Stat 123 Homework 9

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```
knitr::opts_knit$set(root.dir =
"C:\\Users\\jon\\Documents\\School\\R\\HW\\HW9")
```

Generate vectors x and y of length 100 from a discrete distribution with four outcomes using the sample function (i.e., x <- sample(1:4, 100, replace=TRUE)). Use a "for loop" to create a logical vector determining: 1. which of the entries in the two vectors are the same and 2. the total number of entries that are the same. Your answer to the first will be a vector of length 100 and the answer to the second will be a single value (i.e., a vector of length 1).

```
x <- sample(1:4, 100, replace=TRUE)
y <- sample(1:4, 100, replace=TRUE)

#Matches?
n <- 0
m1 <- vector()
for (i in 1:length(x)){
  if( x[i] == y[i]){
    m1[i] <- 1
  }
  else{
    m1[i] <- 0
  }
  n <- n + 1
}
m1
```

```
##   [1] 1 0 0 0 0 0 0 0 1 1 1 0 0 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 0 1 0 0
1
##  [36] 0 0 0 0 1 1 0 1 0 0 1 0 0 1 0 0 0 0 0 1 1 0 1 1 1 0 0 1 0 0 0 0 0 0
1
##  [71] 1 0 0 0 0 0 0 0 0 0 1 0 0 1 0 0 0 1 1 1 0 1 0 1 0 1 1 1 1 0 1
```

```
n
```

```
## [1] 100
```

Using your 'x' and 'y' variables from above, now do the same calculation without a "for loop". Thought questions (for which you don't need to provide an answer): Which method is better?

```
match2 <- (x == y)
match2
```

```
##   [1]  TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE  TRUE  TRUE  TRUE
##  [12] FALSE FALSE FALSE FALSE FALSE FALSE FALSE  TRUE FALSE FALSE FALSE
##  [23] FALSE FALSE  TRUE FALSE FALSE FALSE FALSE FALSE FALSE  TRUE FALSE
##  [34] FALSE  TRUE FALSE FALSE FALSE FALSE  TRUE  TRUE FALSE  TRUE FALSE
##  [45] FALSE  TRUE FALSE FALSE  TRUE FALSE FALSE FALSE FALSE FALSE  TRUE
##  [56]  TRUE FALSE  TRUE  TRUE  TRUE FALSE FALSE  TRUE FALSE FALSE FALSE
##  [67] FALSE FALSE FALSE  TRUE  TRUE FALSE FALSE FALSE FALSE FALSE FALSE
##  [78] FALSE FALSE  TRUE FALSE FALSE  TRUE FALSE FALSE FALSE  TRUE  TRUE
##  [89]  TRUE FALSE  TRUE FALSE  TRUE FALSE  TRUE  TRUE  TRUE  TRUE FALSE
## [100]  TRUE
```