data_570_lab_3

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Question 4

Part 1

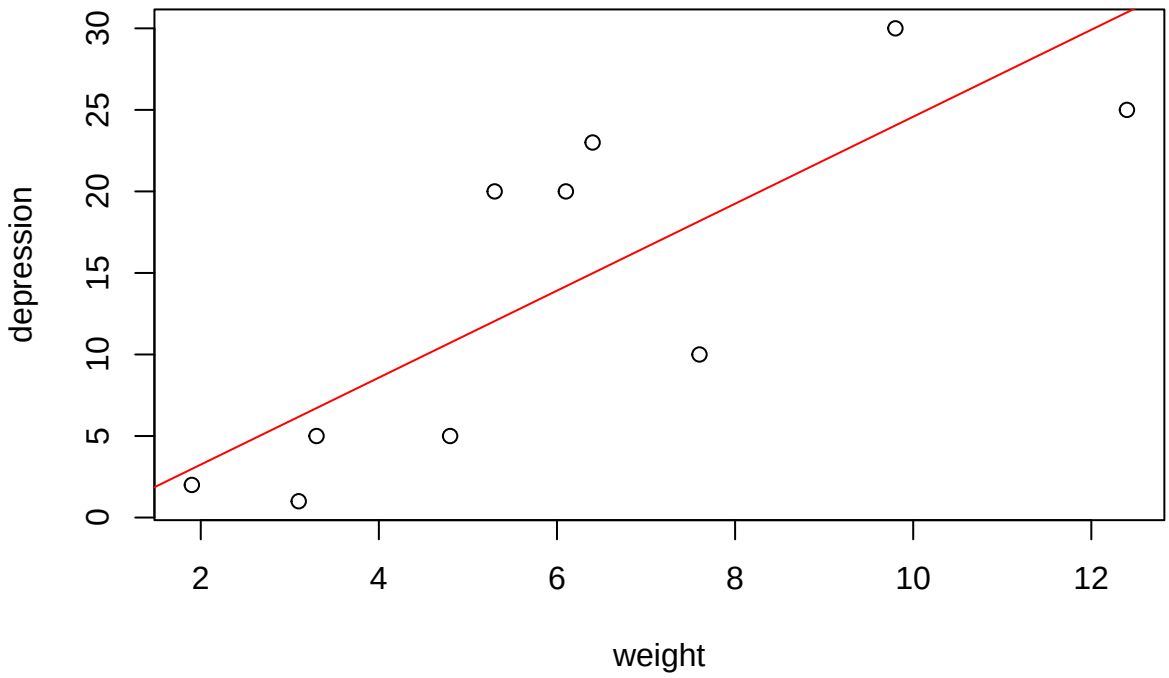
```
library(DAAG)
```

```
##
## Attaching package: 'DAAG'

## The following object is masked from 'package:car':
##
##     vif
```

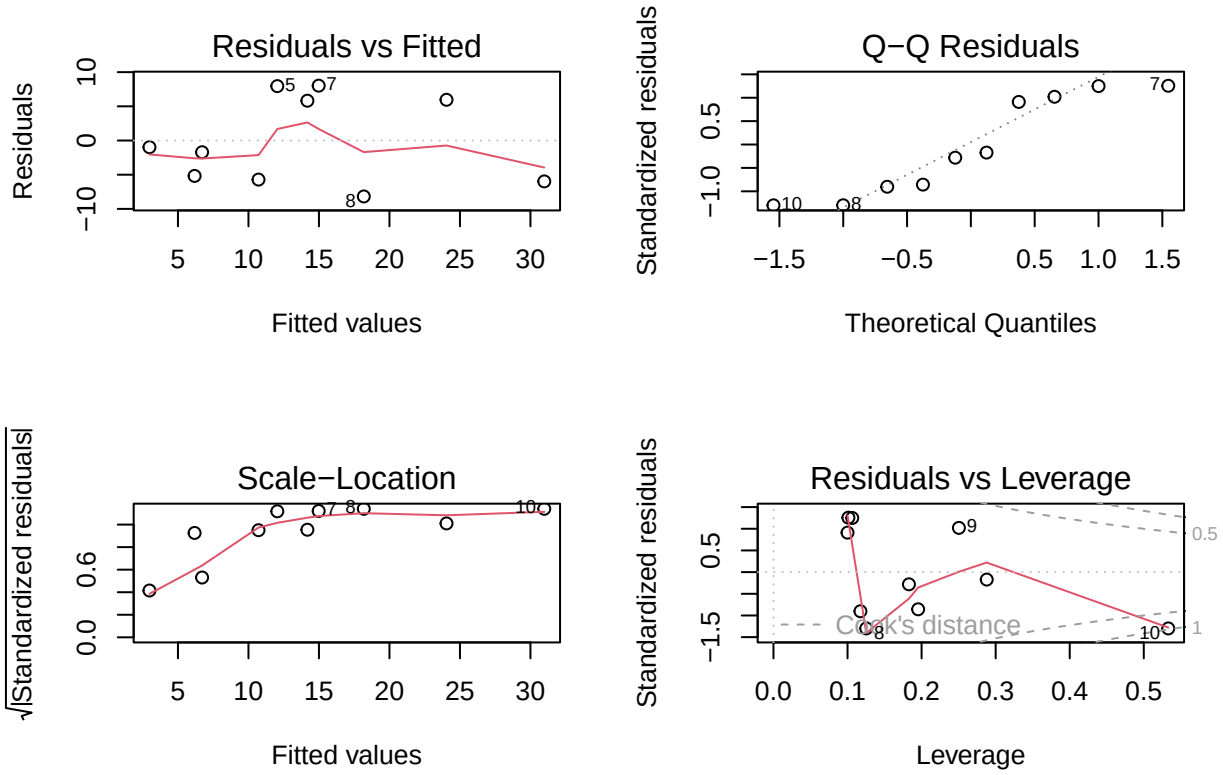
```
x=roller$weight
y=roller$depression

plot(depression~weight, data=roller)
fit <- lm(depression~weight, data=roller)
abline(fit, col="red")
```



