In [1]:

```
%load_ext watermark
%watermark
```

```
2019-05-17T16:12:02+02:00

CPython 3.6.5
IPython 6.4.0

compiler   : GCC 7.2.0
system     : Linux
release    : 5.0.13-arch1-1-ARCH
machine    : x86_64
processor  :
CPU cores  : 4
interpreter: 64bit
```

Analisis Exploratorio de Datos - Herramientas adicionales

Aquí incluyo unas herramientas que son bastante útiles a la hora de hacer EDA

Ingesta de datos

In [2]:

```
import pandas as pd

vehiculos = pd.read_csv("../data/vehiculos.1.procesado_inicial.csv")
```

Pandas-profiling

https://github.com/JosPolfliet/pandas-profiling

In [3]:

```
!conda install -y pandas-profiling
```

```
Collecting package metadata: done
Solving environment: done

## Package Plan ##

  environment location: /anaconda3

  added / updated specs:
    - pandas-profiling


The following packages will be downloaded:

    package                    |            build
    ---------------------------|-----------------
    certifi-2019.3.9           |           py37_0         155 KB
    pandas-profiling-1.4.1     |           py37_0          39 KB
    ------------------------------------------------------------
                                           Total:         194 KB

The following NEW packages will be INSTALLED:

  pandas-profiling   pkgs/main/osx-64::pandas-profiling-1.4.1-py37_0

The following packages will be SUPERSEDED by a higher-priority channel:

  ca-certificates    conda-forge::ca-certificates-2019.3.9~ --> pkgs/main::ca-certificates-
2019.1.23-0
  certifi                                       conda-forge --> pkgs/main
  conda                    conda-forge::conda-4.6.12-py37_2 --> pkgs/main::conda-4.6.12-py37_1
  openssl            conda-forge::openssl-1.1.1b-h01d97ff_2 --> pkgs/main::openssl-1.1.1b-h1de35cc_
1
```

```
1



Downloading and Extracting Packages
certifi-2019.3.9     | 155 KB    | ##################################### | 100%
pandas-profiling-1.4 | 39 KB     | ##################################### | 100%
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
```

In [4]:

```
import pandas_profiling

pandas_profiling.ProfileReport(vehiculos)
```

Out[4]:

Overview

Dataset info

Number of variables	11
Number of observations	38436
Total Missing (%)	0.3%
Total size in memory	3.2 MiB
Average record size in memory	88.0 B

Variables types

Numeric	4
Categorical	6
Boolean	0
Date	0
Text (Unique)	0
Rejected	1
Unsupported	0

Warnings

- `cilindros` is highly correlated with `desplazamiento` (ρ = 0.90304) **Rejected**
- `fabricante` has a high cardinality: 133 distinct values **Warning**
- `modelo` has a high cardinality: 3791 distinct values **Warning**
- `traccion` has 1189 / 3.1% missing values **Missing**
- Dataset has 1506 duplicate rows **Warning**

Variables

~~cilindros~~

Highly correlated

This variable is highly correlated with `desplazamiento` and should be ignored for analysis

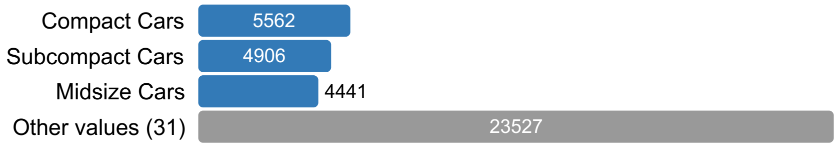
Correlation	0.90304

clase

Categorical

Distinct count	34
Unique (%)	0.1%
Missing (%)	0.0%

Missing (n)	0



Toggle details

co2

Numeric

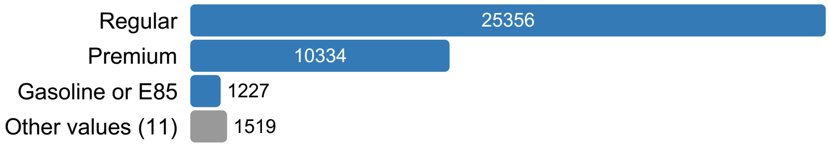
Distinct count	597
Unique (%)	1.6%
Missing (%)	0.0%
Missing (n)	0
Infinite (%)	0.0%
Infinite (n)	0
Mean	472.09
Minimum	0
Maximum	1269.6
Zeros (%)	0.4%

