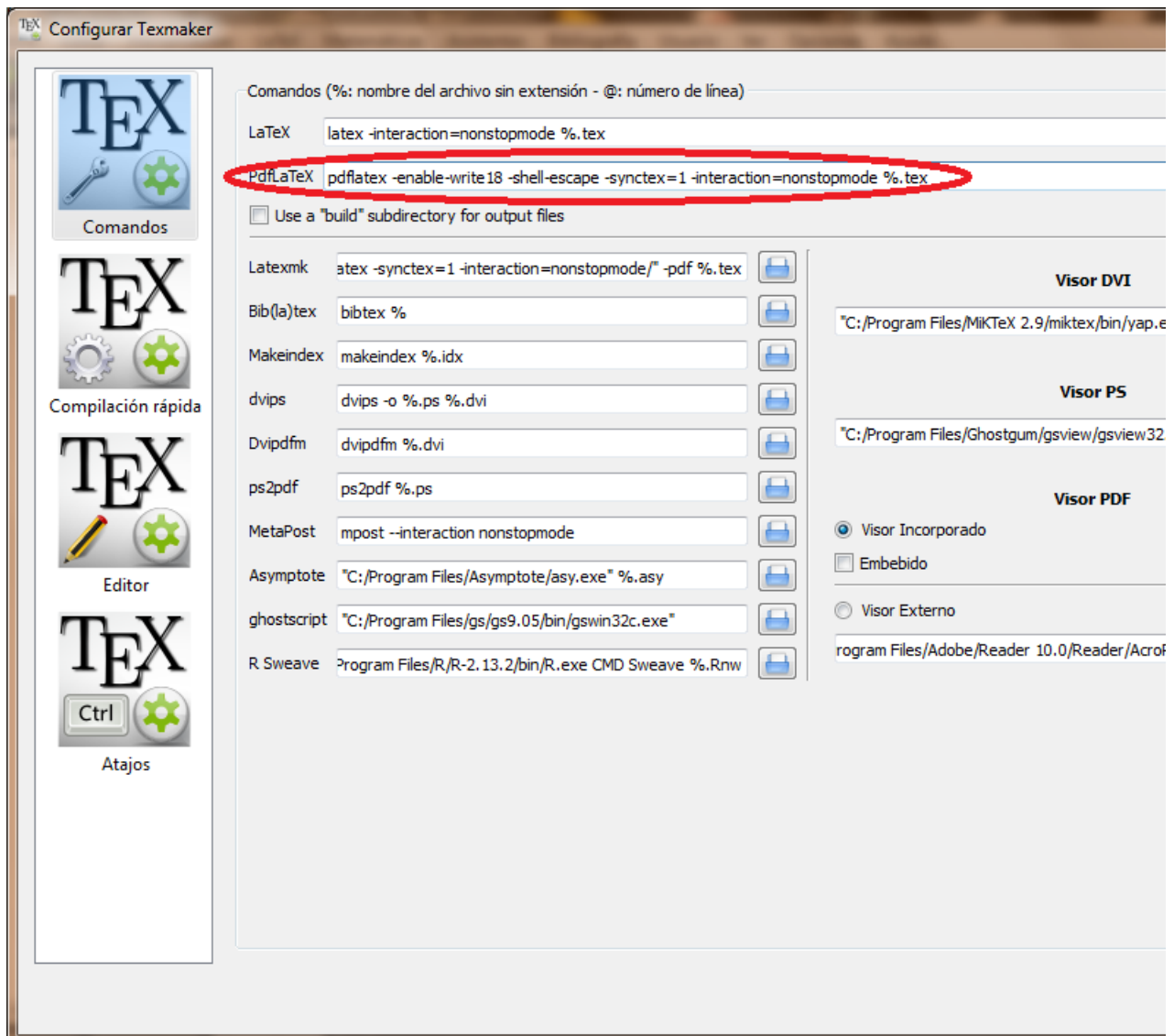

Ejecutar código Python
en documentos L^AT_EX

???? ????