Part 2

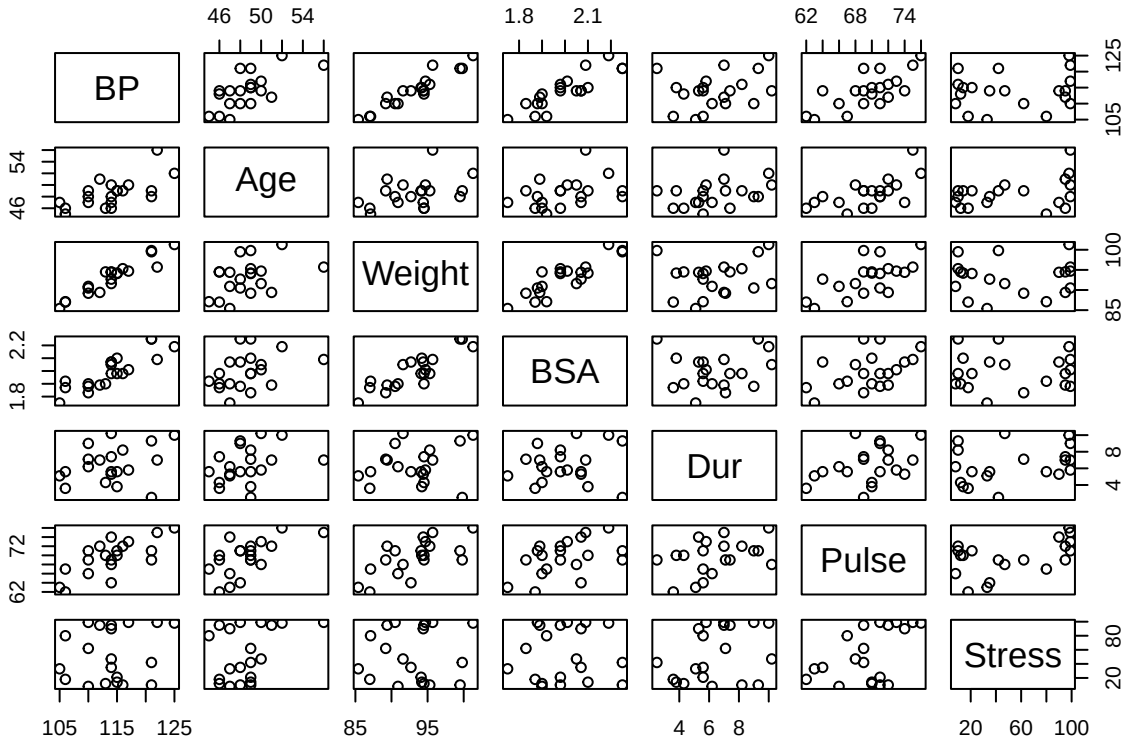
```
par(mfrow=c(2,2))
plot(fit)
```



Question 5

```
bp=read.table("bloodpress.txt", header = TRUE, sep = "" )

bp_fit <- lm(BP~., data = bp)
pairs(bp)
```




```
cor(bp)
```

```
##                BP       Age     Weight        BSA       Dur     Pulse     Stress
## BP     1.0000000 0.6590930 0.95006765 0.86587887 0.2928336 0.7214132 0.16390139
## Age    0.6590930 1.0000000 0.40734926 0.37845460 0.3437921 0.6187643 0.36822369
## Weight 0.9500677 0.4073493 1.00000000 0.87530481 0.2006496 0.6593399 0.03435475
## BSA    0.8658789 0.3784546 0.87530481 1.00000000 0.1305400 0.4648188 0.01844634
## Dur    0.2928336 0.3437921 0.20064959 0.13054001 1.0000000 0.4015144 0.31163982
## Pulse  0.7214132 0.6187643 0.65933987 0.46481881 0.4015144 1.0000000 0.50631008
## Stress 0.1639014 0.3682237 0.03435475 0.01844634 0.3116398 0.5063101 1.00000000
```

