**Task 1**

a)

MHW<-read.table("MHW.txt", header=T, sep=",")

attach(MHW)

b)

> apply(cbind(straw, grain), 2, mean)

straw grain

6.51480 3.94864

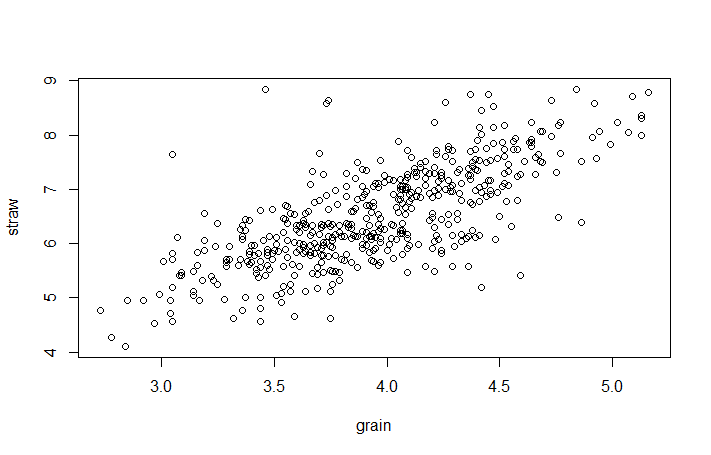
> apply(cbind(straw, grain), 2, sd)

straw grain

0.8983069 0.4582796

c)

plot(grain, straw)



Yes, it is appropriate here.

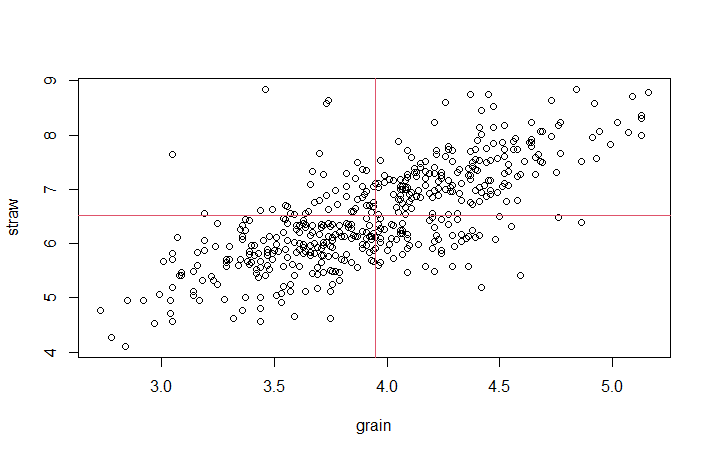
d)

Yes the simple linear regression model is appropriate here

e)

abline(h=mean(straw), col=2)

abline(v=mean(grain), col=2)



f)

Yes, the simple linear regression model is appropriate here

g)

cor(grain, straw)

[1] 0.7297817

h)

(.8983069/.4582796)\*.7297817 = ɓ = 1.43049775

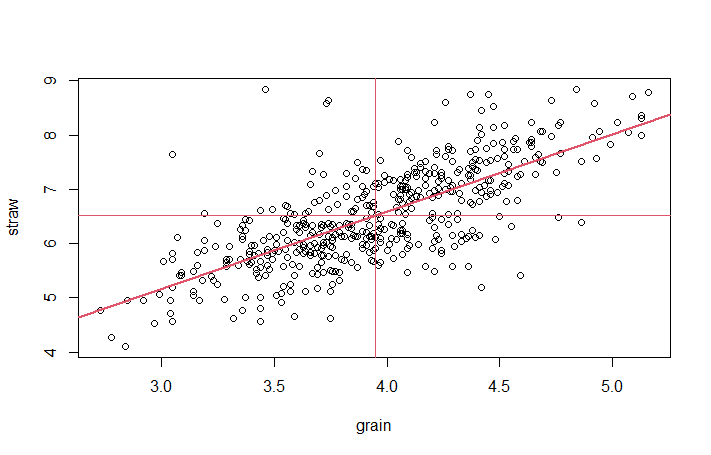
6.5148-3.94864\*(1.43049775 )= ȃ= .866279364

i)

Field straw yield=ȃ+ ɓ(grain yield) = .866279364 + 1.43049775(grain yield)

j)

abline(.866279364,1.43049775, col =2, lwd=2)



k)

> Yield.fit<-lm(straw~grain)

> Yield.fit

Call:

lm(formula = straw ~ grain)

Coefficients:

(Intercept) grain

0.8663 1.4305

> summary(Yield.fit)

Call:

lm(formula = straw ~ grain)

Residuals:

Min 1Q Median 3Q Max

-2.02226 -0.35289 0.01039 0.37339 3.03420

Coefficients:

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

(Intercept) 0.86628 0.23872 3.629 0.000314 \*\*\*

grain 1.43050 0.06005 23.821 < 2e-16 \*\*\*

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Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.6148 on 498 degrees of freedom

Multiple R-squared: 0.5326, Adjusted R-squared: 0.5316

F-statistic: 567.4 on 1 and 498 DF, p-value: < 2.2e-16

l)

Predicted straw yield=.8663+4\*1.4305=6.5883