R Notebook

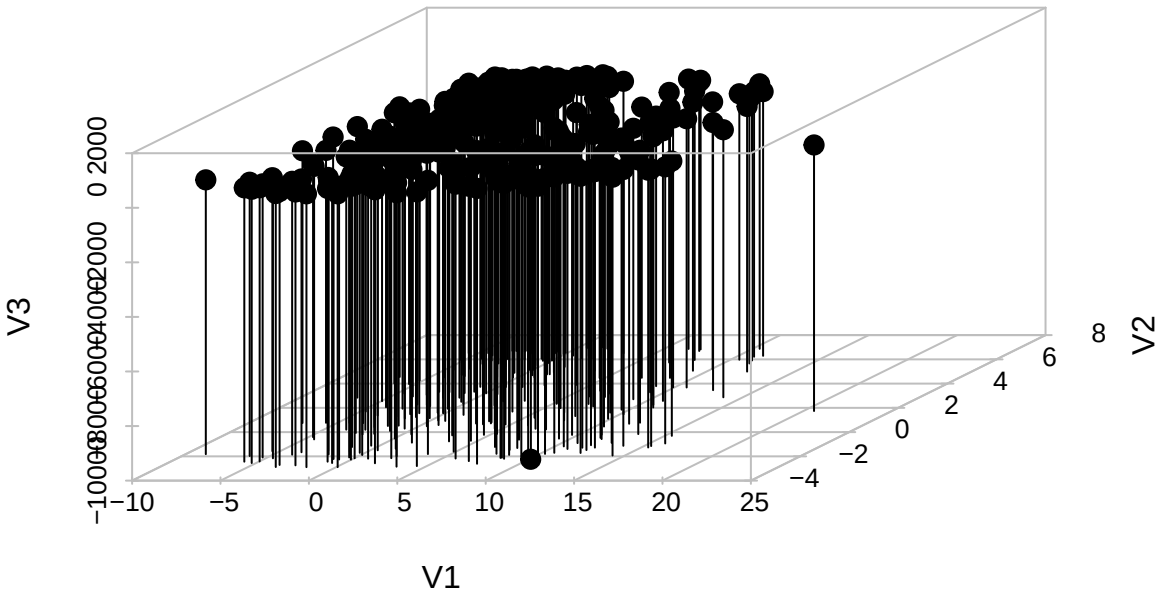
This is an R Markdown Notebook. When you execute code within the notebook, the results appear beneath the code.

Try executing this chunk by clicking the *Run* button within the chunk or by placing your cursor inside it and pressing *Cmd+Shift+Enter*.

```
moluco_data = read.csv("Adops & Data Scientist Sample Data - Q2 Regression.csv",header = FALSE)

head(moluco_data)
```

```
##       V1    V2     V3
## 1  0.490 -0.18  11.50
## 2 -1.410 -1.23  11.80
## 3  0.943  4.51  -3.24
## 4  3.570  5.07 -23.90
## 5 -1.700  6.91 -22.10
## 6 -1.700  1.13   1.91
```