1

Agregando python.sty

Para poder ejecutar código Python en \LaTeX se debe habilitar *shell escape*:



El archivo de estilo necesario es python.sty creado por Martin R. Ehmsen:

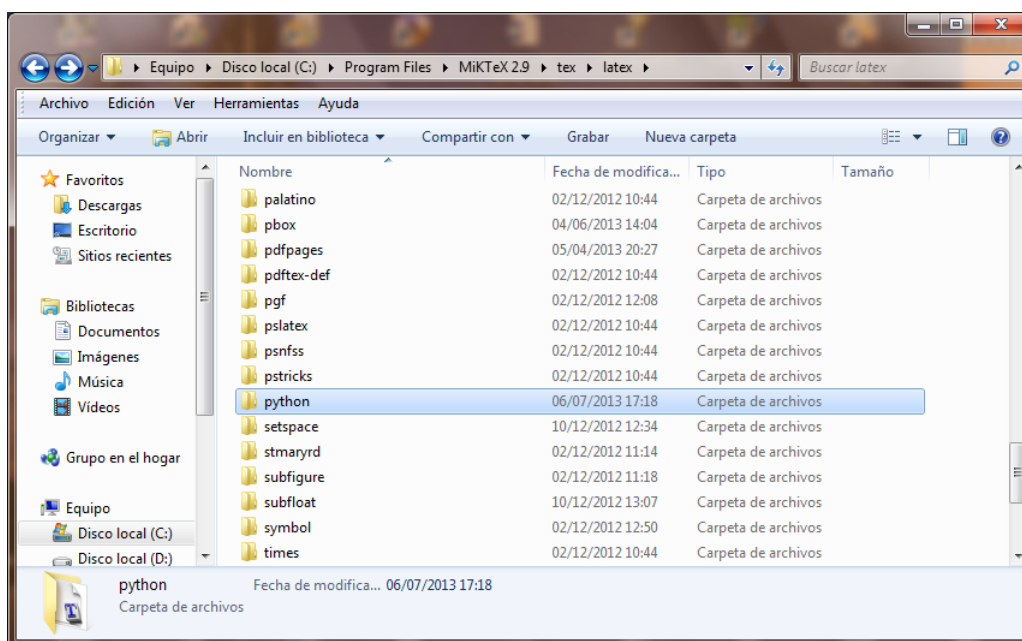
```

%% This program is free software; you can redistribute it and/or
%% modify it under the terms of the GNU General Public License
%% as published by the Free Software Foundation; either version 2
%% of the License, or (at your option) any later version.
%%
%% This program is distributed in the hope that it will be useful,
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%% along with this program; if not, write to the Free Software
%% Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307, USA.
%%
%% Author: Martin R. Ehmsen, ehmsen@imada.sdu.dk.
%% Department of Mathematics and Computer Science,
%% University of Southern Denmark, DK
%%
%% You can find an online copy of the GPL at
%% http://www.gnu.org/copyleft/gpl.html .
%%
%% Note: shell-escape needs to be activated for this to work.
%% This can either be done by passing -shell-escape as an option to
%% latex or by adding/changing "shell_escape = t" in your texmf.cnf .

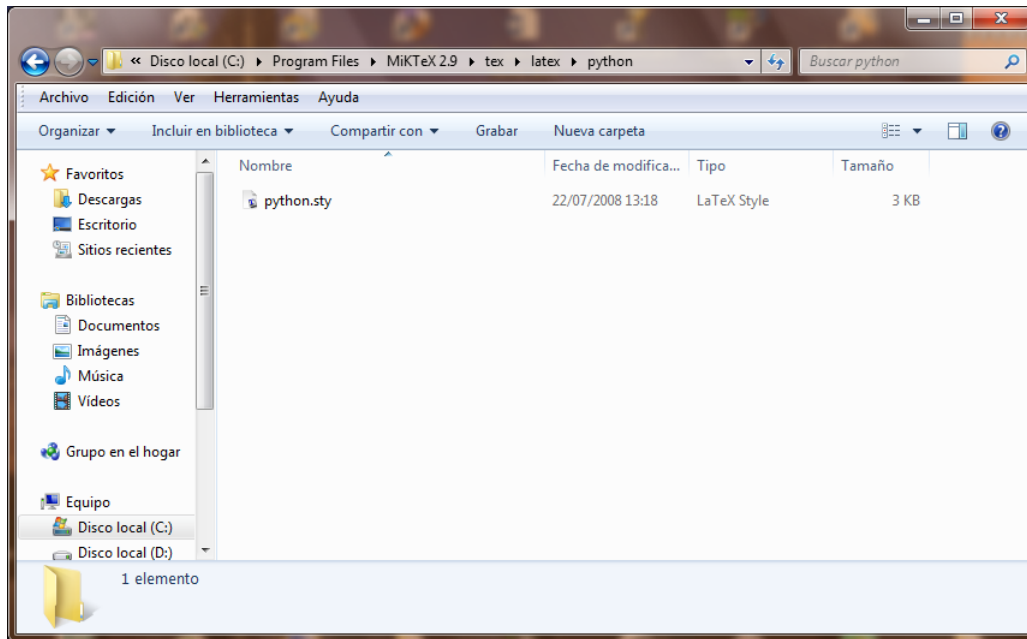
% 0.2 -> 0.21: Moved \newwrite\@module from \@writemodule and out, since
% no more than 15 \newwrites are allowed (and the previous version created a new
% every time \@writemodule was called.