Toggle details

combustible

Categorical

Distinct count	14
Unique (%)	0.0%
Missing (%)	0.0%
Missing (n)	0



Toggle details

consumo

Numeric

Distinct count	84
Unique (%)	0.2%
Missing (%)	0.0%
Missing (n)	0
Infinite (%)	0.0%
Infinite (n)	0
Mean	20.252
Minimum	7
Maximum	136
Zeros (%)	0.0%

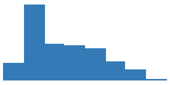
Toggle details

desplazamiento

Numeric

Distinct count	67
Unique (%)	0.2%
Missing (%)	0.4%
Missing (n)	140
Infinite (%)	0.0%
Infinite (n)	0

Mean	3.3143
Minimum	0
Maximum	8.4
Zeros (%)	0.0%

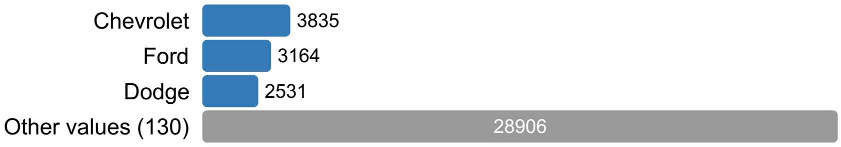


Toggle details

fabricante

Categorical

Distinct count	133
Unique (%)	0.3%
Missing (%)	0.0%
Missing (n)	0

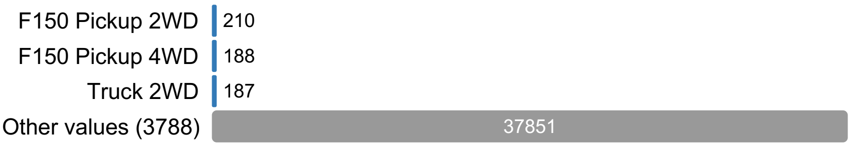


Toggle details

modelo

Categorical

Distinct count	3791
Unique (%)	9.9%
Missing (%)	0.0%
Missing (n)	0

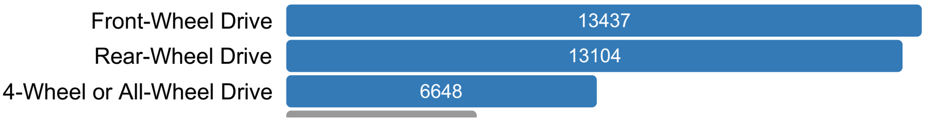


Toggle details

traccion

Categorical

Distinct count	8
Unique (%)	0.0%
Missing (%)	3.1%
Missing (n)	1189



Other values (4)	4058

Toggle details

transmision

Categorical

Distinct count	38
Unique (%)	0.1%
Missing (%)	0.0%
Missing (n)	11

Automatic 4-spd	11043
Manual 5-spd	8325
Automatic 3-spd	3151
Other values (34)	15906

