Day-wise DTW distance matrix

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read in all distamt files

```
distmat11 <- read.csv("G:/Gruppen/VPHI/Welfare/2- Research Projects/Yamenah
Gomez/Ranging_Data/Distmat11.csv", sep=",", header=T,stringsAsFactors=FALSE)
distmat12 <- read.csv("G:/Gruppen/VPHI/Welfare/2- Research Projects/Yamenah
Gomez/Ranging_Data/Distmat12.csv", sep=",", header=T,stringsAsFactors=FALSE)
distmat13 <- read.csv("G:/Gruppen/VPHI/Welfare/2- Research Projects/Yamenah
Gomez/Ranging_Data/Distmat13.csv", sep=",", header=T,stringsAsFactors=FALSE)
distmat14 <- read.csv("G:/Gruppen/VPHI/Welfare/2- Research Projects/Yamenah
Gomez/Ranging_Data/Distmat14.csv", sep=",", header=T,stringsAsFactors=FALSE)
```

Number of hen per pen: Pen 11: 108 Pen 12: 103 Pen 13: 106 Pen 14: 104 108 hens in Pen 11

```
allmat <- list(matrix(NA,ncol=108,nrow=108)) # 108 hens for Pen 11
for(g in 1:72) { #days 1 to 72
allmat[[g]] <- distmat11[seq(g, (72*108),72),seq(g,(72*108),72)]
}
#allmat[[4JJ [1,3] # first [[]]: day, second []: Position in Matrix
```

distance matrix including diagonals as NA

```
allmat2 <- allmat
allmat2 <- lapply(allmat2,function(x) {diag(x) <- rep(NA,108);x}) # adjust number according to
number of hen of pen chosen
allmat3 <- simplify2array(allmat2)
```

Double control for correct summing up

```
allmat4 <- allmat3[, ,c(1:4)]
allmat_daysum <- apply(allmat4,c(1,2),sum)
```

Stapling of day-wise matrices

```
allmat_daysum <- apply(allmat3,c(1,2),sum)
View(allmat_daysum)
```

```
hc_allmat_daysum <- hclust(dist(allmat_daysum))
hc.cut_allmat <- cutree(hc_allmat_daysum, k = 4)# add number of clusters wanted
```

Dendrogramm

```
plot(hclust(dist(allmat_daysum)))
```

Boxplot per hen (given as index) across all days

```
boxplot(allmat3[108,,] ,ylim=c(0,6000)) # adjust number in allmat3[] according to number of hens of pen chosen
```