
Problem 1

```
mydata1=read.table(file.choose(),header=T,sep=",")
# Regression Modelling
```

The owner of showtime Movie Theater would like to estimate
weekly gross revenue as a function of advertising expenditures.
Historical data for a sample of eight weeks follow. (Sales data)

Fit a multiple linear regression model for the given data (Regression Modelling 2)

i. Determine the significant variables in the model and interpret of their effects
ii. Determine the predicted values of the dependent variable based on fitted model

```
#Import csv data file
#-------------------------------------------------------------------
mydata1=read.table("C:\\Users\\Alvin Davis\\Desktop\\Data\\Sales
data.csv",header=T,sep=",")
mydata1

# Building Model
# -------------------------------------------------------------
mymodel1=lm(Revenue ~ TV + NEWS,data=mydata1)
summary(mymodel1)
```
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Problem 2

```
# Regression Modelling
```

Fit a multiple linear regression model for the given data (Regression Modelling 2)

i. Determine the significant variables in the model and interpret of their effects
ii. Determine the predicted values of the dependent variable based on fitted model

```
#Import csv data file
#-------------------------------------------------------------------
mydata2=read.table("C:\\Users\\Alvin Davis\\Desktop\\Data\\Regression Modelling
2.csv",header=T,sep=",")
mydata2
mydata=read.table(file.choose(),header=T,sep=",")
#Creating dummy variables
mydata2=mydata
#-------------------------------------------------------------------
mydata2$Smoker_new <-ifelse(mydata2$Smoker==c("Yes"),1,0)
```

```
mydata2$Diabetes_new <-ifelse(mydata2$Diabetes==c("Yes"),1,0)
mydata2$Fam_his_new <-ifelse(mydata2$Fam_his==c("Yes"),1,0)
head(mydata2)

# Building Model
# ------------------------------------------------------------
mymodel2=lm(risk ~ Age + Pressure + Smoker_new + Diabetes_new +
Fam_his_new,data=mydata2)
summary(mymodel2)

# Stepwise method to Build Model
# ------------------------------------------------------------
mymodel2=step(lm(risk ~ Age + Pressure + Smoker_new + Diabetes_new +
Fam_his_new,data=mydata2))
summary(mymodel2)

attach(mydata2)
mydata2$predicted_value=41.227+23.661*Smoker_new+13.061*Diabetes_new+19.607*Fam
_his_new
head(mydata2)

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Problem 3
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# Regression Modelling
-------------------------------------------------------------------------
Fit a multiple linear regression model for the given data (Regression Modelling)
i.      Determine the significant variables in the model and interpret
        of their effects
ii.     Determine the predicted values of the dependent variable based
        on fitted model
iii.    Determine MAE and MAPE for the predicted values


#Import csv data file
#------------------------------------------------------------
mydata3=read.table("C:\\Users\\Alvin Davis\\Desktop\\Data\\Regression
Modelling.csv",header=T,sep=",")
mydata3

# Building Model
# ------------------------------------------------------------
mymodel3=lm(EF ~ Age + BMI,data=mydata3)
summary(mymodel3)

# Stepwise method to Build Model
# ------------------------------------------------------------
mymodel3=step(lm(EF ~ Age + BMI,data=mydata3))
summary(mymodel3)
```

```
#-----------------------------------------------------------------------------------------------------------
# PREDICTED Y BASED ON MODEL EQUATION
#-----------------------------------------------------------------------------------------------------------
mydata3$Predicted=predict(mymodel3,data=mydata3)
head(mydata3)
#-----------------------------------------------------------------------------------------------------------
# DETRMINING MEAN ABSOLUTE ERROR [MAE]
#-----------------------------------------------------------------------------------------------------------

mydata3$abs_error <- abs(mydata3$EF - mydata3$Predicted)
head(mydata3)
mae <- mean(mydata3$abs_error)
mae

#-------------------------------------------------------------------
# DETRMINING MEAN ABSOLUTE PERCENTAGE ERROR [MAPE]
#-------------------------------------------------------------------
mydata3$per_abs_error <- abs((mydata3$EF - mydata3$Predicted)/ mydata3$EF)
mydata3
mape <- mean(mydata3$per_abs_error)*100
mape

=========================================================================
```