Package 'grapesAgri1'

October 13, 2022

Type Package

Title Collection of Shiny Apps for Agricultural Research Data Analysis

Version 1.1.0

Description Allows user to have graphical user interface to perform analysis of Agricultural experimental data. On using the functions in this package a Interactive User Interface will pop up. Apps Works by simple upload of files in CSV format.

License GPL-3

Encoding UTF-8

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URL <https://github.com/pratheesh3780/grapesAgri1>

   <https://CRAN.R-project.org/package=grapesAgri1>

   <https://www.kaugrapes.com/>

BugReports <https://github.com/pratheesh3780/grapesAgri1/issues>

Imports shiny(>= 1.6.0), shinyWidgets(>= 0.6.0), rmarkdown(>= 2.7), knitr(>= 1.31), kableExtra(>= 1.3.4), magrittr(>= 2.0.1), summarytools(>= 0.9.9), dplyr(>= 1.0.4), pastecs(>= 1.3.21), ggpubr(>= 0.4.0), Hmisc(>= 4.5.0), corrplot(>= 0.84), ggplot2(>= 3.3.3), reshape2(>= 1.4.4), gridGraphics(>= 0.5.1), RColorBrewer(>= 1.1.2), desplot(>= 1.8), agricolae(>= 1.3.5), PairedData(>= 1.1.1), gtools(>= 3.9.2), Rdpack(>= 2.1.2)

Suggests shinytest, testthat, datasets, grid

RdMacros Rdpack

NeedsCompilation no

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R **topics documented:**

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corrApp   *Correlation Analysis*

Description

corrApp() function opens up an interactive shiny app which will allow the user to easily calculate
Simple correlation, Correlation Matrix and obtain plots like correlogram and scatterplot by upload-
ing CSV file.

Usage

```
corrApp()
```

Details

This app uses cor.test to calculate correlation. Correlation matrix is calculated using rcorr func-
tion in Hmisc package. Correlogram is obtained using corrplot function in corrplot package.

Value

Nothing

References

Wei T, Simko V (2021). *R package "corrplot": Visualization of a Correlation Matrix.* (Version
0.88), https://github.com/taiyun/corrplot.

Harrell Jr FE, with contributions from Charles Dupont, others. m (2021). *Hmisc: Harrell Miscel-
laneous.* R package version 4.5-0, https://CRAN.R-project.org/package=Hmisc.

R Core Team (2021). *R: A Language and Environment for Statistical Computing.* https://www.
R-project.org/.

Chang W, Cheng J, Allaire JJ, Sievert C, Schloerke B, Xie Y, Allen J, McPherson J, Dipert A,
Borges B (2021). *shiny: Web Application Framework for R.* R package version 1.6.0, https:
//CRAN.R-project.org/package=shiny.

Perrier V, Meyer F, Granjon D (2021). *shinyWidgets: Custom Inputs Widgets for Shiny.* R package
version 0.6.0, https://CRAN.R-project.org/package=shinyWidgets.

Wickham H (2016). *ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. ISBN 978-3-319-24277-4, https://ggplot2.tidyverse.org.

Gupta SP (1985). *Statistical methods*. Sultan Chand \& Sons. https://books.google.co.in/books?id=4n9dcgAACAAJ.

Examples

```
if (interactive()) {
  corrApp()
}
```

---

crdApp   *Completely Randomized Design*

Description

crdApp() function opens up an interactive shiny app which will allow the user to perform analysis of completely randomized design with equal or unequal replications. Multiple comparison tests like LSD, DMRT and Tukey can be performed. Box-pot and Bar-chart with confidence interval can be plotted. All these can be achieved by uploading CSV file.

Usage

```
crdApp()
```

Details

This app uses anova function of `stats` package to obtain one-way ANOVA.`LSD.test`,`duncan.test` and `HSD.test` functions of `agricolae` package is used for multiple comparison test like LSD,DMRT and Tukey respectively. `ggboxplot` function of `ggpubr` package is used for boxplot.'`ggplot` function of `ggplot2` is used for barchart with confidence interval.

Value

Nothing

References

R Core Team (2021). *R: A Language and Environment for Statistical Computing*. https://www.R-project.org/.

Chang W, Cheng J, Allaire JJ, Sievert C, Schloerke B, Xie Y, Allen J, McPherson J, Dipert A, Borges B (2021). *shiny: Web Application Framework for R*. R package version 1.6.0, https://CRAN.R-project.org/package=shiny.

Perrier V, Meyer F, Granjon D (2021). *shinyWidgets: Custom Inputs Widgets for Shiny*. R package version 0.6.0, https://CRAN.R-project.org/package=shinyWidgets.

