```
if file_name != '':

    interact(choose_target_features, target = options, feature=options.insert(0,'- All features -'), confirm=['No','Yes'])
```

MACHINE LEARNING - LINEAR REGRESSION MODEL BUILDER

Informe path/name of CSV file: (<ENTER> to abort)
C:/Users/p_com/Downloads/auto_prices.csv

Opening file ...
Done !

target	price
feature	city-L/100km
confirm	Yes

Correlation coefficient between target   PRICE   and feature   CITY-L/100KM   =====>   0.7898975136626951   (>= 0.7)

 Using 75 % percentage of data to build up model

 ------- Checking scores for an order-1 model...

Grid-Searching it with 2 fold(s) ...
Grid-Searching it with 3 fold(s) ...
Grid-Searching it with 4 fold(s) ...
Grid-Searching it with 5 fold(s) ...

                Best order so far............: 1

                Best cross-validation........: 4 fold(s)

                Score for above..............: 0.5966229319694398

 ------- Checking scores for an order-2 model...

Grid-Searching it with 2 fold(s) ...
Grid-Searching it with 3 fold(s) ...
Grid-Searching it with 4 fold(s) ...
Grid-Searching it with 5 fold(s) ...

                Best order so far............: 2

                Best cross-validation........: 2 fold(s)

                Score for above..............: 0.638767858641558

 ------- Checking scores for an order-3 model...

Grid-Searching it with 2 fold(s) ...
Grid-Searching it with 3 fold(s) ...
Grid-Searching it with 4 fold(s) ...
Grid-Searching it with 5 fold(s) ...

                Best order so far............: 2

                Best cross-validation........: 2 fold(s)

                Score for above..............: 0.638767858641558

 ------- Checking scores for an order-4 model...

Grid-Searching it with 2 fold(s) ...
Grid-Searching it with 3 fold(s) ...
Grid-Searching it with 4 fold(s) ...
Grid-Searching it with 5 fold(s) ...

                Best order so far............: 2

```
                    Best cross-validation........:  2  fold(s)

                    Score for above..............:  0.638767858641558


------- Checking scores for an order-5 model...

Grid-Searching it with 2 fold(s) ...
Grid-Searching it with 3 fold(s) ...
Grid-Searching it with 4 fold(s) ...
Grid-Searching it with 5 fold(s) ...

                    Best order so far............:  2

                    Best cross-validation........:  2  fold(s)

                    Score for above..............:  0.638767858641558


Using Ridge Regression to improve model with the parameters above ...

Grid-Searching with alpha:  1e-06

Grid-Searching with alpha:  2.097153

Grid-Searching with alpha:  2.129921

Grid-Searching with alpha:  2.138113

Grid-Searching with alpha:  2.1422090000000003

Grid-Searching with alpha:  2.1432330000000004

Grid-Searching with alpha:  2.1433610000000005

Grid-Searching with alpha:  2.1433690000000003

Grid-Searching with alpha:  2.1433730000000004

Grid-Searching with alpha:  2.1433750000000003

New score obtained: 0.639350 (0.09 % improvement)


********* FINAL RESULTS ***********

Polynomial order................:  2
Bias included (alpha)...........:  2.143374
Predicted Price.................:  Model constituted on 50.00 % of Training Data (Cross Validation with 2 parts)
R2 on Testing Data 50.00 % .....:  0.6459040820834401 (Cross Validation with 2 parts)

R2 on Training Data 100 % ......:  0.6515694248020834
Model on Training Data 100 % ...:  y-hat = +8489.333039
                                          -1480.066288*((city-L/100km))
                                          +181.396706*((city-L/100km)^2)
```


city-L/100km X price

Population Distribution on price