Toggle details

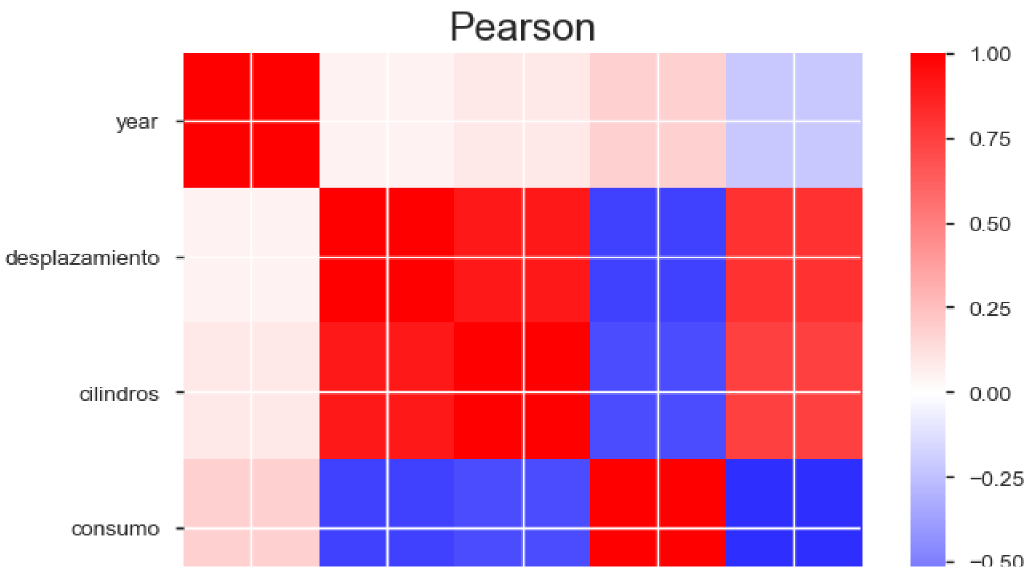
year

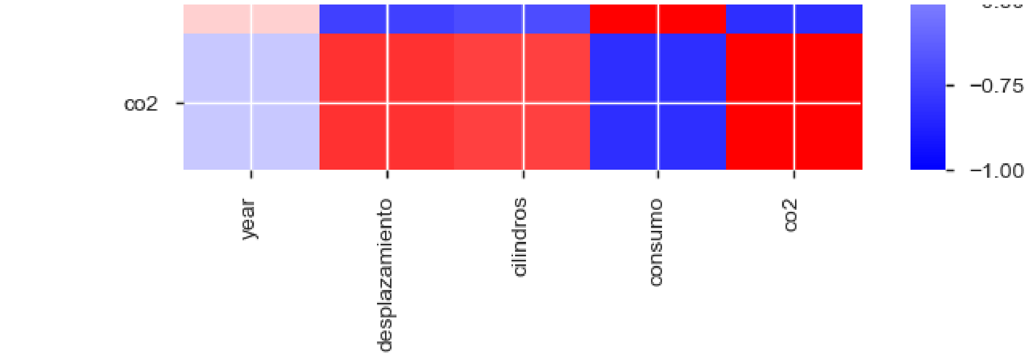
Numeric

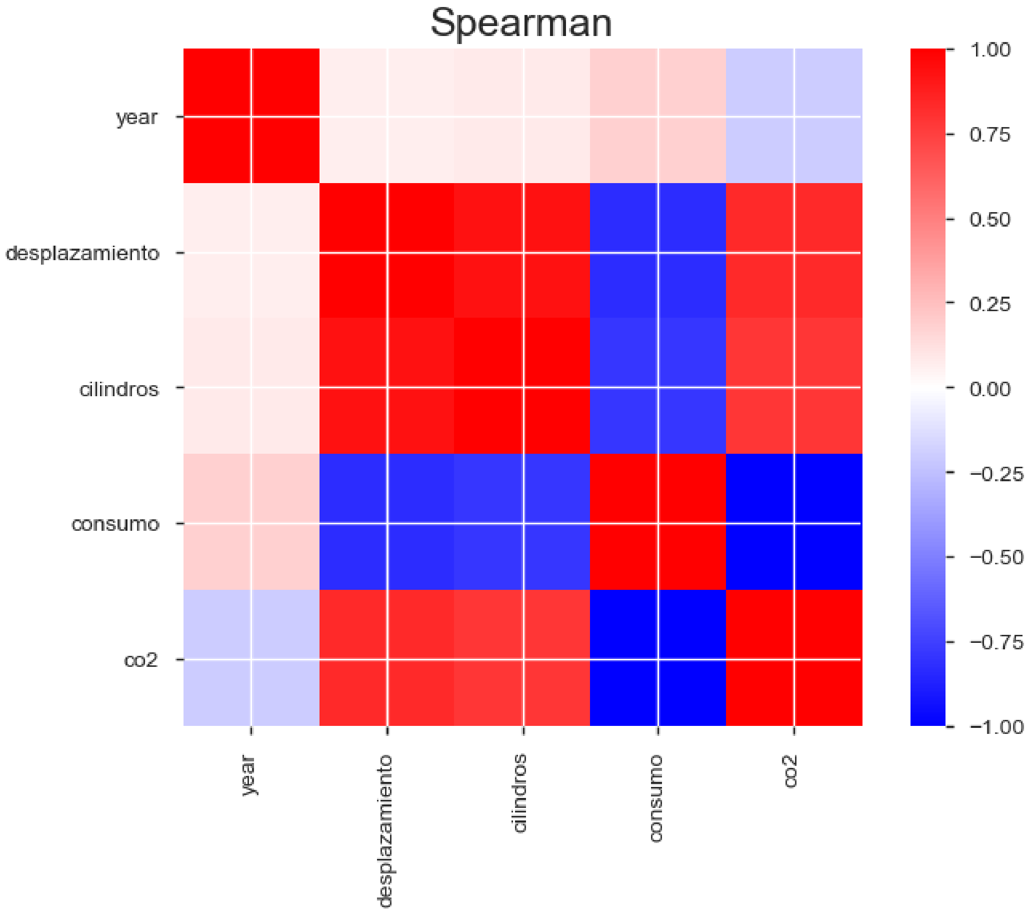
Distinct count	35
Unique (%)	0.1%
Missing (%)	0.0%
Missing (n)	0
Infinite (%)	0.0%
Infinite (n)	0
Mean	2000.3
Minimum	1984
Maximum	2018
Zeros (%)	0.0%

Toggle details

Correlations







Sample

	fabricante	modelo	year	desplazamiento	cilindros	transmision	traccion	clas
0	AM General	DJ Po Vehicle 2WD	1984	2.5	4.0	Automatic 3-spd	2-Wheel Drive	Spec