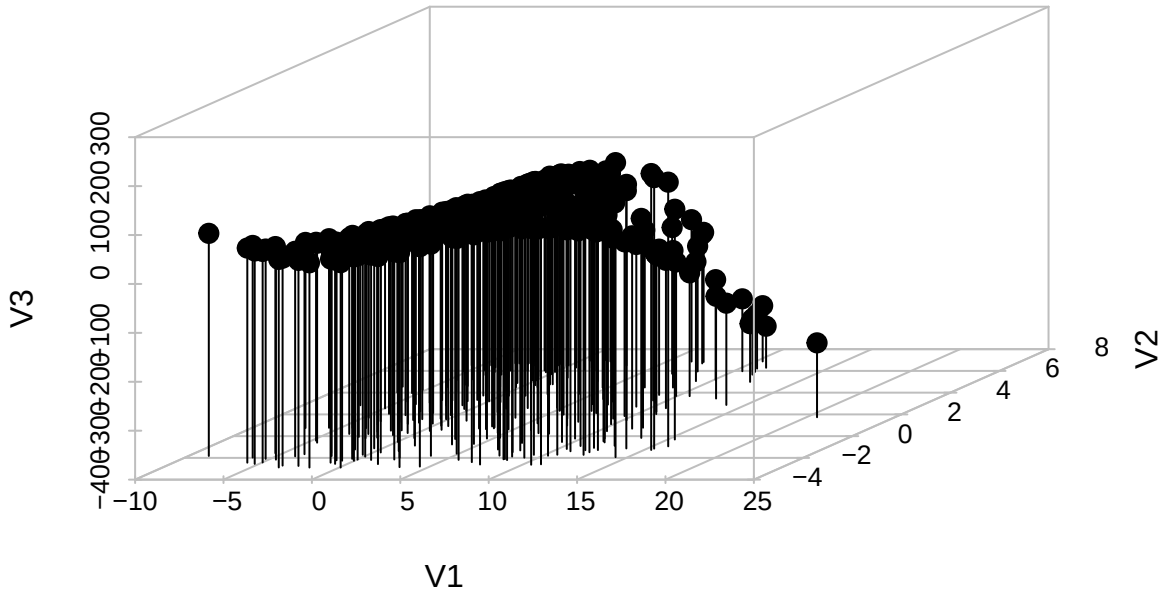
```
library(scatterplot3d)
library(RColorBrewer)



# scatter plot
plot.angle <- 45
with(moluco_data, scatterplot3d(V1, V2, V3, type="h", pch=20, cex.symbols=2, col.axis="gray", col.grid=
```




```
#outlier so remove -1.00e+04
moluco_data<-moluco_data[!(moluco_data$V3==-1.00e+04),]
```

```
library(scatterplot3d)
library(RColorBrewer)
```

```
# scatter plot
plot.angle <- 45
with(moluco_data, scatterplot3d(V1, V2, V3, type="h", pch=20, cex.symbols=2, col.axis="gray", col.grid=
```




```
#seems to be polynomial regression- cubic
```

```
model <- lm(V3 ~ V1+V2, data = moluco_data)
summary(model)
```

```
##
## Call:
## lm(formula = V3 ~ V1 + V2, data = moluco_data)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -229.41  -26.36    1.93   32.99  166.43
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  25.7320     4.2640   6.035 4.75e-09 ***
## V1           -1.3667     0.5776  -2.366   0.0186 *
## V2          -15.2219     1.0974 -13.871  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 55.71 on 296 degrees of freedom
## Multiple R-squared:  0.394,  Adjusted R-squared:  0.3899
## F-statistic: 96.23 on 2 and 296 DF,  p-value: < 2.2e-16
```

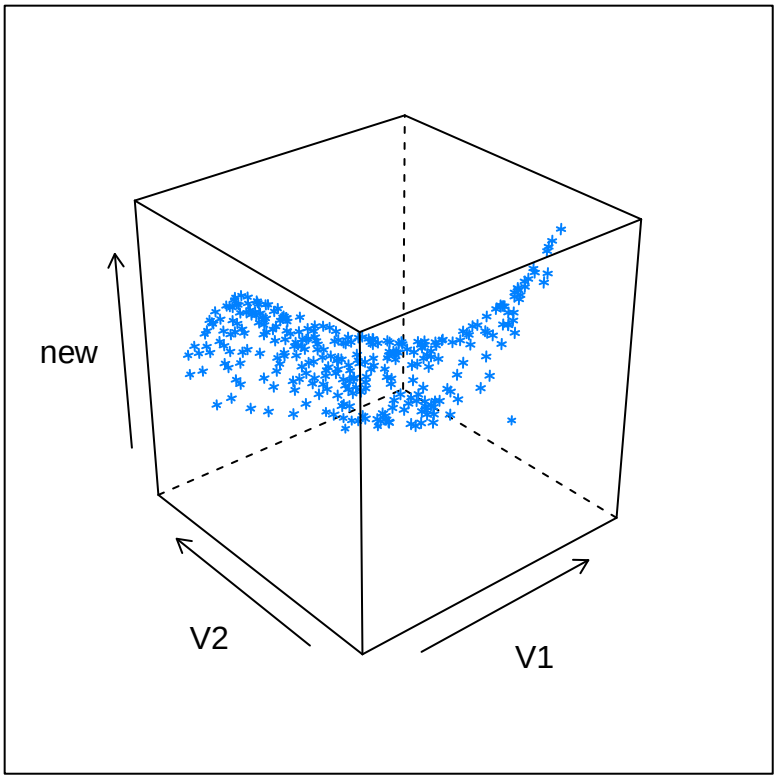
```
#linear is not good
#polynomial might work
```

```
#multivariate cubic regression
model_poly = lm(V3 ~  polym(V1,V2,degree=3), data=moluco_data)

summary(model_poly) #regression model
```

