

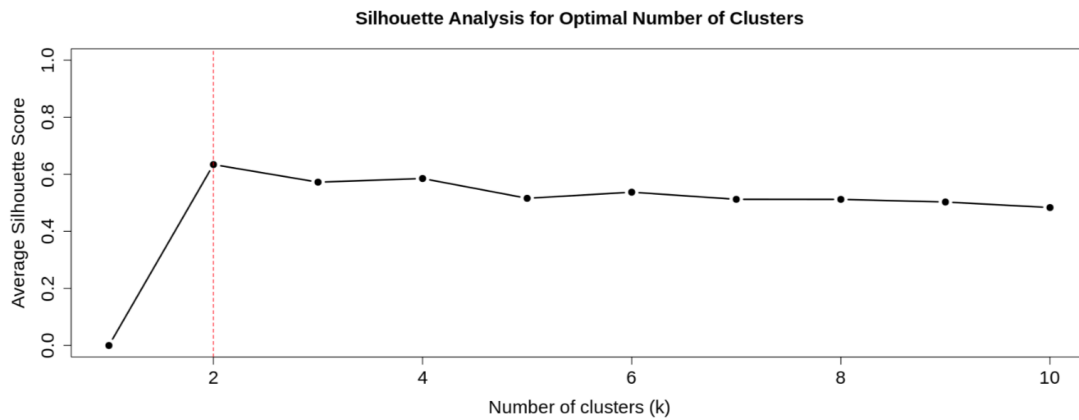
projet traitement numérique

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Figure 1: Nombre de classe optimale avec le critère de silhouette