1	AM General	DJ Po Vehicle 2WD	1984	2.5	4.0	Automatic 3-spd	2-Wheel Drive	Spec
2	AM General	FJ8c Post Office	1984	4.2	6.0	Automatic 3-spd	2-Wheel Drive	Spec
3	AM General	FJ8c Post Office	1984	4.2	6.0	Automatic 3-spd	2-Wheel Drive	Spec
4	AM General	Post Office DJ5 2WD	1985	2.5	4.0	Automatic 3-spd	Rear-Wheel Drive	Spec

In [5]:

```
%matplotlib inline
```

Missigno

https://github.com/ResidentMario/missingno

In [7]:

```
!conda install -c conda-forge missingno
```

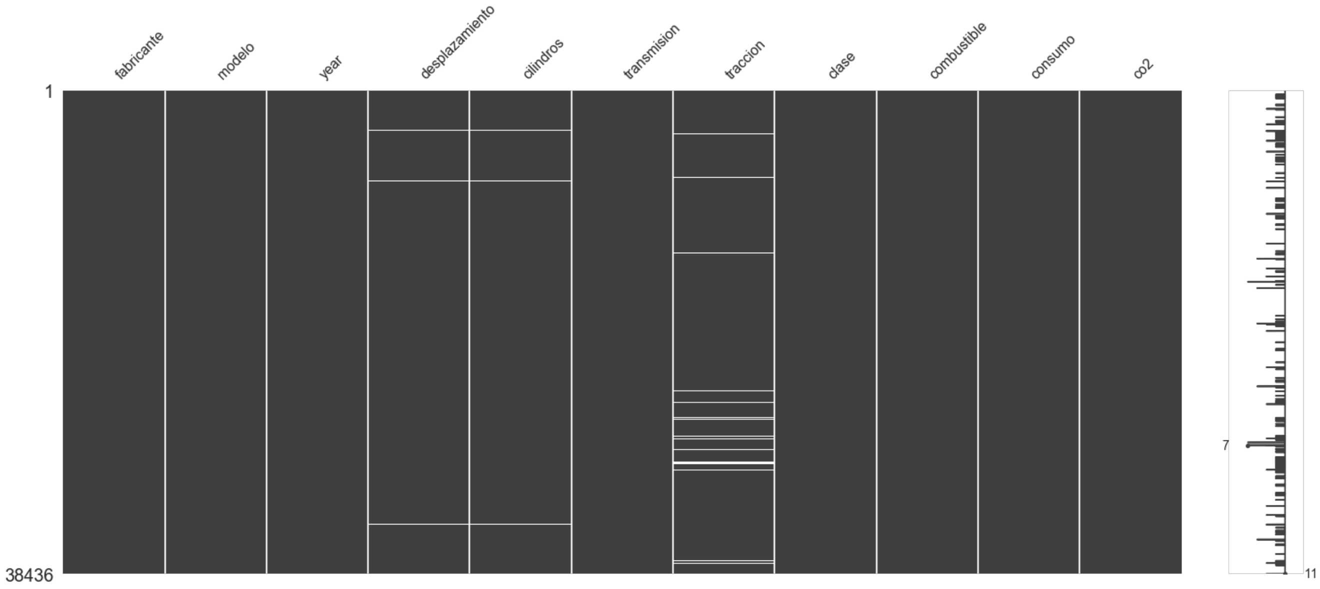
In [8]:

```
import missingno as msno

msno.matrix(vehiculos)
```

