

Tableau périodique

```
<sxh python; title : tableau_periodique.py> #!/usr/bin/env python # -*- coding: utf-8 -*- #  
Programme sur le tableau périodique # MJ, Ba2 chimie 2010-2011
```

```
from Tkinter import * from element_liste import * #sert à importer la liste présente dans l'autre fichier
```

```
#création de la commande générale du bouton def elem(x):
```

```
    element=Tk()  
    element.title("Proprietes")  
    listbox=Listbox(element,height=10,width=40,fg="#070942")  
    listbox.pack() #sert à ajuster la fenêtre  
    listbox.insert(END)  
    for item in tableau[x]:  
        listbox.insert(END,item)  
    quitter = Button(element,text='Quitter',command=element.destroy)  
    quitter.pack(side=BOTTOM)  
    mainloop()
```

```
fen1=Tk() fen1.title("Tableau periodique")
```

```
#création de la légende (site www.jchr.be/python/tkinter.htm) import Tkinter  
sysdemenu=Tkinter.Menu(fen1) def legende():
```

```
    legend1= Tk()  
    legend1.title("Légende")  
    frame= Frame(legend1, height=200, width= 300) #frame ouvre une nouvelle  
fenêtre dans laquelle on peut insérer plusieurs widgets (ici des messages)  
    autre = Message(legend1, text="Autres", width=300, font="Arial 15",  
bg="white") #font = taille et police  
    autre.pack()  
    metauxtransition= Message(legend1, text="Metaux de transition", width=300,  
font="Arial 15", bg="#FFCCCC")  
    metauxtransition.pack()  
    gazrare = Message(legend1, text="Gaz rares", width=300, font="Arial 15",  
bg="#00CCFF")  
    gazrare.pack()  
    nonmetaux= Message(legend1, text="Non metaux", width=300, font="Arial 15",  
bg="#00FF66")  
    nonmetaux.pack()  
    metauxalcalins= Message(legend1, text="Metaux alcalins", width=300,  
font="Arial 15", bg="#FF9900")  
    metauxalcalins.pack()  
    metauxalcalinoterreux= Message(legend1, text="Metaux alcalino terreux",  
width=300, font="Arial 15", bg="#FFFF33")  
    metauxalcalinoterreux.pack()  
    lanthanides= Message(legend1, text="Lanthanides", width=300, font="Arial  
15", bg="#CCCC66")
```

```
lanthanides.pack()
actinides= Message(legend1, text="Actinides", width=300, font="Arial 15",
bg="#FF3300")
actinides.pack()
metaux= Message(legend1, text="Metaux", width=300, font="Arial 15",
bg="#9999FF")
metaux.pack()
```

```
frame.pack()
mainloop()
```

```
Menu=Tkinter.Menu(sysdemenu) sysdemenu.add_cascade(label="Menu", menu=Menu)
Menu.add_command(label="Legende", command = legende) Menu.add_command(label="Quitter",
command=fen1.quit)
```

#création des boutons du tableau bou_list=[] for item in tableau[1:]:

```
bou=Button(fen1,text=item[1],command=lambda
x=item[2]:elem(x),height=2,width=3,bg=item[6])
bou.grid(row=item[4],column=item[5]) #grid est utilisé pour classer les
bouttons par rangée et colonne
bou_list.append(bou)
```

```
fen1.config(menu=sysdemenu)
```

```
#création de la listbox au sommet (source:http://www.tkdocs.com/tutorial/grid.html)
centre=Listbox(fen1) centre.grid(row=0,column=3,rowspan= 1,columnspan=8) centre.insert(END)
for item in ["Nom:", "Symbole:", "Numero atomique:", "Masse
molaire:", "Ligne:", "Colonne:", "Couleur:"]:
