Statistical Analysis in R

Participant's Guide

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BeVera

About BeVera

- Founded in 2013
- HQ in Metro Atlanta
- Veteran-Owned Small Business
- Data Science Training and Consulting
- Technical Staffing
- Dedicated to making Data Science understandable and usable at every level of the organization
- Helping our customers become self-sufficient

BK Ashford, Director of Data Science

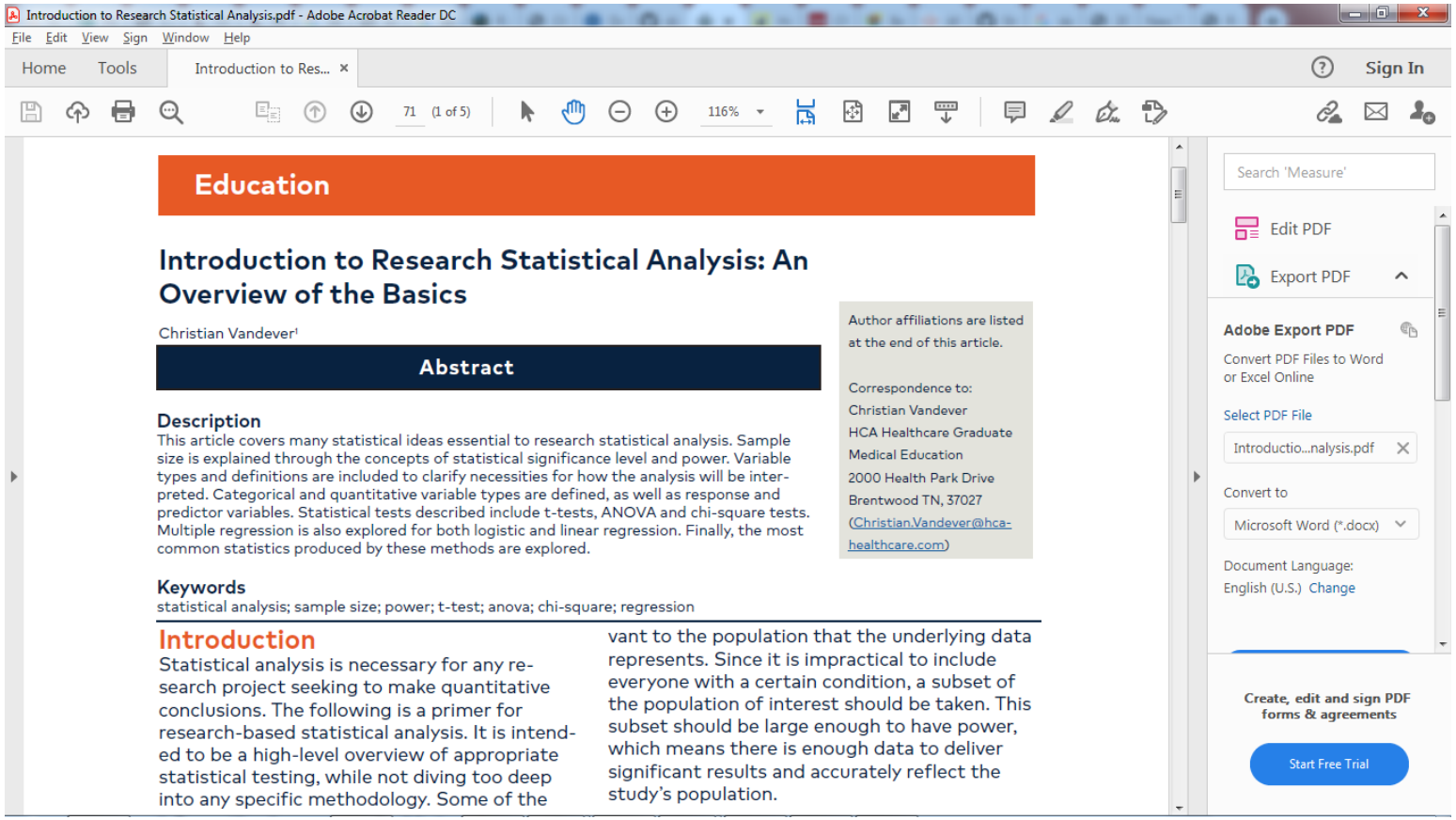
- Over 22 years of Data Science solution delivery experience
- Analytical Consultant for SAS Institute for over 11 years
- Successful Data Science solution delivery across multiple industries
  - Insurance Carriers
  - Major Airlines
  - Credit Bureaus
  - Retail
- Education:
  - M.Sc. Applied Mathematics, Lehigh University
  - B.S. Mathematics, Morehouse College