Out[8]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1a1c3e3630>
```

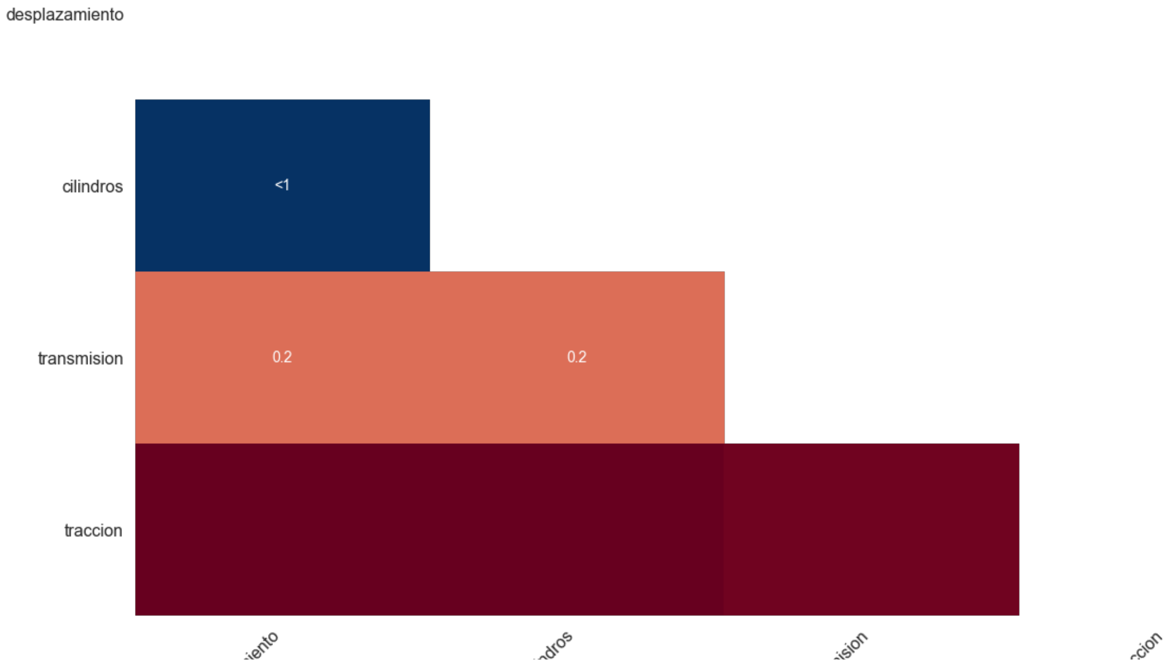


In [9]:

```
msno.heatmap(vehiculos)
```

Out[9]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x1a1d69cb38>
```



desplazam
cilin
transm
trac