

R Notebook

Code ▼

This is an R Markdown (<http://rmarkdown.rstudio.com>) 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*.

Hide

```
makes = read.csv("makematrix_binary.csv", header = TRUE)
makes = read.csv("makematrix_binary.csv", header = TRUE)
str(makes)
```

```
'data.frame': 44 obs. of 45 variables:
 $ MakeName      : Factor w/ 44 levels "", "Acura", "Alfa Romeo",...: 30 28 32 10 35 2 31 15
16 39 ...
 $ McLaren       : int  1 0 1 0 1 1 1 1 0 1 ...
 $ Maserati      : int  0 1 0 0 0 0 0 0 1 0 ...
 $ MINI         : int  1 0 1 0 0 0 0 0 1 1 ...
 $ Chevrolet     : int  0 1 0 1 1 0 0 0 1 0 ...
 $ Porsche       : int  0 1 0 0 1 0 0 0 1 0 ...
 $ Acura         : int  0 1 0 1 1 1 1 1 1 0 ...
 $ Mercedes.Benz: int  0 0 0 0 0 0 1 0 0 0 ...
 $ Ford          : int  0 0 0 0 0 0 0 1 0 0 ...
 $ Genesis       : int  0 0 0 0 0 0 0 0 1 0 ...
 $ Smart         : int  0 0 0 0 0 0 0 0 1 1 ...
 $ Dodge         : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Scion         : int  0 0 0 0 0 0 0 0 1 0 ...
 $ Rolls.Royce   : int  0 0 0 0 0 0 0 1 1 0 ...
 $ Cadillac      : int  0 0 0 0 0 0 0 1 0 0 ...
 $ Honda         : int  1 1 1 0 1 1 1 1 0 1 ...
 $ Hyundai       : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Volkswagen    : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Mazda         : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Jeep          : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Infiniti      : int  0 0 0 0 0 0 0 0 0 0 ...
 $ LandRover     : int  0 0 0 0 0 0 0 1 0 0 ...
 $ Kia           : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Mitsubishi    : int  0 0 0 0 0 0 0 0 0 0 ...
 $ BMW           : int  0 0 0 0 0 0 0 0 0 0 ...
 $ FIAT          : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Lincoln       : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Lamborghini   : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Jaguar        : int  0 0 0 0 0 0 0 0 0 0 ...
 $ GMC           : int  0 0 0 0 1 0 0 1 1 0 ...
 $ Toyota        : int  1 0 1 1 0 0 1 0 0 0 ...
 $ Nissan        : int  0 0 0 0 0 0 0 0 0 0 ...
 $ AstonMartin   : int  0 1 0 1 1 1 0 0 1 0 ...
 $ Volvo         : int  0 0 0 0 1 0 0 0 1 0 ...
 $ Ferrari       : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Chrysler      : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Bentley       : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Tesla         : int  0 0 0 0 1 0 0 0 0 0 ...
 $ Ram           : int  0 0 0 0 0 0 0 0 0 1 ...
 $ AlfaRomeo     : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Subaru        : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Buick         : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Lexus         : int  0 0 0 1 0 0 0 0 0 0 ...
 $ Audi          : int  0 0 0 0 1 0 1 0 0 0 ...
 $ X             : int  0 0 0 0 0 0 0 0 0 0 ...
```