BeVera

Yvonne Phillips, Instructor

- 18 years of Predictive Analytics work
- Currently Adjunct Professor, Morehouse College – Computer Science/Data Science
- Experienced analytic professional with demonstrated history in:
  - Insurance: Underwriting Auto & Property, Motor Vehicle Reporting Analytics
  - Government: Federal and State/Local government customer solutions needs
  - Financial/Credit Cards
  - Retail
- Education:
  - M.Sc., Decision Science, Georgia State University, Robinson College of Business
  - B.S., Mathematics, Spelman College

Read article:



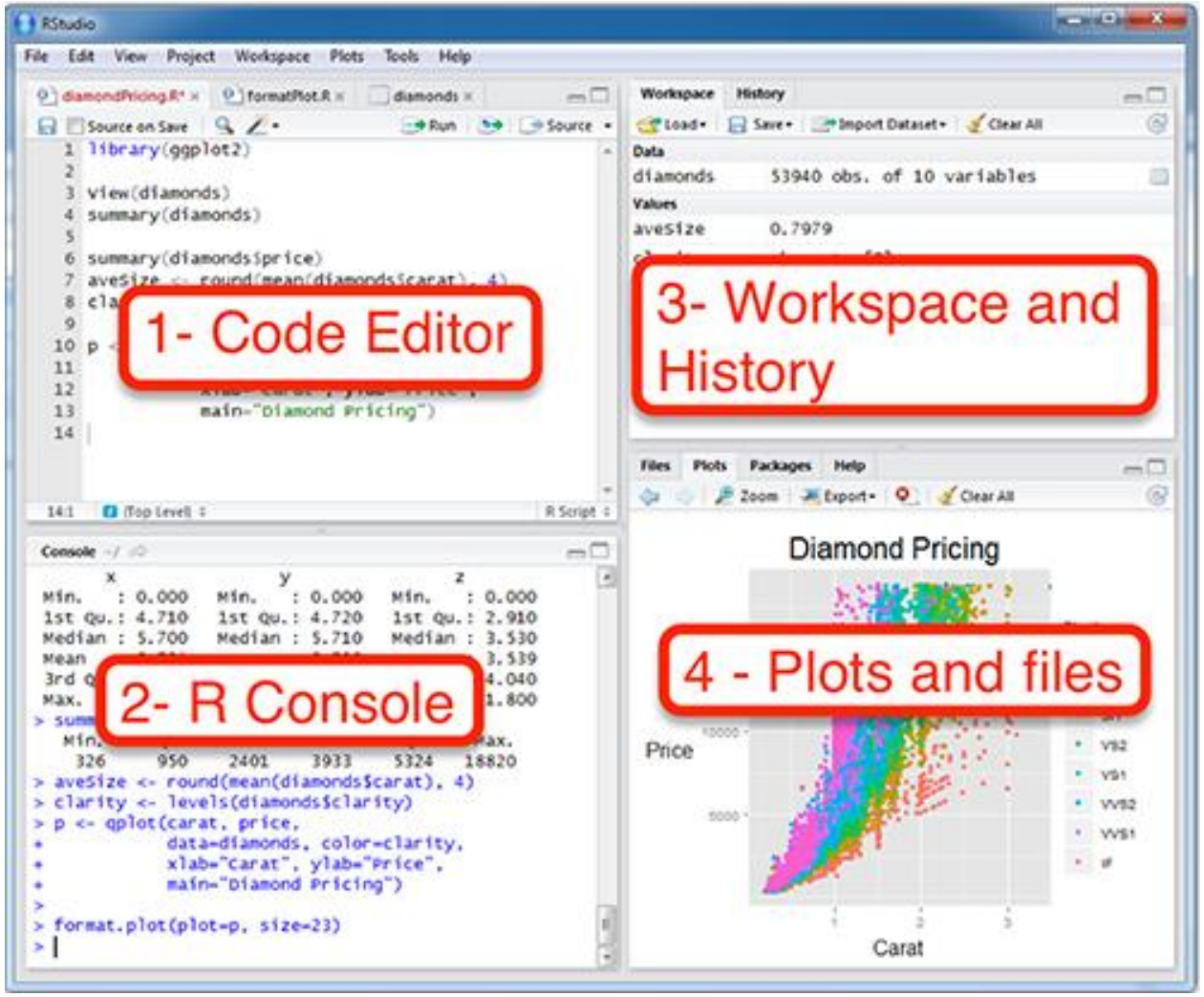
Module 1: R Programming Language

https://cran.r-project.org/doc/manuals/R-intro.pdf

RStudio is a four pane work-space for 1) creating file containing R script, 2) typing R commands, 3) viewing command histories, 4) viewing plots and more.

1.Top-left panel:
◦Code editor allowing you to create and open a file containing R script.
◦The R script is where you keep a record of your work. R script can be created as follow: File –> New –> R Script

2.Bottom-left panel:
◦R console for typing R commands



3.Top-right panel:
◦Workspace tab: shows the list of R objects you created during your R session
◦History tab: shows the history of all previous commands