```

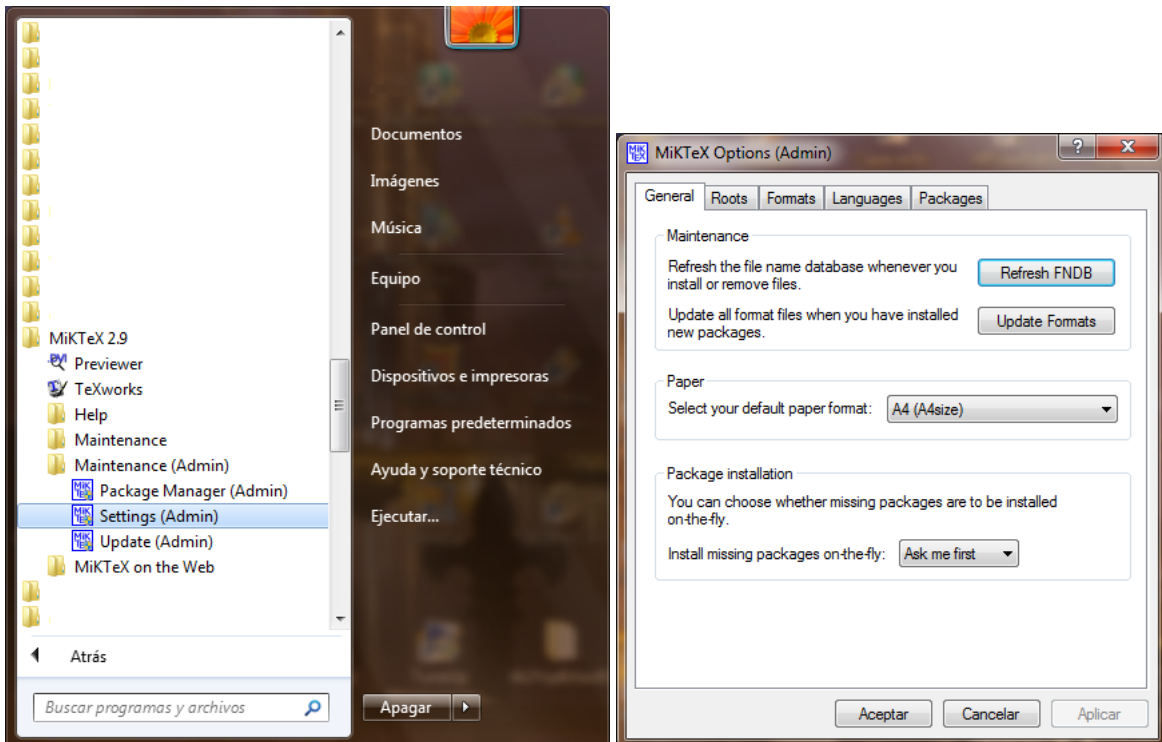
Crear una carpeta llamada python:



Copiar el archivo python.sty en la carpeta python:



Actualizar los archivos de MiKTeX:



2

Ejemplos simples

2.1 Impresión de números

Mostrando números del 0 al 100:

Programa 2.1:

```
for i in range(101):  
    print i
```

```
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41  
42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79  
80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
```

```
\documentclass[10pt,letterpaper,final]{book}  
\usepackage[utf8]{inputenc}  
\usepackage[spanish]{babel}  
\usepackage{amsmath}  
\usepackage{amssymb}  
\usepackage{amssymb}  
\usepackage{amssymb}  
\usepackage{amssymb}  
\usepackage{amssymb}  
\usepackage{amssymb}  
\usepackage{amssymb}  
\usepackage{amssymb}  
\usepackage{amssymb}  
\usepackage{amssymb}  
\begin{document}  
  
\begin{python}  
for i in range(101):  
    print i  
\end{python}  
  
\end{document}
```

2.2 Impresión de texto

Mostrando el típico 'Hola mundo':

