

Intro R plotting

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User-defined functions

Besides using the built-in R functions, or those functions already defined in other R packages, we can create our own functions to perform repetitive calculations that are hard to implement every time.

```
cv <- function(x, percentage = F, na.rm = T) sd(x, na.rm = na.rm)/mean(x, na.rm = na.rm)
```

Functions can be almost as complicated as you wish.

```
f.stat <- function(x) {  
  x1 <- mean(x, na.rm = T)  
  x2 <- sd(x, na.rm = T)  
  x3 <- median(x, na.rm = T)  
  x4 <- quantile(x, na.rm = T, probs = c(.25, .75)) #iqr. Already exists as IQR in base-R.  
  out <- c(x1, x2, x3, x4[2]-x4[1], cv(x))  
  names(out) <- c("Mean", "Sd", "Median", "IQR", "CV")  
  return(out)  
}  
print(f.stat(c(4.5, 8.8, -3.1, 13.14))["CV"])
```

####NB! “Note that any ordinary assignments done within the function are local and temporary and are lost after exit from the function”. That is, you may have a variable called **x1** in our working environment, but it will not be affected by the **x1** variable name that you are using inside the **f.stat** function.

*Exercise 1. Create a function that takes its two numerical inputs **x** and **y** and makes a simple scatter plot. In addition, it will show as the **main** title the mean of the **y** variable.*