Wickham H, François R, Henry L, Müller K (2021). *dplyr: A Grammar of Data Manipulation*. R package version 1.0.4, https://CRAN.R-project.org/package=dplyr.

Kassambara A (2020). *ggpubr: 'ggplot2' Based Publication Ready Plots*. R package version 0.4.0, https://CRAN.R-project.org/package=ggpubr.

Wickham H (2016). *ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. ISBN 978-3-319-24277-4, https://ggplot2.tidyverse.org.

Gupta SP (1985). *Statistical methods*. Sultan Chand \& Sons. https://books.google.co.in/books?id=4n9dcgAACAAJ.

Tukey JW (1977). *Exploratory Data Analysis*, number v. 2 in Addison-Wesley series in behavioral science. Addison-Wesley Publishing Company. ISBN 9780201076165, https://books.google.co.in/books?id=UT9dAAAAIAAJ.

Harrell Jr FE, with contributions from Charles Dupont, others. m (2021). *Hmisc: Harrell Miscellaneous*. R package version 4.5-0, https://CRAN.R-project.org/package=Hmisc.

de Mendiburu F (2020). *agricolae: Statistical Procedures for Agricultural Research*. R package version 1.3-3, https://CRAN.R-project.org/package=agricolae.

Neuwirth E (2014). *RColorBrewer: ColorBrewer Palettes*. R package version 1.1-2, https://CRAN.R-project.org/package=RColorBrewer.

Sali A, Attali D (2020). *shinycssloaders: Add Loading Animations to a 'shiny' Output While It's Recalculating*. R package version 1.0.0, https://CRAN.R-project.org/package=shinycssloaders.

Das MN, Giri NC (1979). *Design and Analysis of Experiments*. Wiley Eastern. ISBN 9780852261583, https://books.google.co.in/books?id=nqMWAgAACAAJ.

Examples

```
if (interactive()) {
  crdApp()
}
```

---

descApp   *Descriptive statistics and Visualization*

Description

descApp() function opens up an interactive shiny app which will allow the user to easily calculate Summary Statistics, Summary Statistics by Group, Box plot, Histogram, Q-Q plot and Shapiro-Wilk's test by uploading CSV file.

Usage

```
descApp()
```

Details

This app uses `descr` and `stby` functions of `summarytools` package (Dominic Comtois, 2021) to calculate summary statistics and summary statistics by group. `knitr` (Yihui Xie,2021) and `kableExtra`(Hao Zhu,2021) packages were used to produce HTML tables. `shapiro.test`, `qqnorm` and `qqline` functions of `stats` package were used for Test of Homogeneity of variance and obtaining Q-Q plot. `hist` and `boxplot` of package `graphics` were used to obtain histogram and boxplot respectively. `ggqqplot` of package `ggpubr` (Alboukadel Kassambara,2020) is also used to plot Q-Q plot in the app.

Value

Nothing

References

Comtois D (2021). *summarytools: Tools to Quickly and Neatly Summarize Data*. R package version 0.9.9, https://CRAN.R-project.org/package=summarytools.

Zhu H (2021). *kableExtra: Construct Complex Table with 'kable' and Pipe Syntax*. R package version 1.3.4, https://CRAN.R-project.org/package=kableExtra.

Xie Y (2021). *knitr: A General-Purpose Package for Dynamic Report Generation in R*. R package version 1.33, https://yihui.org/knitr/.

R Core Team (2021). *R: A Language and Environment for Statistical Computing*. https://www.R-project.org/.

Chang W, Cheng J, Allaire JJ, Sievert C, Schloerke B, Xie Y, Allen J, McPherson J, Dipert A, Borges B (2021). *shiny: Web Application Framework for R*. R package version 1.6.0, https://CRAN.R-project.org/package=shiny.

Perrier V, Meyer F, Granjon D (2021). *shinyWidgets: Custom Inputs Widgets for Shiny*. R package version 0.6.0, https://CRAN.R-project.org/package=shinyWidgets.

Wickham H, François R, Henry L, Müller K (2021). *dplyr: A Grammar of Data Manipulation*. R package version 1.0.4, https://CRAN.R-project.org/package=dplyr.

Kassambara A (2020). *ggpubr: 'ggplot2' Based Publication Ready Plots*. R package version 0.4.0, https://CRAN.R-project.org/package=ggpubr.

Grosjean P, Ibanez F (2018). *pastecs: Package for Analysis of Space-Time Ecological Series*. R package version 1.3.21, https://CRAN.R-project.org/package=pastecs.