```

```
centre.insert(END,item)
```

```
mainloop()
```

```
fen1.destroy() fen1.mainloop() </sxh>
```

Nécessite ce fichier de données : <sxh python; title : element_liste.py> tableau=[

```
["Nom", "symbole", "Numero atomique", "Masse atomique",
"ligne", "colonne", "couleur"],
["Hydrogene", "H", 1, 1.00794, 1, 0, "white"],
["Helium", "He", 2, 4.0026, 1, 17, "#00CCFF"],
["Lithium", "Li", 3, 6.9412, 2, 0, "#FF9900"],
["Beryllium", "Be", 4, 9.012182, 2, 1, "#FFFF33"],
["Bore", "B", 5, 10.811, 2, 12, "#00FF66"],
["Carbone", "C", 6, 12.0107, 2, 13, "#00FF66"],
["Azote", "N", 7, 14.00674, 2, 14, "#00FF66"],
["Oxygene", "O", 8, 15.9994, 2, 15, "#00FF66"],
["Fluor", "F", 9, 18.9984, 2, 16, "#00FF66"],
["Neon", "Ne", 10, 20.1797, 2, 17, "#00CCFF"],
```

```
["Sodium", "Na", 11, 22.9897, 3, 0, "#FF9900"],
["Magnesium", "Mg", 12, 24.3050, 3, 1, "#FFFF33"],
["Aluminium", "Al", 13, 26.9815, 3, 12, "#9999FF"],
["Silicium", "Si", 14, 28.0855, 3, 13, "#00FF66"],
["Phosphore", "P", 15, 30.973761, 3, 14, "#00FF66"],
["Soufre", "S", 16, 32.066, 3, 15, "#00FF66"],
["Chlore", "Cl", 17, 35.453, 3, 16, "#00FF66"],
["Argon", "Ar", 18, 39.948, 3, 17, "#00CCFF"],
["Potassium", "K", 19, 39.0963, 4, 0, "#FF9900"],
["Calcium", "Ca", 20, 40.078, 4, 1, "#FFFF33"],
["Scandium", "Sc", 21, 44.9559, 4, 2, "#FFCCCC"],
["Titane", "Ti", 22, 47.867, 4, 3, "#FFCCCC"],
["Vanadium", "V", 23, 50.9415, 4, 4, "#FFCCCC"],
["Chrome", "Cr", 24, 51.9961, 4, 5, "#FFCCCC"],
["Manganese", "Mn", 25, 54.9380, 4, 6, "#FFCCCC"],
["Fer", "Fe", 26, 55.8457, 4, 7, "#FFCCCC"],
["Cobalt", "Co", 27, 58.9332, 4, 8, "#FFCCCC"],
["Nickel", "Ni", 28, 58.6934, 4, 9, "#FFCCCC"],
["Cuivre", "Cu", 29, 63.546, 4, 10, "#FFCCCC"],
["Zinc", "Zn", 30, 65.409, 4, 11, "#FFCCCC"],
["Gallium", "Ga", 31, 69.723, 4, 12, "#9999FF"],
["Germanium", "Ge", 32, 72.64, 4, 13, "#9999FF"],
["Arsenic", "As", 33, 74.9216, 4, 14, "#00FF66"],
["Selenium", "Se", 34, 78.96, 4, 15, "#00FF66"],
["Brome", "Br", 35, 79.904, 4, 16, "#00FF66"],
["Krypton", "Kr", 36, 83.798, 4, 17, "#00CCFF"],
["Rubidium", "Rb", 37, 85.4678, 5, 0, "#FF9900"],
["Strontium", "Sr", 38, 87.62, 5, 1, "#FFFF33"],
["Yttrium", "Y", 39, 88.9059, 5, 2, "#FFCCCC"],
["Zirconium", "Zr", 40, 91.224, 5, 3, "#FFCCCC"],
["Niobium", "Nb", 41, 92.9063, 5, 4, "#FFCCCC"],
["Molybdene", "Mo", 42, 95.94, 5, 5, "#FFCCCC"],
["Technetium", "Tc", 43, 98, 5, 6, "#FFCCCC"],
["Ruthenium", "Ru", 44, 101.07, 5, 7, "#FFCCCC"],
["Rhodium", "Rh", 45, 102.9055, 5, 8, "#FFCCCC"],
["Palladium", "Pd", 46, 106.42, 5, 9, "#FFCCCC"],
["Argent", "Ag", 47, 107.8682, 5, 10, "#FFCCCC"],
["Cadmium", "Cd", 48, 112.411, 5, 11, "#FFCCCC"],
["Indium", "In", 49, 114.818, 5, 12, "#9999FF"],
["Etain", "Sn", 50, 118.710, 5, 13, "#9999FF"],
["Antimoine", "Sb", 51, 121.760, 5, 14, "#9999FF"],
["Tellure", "Te", 52, 127.60, 5, 15, "#00FF66"],
["Iode", "I", 53, 126.9045, 5, 16, "#00FF66"],
["Xenon", "Xe", 54, 131.293, 5, 17, "#00CCFF"],
["Cesium", "Cs", 55, 132.9054, 6, 0, "#FF9900"],
["Baryum", "Ba", 56, 137.327, 6, 1, "#FFFF33"],
["Lanthane", "La", 57, 138.9055, 6, 2, "#FFCCCC"],
["Cerium", "Ce", 58, 140.116, 6, 4, "#CCCC66"],
