Université Paris Cité

Data analysis and Exploration using R

Dimensionality reduction

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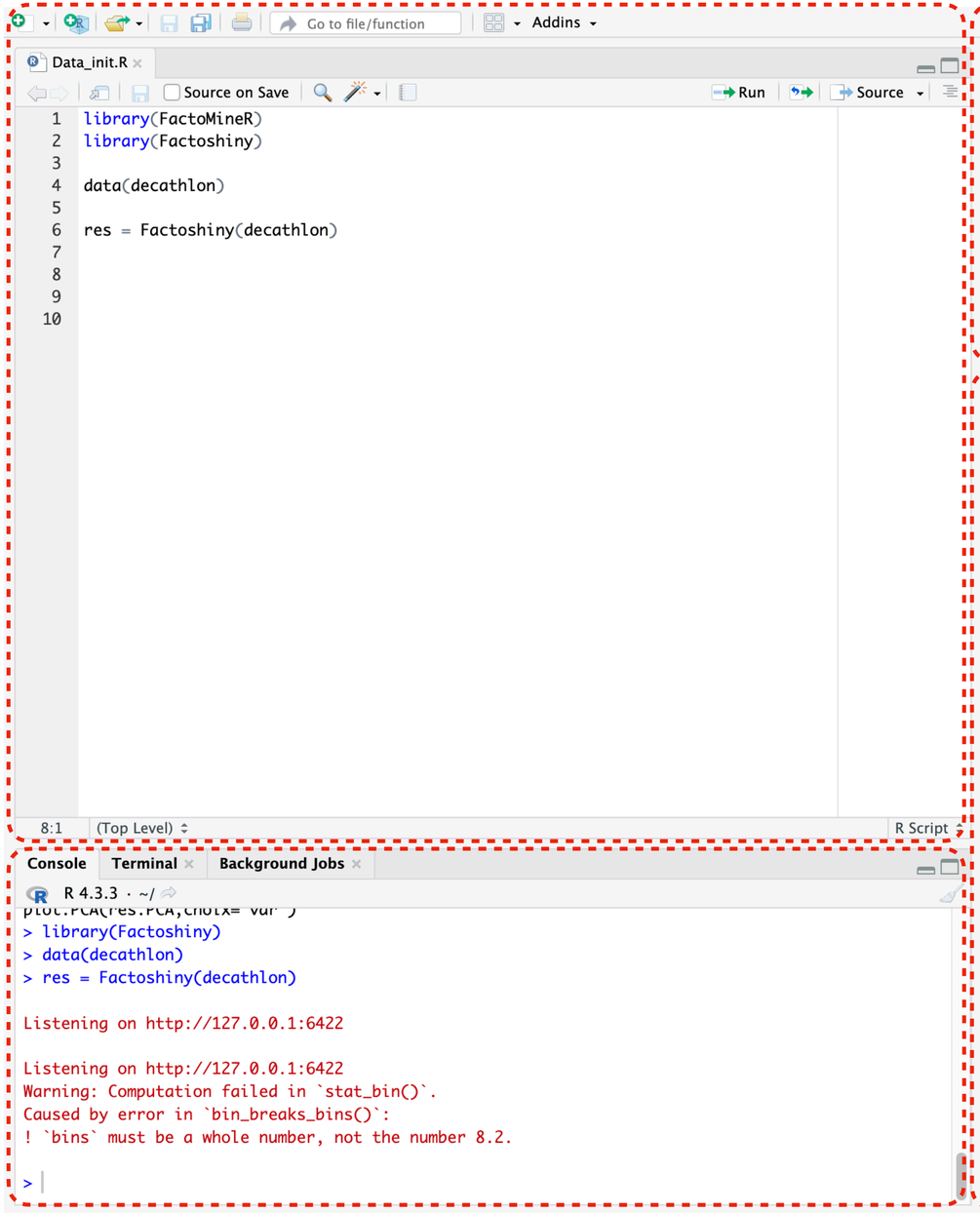
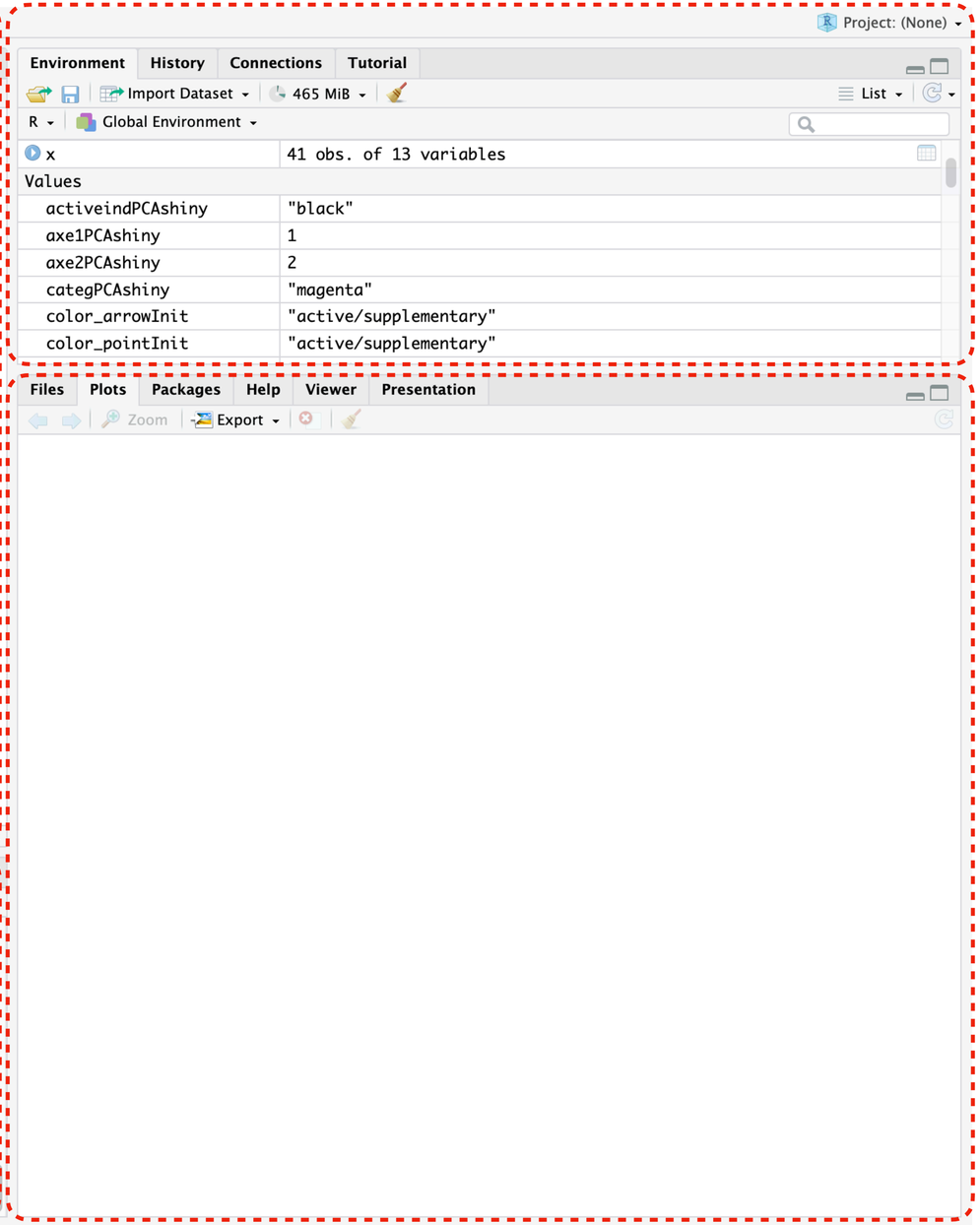
Master I Machine Learning pour la Science des données - Année universitaire 2025/2026

