Experiment 11

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Subject: DWM

Class: TE4

Roll no: 46

Batch: D

Aim: Implement Linear regression using R tool.

```
> summary(income.data)
       X              income        happiness
 Min.   :  1.0   Min.   :1.506   Min.   :0.266
 1st Qu.:125.2   1st Qu.:3.006   1st Qu.:2.266
 Median :249.5   Median :4.424   Median :3.473
 Mean   :249.5   Mean   :4.467   Mean   :3.393
 3rd Qu.:373.8   3rd Qu.:5.992   3rd Qu.:4.503
 Max.   :498.0   Max.   :7.482   Max.   :6.863

> summary(heart.data)
       X              biking          smoking          heart.disease
 Min.   :  1.0   Min.   : 1.119   Min.   : 0.5259   Min.   : 0.5519
 1st Qu.:125.2   1st Qu.:20.205   1st Qu.: 8.2798   1st Qu.: 6.5137
 Median :249.5   Median :35.824   Median :15.8146   Median :10.3853
 Mean   :249.5   Mean   :37.788   Mean   :15.4350   Mean   :10.1745
 3rd Qu.:373.8   3rd Qu.:57.853   3rd Qu.:22.5689   3rd Qu.:13.7240
 Max.   :498.0   Max.   :74.907   Max.   :29.9467   Max.   :20.4535
```
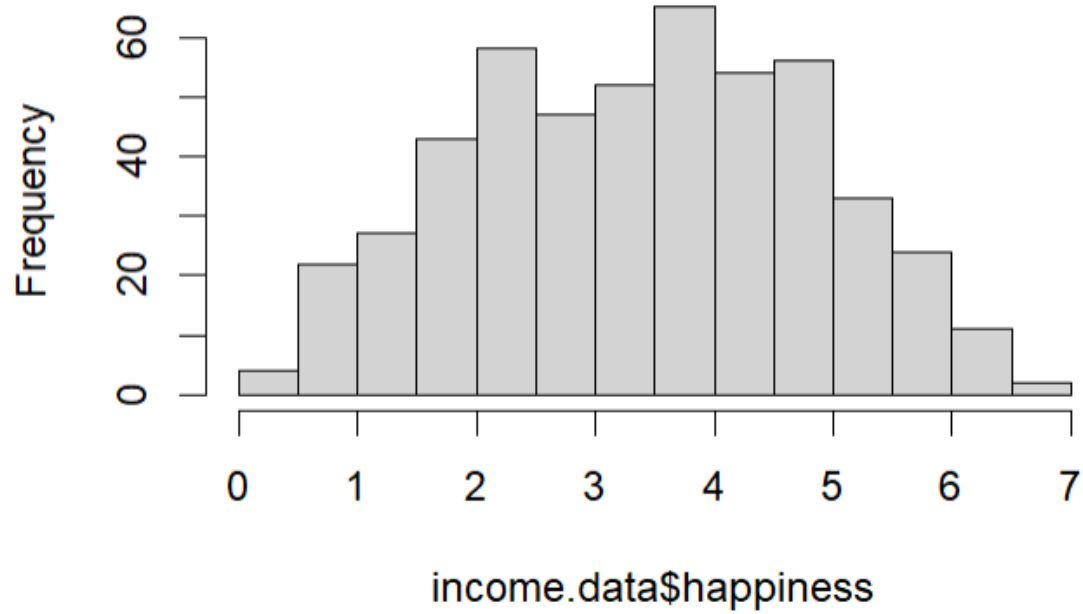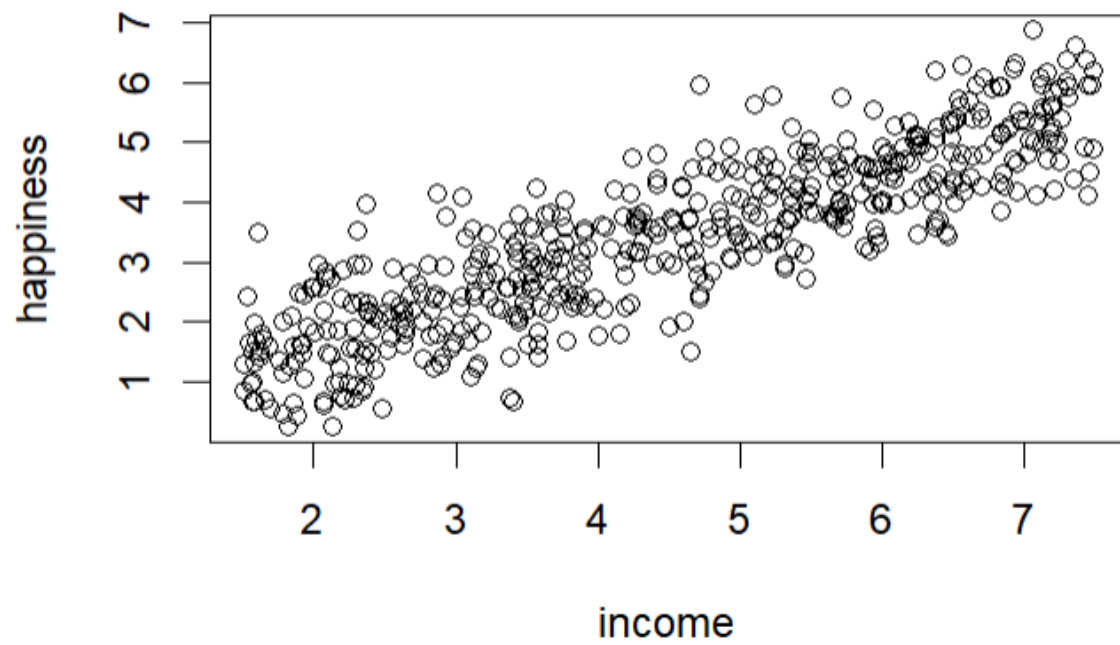
```
> hist(income.data$happiness)
```

