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################################################################################
#Analysis of Sales Report of a clothes Manufacturing Outlet . We will find current
#trends,and attributes affecting sales.
#*************************************SECTION 1*******************************#
#Inorder to regularize the rating procedure and finds its efficiency, the wants to
#find if the rating of the dress affects the sales.
#*************************************SECTION 1*******************************#
#Created by : SHAHROO AKHTAR
################################################################################

#installing packages and libraries importing data. A new csv file was created only
#with the total sales and ratings data.
library(dplyr)
library(readxl)
install.packages("reprex")
library(reprex)
#Importing the data file from the saved location
TotalSales <- read.csv("/Users/apple/Desktop/TotalSales.csv", header = T)
View(TotalSales)
str(TotalSales)

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#Converting the variable type of the Total column to numeric
TotalSales$Total <- as.numeric(TotalSales$Total)
str(TotalSales)

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#The rating of the dress is the independant variable and sales is dependant
#variable so we will try to see check how sales is affected by the ratings.

#*********************************MODEL SELECTION*******************************#

#We will be using the Linear Regression alogorithim to check the relationship
#Preparing the data
# Splitting the dataset into the Training set and Test set
# install.packages('caTools')

library(caTools)
set.seed(123)
split = sample.split(TotalSales$Total, SplitRatio = 0.8)
training_set = subset(TotalSales, split == TRUE)
test_set = subset(TotalSales, split == FALSE)

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#*********************************APPLYING THE MODEL*****************************#

# Feature Scaling
training_set = scale(training_set)
test_set = scale(test_set)

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# Fitting Simple Linear Regression to the Training set
regressor = lm(formula = Total ~ Rating,
               data = training_set)

# Predicting the Test set results
y_pred = predict(regressor, newdata = test_set)

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# Visualising the Training set results

library(ggplot2)
ggplot() +
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  geom_point(aes(x = training_set$Rating, y = training_set$Total),
             colour = 'red') +
  geom_line(aes(x = training_set$Rating, y = predict(regressor, newdata = training_set)),
            colour = 'blue') +
  ggtitle('Rating vs Total Sales (Training set)') +
  xlab('Rating') +
  ylab('Total Sales')

################################################################################

# Visualising the Test set results

library(ggplot2)
ggplot() +
  geom_point(aes(x = test_set$Rating, y = test_set$Total),
             colour = 'red') +
  geom_line(aes(x = training_set$Rating, y = predict(regressor, newdata = training_set)),
            colour = 'blue') +
  ggtitle('Rating vs Total Sales (Test set)') +
  xlab('Rating') +
  ylab('Total Sales')

################################################################################

#RESULT: It shows that Rating of a dress has a high impact on the sale
#of that product.

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