Lab session week 20 : Linear Regression

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Exercise 2

```
##                  MetroArea PriceChange LoanPaymentsOverdue
## 1                  Atlanta         1.2                4.55
## 2                   Boston        -3.4                3.31
## 3                  Chicago        -0.9                2.99
## 4                   Dallas         0.8                4.26
## 5                   Denver        -0.7                3.56
## 6                  Detroit        -9.7                4.71
## 7                 LasVegas        -6.1                4.90
## 8               LosAngeles        -4.8                3.05
## 9        MiamiFt.Lauderdale        -6.4                5.63
## 10       MinneapolisStPaul        -3.4                3.01
## 11                 NewYork        -3.8                3.29
## 12                 Phoenix        -7.3                3.26
## 13                Portland         3.8                1.93
## 14                SanDiego        -7.8                3.45
## 15             SanFrancisco        -4.1                2.29
```
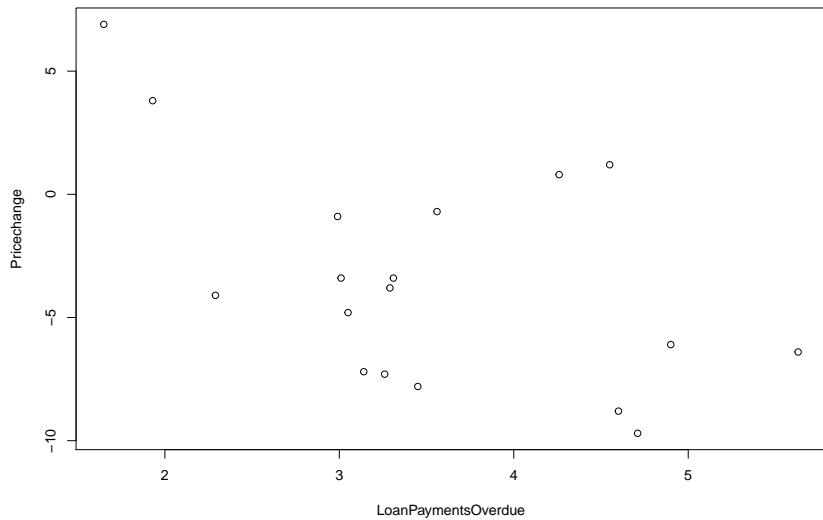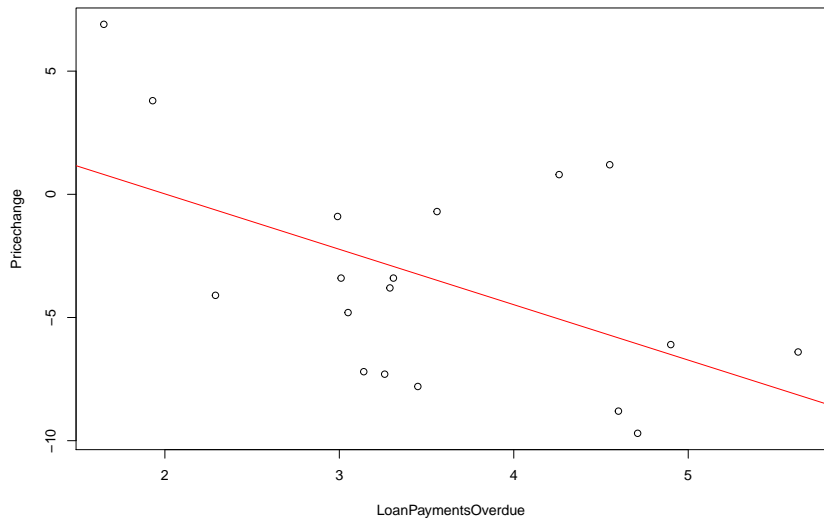
Exercise 2

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```
##
## Call:
## lm(formula = y ~ x)
##
## Coefficients:
## (Intercept)            x
##       4.514       -2.249
```

Exercise 2

Exercise 2 a)

```r
n <- length(x)

SXX <- sum((x-mean(x))^2)
S <- sqrt(sum(l$residuals^2)/(n-2))

se1 <- S/sqrt(SXX)

ci1 <- l$coefficients[2]-qt(0.975,n-2)*se1
ci2 <- l$coefficients[2]+qt(0.975,n-2)*se1
```

Exercise 2 b)

```
y4 <- l$coefficients[1]+l$coefficients[2]*4

ci1 <- y4-qt(0.975,n-2)*S*sqrt(1/n+(4-mean(x))^2/SXX)
ci2 <- y4+qt(0.975,n-2)*S*sqrt(1/n+(4-mean(x))^2/SXX)
```