Optimal number of clusters: 2
Maximum silhouette score: 0.6341395

.0

Figure 2: Nombre de classe optimal avec la méthode du coude

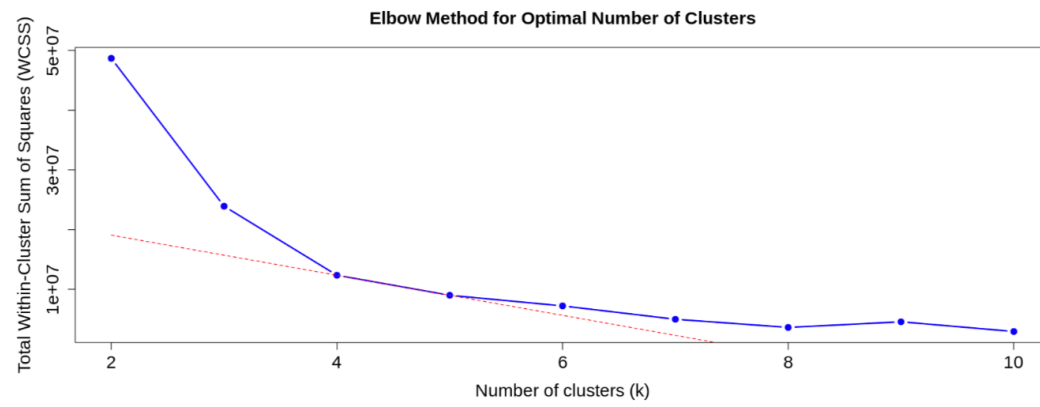
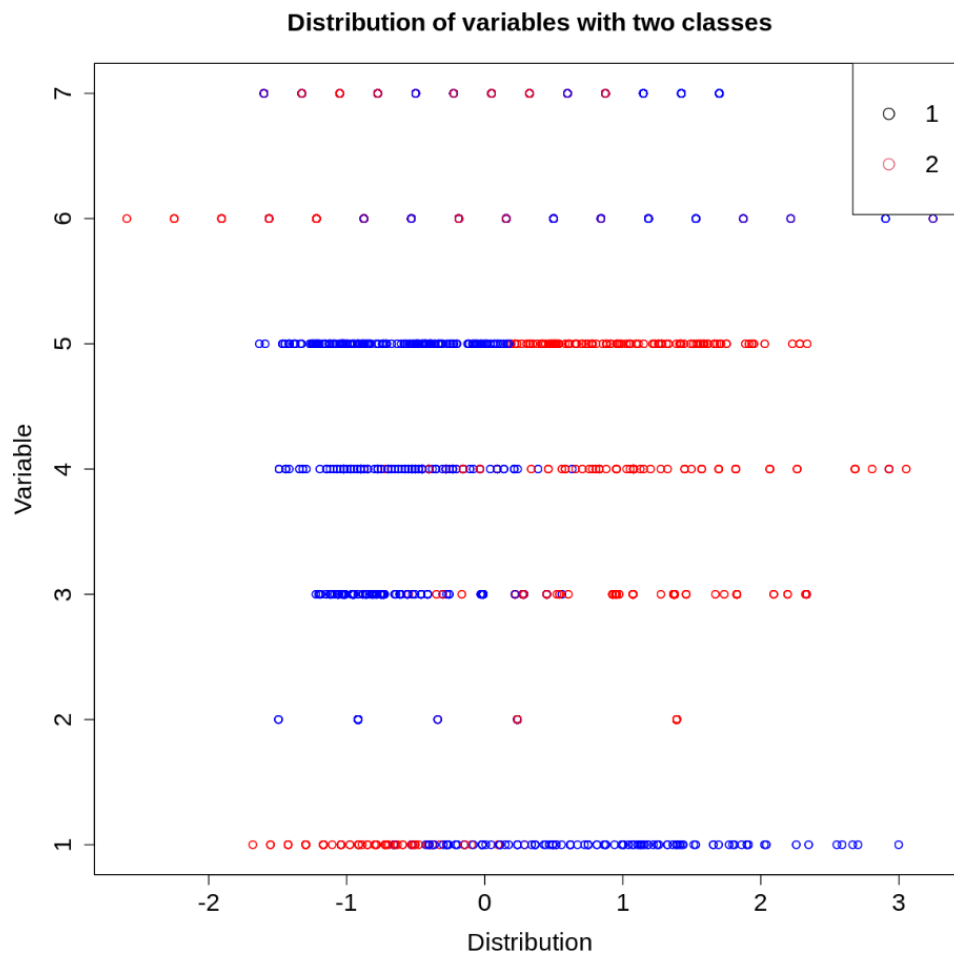
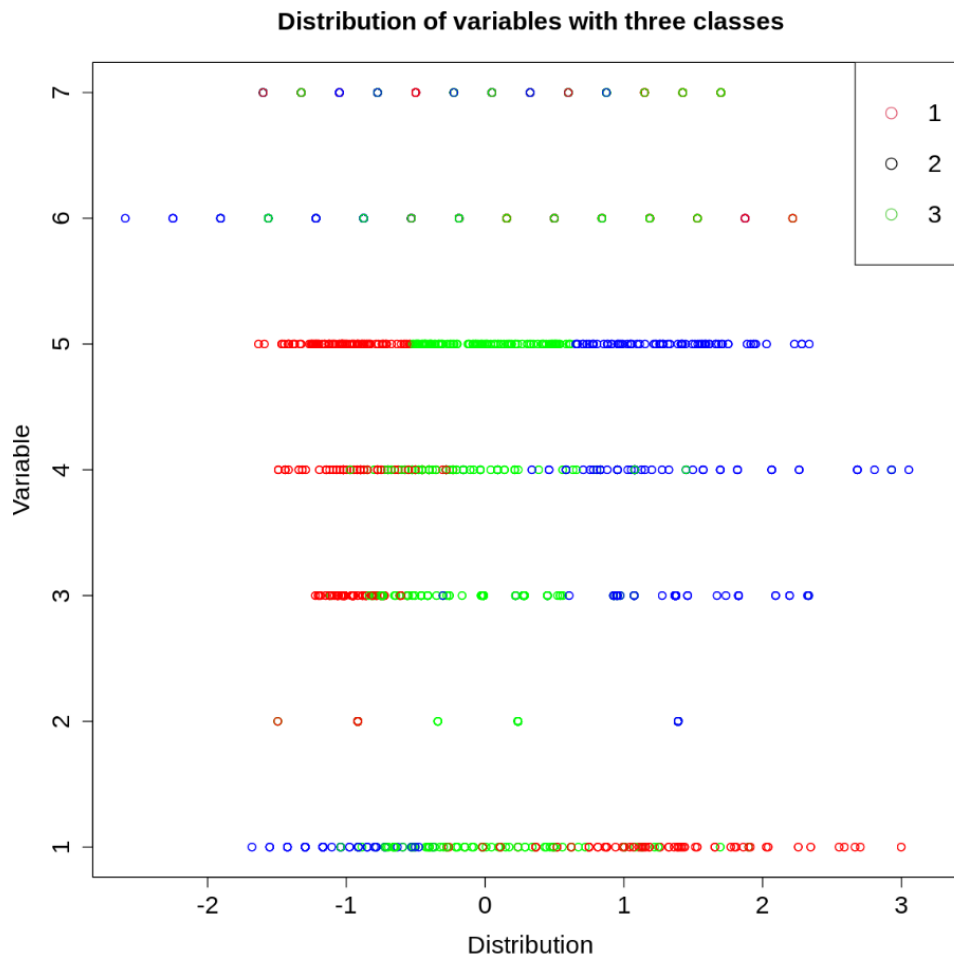


