Lab5

2025-09-30

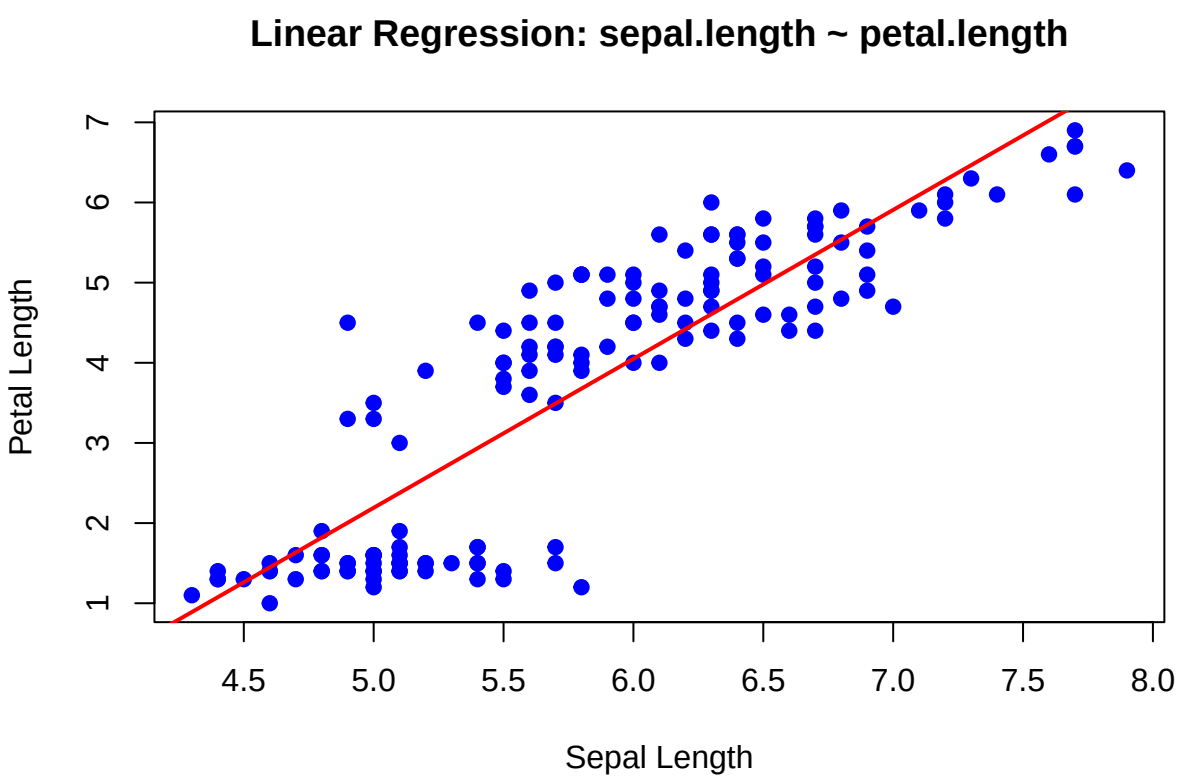
```r
# Load dataset
iris <- read.csv("iris.csv")
data(iris)

# Fit a linear regression model
lm_model <- lm(Petal.Length ~ Sepal.Length, data = iris)

# Model summary
summary(lm_model)
```

```
##
## Call:
## lm(formula = Petal.Length ~ Sepal.Length, data = iris)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.47747 -0.59072 -0.00668  0.60484  2.49512
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -7.10144    0.50666  -14.02   <2e-16 ***
## Sepal.Length  1.85843    0.08586   21.65   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.8678 on 148 degrees of freedom
## Multiple R-squared:   0.76,  Adjusted R-squared:  0.7583
## F-statistic: 468.6 on 1 and 148 DF,  p-value: < 2.2e-16
```

```r
# Plot data with regression line
plot(iris$Sepal.Length, iris$Petal.Length,
     pch = 19, col = "blue",
     xlab = "Sepal Length", ylab = "Petal Length",
     main = "Linear Regression: sepal.length ~ petal.length")
abline(lm_model, col = "red", lwd = 2)
```


Linear Regression: sepal.length ~ petal.length
Petal Length
Sepal Length
1
2
3
4
5
6
7
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0