



IMPORTING DATA IN R

Reading sheets



XLConnect

- Martin Studer
- Work with Excel through R
- Bridge between Excel and R
- XLS and XLSX
- Easy-to-use functionality

Installation

```
> install.packages("XLConnect")  
also installing the dependencies 'XLConnectJars', 'rJava'  
...
```

Java class definitions



R to Java interface

- Problems?
 - Install Oracle's Java Development Kit (JDK)
 - Google your error!

loadWorkbook()

```
> library("XLConnect")  
  
> book <- loadWorkbook("cities.xlsx")  
  
> str(book)  
Formal class 'workbook' [package "XLConnect"]  
with 2 slots  
  ..@ filename: chr "cities.xlsx"  
  ..@ jobj      : ...
```



Capital	Population	
New York	16044000	
Berlin	3433695	Population
Madrid	3010492	17800000
Stockholm	1683713	3382169
year_1990	Madrid	2938723
	Stockholm	1942362
	year_2000	

The diagram illustrates a pivot table and a separate table. The pivot table has two columns: 'Capital' and 'Population'. The rows are 'New York', 'Berlin', 'Madrid', and 'Stockholm'. The values for 'Population' are 16044000, 3433695, 3010492, and 1683713 respectively. To the right, there is a table with two columns: 'Population' and 'year_2000'. The rows are 'New York', 'Berlin', 'Madrid', and 'Stockholm'. The values for 'Population' are 17800000, 3382169, 2938723, and 1942362 respectively. An arrow points from 'year_1990' to the pivot table.

Capital	Population
New York	16044000
Berlin	3433695
Madrid	3010492
Stockholm	1683713

year_1990

Population	year_2000
17800000	
3382169	
2938723	
1942362	

readWorksheet()




Capital	Population		Population
New York	16044000		17800000
Berlin	3433695		3382169
Madrid	3010492		2938723
Stockholm	1683713		1942362
year_1990		Madrid	
		Stockholm	
		year_2000	

readWorksheet()

```
> readWorksheet(book, sheet = "year_2000")
```

```
   Capital Population
1 New York  17800000
2   Berlin   3382169
3   Madrid   2938723
4 Stockholm  1942362
```



Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

year_1990

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

year_2000

readWorksheet()

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

row 3

row 4

year_2000

col 2

```
> readWorksheet(book, sheet = "year_2000",  
  startRow = 3, endRow = 4,  
  startCol = 2, header = FALSE)
```

Col1

```
1 3382169  
2 2938723
```



IMPORTING DATA IN R

Let's practice!



IMPORTING DATA IN R

Adapting sheets

New data!

```
> pop_2010 <- data.frame(  
  Capital = c("New York", "Berlin", "Madrid", "Stockholm"),  
  Population = c(8191900, 3460725, 3273000, 1372565))
```

```
> pop_2010
```

	Capital	Population
1	New York	8191900
2	Berlin	3460725
3	Madrid	3273000
4	Stockholm	1372565

createSheet()

```
> pop_2010 <- ... # truncated  
> library(XLConnect)  
> book <- loadWorkbook("cities.xlsx")  
> createSheet(book, name = "year_2010")
```

Capital	Population
New York	16044000
Berlin	3400000
Madrid	3000000
Stockholm	1600000

year_1990


Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

year_2000



createSheet()

```
> pop_2010 <- ... # truncated  
> library(XLConnect)  
> book <- loadWorkbook("cities.xlsx")  
> createSheet(book, name = "year_2010")
```



Capital	Population
New York	16,044,000
Berlin	3,490,000
Madrid	3,000,000
Stockholm	1,600,000

year_1990


Capital	Population
New York	17,800,000
Berlin	3,490,000
Madrid	2,900,000
Stockholm	1,600,000

year_2000

year_2010

writeWorksheet()

```
> pop_2010 <- ... # truncated
> library(XLConnect)
> book <- loadWorkbook("cities.xlsx")
> createSheet(book, name = "year_2010")
> writeWorksheet(book, pop_2010, sheet = "year_2010")
```



Capital	Population
New York	16,044,000
Berlin	3,400,000
Madrid	3,000,000
Stockholm	1,600,000

year_1990


Capital	Population
New York	17,800,000
Berlin	3,400,000
Madrid	2,800,000
Stockholm	1,600,000

year_2000

year_2010

writeWorksheet()

```
> pop_2010 <- ... # truncated
> library(XLConnect)
> book <- loadWorkbook("cities.xlsx")
> createSheet(book, name = "year_2010")
> writeWorksheet(book, pop_2010, sheet = "year_2010")
```



Capital	Population
New York	16044000
Berlin	3400000
Madrid	3000000
Stockholm	1600000

year_1990

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362


year_2000

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

year_2010

saveWorkbook()

```
> pop_2010 <- ... # truncated
> library(XLConnect)
> book <- loadWorkbook("cities.xlsx")
> createSheet(book, name = "year_2010")
> writeWorksheet(book, pop_2010, sheet = "year_2010")
> saveWorkbook(book, file = "cities2.xlsx")
```

 cities2.xlsx

Capital	Population
New York	16044000
Berlin	3400000
Madrid	3000000
Stockholm	1600000

year_1990

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362


year_2000

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

year_2010

renameSheet()

```
> renameSheet(book, "year_1990", "Y1990")  
> renameSheet(book, "year_2000", "Y2000")  
> renameSheet(book, "year_2010", "Y2010")  
> saveWorkbook(book, file = "cities3.xlsx")
```



Capital	Population
New York	16041000
Berlin	3400000
Madrid	3000000
Stockholm	1600000

year_1990

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362


year_2000

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

year_2010

renameSheet()

```
> renameSheet(book, "year_1990", "Y1990")  
> renameSheet(book, "year_2000", "Y2000")  
> renameSheet(book, "year_2010", "Y2010")  
> saveWorkbook(book, file = "cities3.xlsx")
```

 cities3.xlsx

Capital	Population
New York	16044000
Berlin	3400000
Madrid	3000000
Stockholm	1600000

Y1990

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362


Y2000

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

Y2010

removeSheet()

```
> removeSheet(book, sheet = "Y2010")  
> saveWorkbook(book, file = "cities4.xlsx")
```



Capital	Population
New York	16044000
Berlin	3400000
Madrid	3000000
Stockholm	1600000

Y1990

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

Y2000

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

Y2010

removeSheet()

```
> removeSheet(book, sheet = "Y2010")  
> saveWorkbook(book, file = "cities4.xlsx")
```

Capital	Population
New York	16044000
Berlin	3400000
Madrid	3000000
Stockholm	1600000

Y1990

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

Y2000



cities4.xlsx

Wrap-up

- Basic operations
- Reproducibility is the key!
- More functionality
 - Styling cells
 - Working with formulas
 - Arranging cells
 - ...



IMPORTING DATA IN R

Let's practice!