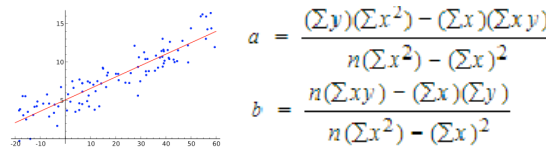


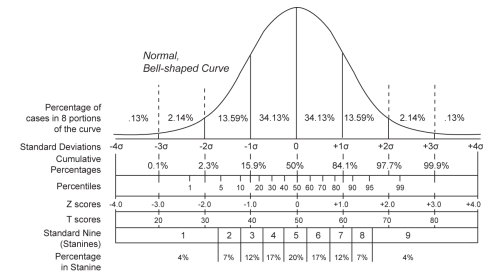
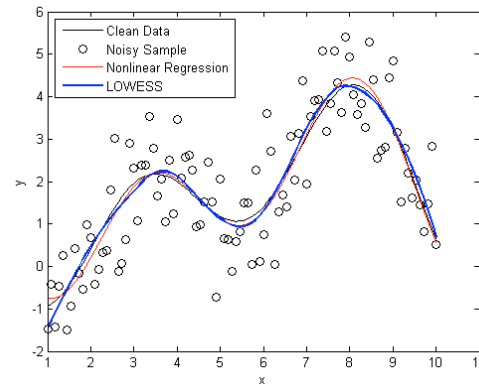
Chapter I: An Introduction to R

What is R?

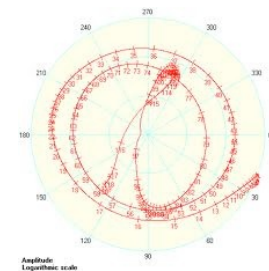
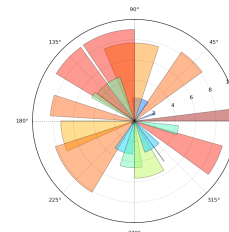
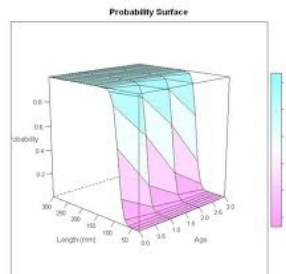
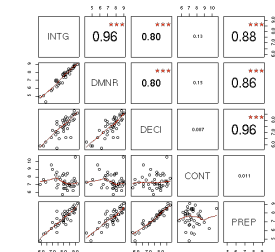
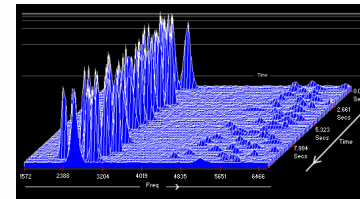
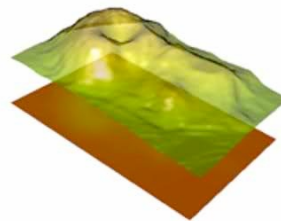
R is an environment and language for performing data mining as well as statistical analysis



$$f(x) = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$



In addition, R possesses highly sophisticated graphics capability



Check out www.r-project.org/about.html for a comprehensive intro to R

Characteristics of R

- ✓ R is an expression language
- ✓ Can perform spot analysis as well as write programs
- ✓ Highly extensible - shared packages
- ✓ Publicly available sets of real world data

Extensibility

- ✓ R comes with base packages such as base, graphics, stats etc
- ✓ R can be extended by CRAN [Comprehensive R Archive Network] packages such as MASS, lattice etc
- ✓ A large number of contributed packages are also available. Examples: ggplot2, ROCR etc
- ✓ A full list of R packages is available at <http://cran.r-project.org/web/packages/>

Data

- ✓ The R *Datasets* package provides several standard data sets.

Examples:

- Ability and Intelligence tests
- Speed and Stopping Distance of Cars
- Quarterly Approval ratings of US presidents etc

- ✓ Other publicly available data sets include:

- EconData: Inforum@Univ of Maryland
(<http://inforumweb.umd.edu/econdata/econdata.html>)
- Knowledge Archive@Univ of California, Irvine
(<http://kdd.ics.uci.edu/>)
- Geoda center@Arizona State Univ
(<https://geodacenter.asu.edu/datalist/>)

Some applications of R

Business

Economics

Data mining

Finance

Mapping public opinion

Bio-statistics

Mapping biodiversity

Medicine

Social media analysis

Linguistic trend maps

Ecology

Clinical data analysis

Banking

R Blogs and Social Media

✓ Blogs on R

- r-bloggers.com
- [Statsblogs.com](http://statsblogs.com)

✓ LinkedIn groups

- R-project for Statistical Computing
- Data mining, statistics and Data Visualization

✓ Other R resources

- R-project manuals
(<http://cran.r-project.org/manuals.html>)
- R-journal
(<http://journal.r-project.org/>)