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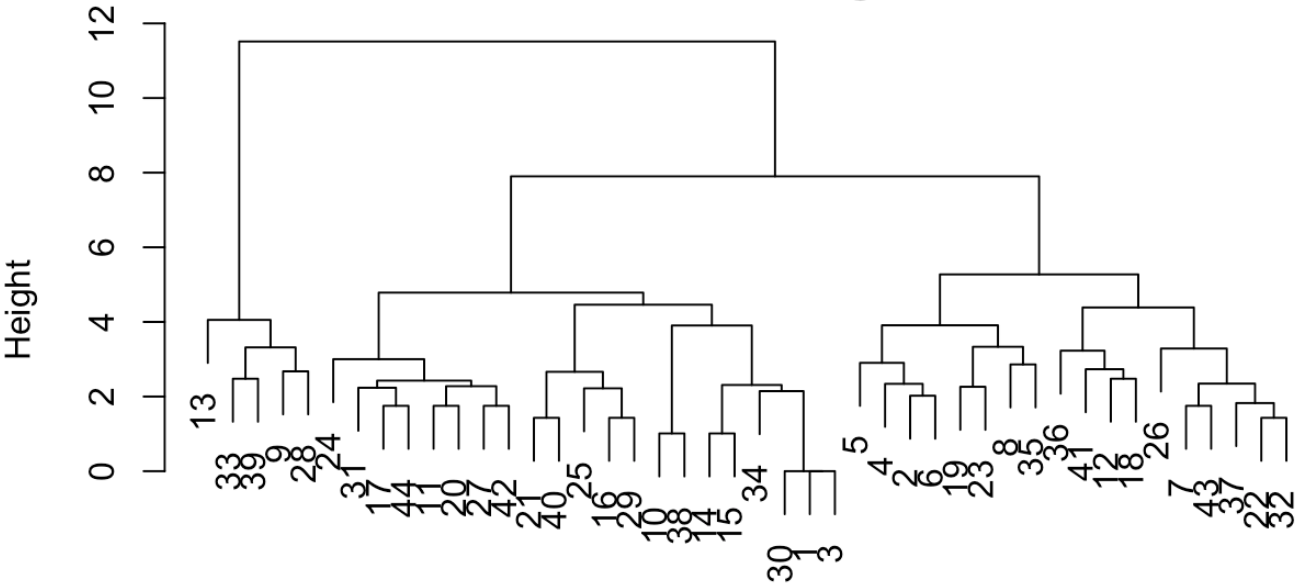
```
str(makes)
```

```

'data.frame':  44 obs. of  45 variables:
 $ MakeName      : Factor w/ 44 levels "", "Acura", "Alfa Romeo",...: 30 28 32 10 35 2 31 15
16 39 ...
 $ McLaren       : int  1 0 1 0 1 1 1 1 0 1 ...
 $ Maserati      : int  0 1 0 0 0 0 0 0 1 0 ...
 $ MINI          : int  1 0 1 0 0 0 0 0 1 1 ...
 $ Chevrolet     : int  0 1 0 1 1 0 0 0 1 0 ...
 $ Porsche       : int  0 1 0 0 1 0 0 0 1 0 ...
 $ Acura         : int  0 1 0 1 1 1 1 1 1 0 ...
 $ Mercedes.Benz: int  0 0 0 0 0 0 1 0 0 0 ...
 $ Ford          : int  0 0 0 0 0 0 0 1 0 0 ...
 $ Genesis       : int  0 0 0 0 0 0 0 0 1 0 ...
 $ Smart         : int  0 0 0 0 0 0 0 0 1 1 ...
 $ Dodge         : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Scion         : int  0 0 0 0 0 0 0 0 1 0 ...
 $ Rolls.Royce   : int  0 0 0 0 0 0 0 1 1 0 ...
 $ Cadillac      : int  0 0 0 0 0 0 0 1 0 0 ...
 $ Honda         : int  1 1 1 0 1 1 1 1 0 1 ...
 $ Hyundai       : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Volkswagen    : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Mazda         : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Jeep          : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Infiniti      : int  0 0 0 0 0 0 0 0 0 0 ...
 $ LandRover     : int  0 0 0 0 0 0 0 1 0 0 ...
 $ Kia           : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Mitsubishi    : int  0 0 0 0 0 0 0 0 0 0 ...
 $ BMW           : int  0 0 0 0 0 0 0 0 0 0 ...
 $ FIAT          : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Lincoln       : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Lamborghini   : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Jaguar        : int  0 0 0 0 0 0 0 0 0 0 ...
 $ GMC           : int  0 0 0 0 1 0 0 1 1 0 ...
 $ Toyota        : int  1 0 1 1 0 0 1 0 0 0 ...
 $ Nissan        : int  0 0 0 0 0 0 0 0 0 0 ...
 $ AstonMartin   : int  0 1 0 1 1 1 0 0 1 0 ...
 $ Volvo         : int  0 0 0 0 1 0 0 0 1 0 ...
 $ Ferrari       : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Chrysler      : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Bentley       : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Tesla         : int  0 0 0 0 1 0 0 0 0 0 ...
 $ Ram           : int  0 0 0 0 0 0 0 0 0 1 ...
 $ AlfaRomeo     : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Subaru        : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Buick         : int  0 0 0 0 0 0 0 0 0 0 ...
 $ Lexus         : int  0 0 0 1 0 0 0 0 0 0 ...
 $ Audi          : int  0 0 0 0 1 0 1 0 0 0 ...
 $ X             : int  0 0 0 0 0 0 0 0 0 0 ...

