

seance5_cube_multidimensionnel_correction

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1 Cube multidimensionnel - correction

Manipulation de tables de mortalités façon OLAP, correction des exercices.

```
[1]: %matplotlib inline
import matplotlib.pyplot as plt
plt.style.use('ggplot')
import pyensae
from pyquickhelper.helpgen import NbImage
from jyquickhelper import add_notebook_menu
add_notebook_menu()
```

Populating the interactive namespace from numpy and matplotlib

```
[1]: <IPython.core.display.HTML object>
```

On lit les données puis on recrée un [DataSet](#) :

```
[2]: from actuariat_python.data import table_mortalite_euro_stat
table_mortalite_euro_stat()
import pandas
df = pandas.read_csv("mortalite.txt", sep="\t", encoding="utf8", low_memory=False)
df2 = df[["annee", "age_num", "indicateur", "pays", "genre", "valeur"]].dropna().
    ↪reset_index(drop=True)
piv = df2.pivot_table(index=["annee", "age_num", "pays", "genre"],
                      columns=["indicateur"],
                      values="valeur")
import xarray
ds = xarray.Dataset.from_dataframe(piv)
ds
```

```
[2]: <xarray.Dataset>
Dimensions:      (age_num: 84, annee: 54, genre: 3, pays: 54)
Coordinates:
  * annee        (annee) int64 1960 1961 1962 1963 1964 1965 1966 1967 1968 ...
  * age_num      (age_num) float64 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 ...
  * pays         (pays) object 'AM' 'AT' 'AZ' 'BE' 'BG' 'BY' 'CH' 'CY' 'CZ' ...
  * genre        (genre) object 'F' 'M' 'T'
Data variables:
  DEATHRATE     (annee, age_num, pays, genre) float64 nan nan nan nan nan ...
  LIFEXP        (annee, age_num, pays, genre) float64 nan nan nan nan nan ...
  PROBDEATH     (annee, age_num, pays, genre) float64 nan nan nan nan nan ...
  PROBSURV     (annee, age_num, pays, genre) float64 nan nan nan nan nan ...
```



```
[7]: joined.sel(annee=2000, age_num=59, genre='F')['meanp']
```

```
[7]: <xarray.DataArray 'meanp' ()>  
array(23.83243243243243)  
Coordinates:  
  annee    int64 2000  
  genre    object 'F'  
  age_num  float64 59.0
```

```
[8]:
```