

practical 6:

a. Simple Linear regression

Aim: Create your own data for years of experience and salary in lakhs and apply linear regression model to predict the salary

Requirement:

R tool

Code:

```
years_of_exp = c(7,5,1,3)
```

```
salary_in_lakhs = c(21,13,6,8)
```

```
employee.data = data.frame(years_of_exp, salary_in_lakhs)
```

```
employee.data
```

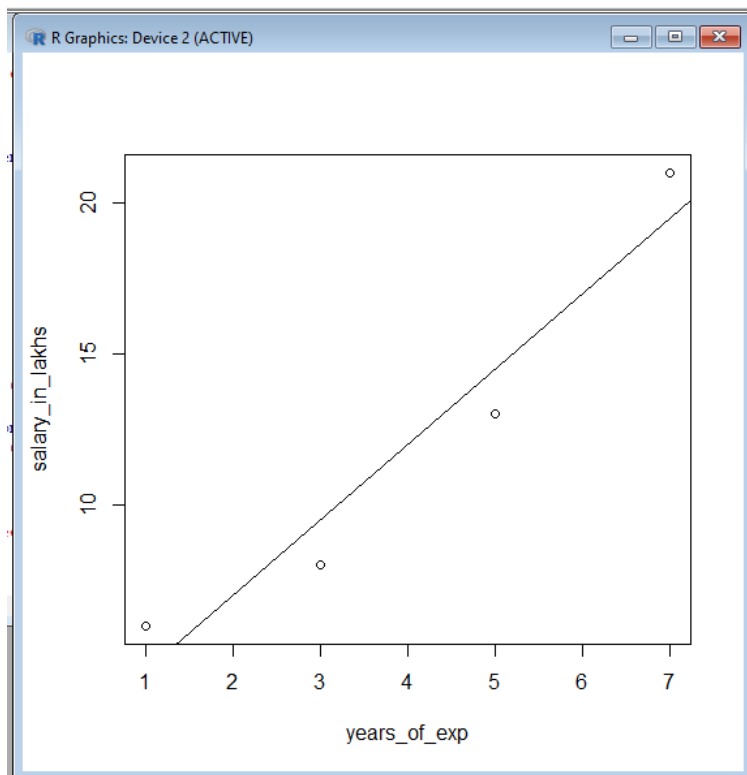
```
model <- lm(salary_in_lakhs ~ years_of_exp, data = employee.data)
```

```
summary(model)
```

```
plot(salary_in_lakhs ~ years_of_exp, data = employee.data)
```

```
abline(model)
```

Output:



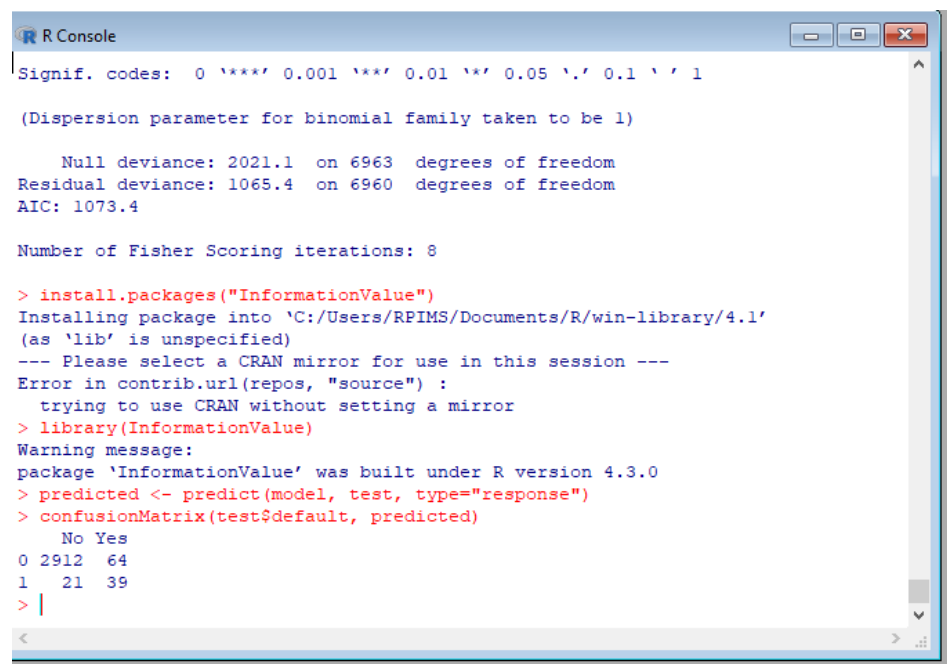
b.: Logistic regression:

Aim: Take the in-built data from ISLR package and apply generalized logistic regression to find whether a person would be defaulter or not; considering input as student, income and balance.

Code:

```
install.packages("ISLR")
library(ISLR)
data <- ISLR::Default
print(head(ISLR::Default))
summary(data)
nrow(data)
set.seed(1)
sample <- sample(c(TRUE, FALSE), nrow(data), replace=TRUE, prob=c(0.7,0.3))
print(sample)
train <- data[sample, ]
test <- data[!sample, ]
nrow(train)
nrow(test)
model <- glm(default~student+balance+income, family="binomial", data=train)
summary(model)
install.packages("InformationValue")
library(InformationValue)
predicted <- predict(model, test, type="response")
confusionMatrix(test$default, predicted)
```

Output:



```
R Console
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 2021.1  on 6963  degrees of freedom
Residual deviance: 1065.4  on 6960  degrees of freedom
AIC: 1073.4

Number of Fisher Scoring iterations: 8

> install.packages("InformationValue")
Installing package into 'C:/Users/JPIMS/Documents/R/win-library/4.1'
(as 'lib' is unspecified)
--- Please select a CRAN mirror for use in this session ---
Error in contrib.url(repos, "source") :
  trying to use CRAN without setting a mirror
> library(InformationValue)
Warning message:
package 'InformationValue' was built under R version 4.3.0
> predicted <- predict(model, test, type="response")
> confusionMatrix(test$default, predicted)
      No Yes
0 2912  64
1   21  39
> |
```

Requirement:

R tool

Code:

```
library("party")  
print(head(readingSkills))  
  
str(iris)  
iris_ctree <- ctree(Species ~ Sepal.Width + Sepal.Length + Petal.Length +  
Petal.Width, data=iris)  
  
print (iris_ctree)  
plot(iris_ctree)
```

Output:

