Math 324 Fall 2004
Computing Guide: Getting started

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Introduction and overview

In this class we will make use of statistical computer packages to both analyze real life data and to carry out some simulations. You will be free to use whatever software you desire or have access to. However, it is STRONGLY suggested you use either Minitab or R because the assignments will give hints and tips based on these packages. Only support for Minitab or R will be given by the instructor.

Using Minitab on campus

Minitab is installed on the computer systems in the Math department computer lab (404 Thornton Hall). The labs are open for use at the following times: MTWT9-5 and F9-3 (any changes to these times will be posted outside the room). If you work in this lab you will need to save your work onto floppy disks because there is no provision for computer accounts or permanent storage on hard disks or a server. Undoubtedly, there are more rules about the lab that you should be aware of, these are probably posted somewhere in the lab. The computer lab is staffed by student assistants. They may be able to help you with very basic questions like locating and starting the software, printing, etc. The website for this lab is `http://userwww.sfsu.edu/%7Eralex/drafts/mathlab.htm`.

Purchasing Minitab for your own computer

If you wish to use Minitab on your own windows computer it is possible, as a student, to purchase a 5 month license for $26. You can find more details here `http://www.minitab.com/education/semesterrental/default.aspx`. It is not necessary to purchase a license if you don't wish to use Minitab.

Installing R on to your own computer

The R webpage is `http://www.r-project.org`. At this website you will find information about the R software package. In brief, R is a free (GPL-licensed) implementation of the S statistical programming language. Because it is designed around a true computer language it allows the user a great deal of power and flexibility. R is not installed on the systems in the Math computer lab, but you may install it on your own computer system. R is available for Windows, Linux/Unix and Macintosh operating systems. Installation instructions for R on Windows and Linux are provided below.

Windows Systems

1. You need to download the Windows installer from CRAN. Go to either `http://cran.r-project.org` or one of the US mirrors `http://cran.us.r-project.org/` `http://cran.stat.ucla.edu/`
2. Click on `Windows (95 and later)`
3. Click on `Base`
4. Click on `rw1091.exe` and save the download at a location you can find.
5. When it has finished downloading, double click `rw1091.exe` to start the setup program.
6. Follow the on screen setup instructions. This should pretty much be a matter of clicking next through a series of screens.
7. Find R either via the start menu or the icon on the desktop.
8. You should now see something similar to 1 on your screen. Congratulations you are done.

Linux Systems

On Linux you have two options. One is to download a pre-compiled version for your specific distribution. I will give details for the second option which is to download and compile the source code for yourself.

1. You need to download the source code from CRAN. Go to either `http://cran.r-project.org` or one of the US mirrors `http://cran.us.r-project.org/` `http://cran.stat.ucla.edu/`
2. Click on `R-1.8.1.tgz` to download the source code and save it somewhere.
3. Go to the location you saved the downloaded file and type `tar xzvf R-1.9.1.tgz`. This will uncompress and extract the R source code.

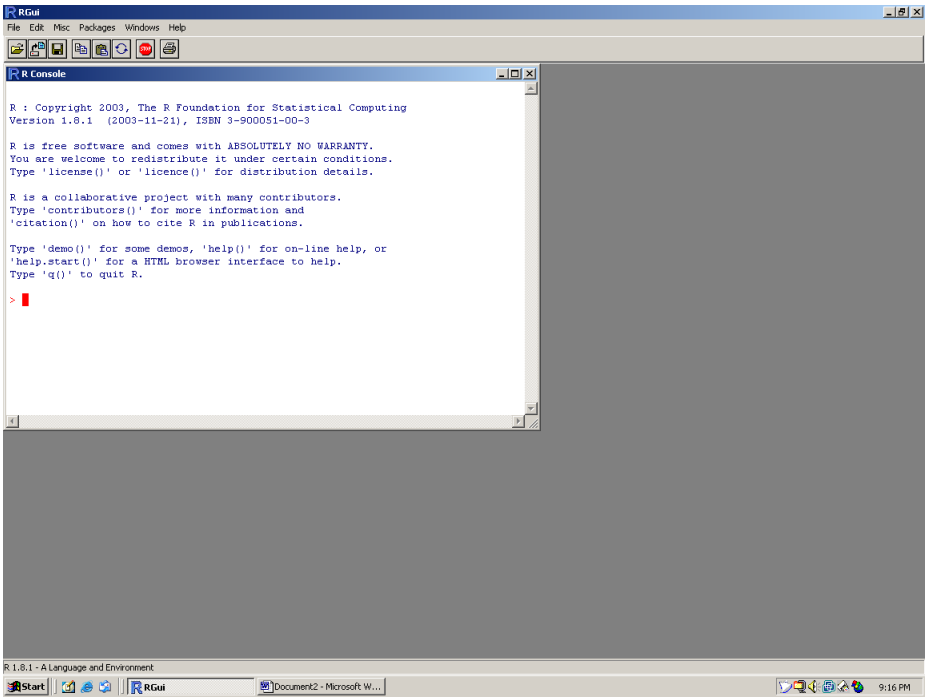

Figure 1: A typical R session on a Windows machine

4. Change into the source code directory `cd R-1.9.1/`
5. You might want to read the `INSTALL` file, but this is not completely necessary.
6. If you have root access on your machine just type `./configure`. If don't have root access and you have sufficient disk space somewhere type `./configure --prefix=/path/to/install/l` where of course you replace `/path/to/install/location` with your install location.
7. Now type `make`. It will start compiling. This might take awhile, depending on the speed of your machine.
8. Type `make install`. This will install R.
9. You may need to add the `bin` subdirectory of your install location to your path. Use `setenv` (csh/tcsh) or `export` (bash) to do this.
10. type `R` at the command-line.
11. If all goes well you should have a working R installed.

Installing additional R packages

There may come a time where you want to install an additional package to your R installation because the base install does not have a function that you need (this should not be necessary during this particular class). You can find many packages on CRAN.

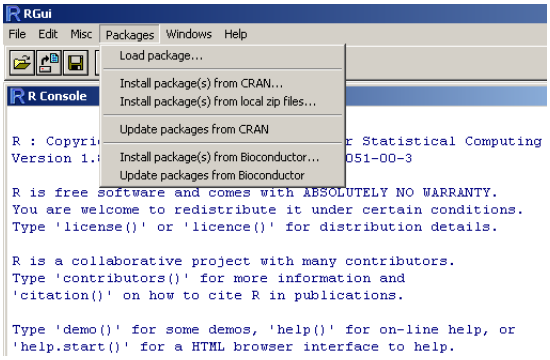

Figure 2: The install menu on a Windows R

On Windows you use the "packages" menu (see figure 2 to install new packages. You have two options: Either download the file from CRAN (make sure you get the file with the ".zip" extension) and use the "install from local zip file" option or Choose the "Install package(s) from CRAN" and select the package you want (it will be downloaded and installed automatically).

On Linux/UNIX machines you use `R CMD INSTALL` to install packages. For example `R CMD INSTALL packagename_1.0.0.tar.gz`. You may need to set the `R_LIBS` environment variable.