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1: #!/usr/bin/python
2: import numpy as np
3: import pylab
4:
5:
6: def gen_data():
7:     return [
8:         1 if np.floor(2 * x) % 2 == 0 else -1 for x in np.linspace(0, 1, 1000)
9:     ]
10:
11: def main():
12:     data = gen_data()
13:     fft = np.fft.rfft(data)
14:     fft[10:] = [0] * (len(fft) - 10)
15:     new_data = np.fft.irfft(fft)
16:     pylab.plot(data)
17:     pylab.plot(new_data)
18:     pylab.show()
19:
20: if __name__ == "__main__":
21:     main()
22:
```