Independent Samples t-Test, Tow-Way ANOVA, Will-coxon Test, Friedman Rank Sum Test, Shapiro Wilk's Test, Kolmogorov-Smirnov Test, correlation Plot, K-Means, RPart, Factor Analysis, PCA. Coming to Output, now the user can delete all the outputs at a single click. While uploading data and generating the model, now the user can specify the name unique to himself. Now the individual plots can be viewed with screen maximization and downloaded. Table and Model list can be sorted in ascending or descending order with pagination.

Server Requirements:

Hardware:

- **Processor:** Quad core processor or equivalent
- **Memory:** 16GB RAM or more
- **Hard Disk:** 600 GB or more

Software:

- **Operating System:** Ubuntu Server 16
- **Database:** PostgreSQL 9.5
- **Web Server:** Apache Tomcat 8.0
- **Java:** JDK 8.0
- **R :** R 3.4.2

Browser:

Best viewed in Google Chrome

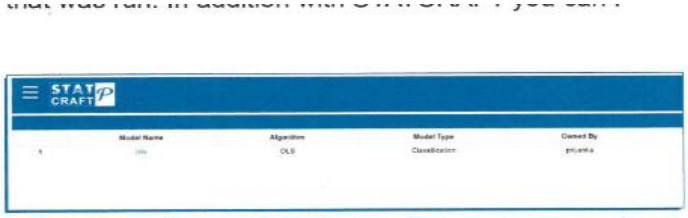
Network:

TCP/IP protocol
Port 8080 to be opened

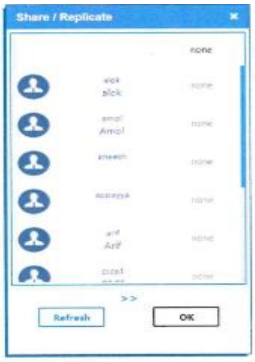
STATCRAFT-P

It is analytics software based on Python. It makes python accessible through a browser based GUI thereby eliminating coding as well as the need to have high end local PCs.

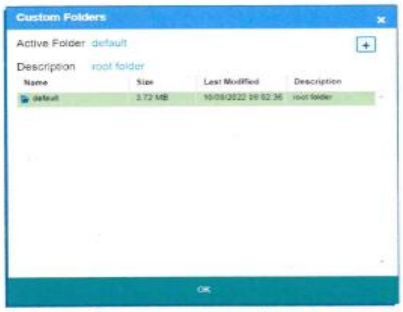
However, given that Python is a programming language that requires coding often poses challenges of time and effort. With STATCRAFT you can effortlessly access the power of Python through a menu driven rich GUI running in your browser, and when you perform your analysis STATCRAFT not only returns formatted, presentation ready tables and charts that can be copied and pasted right away, but also the complete, ready to use Python code for the analysis that was run. In addition STATCRAFT you can:



● Save predictive models and apply them to newer data

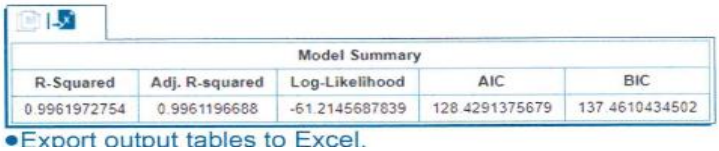


●Share your data, output and models with other users.



●Organise your output in seperate folders.

●Create filters for running analysis on data subsets



Model Summary

R-Squared	Adj. R-squared	Log-Likelihood	AIC	BIC
0.9961972754	0.9961196688	-61.2145687839	128.4291375679	137.4610434502

●Export output tables to Excel.

Minimum Server Requirements:

MINIMUM SERVER REQUIREMENTS

HARDWARE:

Processor	: Quad Core Processor or equivalent.
Memory	: 32GB RAM or more.
Hard Disk	: 600 GB or more

SOFTWARE:

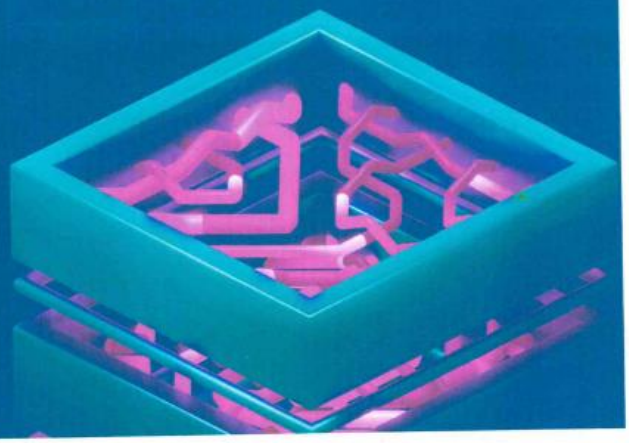
Operating System	: Ubuntu Server 18.
Database	: PostgreSQL 9.5.
JDK	: 8.0
Web Server	: Apache Tomcat 9.0, Gunicorn.
Python	: 3.7

BROWSER

Best viewed in Google Chrome.

NETWORK

TCP/IP protocol.
Required Ports to be opened.



Note:

- Server should be a dedicated server with no other web applications installed or running.
- Hardware and system requirements may vary depending on the size of the installation. Larger installation may require additional hardware upgrade and use of docker. Copy and paste output tables to other applications.