Bache SM, Wickham H (2020). *magrittr: A Forward-Pipe Operator for R*. R package version 2.0.1, https://CRAN.R-project.org/package=magrittr.

Murrell P, Wen Z (2020). *gridGraphics: Redraw Base Graphics Using 'grid' Graphics*. R package version 0.5-1, https://CRAN.R-project.org/package=gridGraphics.

Gupta SP (1985). *Statistical methods*. Sultan Chand \& Sons. https://books.google.co.in/books?id=4n9dcgAACAAJ.

Tukey JW (1977). *Exploratory Data Analysis*, number v. 2 in Addison-Wesley series in behavioral science. Addison-Wesley Publishing Company. ISBN 9780201076165, https://books.google.co.in/books?id=UT9dAAAAIAAJ.

Wickham H (2016). *ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. ISBN 978-3-319-24277-4, https://ggplot2.tidyverse.org.

Examples

```
if (interactive()) {
  descApp()
}
```

---

layoutApp   *Field Layout of Designs*

Description

layoutApp() function opens up an interactive shiny app which will allow the user to create field layout of Completely Randomized Design (CRD), Randomized Complete Block Design (RCBD), Split-plot design, Strip-plot design and Augmented Randomized complete block design. Layout generated are random. Field layout in table format can also be prepared for recording observations from the field. Results can be downloaded in HTML format

Usage

```
layoutApp()
```

Details

This app uses design.crd, design.rcbd, design.dau, design.strip, design.split functions of package agricolae to generate random layout of designs. Field layout were plotted using desplot function in desplot package.

Value

Nothing

References

R Core Team (2021). *R: A Language and Environment for Statistical Computing*. https://www.R-project.org/.

Chang W, Cheng J, Allaire JJ, Sievert C, Schloerke B, Xie Y, Allen J, McPherson J, Dipert A, Borges B (2021). *shiny: Web Application Framework for R*. R package version 1.6.0, https://CRAN.R-project.org/package=shiny.

Perrier V, Meyer F, Granjon D (2021). *shinyWidgets: Custom Inputs Widgets for Shiny*. R package version 0.6.0, https://CRAN.R-project.org/package=shinyWidgets.

Sali A, Attali D (2020). *shinycssloaders: Add Loading Animations to a 'shiny' Output While It's Recalculating*. R package version 1.0.0, https://CRAN.R-project.org/package=shinycssloaders.

Wickham H, FranÃ§ois R, Henry L, MÃ¼ller K (2021). *dplyr: A Grammar of Data Manipulation*. R package version 1.0.4, https://CRAN.R-project.org/package=dplyr.

de Mendiburu F (2020). *agricolae: Statistical Procedures for Agricultural Research*. R package version 1.3-3, https://CRAN.R-project.org/package=agricolae.

Wright K (2020). *desplot: Plotting Field Plans for Agricultural Experiments*. R package version 1.8, https://CRAN.R-project.org/package=desplot.

Bache SM, Wickham H (2020). *magrittr: A Forward-Pipe Operator for R*. R package version 2.0.1, https://CRAN.R-project.org/package=magrittr.

Xie Y (2021). *knitr: A General-Purpose Package for Dynamic Report Generation in R*. R package version 1.33, https://yihui.org/knitr/.

Gupta SP (1985). *Statistical methods*. Sultan Chand \& Sons. https://books.google.co.in/books?id=4n9dcgAACAAJ.

Das MN, Giri NC (1979). *Design and Analysis of Experiments*. Wiley Eastern. ISBN 9780852261583, https://books.google.co.in/books?id=nqMWAgAACAAJ.

Examples

```
if (interactive()) {
  layoutApp()
}
```

---

rbdApp   *Randomized Block Design*

Description

rbdApp() function opens up an interactive shiny app which will allow the user to perform analysis of randomized Block design. Multiple comparison tests like LSD,DMRT and Tukey can be performed. Box-pot and Bar-chart with confidence interval can be plotted. All these can be achieved by uploading CSV file.

Usage

```
rbdApp()
```

Details

This app uses anova function of `stats` package to obtain two-way ANOVA.`LSD.test`,`duncan.test` and `HSD.test` functions of `agricolae` package is used for multiple comparison test like LSD,DMRT and Tukey respectively. `ggboxplot` function of `ggpubr` package is used for boxplot.'`ggplot` function of `ggplot2` is used for barchart with confidence interval.

Value

Nothing

References

R Core Team (2021). *R: A Language and Environment for Statistical Computing*. `https://www.R-project.org/`.