```

Cluster Dendrogram



distances
hclust (*, "ward.D")

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```
tapply(makes$BMW, clusterGroups, mean)
```

1	2	3	4	5	6	7	8	9	10	11
0.000	0.000	0.000	0.000	0.000	0.000	0.125	0.000	0.000	0.000	0.000

MakeName <fctr>	McLaren <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Acura <int>	Mercedes.Benz <int>	Ford <int>
2 Maserati	0	1	0	1	1	1	0	0
4 Chevrolet	0	0	0	1	0	1	0	0
5 Porsche	1	0	0	1	1	1	0	0
6 Acura	1	0	0	0	0	1	0	0

4 rows | 1-10 of 45 columns

MakeNa... <fctr>	McLaren <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Acura <int>	Mercedes.Benz <int>	Ford <int>
1 McLaren	1	0	1	0	0	0	0	0
3 MINI	1	0	1	0	0	0	0	0
14 Cadillac	1	0	1	0	0	1	0	0

MakeName <fctr>	McLaren <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Acura <int>	Mercedes.Benz <int>	Ford <int>
15 Honda	1	0	1	0	0	1	0	0
30 Toyota	1	0	1	0	0	0	0	0
34 Ferrari	1	0	1	0	0	0	0	0

6 rows | 1-10 of 45 columns

MakeName <fctr>	McLar... <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Ac... <int>	Mercedes.Benz <int>	F... <int>
11 Dodge	1	0	1	0	0	0	0	0
17 Volkswagen	0	0	1	0	0	0	0	0
20 Infiniti	1	0	1	0	0	0	0	0
24 BMW	1	1	1	0	0	0	0	1
27 Lamborghini	1	0	0	0	0	0	0	0
31 Nissan	1	0	0	0	0	0	1	0
42 Lexus	1	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0

8 rows | 1-10 of 45 columns

MakeName <fctr>	McLaren <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Ac... <int>	Mercedes.Benz <int>	F... <int>
16 Hyundai	1	0	1	0	0	0	0	0
21 Land Rover	1	0	0	0	1	0	0	0
25 FIAT	1	0	1	0	0	0	0	0
29 GMC	1	0	1	0	1	0	0	0
40 Subaru	1	0	0	0	0	0	0	0

5 rows | 1-10 of 45 columns

MakeName <fctr>	McLaren <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Ac... <int>	Mercedes.Benz <int>	F... <int>
9 Genesis	0	1	1	1	1	1	0	0
28 Jaguar	0	1	1	1	1	1	0	1
33 Volvo	1	1	1	1	1	1	0	0
39 Alfa Romeo	1	1	1	1	1	1	0	1

4 rows | 1-10 of 45 columns

MakeName <fctr>	McLa... <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Ac... <int>	Mercedes.Benz <int>	F... <int>
7 Mercedes-Benz	1	0	0	0	0	1	1	0
22 Kia	1	0	1	0	0	1	0	0
26 Lincoln	1	1	1	1	0	1	1	0
32 Aston Martin	1	0	1	0	0	1	0	0
37 Tesla	1	0	1	1	0	1	0	0
43 Audi	1	0	1	0	0	1	1	0

6 rows | 1-10 of 45 columns

MakeNa... <fctr>	McLaren <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Acura <int>	Mercedes.Benz <int>	Ford <int>
12 Scion	1	0	1	0	0	1	0	0
18 Mazda	1	0	1	0	0	1	0	0
36 Bentley	1	1	1	0	1	1	0	0
41 Buick	0	0	1	0	0	1	1	0

4 rows | 1-10 of 45 columns

MakeName <fctr>	McLaren <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Ac... <int>	Mercedes.Benz <int>	F... <int>
19 Jeep	0	0	0	0	0	1	0	0
23 Mitsubishi	0	0	0	0	0	0	0	0

2 rows | 1-10 of 45 columns

MakeNa... <fctr>	McLaren <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Acura <int>	Mercedes.Benz <int>	Ford <int>
12 Scion	1	0	1	0	0	1	0	0
18 Mazda	1	0	1	0	0	1	0	0
36 Bentley	1	1	1	0	1	1	0	0
41 Buick	0	0	1	0	0	1	1	0

4 rows | 1-10 of 45 columns

MakeName <fctr>	McLa... <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Ac... <int>	Mercedes.Benz <int>	F... <int>
7 Mercedes-Benz	1	0	0	0	0	1	1	0

MakeName <fctr>	McLa... <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Ac... <int>	Mercedes.Benz <int>	F... <int>
22 Kia	1	0	1	0	0	1	0	0
26 Lincoln	1	1	1	1	0	1	1	0
32 Aston Martin	1	0	1	0	0	1	0	0
37 Tesla	1	0	1	1	0	1	0	0
43 Audi	1	0	1	0	0	1	1	0

6 rows | 1-10 of 45 columns

MakeName <fctr>	McLar... <int>	Maserati <int>	M... <int>	Chevrolet <int>	Porsche <int>	Ac... <int>	Mercedes.Benz <int>	F... <int>
11 Dodge	1	0	1	0	0	0	0	0
17 Volkswagen	0	0	1	0	0	0	0	0
20 Infiniti	1	0	1	0	0	0	0	0
24 BMW	1	1	1	0	0	0	0	1
27 Lamborghini	1	0	0	0	0	0	0	0
31 Nissan	1	0	0	0	0	0	1	0

6 rows | 1-10 of 45 columns

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).