["Praseodyme", "Pr", 59, 140.9076, 6, 5, "#CCCC66"],
["Neodyme", "Nd", 60, 144.24, 6, 6, "#CCCC66"],
["Promethium", "Pm", 61, 145, 6, 7, "#CCCC66"],
```

```
["Samarium", "Sm", 62, 150.36, 8, 8, "#CCCC66"],
["Europium", "Eu", 63, 151.964, 8, 9, "#CCCC66"],
["Gadolinium", "Gd", 64, 157.25, 8, 10, "#CCCC66"],
["Terbium", "Tb", 65, 158.9253, 8, 11, "#CCCC66"],
["Dysprosium", "Dy", 66, 162.500, 8, 12, "#CCCC66"],
["Holmium", "Ho", 67, 164.9303, 8, 13, "#CCCC66"],
["Erbium", "Er", 68, 167.259, 8, 14, "#CCCC66"],
["Thulium", "Tm", 69, 168.9342, 8, 15, "#CCCC66"],
["Ytterbium", "Yb", 70, 173.04, 8, 16, "#CCCC66"],
["Lutecium", "Lu", 71, 174.967, 8, 17, "#CCCC66"],
["Hafnium", "Hf", 72, 178.49, 6, 3, "#FFCCCC"],
["Tantale", "Ta", 73, 180.9479, 6, 4, "#FFCCCC"],
["Tungstene", "W", 74, 183.84, 6, 5, "#FFCCCC"],
["Rhenium", "Re", 75, 186.207, 6, 6, "#FFCCCC"],
["Osmium", "Os", 76, 190.23, 6, 7, "#FFCCCC"],
["Iridium", "Ir", 77, 192.217, 6, 8, "#FFCCCC"],
["Platine", "Pt", 78, 195.078, 6, 9, "#FFCCCC"],
["Or", "Au", 79, 166.9665, 6, 10, "#FFCCCC"],
["Mercure", "Hg", 80, 200.59, 6, 11, "#FFCCCC"],
["Thallium", "Tl", 81, 204.3833, 6, 12, "#9999FF"],
["Plomb", "Pb", 82, 207.2, 6, 13, "#9999FF"],
["Bismuth", "Bi", 83, 208.9803, 6, 14, "#9999FF"],
["Polonium", "Po", 84, 209, 6, 15, "#9999FF"],
["Astate", "At", 85, 210, 6, 16, "#00FF66"],
["Radon", "Rd", 86, 222, 6, 17, "#00CCFF"],
["Francium", "Fr", 87, 223, 7, 0, "#FF9900"],
["Radium", "Ra", 88, 226, 7, 1, "#FFFF33"],
["Actinium", "Ac", 89, 227, 7, 2, "#FFCCCC"],
["Thorium", "Th", 90, 232.0381, 9, 4, "#FF3300"],
["Protactinium", "Pa", 91, 231.0359, 9, 5, "#FF3300"],
["Uranium", "U", 92, 238.02891, 9, 6, "#FF3300"],
["Neptunium", "Np", 93, 237, 9, 7, "#FF3300"],
["Plutonium", "Pu", 94, 244, 9, 8, "#FF3300"],
["Americium", "Am", 95, 243, 9, 9, "#FF3300"],
["Curium", "Cm", 96, 247, 9, 10, "#FF3300"],
["Berkelium", "Bk", 97, 247, 9, 11, "#FF3300"],
["Californium", "Cf", 98, 251, 9, 12, "#FF3300"],
["Einsteinium", "Es", 99, 252, 9, 13, "#FF3300"],
["Fermium", "Fm", 100, 257, 9, 14, "#FF3300"],
["Mendeleevium", "Md", 101, 258, 9, 15, "#FF3300"],
["Nobelium", "No", 102, 259, 9, 16, "#FF3300"],
["Lawrencium", "Lr", 103, 262, 9, 17, "#FF3300"],
["Rutherfordium", "Rf", 104, 261, 7, 3, "#FFCCCC"],
["Dubnium", "Db", 105, 262, 7, 4, "#FFCCCC"],
["Seaborgium", "Sg", 106, 266, 7, 5, "#FFCCCC"],
["Bohrium", "Bh", 107, 264, 7, 6, "#FFCCCC"],
["Hassium", "Hs", 108, 269, 7, 7, "#FFCCCC"],
["Meitneium", "Mt", 109, 268, 7, 8, "#FFCCCC"],
["Darmstadtium", "Ds", 110, 271, 7, 9, "#FFCCCC"],
```

```
[ "Roentgenium", "Rg", 111, 272, 7, 10, "#FFCCCC" ],  
[ "Copernicium", "Cn", 112, 285, 7, 11, "#FFCCCC" ],  
[ "Ununtrium", "Uut", 113, 184, 7, 12, "#9999FF" ],  
[ "Ununquadium", "Uuq", 114, 289, 7, 13, "#9999FF" ],  
[ "Ununpentium", "Uup", 115, 288, 7, 14, "#9999FF" ],  
[ "Ununhexium", "Uuh", 116, 292, 7, 15, "#9999FF" ],  
[ "Ununseptium", "Uus", 117, "-", 7, 16, "white" ],  
[ "Ununoctium", "Uuo", 118, "-", 7, 17, "white" ]  
]
```

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Last update: **2014/02/11 09:17**