Chang W, Cheng J, Allaire JJ, Sievert C, Schloerke B, Xie Y, Allen J, McPherson J, Dipert A, Borges B (2021). *shiny: Web Application Framework for R*. R package version 1.6.0, `https://CRAN.R-project.org/package=shiny`.

Perrier V, Meyer F, Granjon D (2021). *shinyWidgets: Custom Inputs Widgets for Shiny*. R package version 0.6.0, `https://CRAN.R-project.org/package=shinyWidgets`.

Wickham H, François R, Henry L, Müller K (2021). *dplyr: A Grammar of Data Manipulation*. R package version 1.0.4, `https://CRAN.R-project.org/package=dplyr`.

Kassambara A (2020). *ggpubr: 'ggplot2' Based Publication Ready Plots*. R package version 0.4.0, `https://CRAN.R-project.org/package=ggpubr`.

Wickham H (2016). *ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. ISBN 978-3-319-24277-4, `https://ggplot2.tidyverse.org`.

Gupta SP (1985). *Statistical methods*. Sultan Chand \& Sons. `https://books.google.co.in/books?id=4n9dcgAACAAJ`.

Tukey JW (1977). *Exploratory Data Analysis*, number v. 2 in Addison-Wesley series in behavioral science. Addison-Wesley Publishing Company. ISBN 9780201076165, `https://books.google.co.in/books?id=UT9dAAAAIAAJ`.

Harrell Jr FE, with contributions from Charles Dupont, others. m (2021). *Hmisc: Harrell Miscellaneous*. R package version 4.5-0, `https://CRAN.R-project.org/package=Hmisc`.

de Mendiburu F (2020). *agricolae: Statistical Procedures for Agricultural Research*. R package version 1.3-3, `https://CRAN.R-project.org/package=agricolae`.

Neuwirth E (2014). *RColorBrewer: ColorBrewer Palettes*. R package version 1.1-2, `https://CRAN.R-project.org/package=RColorBrewer`.

Sali A, Attali D (2020). *shinycssloaders: Add Loading Animations to a 'shiny' Output While It's Recalculating*. R package version 1.0.0, `https://CRAN.R-project.org/package=shinycssloaders`.

Das MN, Giri NC (1979). *Design and Analysis of Experiments*. Wiley Eastern. ISBN 9780852261583, `https://books.google.co.in/books?id=nqMWAgAACAAJ`.

Examples

```
if (interactive()) {
  rbdApp()
}
```

---

ttApp   *t-test and Paired t-test*

Description

ttApp() function opens up an interactive shiny app which will allow user to easily perform one sample t-test, unpaired two sample t-test, unpaired two sample Welch t-test, paired t-test, test for homogeneity of variance (F-test), and obtain plots like boxplot and paired plot by uploading CSV file.

Usage

```
ttApp()
```

Details

This app uses `t.test` function to calculate t statistic.Descriptive statistics were calculated using `stat.desc` function of `pastecs` package. `var.test` function is used for F-test.`ggboxplot` function of `ggpubr` package is used to draw boxplot. Paired plot is obtained using `paired` function of package `PairedData`.

Value

Nothing

References

R Core Team (2021). *R: A Language and Environment for Statistical Computing*. https://www.R-project.org/.

Chang W, Cheng J, Allaire JJ, Sievert C, Schloerke B, Xie Y, Allen J, McPherson J, Dipert A, Borges B (2021). *shiny: Web Application Framework for R*. R package version 1.6.0, https://CRAN.R-project.org/package=shiny.

Perrier V, Meyer F, Granjon D (2021). *shinyWidgets: Custom Inputs Widgets for Shiny*. R package version 0.6.0, https://CRAN.R-project.org/package=shinyWidgets.

Wickham H, François R, Henry L, Müller K (2021). *dplyr: A Grammar of Data Manipulation*. R package version 1.0.4, https://CRAN.R-project.org/package=dplyr.

Kassambara A (2020). *ggpubr: 'ggplot2' Based Publication Ready Plots*. R package version 0.4.0, https://CRAN.R-project.org/package=ggpubr.

Grosjean P, Ibanez F (2018). *pastecs: Package for Analysis of Space-Time Ecological Series*. R package version 1.3.21, https://CRAN.R-project.org/package=pastecs.

Gupta SP (1985). *Statistical methods*. Sultan Chand \& Sons. https://books.google.co.in/books?id=4n9dcgAACAAJ.

Champely S (2018). *PairedData: Paired Data Analysis*. R package version 1.1.1, https://CRAN.R-project.org/package=PairedData.

Examples

```
if (interactive()) {
  ttApp()
}
```

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