

Analyse de GermanCredit pour les banques

Schadra Ange Mulekya

2021-06-01

Contents

1	introduction	5
2	Description de la base des données	7
3	Literature	13
4	Methods	15
5	Applications	17
5.1	Example one	17
5.2	Example two	17
6	Final Words	19

Chapter 1

introduction

La demarche d' *analyse* avec **R** est une étape importante du statisticien dans son travail .

ce livre présente les analyses faite sur la base des données **Ferman Crédit** dans lequel nous abordons les méthodes der machine learning avec le **Tidymodels** package.

Cgargeons donc les libraies néccaises

Chargeons nos données

```
library(caret) # pour ls donnees GermanCredit
data("GermanCredit")
```

Remember each Rmd file contains one and only one chapter, and a chapter is defined by the first-level heading #.

Vous trouverez les contenu de ce libre dans mon *github* : <https://github.com/schadramulekya/>.

Chapter 2

Description de la base des données

Data from Dr. Hans Hofmann of the University of Hamburg.

These data have two classes for the credit worthiness: good or bad. There are predictors related to attributes, such as: checking account status, duration, credit history, purpose of the loan, amount of the loan, savings accounts or bonds, employment duration, Installment rate in percentage of disposable income, personal information, other debtors/guarantors, residence duration, property, age, other installment plans, housing, number of existing credits, job information, Number of people being liable to provide maintenance for, telephone, and foreign worker status.

Many of these predictors are discrete and have been expanded into several 0/1 indicator variables

Source UCI Machine Learning Repository

```
par(mar = c(4, 4, .1, .1))  
plot(pressure, type = 'b', pch = 19)
```

Reference a figure by its code chunk label with the `fig:` prefix, e.g., see Figure 2.1. Similarly, you can reference tables generated from `knitr::kable()`, e.g., see Table 2.1.

```
knitr::kable(  
  head(iris, 20), caption = 'Here is a nice table!',  
  booktabs = TRUE  
)
```

You can write citations, too. For example, we are using the **bookdown** package (Xie, 2021) in this sample book, which was built on top of R Markdown and

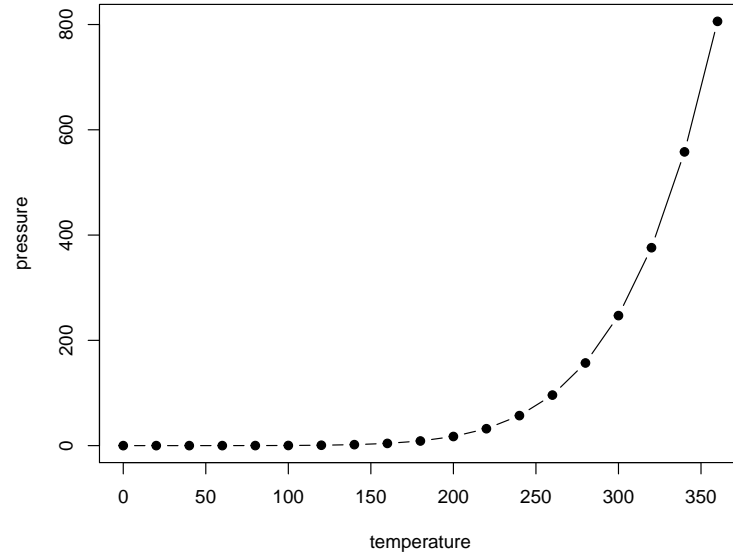


Figure 2.1: Here is a nice figure!

Table 2.1: Here is a nice table!

