

Fig 3.8 Prediction

MP

2015-06-04

```
> setwd("D:/Dropbox/R/2015-NUS/Session-2/(a) Data Modelling - Basics/Figure 3.8/Prediction")
```

```
> Dataset <-
+ read.table("D:/Dropbox/R/2015-NUS/Session-2/(a) Data Modelling - Basics/Figure 3.8/Prediction/Table 3.1 Sales-Advertising-Incom
+ header=TRUE, sep=",", na.strings="NA", dec=".", strip.white=TRUE)
```

```
> RegModel.1 <- lm(SALES~ADVT+INCOME, data=Dataset)
> summary(RegModel.1)
```

```
Call:
lm(formula = SALES ~ ADVT + INCOME, data = Dataset)
```

```
Residuals:
    Min       1Q   Median       3Q      Max
-22.6876  -6.0687   0.6043   7.0523  28.5334
```

```
Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  36.8948    24.9629   1.478  0.1536
ADVT          5.0691     2.5397   1.996  0.0585 .
INCOME       0.8081     0.2816   2.870  0.0089 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
Residual standard error: 12.66 on 22 degrees of freedom
Multiple R-squared:  0.452, Adjusted R-squared:  0.4022
F-statistic: 9.074 on 2 and 22 DF, p-value: 0.001338
```

```
> confint(RegModel.1)
```

```
                2.5 %    97.5 %
(Intercept) -14.8751469  88.664690
ADVT         -0.1978214  10.336032
INCOME       0.2240905   1.392079
```

```
> anova(RegModel.1)
```

Analysis of Variance Table

```
Response: SALES
      Df Sum Sq Mean Sq F value    Pr(>F)
ADVT   1 1587.7  1587.69   9.9123 0.004665 **
INCOME 1 1319.0  1319.03   8.2349 0.008903 **
Residuals 22 3523.8  160.17
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
> new <- data.frame(ADVT=8, INCOME=53)
```

```
> new
```

```
  ADVT INCOME
1     8     53
```

```
> predict(RegModel.1, new)
```

```
      1
120.2761
```