

# Simple regression model

## Polynomial regression



Suppose we have to analyze the *DatasetHouse.xlsx*.

After checking for outliers, missing data, and inaccuracies, import the file.

To define the variables *price* (response variable) and *distance* (predictor)

```
price=DatasetHouse$Price sq.m  
distance=DatasetHouse$Distance
```

To visualize the scatter plot of the two variables

```
plot(distance,price)
```

To estimate the regression model

```
modR=lm(price ~ distance)
```

To display the output of the regression model

```
summary(modR)
```

To draw the regression line in red

```
abline(modR,col="red")
```

To estimate the polynomial regression of order 2 and display the output

```
modpol2=lm(price ~ poly(distance,2,raw=TRUE))  
summary(modpol2)
```

To draw the regression curve in blue

```
lines(sort(distance),modpol2$fitted.values[order(distance)],  
col="blue",lwd=2)
```

To estimate the polynomial regression of order 3 and display the output

```
modpol3=lm(price ~ poly(distance,3,raw=TRUE))  
summary(modpol3)
```

To draw the regression curve in magenta

```
lines(sort(distance),modpol3$fitted.values[order(distance)],  
col="green",lwd=2)
```