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa
4.6	3.4	1.4	0.3	setosa
5.0	3.4	1.5	0.2	setosa
4.4	2.9	1.4	0.2	setosa
4.9	3.1	1.5	0.1	setosa
5.4	3.7	1.5	0.2	setosa
4.8	3.4	1.6	0.2	setosa
4.8	3.0	1.4	0.1	setosa
4.3	3.0	1.1	0.1	setosa
5.8	4.0	1.2	0.2	setosa
5.7	4.4	1.5	0.4	setosa
5.4	3.9	1.3	0.4	setosa
5.1	3.5	1.4	0.3	setosa
5.7	3.8	1.7	0.3	setosa
5.1	3.8	1.5	0.3	setosa


```
knitr (Xie, 2015).
```

```
library(caret)
```

```
## Loading required package: lattice
```

```
## Loading required package: ggplot2
```

```
data("GermanCredit")
```

```
head(GermanCredit,5)
```

```
##   Duration Amount InstallmentRatePercentage ResidenceDuration Age
## 1         6   1169                      4                4  67
## 2        48   5951                      2                2  22
## 3        12   2096                      2                3  49
## 4        42   7882                      2                4  45
## 5        24   4870                      3                4  53
##   NumberExistingCredits NumberPeopleMaintenance Telephone ForeignWorker Class
## 1                      2                      1         0           1  Good
## 2                      1                      1         1           1  Bad
## 3                      1                      2         1           1  Good
## 4                      1                      2         1           1  Good
## 5                      2                      2         1           1  Bad
##   CheckingAccountStatus.lt.0 CheckingAccountStatus.0.to.200
## 1                      1                      0
## 2                      0                      1
## 3                      0                      0
## 4                      1                      0
## 5                      1                      0
##   CheckingAccountStatus.gt.200 CheckingAccountStatus.none
## 1                      0                      0
## 2                      0                      0
## 3                      0                      1
## 4                      0                      0
## 5                      0                      0
##   CreditHistory.NoCredit.AllPaid CreditHistory.ThisBank.AllPaid
## 1                      0                      0
## 2                      0                      0
## 3                      0                      0
## 4                      0                      0
## 5                      0                      0
##   CreditHistory.PaidDuly CreditHistory.Delay CreditHistory.Critical
## 1                      0                      0                1
## 2                      1                      0                0
## 3                      0                      0                1
## 4                      1                      0                0
## 5                      0                      1                0
```

```

## Purpose.NewCar Purpose.UsedCar Purpose.Furniture.Equipment
## 1 0 0 0
## 2 0 0 0
## 3 0 0 0
## 4 0 0 1
## 5 1 0 0
## Purpose.Radio.Television Purpose.DomesticAppliance Purpose.Repairs
## 1 1 0 0
## 2 1 0 0
## 3 0 0 0
## 4 0 0 0
## 5 0 0 0
## Purpose.Education Purpose.Vacation Purpose.Retaining Purpose.Business
## 1 0 0 0 0
## 2 0 0 0 0
## 3 1 0 0 0
## 4 0 0 0 0
## 5 0 0 0 0
## Purpose.Other SavingsAccountBonds.lt.100 SavingsAccountBonds.100.to.500
## 1 0 0 0
## 2 0 1 0
## 3 0 1 0
## 4 0 1 0
## 5 0 1 0
## SavingsAccountBonds.500.to.1000 SavingsAccountBonds.gt.1000
## 1 0 0
## 2 0 0
## 3 0 0
## 4 0 0
## 5 0 0
## SavingsAccountBonds.Unknown EmploymentDuration.lt.1 EmploymentDuration.1.to.4
## 1 1 0 0
## 2 0 0 1
## 3 0 0 0
## 4 0 0 0
## 5 0 0 1
## EmploymentDuration.4.to.7 EmploymentDuration.gt.7
## 1 0 1
## 2 0 0
## 3 1 0
## 4 1 0
## 5 0 0
## EmploymentDuration.Unemployed Personal.Male.Divorced.Seperated
## 1 0 0
## 2 0 0
## 3 0 0

```

## 4	0	0		
## 5	0	0		
##	Personal.Female.NotSingle	Personal.Male.Single	Personal.Male.Married.Widowed	
## 1	0	1	0	
## 2	1	0	0	
## 3	0	1	0	
## 4	0	1	0	
## 5	0	1	0	
##	Personal.Female.Single	OtherDebtorsGuarantors.None		
## 1	0	1		
## 2	0	1		
## 3	0	1		
## 4	0	0		
## 5	0	1		
##	OtherDebtorsGuarantors.CoApplicant	OtherDebtorsGuarantors.Guarantor		
## 1	0	0		
## 2	0	0		
## 3	0	0		
## 4	0	1		
## 5	0	0		
##	Property.RealEstate	Property.Insurance	Property.CarOther	Property.Unknown
## 1	1	0	0	0
## 2	1	0	0	0
## 3	1	0	0	0
## 4	0	1	0	0
## 5	0	0	0	1
##	OtherInstallmentPlans.Bank	OtherInstallmentPlans.Stores		
## 1	0	0		
## 2	0	0		
## 3	0	0		
## 4	0	0		
## 5	0	0		
##	OtherInstallmentPlans.None	Housing.Rent	Housing.Own	Housing.ForFree
## 1	1	0	1	0
## 2	1	0	1	0
## 3	1	0	1	0
## 4	1	0	0	1
## 5	1	0	0	1
##	Job.UnemployedUnskilled	Job.UnskilledResident	Job.SkilledEmployee	
## 1	0	0	1	
## 2	0	0	1	
## 3	0	1	0	
## 4	0	0	1	
## 5	0	0	1	
##	Job.Management.SelfEmp.HighlyQualified			
## 1	0			

##	2	0
##	3	0
##	4	0
##	5	0

Chapter 3

Literature

Here is a review of existing methods.

Chapter 4

Methods

We describe our methods in this chapter.

Chapter 5

Applications

Some *significant* applications are demonstrated in this chapter.

5.1 Example one

5.2 Example two

Chapter 6

Final Words

We have finished a nice book.

Bibliography

Xie, Y. (2015). *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2nd edition. ISBN 978-1498716963.

Xie, Y. (2021). *bookdown: Authoring Books and Technical Documents with R Markdown*. R package version 0.22.