7.2.2 Putting the Pieces Together

Although the code below may look complicated, most of it should be straightforward to interpret. Nothing you haven't seen before:

```r
1 > library(ggplot2)
2 > FE2013$Gears <- as.factor(FE2013$Gears)
3 > MAKE<-as.character(levels(FE2013$Manufacturer))
4 > LIST <- as.list(rep(NA, length(MAKE)))
5 > names(LIST) <- MAKE

6 > for(i in levels(FE2013$Manufacturer)){
      temp <- subset(FE2013 , FE2013$Manufacturer==i)
      LIST[[i]] <- ggplot(data = temp, aes(x = FEcity, y =
        FEhighway)) +
      geom_point(aes(color = Gears)) +
      labs(title = paste("Manufacturer:",i), x = "Fuel Economy:
        City", y = "Fuel Economy: Highway ") +
      facet_wrap(~ Division) +
      if(nrow(temp) > 2 & nrow(temp) < 50) {
        geom_smooth(method = "lm")} else {
          if(nrow(temp) >= 50) {
            geom_smooth(method = "loess", span = 2 )}
      }
      pdf(file = paste("z:/", i, ".pdf", sep = ""), width=6,
        height=5)
      print(LIST[[i]])
      dev.off()
  }
```

7.3 Other Loops

There are a few other types of loops and control flow operators. The repeat operator, simply repeats everything after it until you tell it to stop. It will loop until the lights go out. Like so:

```r
1 > Number <- 1
2 > repeat{Number <- Number + 1; print(Number)}
  >
```

To stop the looping simply hit `Esc` or `Ctrl+C`. Alternatively, you can tell **R** to stop loops via the break operator.

```
1 > repeat{Number <- runif(n = 1, min = 0, max = 1)
          print(Number)
          if(Number > 0.995) {break}
          }
  >
```

Another useful control flow operator is `while()`. While loops are very similar to `if()` statements. Whereas the `if()` statement initiates some task if a condition is met, the `while()` operator will continue with some task as long as a condition is met. Note that if you set the condition to something that is always true, the while loop will not stop until the end of time.

```
1 > X <- 0
2 > while(X < 1000){
        X <- X + 2
        print(X)
        }
  >
```

Another example:

```
1 > Y <- 0
2 > Count = 0
3 > while(Y < 13){ {
        S <- sample(size = 26, x = Students$FirstYears, replace =
            FALSE)
        Y <- sum(S)
        Count <- Count + 1
        cat("Sample:", S, "Number of First Years =", Y, "Trial:",
            Count, "\n")
   }
  >
```