

Reading sheets

INTRODUCTION TO IMPORTING DATA IN R



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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'  
...
```

- 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      : ...
```

getSheets()

```
getSheets(book)
```

```
"year_1990" "year_2000"
```

```
library(readxl)  
excel_sheets("cities.xlsx")
```

```
"year_1990" "year_2000"
```

readWorksheet()

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

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

readWorksheet()

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

year_2000 col 2

row 3
row 4

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

```
Col1  
1 3382169  
2 2938723
```


Let's practice!

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Adapting sheets

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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")
```

Capital	Population
New York	16044000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

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")
```

The diagram shows a transformation of data from a single table to a wide table. On the left, a table with 2 columns (Capital, Population) and 5 rows (New York, Berlin, Madrid, Stockholm, and a blank row) is shown. This table is used as input for the XLOOKUP function, which is represented by a green 'X' icon. The output is a wide table with 3 columns (Capital, Population, and a blank column) and 5 rows. The first row of the output table contains the data from the first row of the input table. The second row of the output table contains the data from the second row of the input table. The third row of the output table contains the data from the third row of the input table. The fourth row of the output table contains the data from the fourth row of the input table. The fifth row of the output table contains the data from the fifth row of the input table. The output table is labeled with 'year_1990' for the first column, 'year_2000' for the second column, and 'year_2010' for the third column.

Capital	Population
New York	16044000
Berlin	3500000
Madrid	3200000
Stockholm	1000000

year_1990

Capital	Population	
New York	17800000	
Berlin	3500000	
Madrid	3200000	
Stockholm	1000000	

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	3
Madrid	3
Stockholm	1
year_1990	


Capital	Population
New York	17800000
Berlin	3
Madrid	2
Stockholm	1
year_2000	

year_2010	



saveWorkbook()

```
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	3382169
Madrid	2938723
Stockholm	1942362

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")
```

Capital	Population
New York	16044000
Berlin	3382169
Madrid	2938723
Stockholm	1942362
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	

 cities2.xlsx

renameSheet()

```
renameSheet(book, "year_1990", "Y1990")
renameSheet(book, "year_2000", "Y2000")
renameSheet(book, "year_2010", "Y2010")
```

Capital	Population
New York	16044000
Berlin	3382169
Madrid	2938723
Stockholm	1942362


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	3382169
Madrid	2938723
Stockholm	1942362

Y1990

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

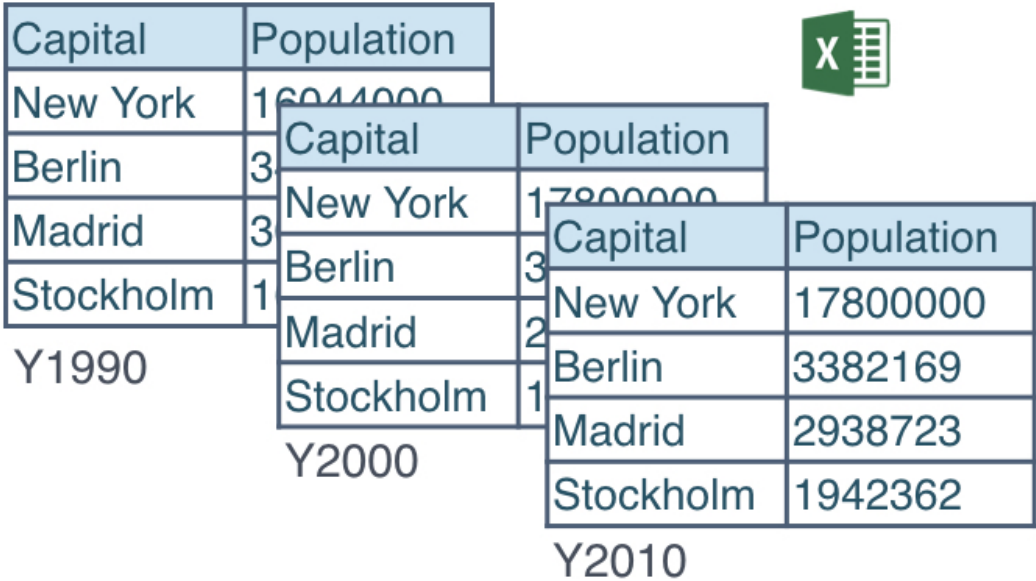
Y2000

Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362

Y2010

removeSheet()

```
removeSheet(book, sheet = "Y2010")
```



removeSheet()

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

Capital	Population
New York	16044000
Berlin	3382169
Madrid	2938723
Stockholm	1942362
Y1990	
Capital	Population
New York	17800000
Berlin	3382169
Madrid	2938723
Stockholm	1942362
Y2000	



Wrap-up

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

Let's practice!

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