DaigleWk3D3Lab.R

2011home

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```
## Christopher Daigle
## Homework 5

# Exercise 1
# Construct the matrices
a <- 1:9
A <- matrix(a**2,3,3, byrow = TRUE)
A
```

```
##      [,1] [,2] [,3]
## [1,]    1    4    9
## [2,]   16   25   36
## [3,]   49   64   81
```

```
At <- matrix(a**2,3,3)
At
```

```
##      [,1] [,2] [,3]
## [1,]    1   16   49
## [2,]    4   25   64
## [3,]    9   36   81
```

```
# Exercise 2
Storrs <- c(365, 489)
Hartford <-  c(426, 387)
Stamford <- c(571, 486)
HP_vector <- c(Storrs, Hartford, Stamford)
HP_vector
```

```
## [1] 365 489 426 387 571 486
```

```
HP_matrix <- matrix(HP_vector, 3, 2, TRUE)
type <- c("House", "Condo")
colnames(HP_matrix) <- type
Area <- c("Storrs", "Hartford", "Stamford")
rownames(HP_matrix) <- Area
HP_matrix
```

```
##          House Condo
## Storrs     365   489
## Hartford   426   387
## Stamford   571   486
```

```
CT_average <- colMeans(HP_matrix)
# CT_av <- c(mean(HP_matrix[,1]),mean(HP_matrix[,2])) Creating a vector of column mea
ns by column selection
HP_matrix.2 <- rbind(HP_matrix,CT_average)
HP_matrix.2
```

```
##            House Condo
## Storrs       365   489
## Hartford     426   387
## Stamford     571   486
## CT_average   454   454
```

```
HC_av <- rowMeans(HP_matrix.2)
HP_matrix.f <- cbind(HP_matrix.2,HC_av)
HP_matrix.f
```

```
##            House Condo HC_av
## Storrs       365   489 427.0
## Hartford     426   387 406.5
## Stamford     571   486 528.5
## CT_average   454   454 454.0
```

```
## Exercise 3
#1
set.seed(1)
Income <- rchisq(100,5)
#2
yrsOfEdu <- sample(7:16,100,TRUE)
#3
CT <- cbind(Income,yrsOfEdu)
#4
gender <- sample(c("Male","Female"),100,TRUE)
#5
Female <- c(gender=="Female")
CT1 <- CT*Female
#6
high_Ed <- yrsOfEdu>12
CT2 <- CT*high_Ed
#7
av_Female_Inc <- mean(CT1[,1])
av_HighEd_Inc <- mean(CT2[,1])
exp_Inc <- c(av_Female_Inc, av_HighEd_Inc)
names(exp_Inc) <- c("av_Female_Inc", "av_HighEd_Inc")
exp_Inc
```

```
## av_Female_Inc av_HighEd_Inc
##      2.084171      1.574104
```