Programa 2.2:

```
print 'Hola mundo'
```

Hola mundo

```
\documentclass[10pt,letterpaper,final]{book}
\usepackage[utf8]{inputenc}
\usepackage[spanish]{babel}
\usepackage{amsmath}
\usepackage{amsfonts}
\usepackage{amssymb}
\usepackage{graphicx}
\usepackage{python}
\begin{document}

\begin{python}
print 'Hola mundo'
\end{python}

\end{document}
```

2.3 Matrices

Usando Sympy:**Programa 2.3:**

```
from sympy import Matrix, latex

A = Matrix([[1, 2, 3], [4, 5, 6], [7, 8, 9]])
print latex(A, mode='inline')
print latex(A, mode='equation')
print latex(A, mode='equation*')
```

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

(2.1)

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

```
\documentclass[10pt,letterpaper,final]{book}
\usepackage[utf8]{inputenc}
\usepackage[spanish]{babel}
\usepackage{amsmath}
\usepackage{amsfonts}
\usepackage{amssymb}
```

```

\usepackage{graphicx}
\usepackage{python}
\begin{document}

\begin{python}
from sympy import Matrix, latex

A = Matrix([[1, 2, 3], [4, 5, 6], [7, 8, 9]])
print latex(A, mode='inline')
print latex(A, mode='equation')
print latex(A, mode='equation*')
\end{python}

\end{document}

```

2.4 Ecuaciones

Usando Sympy:

Programa 2.4:

```

from sympy import Symbol, Integral, latex

x = Symbol('x')

print latex(Integral(x**2, x), mode='inline')
print latex(Integral(x**2, x), mode='equation')
print latex(Integral(x**2, x), mode='equation*')

```

$\int x^2 dx$

$$\int x^2 dx$$

(2.2)

$$\int x^2 dx$$

```

\documentclass[10pt,letterpaper,final]{book}
\usepackage[utf8]{inputenc}
\usepackage[spanish]{babel}
\usepackage{amsmath}
\usepackage{amsfonts}
\usepackage{amssymb}
\usepackage{graphicx}
\usepackage{python}
\begin{document}

\begin{python}
from sympy import Symbol, Integral, latex

```

```
x = Symbol('x')

print latex(Integral(x**2, x), mode='inline')
print latex(Integral(x**2, x), mode='equation')
print latex(Integral(x**2, x), mode='equation*')
\end{python}

\end{document}
```

2.5 Gráficos

Usando Matplotlib y Numpy:

