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**Q1)**

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| --- |
| > A<-matrix(c(2,4,6,5,7,9), nrow=2, ncol=3)  > t(A)  [,1] [,2]  [1,] 2 4  [2,] 6 5  [3,] 7 9  > B<-matrix(c(1,3,5,2,4,6), nrow=2, ncol=3)  > cbind(A,B)  [,1] [,2] [,3] [,4] [,5] [,6]  [1,] 2 6 7 1 5 4  [2,] 4 5 9 3 2 6 |
|  |
| |  | | --- | | > rbind(A,B)  [,1] [,2] [,3]  [1,] 2 6 7  [2,] 4 5 9  [3,] 1 5 4  [4,] 3 2 6  > colnames(A)<-c('first', 'middle', 'last') | | **Q2)**  > arr<-array(1:12, c(2,3,2))  > arr  , , 1  [,1] [,2] [,3]  [1,] 1 3 5  [2,] 2 4 6  , , 2  [,1] [,2] [,3]  [1,] 7 9 11  [2,] 8 10 12  > rownames(arr)<-c('odd', 'even')  > arr  , , 1  [,1] [,2] [,3]  odd 1 3 5  even 2 4 6  , , 2  [,1] [,2] [,3]  odd 7 9 11  even 8 10 12  **Q3)** | |

> sizes<-factor(c("small", "large", "large", "small", "medium"))

> levels(sizes)

[1] "large" "medium" "small"

> sizes<-factor(sizes, levels=c('small', 'medium','large'), ordered=TRUE)

> levels(sizes)

[1] "small" "medium" "large"

> max(sizes)

[1] large

Levels: small < medium < large

> sz=c(2,7,9,3,5)

> tapply(sz, sizes, mean)

small medium large

2.5 5.0 8.0

**Q4)**

> air <- read.csv('P:/ST1050/airline.csv', stringsAsFactors = FALSE)

> airsamp<-data.frame(air[1:10000,c("Year", "Month","DayOfWeek","ArrDelay","DepDelay","Dest","Distance" )])

> names(airsamp)

[1] "Year" "Month" "DayOfWeek" "ArrDelay"

[5] "DepDelay" "Dest" "Distance"

**Q5)**

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| > ls<-list(ncol,nrow, cbind, rbind, tapply, min, max, data.frame, list, array, vector, matrix, t) |
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