```
print(vif(bp_fit))
```

```
##    Age Weight    BSA    Dur  Pulse Stress
## 1.7628 8.4170 5.3288 1.2373 4.4136 1.8348
```

Question 6

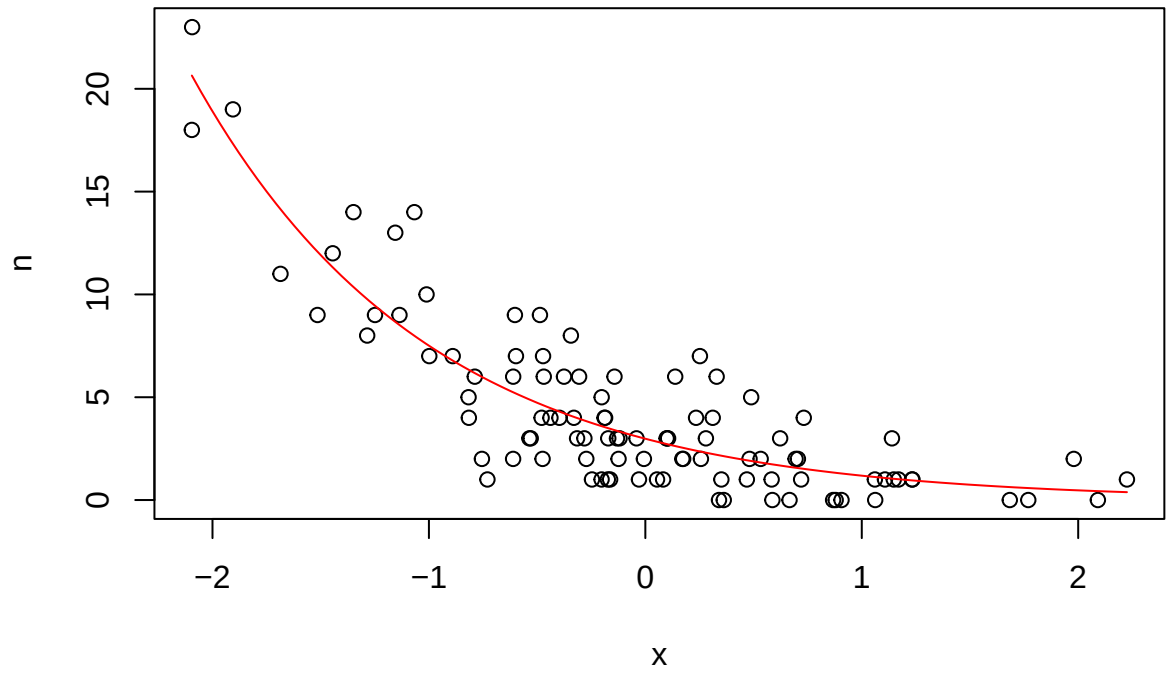
```
x <- rnorm(100)
lamda <- exp(1-x)
n <- rpois(100, lamda)
```

```r
pois_glm <- glm(n~x, family = poisson)

print(coef(pois_glm))
```

```
## (Intercept)           x
##   1.0921310  -0.9236044
```

```r
plot(n~x)
curve(exp(coef(pois_glm)[[1]]+coef(pois_glm)[[2]]*x), add=TRUE,col="red")
```



Question 7

```r
x <- rnorm(100)
p <- (exp(1-x))/(1+exp(1-x))
n <- rbinom(100, 1, prob=p)

binom_glm <- glm(n~x, family = binomial)

print(coef(binom_glm))
```

```
## (Intercept)           x
##   0.9080823  -1.3197902
```

```
# plot(n~x)
# newest <- -3:3
# lines(newest, predict(binom_glm,
# newdata=data.frame(x = newest), type = "response"))
```