Figure 3: Distribution des variables en exécutant kmeans sur 2 classes



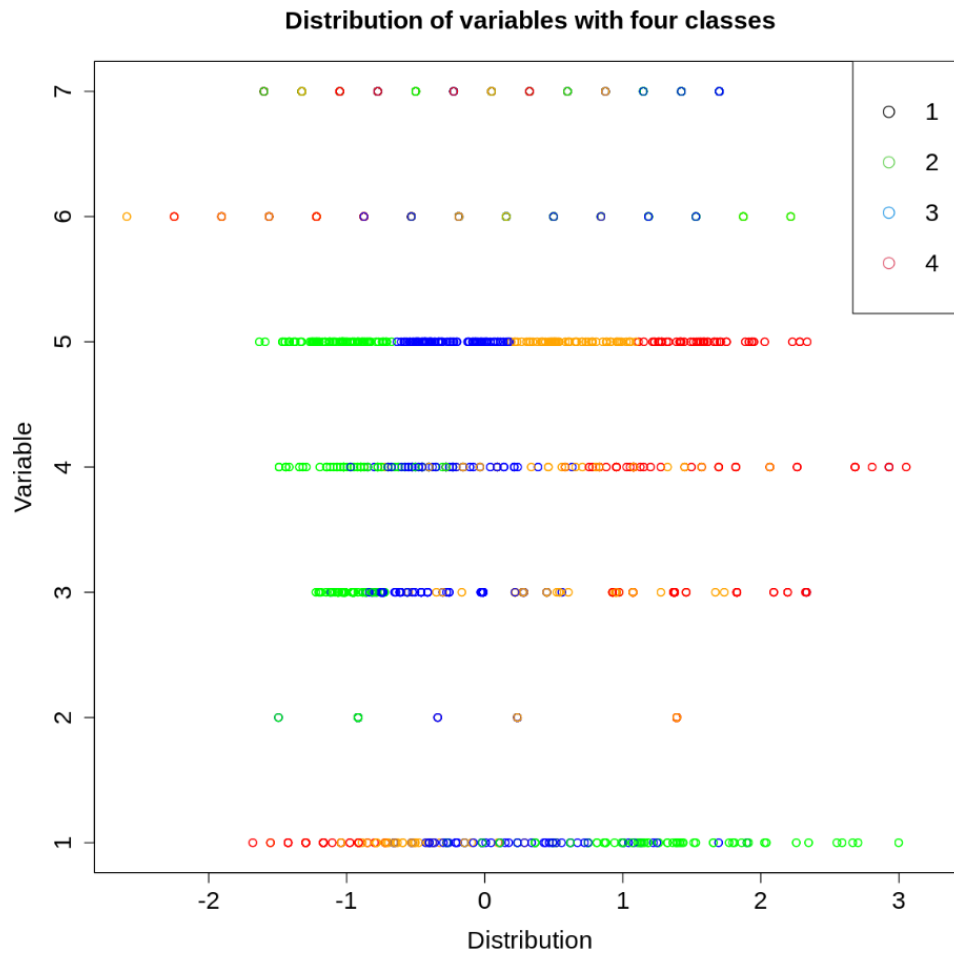
Label	Variable
1	mpg
2	cylinders
3	cubicinches
4	hp
5	weightlbs
6	time.to.60
7	year

Figure 4: Distribution des variables en exécutant kmeans sur 3 classes



Label	Variable
1	mpg
2	cylinders
3	cubicinches
4	hp
5	weightlbs
6	time.to.60
7	year

Figure 5: Distribution des variables en exécutant kmeans sur 5 classes



Label	Variable
1	mpg
2	cylinders
3	cubicinches
4	hp
5	weightlbs
6	time.to.60
7	year

Figure 6: Distribution de la variable brand sur les classes du kmeans avec k=2

```
Cluster 1 :  
Number of non-US cars: 95  
Number of US cars: 63  
Proportion of non-US cars: 0.959596  
Proportion of US cars: 0.3888889  
  
Cluster 2 :  
Number of non-US cars: 4  
Number of US cars: 99  
Proportion of non-US cars: 0.04040404  
Proportion of US cars: 0.6111111
```

Figure 7: Distribution de la variable brand sur les classes du kmeans avec k=3

```
Cluster 1 :  
Number of US cars: 21  
Number of Europe cars: 30  
Number of Japan cars: 41  
Proportion of US cars: 0.1296296  
Proportion of Europe cars: 0.625  
Proportion of Japan cars: 0.8039216  
  
Cluster 2 :  
Number of US cars: 72  
Number of Europe cars: 1  
Number of Japan cars: 0  
Proportion of US cars: 0.4444444  
Proportion of Europe cars: 0.02083333  
Proportion of Japan cars: 0  
  
Cluster 3 :  
Number of US cars: 69  
Number of Europe cars: 17  
Number of Japan cars: 10  
Proportion of US cars: 0.4259259  
Proportion of Europe cars: 0.3541667  
Proportion of Japan cars: 0.1960784
```

Figure 8: Distribution de la variable brand sur les classes du kmeans avec k=4

```
Cluster 1 :  
Number of US cars: 44  
Number of Europe cars: 15  
Number of Japan cars: 14  
Proportion of US cars: 0.2716049  
Proportion of Europe cars: 0.3125  
Proportion of Japan cars: 0.2745098  
  
Cluster 2 :  
Number of US cars: 47  
Number of Europe cars: 0  
Number of Japan cars: 0  
Proportion of US cars: 0.2901235  
Proportion of Europe cars: 0  
Proportion of Japan cars: 0  
  
Cluster 3 :  
Number of US cars: 52  
Number of Europe cars: 4  
Number of Japan cars: 0  
Proportion of US cars: 0.3209877  
Proportion of Europe cars: 0.08333333  
Proportion of Japan cars: 0  
  
Cluster 4 :  
Number of US cars: 19  
Number of Europe cars: 29  
Number of Japan cars: 37  
Proportion of US cars: 0.117284  
Proportion of Europe cars: 0.6041667  
Proportion of Japan cars: 0.7254902
```