Syntax Highlighting in LaTeX with the listings Package

writeLaTeX

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1 Java

```java
class HelloWorldApp {
    public static void main(String[] args) {
        System.out.println("Hello World!"); // Display the string.
        for (int i = 0; i < 100; ++i) {
            System.out.println(i);
        }
    }
}
```

2 Python

```python
>>> from numpy import *
>>> from numpy.fft import *
>>> signal = array([-2., 8., -6., 4., 1., 0., 3., 5.])
>>> fourier = fft(signal)
>>> N = len(signal)
>>> timestep = 0.1 # if unit=day -> freq unit=cycles/day
>>> freq = fftfreq(N, d=timestep) # freqs corresponding to 'fourier'
>>> freq
array([ 0. , 1.25, 2.5 , 3.75, -5. , -3.75, -2.5 , -1.25])
>>> fftshift(freq) # freqs in ascending order
array([-5. , -3.75, -2.5 , -1.25, 0. , 1.25, 2.5 , 3.75])
```

3 MATLAB/Octave

```matlab
octave:1> function xdot = f (x, t)
>
>   r = 0.25; k = 1.4;
>   a = 1.5; b = 0.16; c = 0.9; d = 0.8;
>
>   xdot(1) = r*x(1)*(1 - x(1)/k) - a*x(1)*x(2)/(1 + b*x(1));
>   xdot(2) = c*a*x(1)*x(2)/(1 + b*x(1)) - d*x(2);
>
> endfunction
```