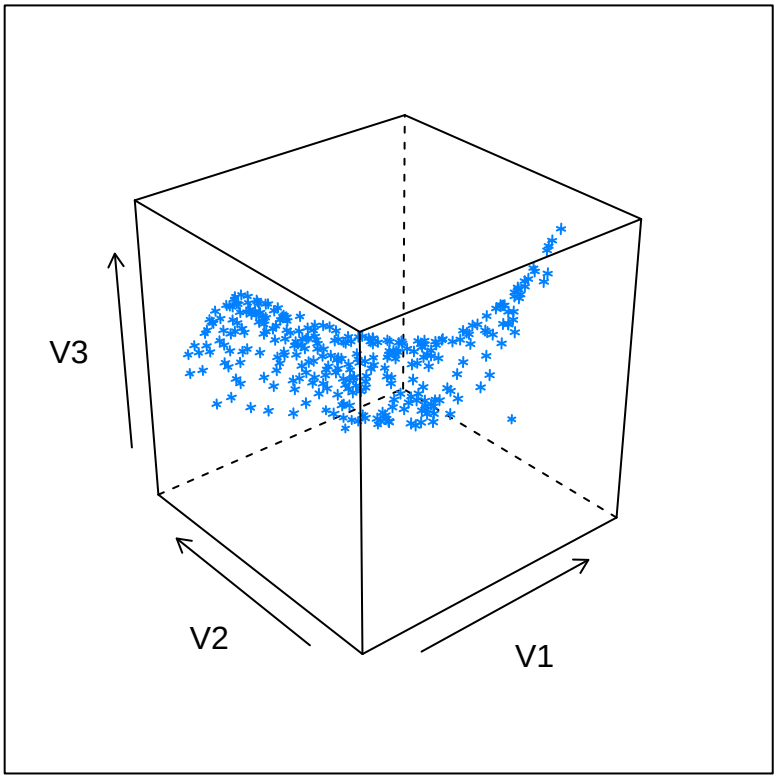
```
##
## Call:
## lm(formula = V3 ~ polym(V1, V2, degree = 3), data = moluco_data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.23938 -0.04781 -0.01023  0.04092  1.74218
##
## Coefficients:
##                                Estimate Std. Error   t value Pr(>|t|)
## (Intercept)                  -2.191e+01  1.900e-02 -1153.488  < 2e-16 ***
## polym(V1, V2, degree = 3)1.0 -4.289e+02  3.405e-01 -1259.670  < 2e-16 ***
## polym(V1, V2, degree = 3)2.0 -4.690e+02  3.414e-01 -1373.833  < 2e-16 ***
## polym(V1, V2, degree = 3)3.0  6.862e-01  3.236e-01     2.121  0.03480 *
## polym(V1, V2, degree = 3)0.1 -9.305e+02  3.292e-01 -2826.123  < 2e-16 ***
## polym(V1, V2, degree = 3)1.1 -1.595e+04  6.181e+00 -2580.470  < 2e-16 ***
## polym(V1, V2, degree = 3)2.1 -1.197e+04  6.568e+00 -1822.166  < 2e-16 ***
## polym(V1, V2, degree = 3)0.2 -9.864e-01  3.239e-01    -3.046  0.00253 **
## polym(V1, V2, degree = 3)1.2 -2.990e+01  6.148e+00    -4.864 1.89e-06 ***
## polym(V1, V2, degree = 3)0.3 -3.322e-01  3.232e-01    -1.028  0.30492
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.3168 on 289 degrees of freedom
## Multiple R-squared:      1,  Adjusted R-squared:      1
## F-statistic: 1.678e+06 on 9 and 289 DF,  p-value: < 2.2e-16
```

```
#adjusted rsquared and multiple r squared is 1
new=predict(model_poly, moluco_data[,c("V1","V2")])
```

```
library(lattice)
cloud(new ~ V1*V2,data = moluco_data)
```




```
cloud(V3 ~ V1*V2,data = moluco_data)
```



Add a new chunk by clicking the *Insert Chunk* button on the toolbar or by pressing *Cmd+Option+I*.

When you save the notebook, an HTML file containing the code and output will be saved alongside it (click

the *Preview* button or press *Cmd+Shift+K* to preview the HTML file).

The preview shows you a rendered HTML copy of the contents of the editor. Consequently, unlike *Knit*, *Preview* does not run any R code chunks. Instead, the output of the chunk when it was last run in the editor is displayed.