Tableau and R Integration - Rserve

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### R side of the Integration

library(Rserve)

## Warning: package 'Rserve' was built under R version 4.0.3

Rserve()

## Starting Rserve...  
## "C:\Users\ANKITA~1\DOCUME~1\R\WIN-LI~1\4.0\Rserve\libs\x64\Rserve.exe"

### Tableau side of the Integration

The complete integration of R and Tableau (using Rserve) is done on Superstore dataset.  
And the following R functionalities are done on Tableau:-

• Mutiple Linear Regression to predict Profit (R function used: SCRIPT\_REAL)  
• Trend Line Analysis for each category (R function used: SCRIPT\_REAL)  
• Forecasting for Sales Forecast against Month of Order Date (R function used: SCRIPT\_REAL)  
• Simple Profit Classification using Table Calculation (R function used: SCRIPT\_BOOL)  
• Concatenation of Fields (R function used: SCRIPT\_BOOL)  
• kmeans Clustering (R function used: SCRIPT\_INT)

[Rserve function, Corresponding Calculated Field]  
1. Tableau R Multiple Linear Regression (Profit Prediction) [**SCRIPT\_REAL, Predicted Profit**]

Calculated Fields:-

**Predicted Profit:**  
SCRIPT\_REAL("fit <- lm(.arg1 ~ .arg2 + .arg3 + .arg4)

fit$fitted

",

SUM([Profit]), AVG([Sales]), AVG([Quantity]), AVG([Discount]))

1. Tableau R Multiple Linear Regression (Profit Prediction): Profit vs Predicted Profit Dual Axis Comparison [**SCRIPT\_REAL, Predicted Profit**]

Calculated Fields:-

**Predicted Profit:**  
SCRIPT\_REAL("fit <- lm(.arg1 ~ .arg2 + .arg3 + .arg4)

fit$fitted

",

SUM([Profit]), AVG([Sales]), AVG([Quantity]), AVG([Discount]))

1. Tableau R Trend Line (or Regression Line) for each category [**SCRIPT\_REAL, Predicted Profit**]

Calculated Fields:-

**Predicted Profit:**  
SCRIPT\_REAL("fit <- lm(.arg1 ~ .arg2 + .arg3 + .arg4)

fit$fitted

",

SUM([Profit]), AVG([Sales]), AVG([Quantity]), AVG([Discount]))

1. Tableau R Simple Profit Classification [**SCRIPT\_BOOL, Profit Boolean**]

Calculated Fields:-

**Profit Boolean:**  
SCRIPT\_BOOL(".arg1>0", SUM([Profit]))

1. Tableau R String Concatenation [**SCRIPT\_STR, RStringConcatenate**]

Calculated Fields:-

**RStringConcatenate:**  
SCRIPT\_STR("paste(.arg1,.arg2)",

ATTR([Category]),

ATTR([Sub-Category]))

1. Tableau R kmeans Clustering [**SCRIPT\_INT, kmeans Cluster**]

Calculated Fields:-

**kmeans Cluster:**  
SCRIPT\_INT('result <- kmeans(x = data.frame(.arg1,.arg2,.arg3), '+STR([k])+')

result$cluster',

SUM([Profit]),SUM([Sales]),SUM([Quantity])

)

1. Tableau R kmeans Clustering: Geographic [**SCRIPT\_INT, kmeans Cluster**]

Calculated Fields:-

**kmeans Cluster:**  
SCRIPT\_INT('result <- kmeans(x = data.frame(.arg1,.arg2,.arg3), '+STR([k])+')

result$cluster',

SUM([Profit]),SUM([Sales]),SUM([Quantity])

)

1. Forecasting [**SCRIPT\_REAL**, **Sales Forecast**]

Calculated Fields:-

**isForecast:-**

IF INDEX() < SIZE() - [Forecast Months]

THEN 'Actual'

ELSE 'Forecast'

END

**Sales Forecast:-**

SCRIPT\_REAL("library(forecast);

myts <- ts(.arg1,start=c(2011,1), frequency=12);

myforecast <- forecast(myts, h=.arg2[1]);

monthsts<-length(.arg1);

append(.arg1[(.arg2[1]+1):monthsts],myforecast$mean,after= monthsts

)",

SUM([Sales]),[Forecast Months])

### Conclusion:

Hence, all the 4 R functions have been used in this exercise to perform the above functionalities for the integration of R in Tableau.