MAT5007 – Applied Statistical Methods

Embedded Lab – R Statistical Software

FALL SEMESTER – 2022~2023 L25+L26 SLOT

E-RECORD

Assignment No.: 3

Submitted By

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MCA– I Year

SITE

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Experiment 1:

The sales-alldata.csv data describes the revenue and weather in a region during the first quarter of 2020. Fit a linear regression model with REVENUE as the response variable and TEMPERATURE as an explanatory variable. Fit the Linear Regression and interpret your result. Next, include SUN_HOURS (A “Sun-Hour” is “1000 watts of energy shining on 1 square meter of surface for 1 hour”.) as one more independent variable. Fit the Multiple Regression and interpret your result.

```
> salesData = read.csv('C:/Users/deadmercury/Downloads/sales-alldata.csv')
> regmodel = lm(REVENUE~TEMPERATURE, data = salesData)
> regmodel
```

```
> salesData = read.csv('C:/Users/deadmercury/Downloads/sales-alldata.csv')
> regmodel = lm(REVENUE~TEMPERATURE, data = salesData)
> regmodel

Call:
lm(formula = REVENUE ~ TEMPERATURE, data = salesData)

Coefficients:
(Intercept)  TEMPERATURE
    7543.44        66.28
```

Interpretation: Here we consider TEMPERATURE as the independent variable and REVENUE as the dependent variable. Fitting the regression model, we get intercept as 7543.44 and coefficient of TEMPERATURE as 66.28

Therefore, the regression of equation is-

REVENUE = 7543.44 + 66.28(TEMPERATURE)

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```
> regmodel = lm(REVENUE~TEMPERATURE + SUN_HOURS, data = salesData)
> regmodel
```

```
> regmodel = lm(REVENUE~TEMPERATURE + SUN_HOURS, data = salesData)
> regmodel

Call:
lm(formula = REVENUE ~ TEMPERATURE + SUN_HOURS, data = salesData)

Coefficients:
(Intercept)  TEMPERATURE    SUN_HOURS
     6788.7        122.1        173.0
```

Interpretation: Here we consider TEMPERATURE and SUN_HOURS as the independent variable and REVENUE as the dependent variable. Fitting the regression model, we get intercept as 6788.7 and coefficient of TEMPERATURE as 122.1 and coefficient of SUN_HOURS as 173.0

Therefore, the regression of equation is-

REVENUE = 6788.7 + 122.1(TEMPERATURE) + 173.0(SUN_HOURS)

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