```
 1: #!/usr/bin/python
 2: import numpy as np
 3: import pylab
 4:
 5: def part_a():
 6:     data = np.loadtxt('dow.txt')
 7:     pylab.plot(data)
 8:     pylab.show()
 9:
10: def part_b():
11:     data = np.loadtxt('dow.txt')
12:     fft = np.fft.rfft(data)
13:     pylab.plot(fft)
14:     pylab.show()
15:
16: def part_c():
17:     data = np.loadtxt('dow.txt')
18:     fft = np.fft.rfft(data)
19:     fft[int(len(fft)*0.1):] = [0] * (len(fft) - int(len(fft)*0.1))
20:     pylab.plot(fft)
21:     pylab.show()
22:
23: def part_d():
24:     data = np.loadtxt('dow.txt')
25:     fft = np.fft.rfft(data)
26:     fft[int(len(fft)*0.1):] = [0] * (len(fft) - int(len(fft)*0.1))
27:     new_data = np.fft.irfft(fft)
28:     pylab.plot(data)
29:     pylab.plot(new_data)
30:     pylab.show()
31:
32: def part_e():
33:     data = np.loadtxt('dow.txt')
34:     fft = np.fft.rfft(data)
35:     fft[int(len(fft)*0.02):] = [0] * (len(fft) - int(len(fft)*0.02))
36:     new_data = np.fft.irfft(fft)
37:     pylab.plot(data)
38:     pylab.plot(new_data)
39:     pylab.show()
40:
41: def main():
42:     part_a()
43:     part_b()
44:     part_c()
45:     part_d()
46:     part_e()
47:
48: if __name__ == "__main__":
49:     main()
```