

RHandout#1 based on R in a nutshell and simpleR documents.

1. Let's analyze the data collected about and available in public data set Cars and use R built-in functions and the functions in a package called Sample.
2. Then let's look at some basic console functions available in R.
3. Then let's explore Rstudio

What to do?

1. Start RStudio by clicking on the RStudio icon or by choosing it from the start menu.
2. Download simpleR tutorial from <http://cran.r-project.org/doc/contrib/Verzani-SimpleR.pdf>
3. Open the document and go to page 98.
4. We will go through a simple linear regression example using a very popular **mtcars** data/package from early days of R. (**What is linear regression?**)
5. Go through and understand the various parts of the RStudio before you proceed to the exercise.
6. Type in the following commands and explore what is going on. Please understand the output of each command and what the command does. (Possible exam question)

```
data(mtcars)
```

```
names(mtcars)
```

```
head(mtcars)
```

```
mpg
```

```
attach(mtcars)
```

```
mpg
```

```
table(cyl)
```

```
barplot(cyl)
```

```
barplot(table(cyl))
```

```
hist(mpg)
```

```
boxplot(mpg)
```

```
mean(mpg)
```

```
mean(mpg, trim=0.2)
```

```
summary(mpg)
```

```
mpg[cyl==4]
```

```
mean(mpg[cyl==4])
```

```
plot(cyl,mpg)
```

```
simple.lm(cyl,mpg) → see what happens? Need to load Simple package
```

```
→ Now SimpleR is called UsingR
```

```
→ from Tools topline menu, choose install package, when the dialog box opens up, type in UsingR. It will be installed with a warning message and the need for MASS package. That's fine. You will be able to see the package UsingR now in the right window under packages tab.
```

Type in the command

```
simple.lm(cyl,mpg)
```

⇒ Lets understand whats happening and what you see in front of you. Also try correlation.

```
⇒ cor(cyl,mpg)
```

```
⇒ cor(hp.mpg)
```

What do you understand from the results/output?

```
⇒ require(graphics)
```

```
⇒ pairs(mtcars,main="mtcars data")
```

```
⇒ coplot(mpg ~ disp | as.factor(cyl), data = mtcars, panel = panel.smooth, rows = 1)
```

What do you see?

```
⇒ detach()
```

```
⇒ q()
```