

Aula Lab R

03/12/2020

10 primeiros dias de 2001

Year	Lag1	Lag2	Lag3	Lag4	Lag5	Volume	Today	Direction
2001	0.381	-0.192	-2.624	-1.055	5.010	1.19130	0.959	Up
2001	0.959	0.381	-0.192	-2.624	-1.055	1.29650	1.032	Up
2001	1.032	0.959	0.381	-0.192	-2.624	1.41120	-0.623	Down
2001	-0.623	1.032	0.959	0.381	-0.192	1.27600	0.614	Up
2001	0.614	-0.623	1.032	0.959	0.381	1.20570	0.213	Up
2001	0.213	0.614	-0.623	1.032	0.959	1.34910	1.392	Up
2001	1.392	0.213	0.614	-0.623	1.032	1.44500	-0.403	Down
2001	-0.403	1.392	0.213	0.614	-0.623	1.40780	0.027	Up
2001	0.027	-0.403	1.392	0.213	0.614	1.16400	1.303	Up
2001	1.303	0.027	-0.403	1.392	0.213	1.23260	0.287	Up

1250 dias e 9 variáveis

Year: The year that the observation was recorded

Lag1: Percentage return for previous day

Lag2: Percentage return for 2 days previous

Lag3: Percentage return for 3 days previous

Lag4 : Percentage return for 4 days previous

Lag5: Percentage return for 5 days previous

Volume: Volume of shares traded (number of daily shares traded in billions)

Today: Percentage return for today

Direction : A factor with levels Down and Up indicating whether the market had a positive or negative return on a given day

- `cor()` : devolve as correlações entre as 8 variáveis
- Temos que tirar a última coluna: `Smarket[, -9]` pois tem uma variável qualitativa (`direction`).

```
> cor(Smarket[, -9])
```

	Year	Lag1	Lag2	Lag3	Lag4	Lag5
Year	1.0000	0.02970	0.03060	0.03319	0.03569	0.02979
Lag1	0.0297	1.00000	-0.02629	-0.01080	-0.00299	-0.00567
Lag2	0.0306	-0.02629	1.00000	-0.02590	-0.01085	-0.00356
Lag3	0.0332	-0.01080	-0.02590	1.00000	-0.02405	-0.01881
Lag4	0.0357	-0.00299	-0.01085	-0.02405	1.00000	-0.02708
Lag5	0.0298	-0.00567	-0.00356	-0.01881	-0.02708	1.00000
Volume	0.5390	0.04091	-0.04338	-0.04182	-0.04841	-0.02200
Today	0.0301	-0.02616	-0.01025	-0.00245	-0.00690	-0.03486

	Volume	Today
Year	0.5390	0.03010
Lag1	0.0409	-0.02616
Lag2	-0.0434	-0.01025
Lag3	-0.0418	-0.00245
Lag4	-0.0484	-0.00690
Lag5	-0.0220	-0.03486
Volume	1.0000	0.01459
Today	0.0146	1.00000

```
> attach(Smarket)
> plot(Volume)
```

Exercício: gráfico do volume de transações em função do tempo

Usando Regressão Logística para prever Y = “direction”

Y assume “UP” e “DOWN” : é uma variável qualitativa “explicada” por 8 variáveis preditoras que são quantitativas.

Comandos do R: glm()

```
> glm.fits=glm(Direction~Lag1+Lag2+Lag3+Lag4+Lag5+Volume,data=Smarket, family=binomial)
```



Y : Variável
Resposta

```
> glm.probs=predict(glm.fits,type="response")
```

```
> glm.probs[1:10]
```

```
      1      2      3      4      5      6      7      8      9     10  
0.507 0.481 0.481 0.515 0.511 0.507 0.493 0.509 0.518 0.489
```

"Up" "Down" "Down" "Up" "Up" "Up" "Down" "Up" "Up" "Down"

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Referências

<https://br.investing.com/indices/us-spx-500>

[https://www.nerdwallet.com/article/investing/
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