Programa 2.5:

```
import numpy as np
import matplotlib.pyplot as plt

xi = np.array([1.4, 0.8, 3.2, 1.8])
yi = np.array([9.0, 2.3, 10.0, 17.0])

plt.scatter(xi,yi)
plt.savefig('scatter.png')
```

```
\documentclass[10pt,letterpaper,final]{book}
\usepackage[utf8]{inputenc}
\usepackage[spanish]{babel}
\usepackage{amsmath}
\usepackage{amsfonts}
\usepackage{amssymb}
\usepackage{graphicx}
\usepackage{python}
\begin{document}

\begin{python}
import numpy as np
import matplotlib.pyplot as plt

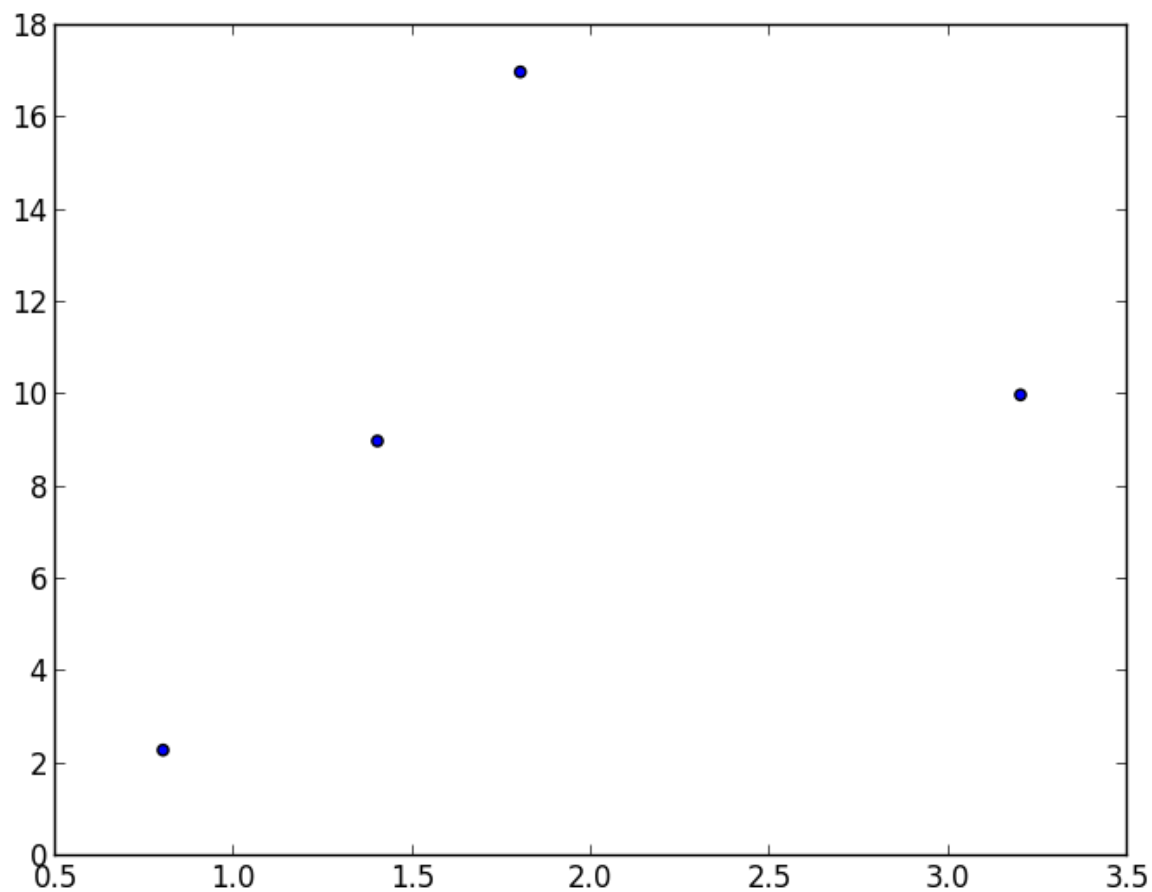
xi = np.array([1.4, 0.8, 3.2, 1.8])
yi = np.array([9.0, 2.3, 10.0, 17.0])

plt.scatter(xi,yi)
plt.savefig('scatter.png')
\end{python}
```



```
\includegraphics[scale=0.9]{scatter}
```

```
\end{document}
```



2.6 Tablas

Una tabla simple:

Programa 2.6:

```
print r'Tabla \LaTeX'
print
print r'\begin{tabular}{|c|c|c|}'
print r'\hline'
print r'Fecha & H$\ (m.)$ & Q $\ (m^{3}/seg)$ \\'
for i in range(30):
```

```
print r'%2.3f & %2.3f & %2.3f \\\' % (i, i, i)
print r'\hline'
print r'\end{tabular}'
```

Tabla L^AT_EX

Fecha	H (m.)	Q (m ³ /seg)
0.000	0.000	0.000
1.000	1.000	1.000
2.000	2.000	2.000
3.000	3.000	3.000
4.000	4.000	4.000
5.000	5.000	5.000
6.000	6.000	6.000
7.000	7.000	7.000
8.000	8.000	8.000
9.000	9.000	9.000
10.000	10.000	10.000
11.000	11.000	11.000
12.000	12.000	12.000
13.000	13.000	13.000
14.000	14.000	14.000
15.000	15.000	15.000
16.000	16.000	16.000
17.000	17.000	17.000
18.000	18.000	18.000
19.000	19.000	19.000
20.000	20.000	20.000
21.000	21.000	21.000
22.000	22.000	22.000
23.000	23.000	23.000
24.000	24.000	24.000
25.000	25.000	25.000
26.000	26.000	26.000
27.000	27.000	27.000
28.000	28.000	28.000
29.000	29.000	29.000

```
\documentclass[10pt, letterpaper]{book}
\usepackage[utf8]{inputenc}
\usepackage[spanish]{babel}
\usepackage{amsmath}
\usepackage{amsfonts}
\usepackage{amssymb}
\usepackage{graphicx}
\usepackage{python}

\begin{document}
```

```
\begin{python}
print r'Tabla \LaTeX'
print
print r'\begin{tabular}{|c|c|c|}'
print r'\hline'
print r'Fecha & H$\ (m.)$ & Q $\ (m^{3}/seg)$ \\'
for i in range(30):
    print r'%2.3f & %2.3f & %2.3f \\' % (i, i, i)
print r'\hline'
print r'\end{tabular}'
\end{python}

\end{document}
```