4.Bottom-right panel:
◦Files tab: show files in your working directory
◦Plots tab: show the history of plots you created. From this tab, you can export a plot to a PDF or an image files
◦Packages tab: show external R packages available on your system. If checked, the package is loaded in R.

Importing your data

R allows for the import of different data formats using specific packages that can make your job easier:

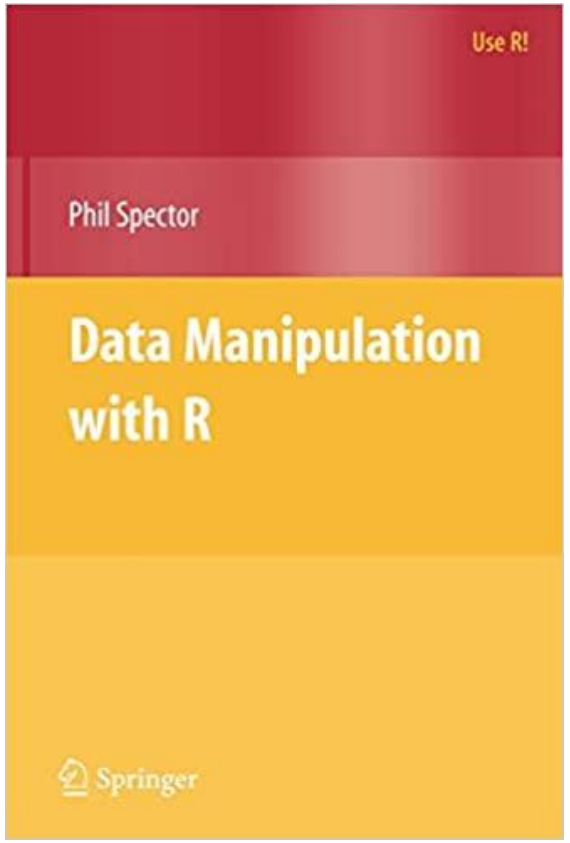
- readr: importing flat files into R
- readxl: getting excel files into R
- haven: import SAS, STATA and SPSS data files into R.
- RMySQL and RpostgreSQL: Databases, access and manipulate via DBI
- rvest: webscraping

Example: mydata=read.csv(file="C:/…..csv", header=TRUE)

https://www.datacamp.com/community/tutorials/r-data-import-tutorial

Manipulating your data

- tidyr package: tidying the data
- stringr package: string manipulation
- dplyr package: for data frame like objects
  - set of verbs: mutate(), select(), filter(), summarise(), arrange()
- data.table package: heavy data wrangling tasks
- zoo, xts and quantmod: Performing time series analysis



Using packages

1

```
install.packages("readr")
```

Downloads files to computer

1 x per computer

2

```
library("readr")
```

Loads package

1 x per R Session