Ruud 6.1 Monte Carlo Simulation

rm(list=ls());

#Simulate 100 X

x = runif(100,0,10);

X = t(rbind(rep(1,100), x, 1/x));

bhat = matrix(nrow=1000,ncol=3);

beta = matrix(c(10,-1,-25),nrow=3);

for (i in 1:1000){

y = X%\*%beta + rnorm(100,0,5);

bhat[i,] = t(inv(t(X)%\*%X)%\*%t(X)%\*%y);

}

mean\_bhat = colMeans(bhat);

## Make plots

jpeg('hw4\_beta\_01.jpg');

hist(bhat[,1],breaks=20,xlab = 'beta\_01',main = "Frequency of beta\_01")

dev.off();

jpeg('hw4\_beta\_02.jpg');

hist(bhat[,2],breaks=20,xlab = 'beta\_02',main = "Frequency of beta\_02")

dev.off()

jpeg('hw4\_beta\_03.jpg');

hist(bhat[,3],breaks=20,xlab = 'beta\_03',main = "Frequency of beta\_03")

dev.off()