Histogram of income.data$happiness
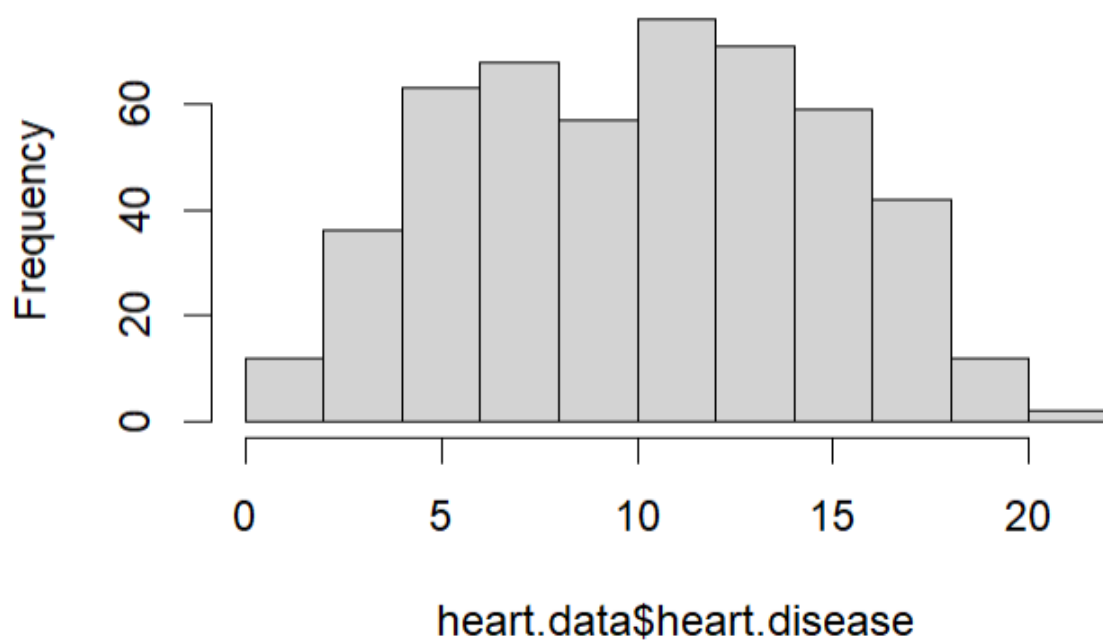

income.data$happiness
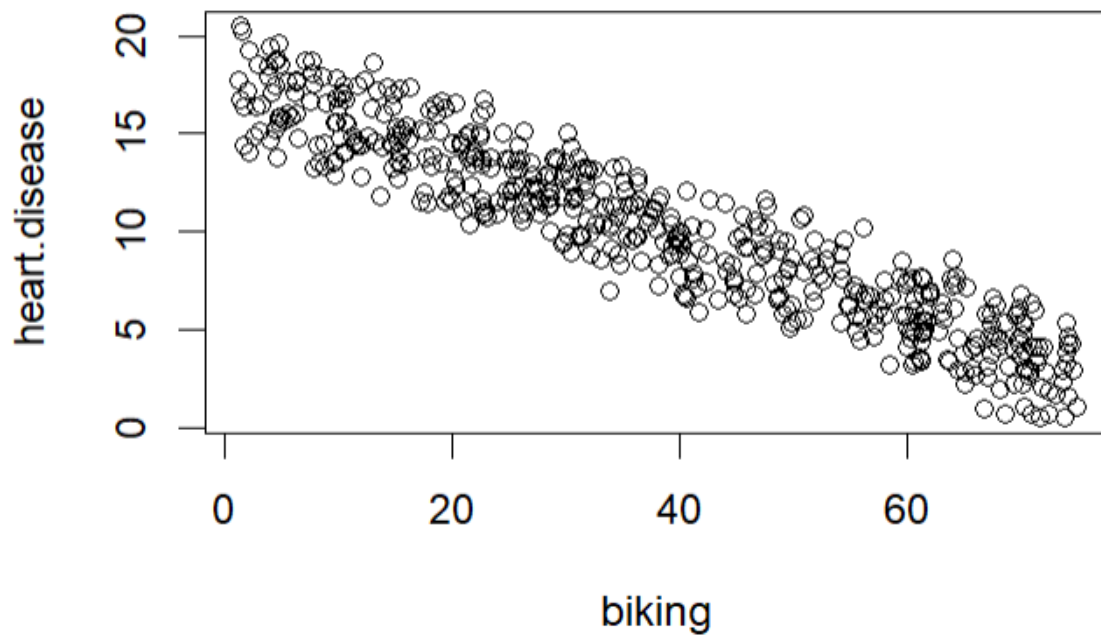
```
> plot(happiness ~ income, data = income.data)
```



```
> cor(heart.data$biking, heart.data$smoking)
[1] 0.01513618
```
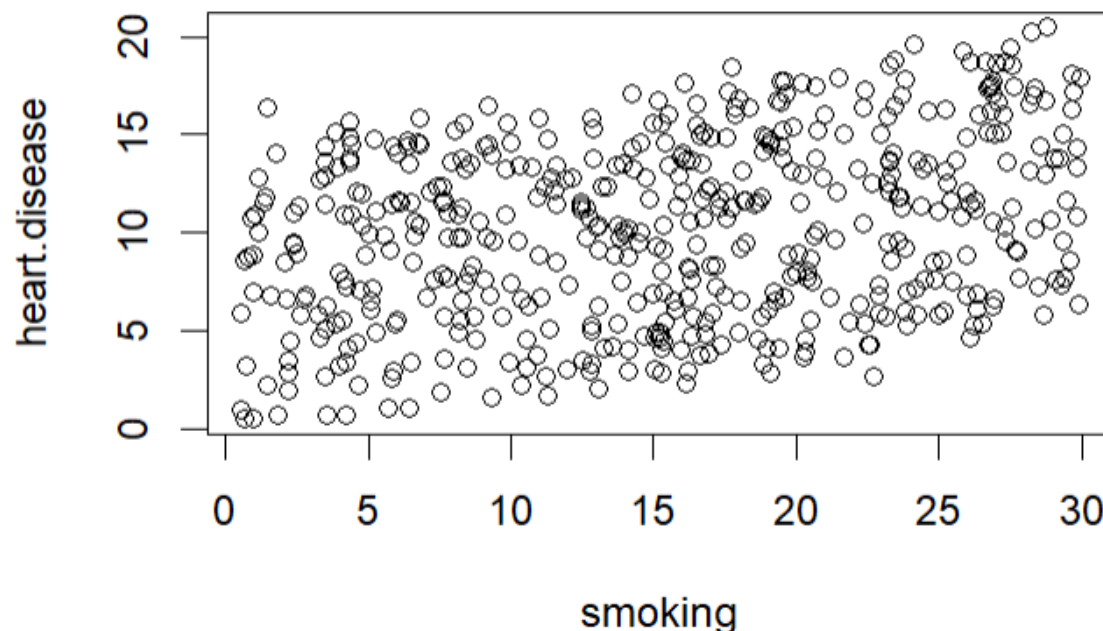
```
> hist(heart.data$heart.disease)
```

Histogram of heart.data$heart.disease

heart.data$heart.disease

```
> plot(heart.disease ~ biking, data=heart.data)
```

```
> plot(heart.disease ~ smoking, data=heart.data)
```



```
> income.happiness.lm <- lm(happiness ~ income, data = income.data)
> summary(income.happiness.lm)

Call:
lm(formula = happiness ~ income, data = income.data)

Residuals:
     Min       1Q   Median       3Q      Max
-2.02479 -0.48526  0.04078  0.45898  2.37805

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  0.20427    0.08884   2.299   0.0219 *
income       0.71383    0.01854  38.505   <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.7181 on 496 degrees of freedom
Multiple R-squared:  0.7493,    Adjusted R-squared:  0.7488
F-statistic:  1483 on 1 and 496 DF,  p-value: < 2.2e-16
```