

Question: Write a 'padding' function that accepts a numeric vector and returns a vector of characters in which each input number can occupy a max of two characters and single digit numbers have a left-padded zero value

Solution

```
#####  
## Homework #2 ##  
#####  
  
#Specify your name  
my.name <- "[fill in here]"  
my.email <- "[fill in here]"  
  
#Write your code and annotation below  
#As those records are ones you'll predict  
  
#Part 1  
padding <- function(v) {  
  
  v=as.vector(v)  
  n=length(v)  
  a=numeric(n)  
  
  for( i in 1:n){  
  
    if(v[i]<10){  
  
      a[i]=paste("0",toString(v[i]),sep = "") #if the element is  
single digit , do left padding by 0  
    }  
  
    else a[i]=toString(v[i]) #if the element is 2 digit , leave it as  
it is  
  }  
  
  return(a)  
  
}  
  
#Part 2  
  
month=seq(1:12)  
month=padding(month) #padded month seq  
year=seq(0:14)  
year=padding(year) ##padded year seq  
df<-expand.grid(year,month)  
df <- paste(df$Var1,df$Var2,sep="") #padded grid of month & years  
print(df)
```

```
#Part 3
df <- as.matrix(df)
df <- matrix(df, nrow = 15, ncol = 12)
library(RCurl)
library(data.table)
file = data.frame()
for( i in 1:15) for( j in 1:12){

  start <- "https://www2.census.gov/econ/bps/Metro/ma"
  extension <- ".c.txt"
  url <- paste0(start, df[i,j], extension) #inputting URL through
padding function & paste function
  mydat <- fread(url)
  mydat <- cbind(mydat$V1, mydat$V5, mydat$V6) #monthly file
  file <- rbind(file, mydat) #building master file by adding monthly
files
}

file = as.data.frame(file)
file$volume = as.numeric(file$volume)
colnames(file) <- c("date", "MSA", "volume")
saveRDS(file, file = "mydata.rds") #masterfile

#Part 4
library(plyr)
file = na.omit(file) #omits NA values
mean <- ddply(file, ~MSA, summarize, mean = mean(volume)) # mean of volume
as per MSA ID
my.result <- data.frame(mean$MSA, mean$mean) #data frame
colnames(my.result) <- c("msa", "mean")
```