Introduction to 

Code Editor



R console
Terminal



Environment
Variables
History

Plots
Help
Files

R: Introduction

- Install and load library

```
> install.packages("ggplot2") # Install new library
> library(ggplot2) # Load library
```

- Visualise documentation for a function or library

```
> ?mean # or help(mean)
> help("PCA", package = "FactoMineR")
> example(mean)
```

- Load preloaded datasets

```
> data(cars)
> library(help = "datasets")
> view(cars)
```

R: Data Frames

A data frame is a table of data in R:

- each row = one individual (or observation),
- each column = one variable (or attribute),
- columns can be of different types (numeric, text, factor, etc.).

```
> class(cars)
> is.data.frame(cars)
```

```
> df = data.frame(
      Nom = c("Alice", "Bob", "Clara"),
      Age = c(23, 25, 22),
      Sexe = c("F", "M", "F")
   )
```

R: Manipulate Data Frames

```
> head(cars)
> summary(cars)
> head(mtcars)
> names(mtcars) # Show column names
> mtcars$hp <- NULL # Delete a column
> mtcars <- mtcars[-2, ]  # Delete a row
> mtcars$new_var <- 1:nrow(mtcars) # Add a column
```

R: Read csv

- Example of csv file

```
Name; City; Sallary; Year
Alpha; Paris; 22000; 2023
Beta; Lyon; 69500; 2023
Gamma; Marseille; 33400; 2023
Delta; Paris; 12000; 2024
```

- Read csv file

```r
data <- read.csv("ventes.csv", sep = ";", dec = ".", header = TRUE, row.names = 1)
```

Delimiter (eg. , or \t or ;)

Decimal separator (. or ,)

Whether the first like is columns names

Use first column as index