```
Cellphone <- read.csv("C:/Users/chenh/OneDrive/Desktop/Important/Stat 429 Individual project
data/Stat 429 dataset for individual project/Cellphone.csv")

attach(Cellphone)

par(mfrow=c(2,3))

hist(Price,col="green")
hist(Sale,col="green")
hist(weight,col="green")
hist(resolution,col="green")
hist(ppi,col="green")
hist(cpu.core,col="green")
hist(cpu.freq,col="green")
hist(internal.mem,col="green")
hist(ram,col="green")
hist(RearCam,col="green")
hist(Front_Cam,col="green")
hist(battery,col="green")
hist(thickness,col="green")

boxplot(Price,col="green",outcol="red",ylab="Price")
boxplot(Sale,col="green",outcol="red",ylab="Sale")
boxplot(weight,col="green",outcol="red",ylab="weight")
boxplot(resolution,col="green",outcol="red",ylab="resolution")
boxplot(ppi,col="green",outcol="red",ylab="ppi")
boxplot(cpu.core,col="green",outcol="red",ylab="cpu.core")
boxplot(cpu.freq,col="green",outcol="red",ylab="cpu.freq")
boxplot(internal.mem,col="green",outcol="red",ylab="internal.mem")
boxplot(ram,col="green",outcol="red",ylab="ram")
boxplot(RearCam,col="green",outcol="red",ylab="RearCam")
boxplot(Front_Cam,col="green",outcol="red",ylab="Front_Cam")
boxplot(battery,col="green",outcol="red",ylab="battery")
boxplot(thickness,col="green",outcol="red",ylab="thickness")

plot(Sale,Price,col="blue")
plot(weight,Price,col="blue")
plot(resolution,Price,col="blue")
plot(ppi,Price,col="blue")
plot(cpu.core,Price,col="blue")
plot(cpu.freq,Price,col="blue")
plot(internal.mem,Price,col="blue")
plot(ram,Price,col="blue")
plot(RearCam,Price,col="blue")
plot(Front_Cam,Price,col="blue")
plot(battery,Price,col="blue")
plot(thickness,Price,col="blue")

m1 = lm(Price~Sale + weight + resolution + ppi + cpu.core + cpu.freq + internal.mem + ram +
RearCam + Front_Cam + battery + thickness)
summary(m1)

par(mfrow=c(2,2))
plot(m1)

m2 = lm(Price~resolution + ppi + cpu.core + cpu.freq + internal.mem + ram + battery +
thickness)
summary(m2)
plot(m2)

anova(m1,m2)

mmps(m1)
mmps(m2)

vif(m1)
vif(m2)

m3 = lm(Price~ppi + cpu.core + cpu.freq + internal.mem + thickness)
summary(m3)
mmps(m3)
vif(m3)
```

```
summary(powerTransform(cbind(Price,ppi,cpu.core,cpu.freq,internal.mem,thickness)~1),Cellphone)
log_Price <- log(Price)
log_resolution <- log(resolution)
log_ppi <- log(ppi)
log_cpu.core <- log(cpu.core)
log_cpu.freq <- log(cpu.freq)
log_internal.mem <- log(internal.mem)
log_ram <- log(ram)
log_battery <- log(battery)
log_thickness <- log(thickness)
summary(powerTransform(cbind(log_Price, log_resolution, log_ppi, log_cpu.core, log_cpu.freq,
log_internal_mem, log_ram, log_battery, log_thickness) ~ 1),Cellphone)

m4 = lm(log_Price~log_resolution + log_ppi + log_cpu.core + log_cpu.freq + log_internal_mem +
log_ram + log_battery + log_thickness)
summary(m4)

n=nrow(Cellphone)
backBIC<-step(m2,direction="forward",k=log(n))

ppi <- 424
cpu_core <- 8
cpu_freq <- 1.35
internal_mem <- 16
thickness <- 7.4

log_price <- 6.49719 + 0.18589 * log(ppi) + 0.14761 * log(cpu_core) + 0.10700 * log(cpu_freq)
+ 0.14744 * log(internal_mem) - 0.26285 * log(thickness)

predict <- exp(log_price)
predict
```