1a. See Output code

1b.

Sales in Urban areas are expected decrease by .06.

Sales in the US is increase by 1.2.

Sales has a small correlation to population 0.008

1c.

Urban and US are non-significant because they have a correlation to each other.

1d.

1.e

MSE = 8.068095

2. R Functions – Password

RandomPW <- function(x){

D = c(LETTERS,letters,0:9)

paste(D,collapse= "")

E = sample(D, x)

F = paste(E, collapse= "")

paste("Your new password is:", F)

}

RandomPW(6)

sample (1:10,4 #select 4 random elements in this vector (random sample)

,replace = T) #replace allows for repeated numbers

library(ISLR)

attach(Carseats)

dim(Carseats) #dim identifies variables n counts

# Randomly choose 300 obs for training

set.seed(1)

train = sample(1:nrow(Carseats),300) #sample will create a vector 1 to 400

test = -train

training\_data = Carseats[train,]

testing\_data = Carseats[test,]

head(Carseats)

model = lm(Sales ~ Population + Urban + US, data = training\_data)

summary(model)

Estimate Std. Error t value Pr(>|t|)

(Intercept) 6.4801110 0.4733139 13.691 < 2e-16 \*\*\*

Population 0.0008788 0.0011221 0.783 0.434133

UrbanYes -0.0641297 0.3486497 -0.184 0.854188

USYes 1.2163926 0.3322397 3.661 0.000297 \*\*\*

#1.d

y = testing\_data$Sales

y\_hat = predict(model,

testing\_data[,-1])

### Computer the Mean Squared Error

error = y - y\_hat

MSE = mean(error^2)

MSE #8.068095

#2. R Functions

cat("New Password", ) #Output Password

RandomPW <- function(x){

D = c(LETTERS,letters,0:9)

paste(D,collapse= "")

E = sample(D, x)

F = paste(E, collapse= "")

paste("Your new password is:", F)

}

RandomPW(6)